

REDSTONE WATER & SANITATION DISTRICT

RULES AND REGULATIONS

ARTICLE I
GENERAL POLICY, POWERS AND REGULATIONS

1.01 Scope and Purpose: These Rules and Regulations shall govern the District's management and administration and the function and operation of the Water and Sewer Systems, and shall serve the public in securing the District inhabitants' health, safety, prosperity, security and general welfare.

1.02 District Power: The District's rights, powers, privileges, authorities, and functions are set forth in applicable law including, without limitation, the Act. Without limiting the generality of the forgoing, the District has the power: to enter into contracts and agreements; to sue and to be sued; to incur indebtedness with an election; to issue revenue obligations or refund outstanding indebtedness without an election; to fix and from time to time increase or decrease fees, rates, tolls, or charges for services, programs, or facilities furnished by or available from the District, and to pledge such revenue for the payment of any indebtedness of the District; to certify the levy and direct the collection of ad valorem property taxes; to acquire, dispose of, and encumber real and personal property, and any interest therein, including leases and easements; and to manage, control, and supervise the District's business affairs, and the construction, installation, operation, and maintenance of the Water or Sewer System improvements within the District.

1.03 Penalty: Unless otherwise specifically stated, the penalty for violation of any of these Rules and Regulations shall be a fine of \$1,000 for each day the violation continues. In addition, the Customer shall reimburse the District's actual costs, or damages incurred as a result of the violation, including, without limitation, legal and engineering fees. Such costs shall constitute a perpetual lien upon the violator's property as allowed by C.R.S. § 32-1-1001, 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 deems appropriate.

1.04 Organization of Board and Designation of Officers: The District is governed by a Board of Directors. The Board shall elect one Director as president of the Board and one Director as secretary. Any vacancy on the Board shall be filled by appointment by the remaining Director(s). The appointee shall serve until the next regular election, at which time, the vacancy shall be filled by election for any remaining unexpired portion of the term.

1.05 Liability: The District shall not be liable or responsible for interruption of water or sewer service. No damages shall be claimed against the District for : breaking of any sewer line or Connection by a third party, whether or not such third party relied on As-Built Drawings for the location of stub outs or sewer lines; breaking of any sewer line by any District employee, contractor or agent; unauthorized acts of any District employee or contractor; making of Connections or extensions; broken or frozen Service Lines or other facilities not owned by the District; water running or escaping from open or defective faucets; failure of the water supply; shutting off or turning on water in the Water Mains; damage to water heaters, boilers, or other

appliances resulting from shutting water off, or from turning it on, or from inadequate, high, or fluctuating water pressure; or for doing anything to the Water or Sewer System that the Board deems appropriate. The District may disconnect water or sewer service at any time, for any reason including, but not limited to, any violation of these Rules and Regulations or Board policies as set forth in the District minutes. Nothing in these Rules and Regulations shall constitute a waiver of the Governmental Immunity Act (C.R.S. § 24-10-101, et seq.). Without limiting the generality of the foregoing, no claim for damage shall be made against the District for the following:

- A. Blockage in the Sewer System causing the backup of Sewage;
- B. Damage caused by "smoking" of lines to determine drainage connections to District lines;
- C. Water or Sewer Main breakage by District personnel or third parties;
- D. Water or sewer service interruption or resulting conditions where said interruption is requested by the claimant, an electrical service interruption or by circumstances beyond the District's control; or
- E. Damage caused by sewer pressure jetting or any other maintenance actions performed by the District.

1.06 Powers and Authority of Agents: Authorized Representatives may enter upon all District served properties for the purpose of inspection, observations, measurement, sampling and testing, or any other reasonable purpose in accordance with these Rules and Regulations. The right of entry shall include the right of Authorized Representatives to verify fixtures, bedrooms, irrigated areas, and use of areas, or install, read or otherwise gather data from water meter(s) on a Customer's property in order to assist the District in analyzing the Customer's individual Sewage production. Failure to permit such inspections, observations, measurements, samplings, testing, inspection of records upon the District's written request 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 Rules and Regulations. An application for water or sewer service shall be consent to the District's entry and to obtaining water usage records as set forth above. Reasonable notice must be given prior to entering a Customer's property, which shall occur during reasonable business hours, except in the case of an emergency. Subject to the above provisions, all owners and tenants of property connected to the Water or Sewer System shall be deemed to have agreed to the above described entry.

1.07 District Action at Customer Expense: These Rules and Regulations require Customers to take certain actions at their own expense. If a Customer fails or refuses to take such action, the District shall mail a written notice to the Customer or the owner of the property on which District service is or will be received. The notice shall request that the required action

be taken within the time specified in the applicable Rule or Regulation or, if no time is specified in these Rules and Regulations, then within the time set forth in the notice. If the Customer fails to act within the allotted time, the Customer shall be subject to a penalty for violation of these Rules and Regulations. The District may, but is not obligated to, take the required action and bill the expense to the Customer. If the District must act immediately to protect the health, safety, and welfare of the general public, the District may act without notice to the Customer and bill the expense to the Customer. The District may pursue all remedies granted to it by these Rules and Regulations and Colorado law to collect the amounts due from the Customer.

1.08 Waiver for Cause: The Board of Directors may waive or modify any requirement, penalty, or liability for costs imposed by these Rules and Regulations by motion made and passed at a regular or special Board meeting and recorded in the minutes of that meeting. Such waiver or modification shall be only for good cause shown in an application to the Board, must not cause harm to other Customers, and must not violate applicable law. Good cause shown includes but is not limited to:

A. Evidence that strict enforcement would result in severe hardship, financial or otherwise, which would outweigh the benefits of such strict enforcement; or

B. Evidence that the applicant will provide or has provided a benefit to the District which outweighs the positive impacts of strict enforcement; or

C. The Customer was acting in good faith and responded in a timely manner.

1.09 Effective Date: These Rules and Regulations shall become effective _____, 2020.

1.10 Amendment: The Board may amend these Rules and Regulations at any time and such amendment shall be effective immediately upon adoption by the Board, or as the Board may otherwise prescribe.

1.11 Inspection or Purchase of Rules and Regulations: These Rules and Regulations shall be available to the public for inspection at the District's office or the offices of the Attorney for the District. A copy shall also be available for purchase at a price listed in Appendix A.

ARTICLE II **DEFINITIONS**

As used in these Rules and Regulations, the following terms have the meanings given to them in this Article II.

2.01 “Accessory Dwelling Unit” means guest houses, separate apartments attached to

Single Family Residential Units, and other separate residential units associated with Single Family Residential Units and containing their own separate kitchens.

2.02 The “**Act**” means the Colorado Special District Act, C.R.S. § 32-1-101 et seq.

2.03 “**Actual Cost**” means all direct costs applicable to the District’s acts including labor, surveys, construction, preliminary and design engineering, inspection, construction observation, administrative and legal costs, plan approval fees, As-Built Drawings, and other costs necessary for the administration and enforcement of these Rules and Regulation and Water and Sewer System operations.

2.04 “**Applicant**” means any Person submitting an application to connect to the Water or Sewer System including, without limitation, a subdivider, a Developer or a property owner.

2.05 “**As-Built Drawings**” means accurate drawings representing the final installed location of water or sewer system lines or other appurtenant facilities which have been installed in accordance with these Rules and Regulations, and further described in the Technical Specifications and Procedures in Appendix B.

2.06 “**Authorized Representative**” means a Person employed or designated by the Board of Directors to conduct activities and other duties on behalf of the District.

2.07 “**Bedroom**” means any room in a building or other structure that is used predominantly for sleeping accommodations.

2.08 “**Board of Directors**” or “**Board**” means the Board of Directors duly elected to act as the governing body of the District.

2.09 “**Connection**” means any Water or Sewer Service Line connection to a pre-approved stubout or a Water or Sewer Main, regardless of whether use actually commences at the time of connection, and regardless of whether the Service Line is connected to the structure to be served.

2.10 “**Contractor**” means any Person performing work or furnishing materials within the District who must hold the relevant license(s) to do so.

2.11 “**Customer**” means any Person connected or authorized to connect to the Water or Sewer System under a permit issued by the District.

2.12 “**Deposit**” means cash, letters of credit, payment, or performance bonds, or other security for performance, as required by these Rules and Regulations, or as approved by the Board in its sole discretion.

2.13 “Developer” means any Person who seeks to have land served by the District other than a Customer.

2.14 “District” means the Redstone Water & Sanitation District, a quasi-municipal corporation and political subdivision of the State of Colorado acting, by and through its Board of Directors pursuant to the Act.

2.15 “District Boundaries” means a perimeter description of the property contained within the boundaries of the District as presently existing or property included pursuant to a Petition for Inclusion which is approved by the District and for which the District Court approves an Order for Inclusion. Property contained within the District Boundaries shall be subject to District taxation, including the imposition of a mill levy.

2.16 “District Charges” mean Tap Fees, service charges, surcharges, inactive tap service charge, cost recovery fees, fines for violation of these Rules and Regulations, together with late charges and interest on delinquencies, and the District’s cost and expenses incurred to collect any amount due, enforce or take any action permitted under these Rules and Regulations including, without limitation the District’s attorneys’ fees and costs.

2.17 “District Court” means the Pitkin County District Court.

2.18 “District Engineer” means a Person that has been employed or contracted with to do engineering work for the District.

2.19 “Duplex” means a residential structure composed of two Single-Family Residential Units.

2.20 “Equivalent Residential Unit” or “EQR” is the standard of measurement the District uses to calculate fees and water dedication requirements based on the amount of water used, and the sewage produced, by a single-family residential unit. The standard volumetric use per day is 350 gallons.

2.21 “Historical Use Affidavit” is a document that sets forth the following information concerning any Water Rights proposed for dedication to the District:

- A. The name(s) and address(es) of the owners of the Water Rights proposed for dedication;
- B. A legal description of the land to be annexed or provided with water service;
- C. The total number of acres to be annexed or provided with water service

D. The total acreage being irrigated, or intended to remain in irrigation;

E. A copy of all decrees concerning all the property's appurtenant Water Rights, or those proposed for dedication;

F. A copy of any legal decree or judgment which affects the title of those Water Rights entered since the owner received title to the property's appurtenant Water Rights, or those proposed for dedication;

G. A copy of the documents by which the owner received title to the property's appurtenant Water Rights, or those proposed for dedication;

H. A copy of all diversion records for the Water Rights proposed for dedication; and

I. The owner's statement as to the historic use of the property's appurtenant Water Rights, or those proposed for dedication.

2.22 "Inclusion" means the act of attaching, adding, joining, or uniting a parcel of land to the District Boundaries.

2.23 "Irrigated Green Space" means any lawn, garden, landscaped area, or open space irrigated by water from the Water System.

2.24 "Kitchen" means any room used to cook, heat, or prepare food, as may be evidenced by the use or existence of any of the following items: sink, refrigerator, place for food storage, stove, oven, microwave oven, or hot plate. The Board reserves the right, in its discretion, to designate a given room within a residence as a kitchen; provided, however, that the existence of a stove, oven, or microwave oven within a room also containing a sink, or refrigerator shall conclusively establish said room as a kitchen.

2.25 "Line Connection Agreement" means an agreement between the District and a Customer which identifies the terms and conditions by which a Developer or Customer is permitted to connect to the Water or Sewer System and receive water or sewer service therefrom.

2.26 "Line Extension Agreement" means an agreement between the District and a Person that identifies the terms and conditions by which the parties agree to extend the Water or Sewer System and permit the Person to connect to the Water or Sewer System and receive water or sewer service therefrom.

2.27 "Line Extension Fees" means the fees the District charges pursuant to these Rules and Regulations and as determined by the Board of Directors, based on the property's acreage, zoning, existing and potential uses, potential EQR demand, and any other similar,

relevant factors which the Board may reasonably consider.

2.28 “Person” means any individual, limited liability company, society, corporation, association, partnership, organization, group, or other private or public entity.

2.29 “Potable Water” means water that is intended and fit for human consumption, free from impurities in amounts sufficient to cause disease or harmful physiological effects, and conforms to the bacteriological, chemical and radiological quality specified by State of Colorado Drinking Water Regulations.

2.30 “Raw Water” means water that has not been treated and is not fit for human consumption and that is primarily intended for irrigation uses.

2.31 “Secondary Residential Units” means guest houses, separate apartments attached to Single Family Residential Units, Accessory Dwelling Units, and other separate residential units associated with Single Family Residential Units and containing their own separate Kitchens.

2.32 “Service Line” means either a Sewer Service Line, a Water Service Line, or both.

2.33 “Sewage” means any liquid waste which may contain organic or inorganic material in suspension or solution originating within residential, commercial, or industrial structures, which is discharged into the Sewer System.

2.34 “Sewer Service Line” means the pipe or line owned, maintained and repaired, and which is the sole responsibility of the Customer, used to carry Sewage from the structure served to the Sewer System.

2.35 “Sewer Main” means a sewer pipe or line owned by the District and installed in a public street or dedicated easement.

2.36 “Sewer System” means all facilities owned by the District and used for collecting, pumping, treating, and disposing of Sewage.

2.37 “Single Family Residential Unit” means any single-family dwellings, individually-billed mobile homes, mobile homes on individual lots, and mobile homes established as permanent residences which have no more than one (1) kitchen.

2.38 “Sufficient Legal Priority” indicates that water rights proposed for dedication may reasonably be expected to provide a dependable water supply throughout the season of use in the amount for which they are decreed. In making this determination, factors to be considered shall include, but not be limited to, the adjudication date and appropriation date of the water rights, the decreed use or uses, the historic use of the water under the decree, the physical flow

available, and the administration practices of the State Engineer.

2.39 “Tap” means the Water or Sewer Service Line Connection to a pre-approved stubout, Water or Sewer Main.

2.40 “Tap Fee” means the fee charged for connecting to the Water or Sewer System which represents the Customer’s investment in the Water or Sewer System and is used to amortize the District’s capital investment.

2.41 “Tap Fee Purchase Agreement” is an agreement for a Customer to purchase a specified number of EQRs of service from the District over specified periods of time.

2.42 “Tap Permit” means the District’s written permission for the Connection to use of the Water or Sewer System given pursuant to these Rules and Regulations through a specified Water or Sewer Tap.

2.43 “Testing” means the analysis of water or Sewage samples.

2.44 “Unauthorized Connection” means any connection to the Water or Sewer System without approval from the District pursuant to these Rules and Regulations.

2.45 “Violation” means any failure to follow, uphold, or comply with the requirements of these Rules and Regulations, intentionally or unintentionally, by act of commission or omission, whether or not the Person knew of the existence of the Rule or Regulation. Unless otherwise stated, each day that a Violation exists or continues shall be considered a separate Violation, subject to the penalties which apply.

2.46 “Water Main” means any Raw or Potable water line or pipe owned by the District and installed in a public street, public property, or utility easement.

2.47 “Water Right” means a decreed right to use in accordance with its priority a certain portion of the waters of the State of Colorado by reason of appropriation.

2.48 “Water Service Line” means the pipe or line owned, maintained and repaired, and which is the sole responsibility of the Customer, which connects the Customer’s structure to a Water Main, including all structures up to the Water Main and the curb stop valve.

2.49 “Water System” means all facilities owned by the District and used for transporting, distributing, storing, treating, pumping, collecting, and disposing of Raw or Potable water.

ARTICLE III
OWNERSHIP AND OPERATION OF FACILITIES

3.01 Policy: The District was created for the diversion, treatment, and distribution of water for domestic and other uses, for the collection and treatment of Sewage, and for the maintenance, repair and replacement of all mains, hydrants, valves, and necessary service facilities. The District shall endeavor to plan for, capitalize and build adequate capital improvements as demand occurs, and shall operate and maintain the District's facilities in a sound and economical manner.

3.02 Ownership:

A. Upon acceptance by the District, all Water or Sewer Mains that connect with and form an integral part of the Water or Sewer System shall become the District's property and responsibility; provided, however, the Board reserves the right to determine, in its sole discretion, whether acceptance of Water or Sewer Mains is appropriate in all circumstances. Said ownership will remain valid whether the District or other Persons construct, finance, pay for, or otherwise acquire the Water or Sewer Mains. The District shall not be liable or responsible for the consequences of its failure or refusal to accept additional or new service which would exceed the capacity of the District's facilities.

B. All existing and future water Service Lines extending from the Water Main to the building shall be the property of the Customer. The Customer's obligation to bear the expense of installing and maintaining said water Service Line shall exist whether the Service Lines are constructed, financed, paid for, or otherwise acquired by the District or any other Person. Any damage caused by the homeowner will be the responsibility of the homeowner.

C. That portion of all existing and future Service Lines extending from the Sewer Main to each unit or building connected with and forming an integral part of the Sewer System shall be the Customer's privately-owned facilities. The Customer shall bear the expense of installing, maintaining, repairing, and replacing said Service Line whether the District or another Person constructs, finances, pays for, or otherwise acquires the Service Lines.

D. The District reserves and shall at all times have a right of access to all Service Lines and other facilities necessary for the District to carry out its lawful functions.

3.03 Relocation of Service Lines: If the District relocates a Water or Sewer Main or any Service Line, the Customer shall be responsible for relocating the Service Lines that it owns. The Customer's responsibility includes, but is not limited to designing, constructing, installing, connecting and paying for the relocation of Service Lines. Within thirty (30) days of making a decision to relocate a Water or Sewer Main or any Service Line, the District shall provide written notice to the affected Customer(s) of such determination. After relocating a Water or Sewer Main or Service Line, the District shall notify the Customer of completion. The Customer shall have six (6) months from such completion notice to connect to the relocated Water or Sewer Main or Service Line, at which time the Water or Sewer Main, at the District's expense, or Service Line, at the Customer's expense, will be disconnected from the Water or Sewer System and

abandoned. The District Engineer shall cooperate with the Customer regarding the relocation of the Service Lines.

ARTICLE IV
WATER SYSTEM USE, CONDITIONS AND RESTRICTIONS

4.01 Use of Water System: No Person shall uncover, make any Connection with or opening into, use, alter, or disturb any public Water Main or appurtenances without first obtaining a Tap Permit. All installations for water service from the District shall be made in accordance with these Rules and Regulations, the specifications and procedures set forth in Appendix B, and all federal, state, county and local requirements. Every permanent Connection to the Water System must be inspected by an Authorized Representative before it is covered. The District shall receive at least twenty-four (24) hours' notice of such inspections, which shall be subject to the fees established in the Rules and Regulations. If a Connection to the Water System is covered before inspection, it must be excavated for inspection at the Customer's expense. The District will deliver written request to the property owner for excavation of the previously uninspected Connection. If the Connection is not excavated for inspection within ten (10) days from the date the request is mailed, the District shall excavate and inspect the new Connection at the owner's expense.

4.02 Customer Responsibilities: Each Customer shall be responsible for maintaining their Water Service Line extending from the Water Main to each unit or building. Leaks or breaks in such Service Line must be repaired by the Customer within seventy-two (72) hours after notification of such condition by the District. If satisfactory progress toward repairing the said leak has not been accomplished within such time period, the District's authorized representative may shut off the water service until the leaks or breaks have been repaired. The District's authority to shut off a Customer's water service for such purposes shall be deemed consented to by the Customer at the time the District provides water or sewer service. Any provision herein to the contrary notwithstanding, the District may, but is not required to, take immediate steps to repair any Service Line, leak or break which the District determines, in its sole discretion, to constitute an emergency. In such event the District shall recover the cost of such repair from the Customer owning such Service Line. If the Customer fails to pay any costs for which the Customer is responsible within thirty 30 days of the District mailing notice thereof to the Customer, the District may take such action as is necessary to collect such costs, including the imposition and foreclosure of a lien on the Customer's property, and the District shall be entitled to recover all costs of such collection, including reasonable attorneys' fees, late charges and interest. All persons having boilers or other appliances on their premises depending on pressure or water or on a continual supply of water shall provide, at their own expense, suitable safety devices to protect themselves and their property against a stoppage of water supply or loss of pressure.

4.03 Protection From Damage; Violations: No Person shall break, damage, destroy, uncover, deface or tamper with any portion of the Water System. Any Person who violates this

provision may be charged pursuant to applicable law, and if convicted shall be fined in an amount as established by the court for each violation. In addition to other penalties expressly provided in these Rules and Regulations, any Person violating this Article shall be subject to a fine of up to one thousand dollars (\$1,000) per occurrence. Any Person in violation of these Rules and Regulations shall, in addition to any and all other remedies and penalties provided for herein or at law or equity, be liable for any of the District's expense, loss or damage occasioned by reason of such violation including, without limitation, attorneys' and engineering fees and costs.

4.04 Water Meters: Each Customer's building or unit, as applicable, shall have a primary water meter and may be required to have a sub-meter as described herein:

A. Primary Water Meters: Prior to the receipt of new water service from the District, the Customer must install, at their expense, a primary volumetric water flow meter with a remote readout device complying with the specifications set forth in Appendix B. All new construction within the District Boundaries must include operational meters with remote readouts that comply with the requirements of this Section to obtain a Certificate of Occupancy. Any existing water meter that requires replacement shall be replaced with an operational meter and remote readout complying with the requirements of this Section. Each Customer shall be responsible for the repair and maintenance of their meter and remote readout in accordance with subsection (F) of this Section. If a meter cannot be read for any reason, the District will estimate based on prior usage and advise the Owner to correct the problem before the next meter reading. If, for reasons other than a broken meter or remote readout, the District is still unable to get a reading the next cycle, the Customer will be charged up to two hundred dollars (\$200.00) per month per EQR; or a standard rate based upon average monthly water use as the District may determine in its sole discretion. The metered rate shall resume once the District is able to obtain a proper meter reading.

B. Sub-Meters: In order to facilitate proper accounting of water use records the District may require installation of a sub-meter to separately measure water flow for a particular class of use located on a Customer's property. A sub-meter is any meter whose flow reading constitutes a portion of the flow reading of a primary water meter. All sub-meters shall be installed with a remote readout, and both devices shall be installed in a readily accessible location in accordance with these Rules and Regulations and Appendix B.

i. Customers shall be responsible for the installation, maintenance, repair and replacement of sub-meters and remote readouts, and any defective or inoperable sub-meter shall be repaired or replaced in accordance with subsection (F) of this Section.

ii. Customers may install voluntary sub-meters for their own use at their own expense. The District will not read any such voluntary sub-meter. Customers are liable for any damage to the Water System or for water leakage resulting from voluntary sub-meter installation. No sub-meter shall be installed on the supply side of the primary water meter. In this

instance, the supply side means any point on the Service Line closer to the water source than the primary water meter.

C. Notification: If a Customer elects to install a sub-meter, it must submit a written notice and request to the District for approval of the proposed readout location prior to installation to avoid confusion with the primary meter. All sub-meters shall be clearly labeled as sub-meters.

D. Readings: The District shall have no obligation to read or record sub-meter readings, but may do so in its own discretion.

E. Car Wash Sub-Meters: All car washes that are part of a larger service station or structure, or otherwise are not equipped with a separate, primary water flow meter, shall install a sub-meter to separately meter water flow to the car wash together with a remote readout shall in compliance with these Rules and Regulations and Appendix B.

i. The Customer shall be responsible for the installation, maintenance, repair and replacement of their car wash sub-meter. Defective or inoperable car wash sub-meters shall be repaired or replaced in accordance with subsection (F) of this Section.

ii. All car washes within the District Boundaries as of the effective date of this provision, which are not in compliance with this subsection (E) , shall have until the earlier of the following to comply: (1) the car wash is sold; or (2) the expiration of five years from the effective date of this provision.

F. Maintenance, Repair and Replacement of Water Meters, Sub-Meters and Remote Readouts: Each Customer shall be responsible for the maintenance, repair and replacement of their meter, remote readout, and any sub-meter, or any other appurtenant metering equipment. Any defective or inoperable meter or appurtenance shall be repaired or replaced within fourteen (14) days following discovery of the need of such repair or replacement. If the Customer does not repair or replace a defective meter or appurtenance within the 14 days of discovery, the District may complete such repair or replacement at the Customer's expense. If the District detects a problem that the Customer has not timely corrected, the District may take appropriate action to remedy the problem at the Customer's expense. The District shall have access to the Customer's property for this purpose.

4.05 Backflow Protection Devices: Subject to Colorado statute, all commercial food service establishments with water service installations shall include backflow preventers and cross connection control devices, in accordance with the specifications and procedures set forth in these Rules and Regulations.

4.06 Pressure Reducing Valves. All Customers are encouraged to install a pressure reducing valve and to consult with County Building Code requirements for such valves. The Board of Directors may waive the requirements under this Section for fire sprinkler system

requirements.

4.07 Use of Water from District Hydrants: Water from District hydrants may be used for firefighting, construction, testing, or other purposes on the following conditions:

A. The user must give prior notice to the District of the time, place, approximate amount of water to be used, and method to be used for measuring the water. Except for firefighting purposes, no water use from District hydrants shall exceed 45,000 gallons of water per day per user. A hydrant meter shall be used to measure the water used. The District shall provide a hydrant valve and meter that must be used to prevent the main hydrant valve from repeatedly opening and closing.

B. When the Carbondale and Rural Fire Protection District, any other fire protection entity, or any Person for firefighting purposes uses water from the District hydrants the Person or fire protection entity shall provide the District with an estimate of the total gallons of water used and the name and address of the property owner for whose benefit the water was used. The property owner may be required to reimburse the District for the cost of all water used for firefighting purposes.

C. The price for water used from District hydrants shall be calculated pursuant to the fee structure provided in Appendix A of these Rules and Regulations.

D. Within five days after completion of water use from District hydrants, the Customer shall submit a complete accounting of the use, along with full payment, to the District.

E. Any Person who uses water from District hydrants without authorization, or who fails to comply with the rules set out in this Section, shall be subject to the District's remedies set out the including, without limitation, a fine of one thousand dollars (\$1,000.00) per unauthorized use.

4.08 Water Use Restrictions: The District reserves, in its sole discretion, the right to impose water use restrictions.

4.09 Emergency Curtailment: In the event of an emergency, the Board shall have the authority to restrict any or all of the following (in any order deemed appropriate by the Board):

1. Any and all outside water use;
2. Car washing;
3. High volume water users;
4. All commercial water use;
5. All residential water use.

ARTICLE V
SEWER SYSTEM USE, CONDITIONS AND RESTRICTIONS

5.01 Use of Sewer System: No Person shall use, alter, or otherwise disturb any Sewer Main or any portion of the Sewer System without first obtaining a Tap Permit from the District. All work upon or in connection with any portion of the Sewer System or any Service Lines or facilities which connect thereto shall be by a Contractor and shall be made in accordance with these Rules and Regulations, the specifications and procedures set forth in Appendix B, and all federal, state, county and local requirements. There shall be no shared use of Service Lines unless specifically authorized by the District with appropriate shared use agreements appurtenant to the properties served. **Every Service Line connected to the Sewer System must be inspected by an Authorized Representative before it is covered.** The fees set forth in Appendix A shall be charged for such inspections, which shall be performed upon receipt of at least 24 hours' notice to the District. If a permanent Connection to the Sewer System is covered before inspection, it must be excavated by the Customer for inspection at their expense. If the Connection is not excavated for inspection within ten (10) days after the District's request is sent, the District will excavate and inspect the Connection at the Customer's expense. The Customer shall provide the District an As-Built Drawing meeting the requirements of Appendix B showing the location of the Service Line, including the distance from the nearest manhole to the Sewer Main Tap and the alignment of the Service Line from the Sewer Main to the structure(s) served.

5.02 Responsibilities of Customers: Each Customer shall be responsible for maintaining the entire length of the Service Line serving the property and shall maintain the property in such a manner as to prevent damage to the Sewer System. Customers must repair Service Line leaks, stoppage, or breaks in a Service Line within seventy-two (72) hours after knowledge of such condition or notification by the District. If satisfactory progress toward repairing said leak, stoppage, or break has not been completed within such time period, an Authorized Representative may shut off the Customer's water service until the sewer leaks, stoppage, or breaks have been repaired. The Customer consents to the District's or other appropriate water service provider's authority to shut off a Customer's water service for such purposes by virtue of the Customer's connection to and use of the Sewer System. Any provision herein to the contrary notwithstanding, the District may, but is not required to, take immediate steps to repair any Service Line leak, stoppage or break which the District, in its sole discretion, considers to constitute a health hazard or emergency. In such event, the District shall recover the Actual Costs from the Customer owning the Service Line. If the Customer fails to pay any costs for which the Customer is responsible within thirty (30) days of the District mailing notice thereof, the District may take such action as is necessary to collect such costs, including the imposition and foreclosure of a lien on the Customer's property and recovery of all the District's collection costs, late charges and interest together with its reasonable attorneys' fees.

5.03 Tap Permit Provisions: Sewer Tap Permits allow Connection to and discharge of Sewage into the Sewer System that is not otherwise restricted or prohibited by these Rules and Regulations. Spot discharges of recreational vehicle wastes, portable toilet wastes, or any other

wastes, and discharges of swimming pool water are generally prohibited unless specifically authorized by the Tap Permit or other written permit. The Tap Permit for swimming pools shall specify the hours when and the rate (expressed in gallons per minute) at which such pools may be drained into the Sewer System and may include limits on the amount of chlorine (expressed as MG/L) in such discharge.

5.04 Discharge Restrictions - General: Except as hereinafter provided, no Person shall discharge, or cause to be discharged, to any Sewer Main, any waste prohibited by these Rules and Regulations, or any harmful waters or wastes, whether liquid, solid, or gas, capable of causing obstruction to the flow in Service Lines, damage or hazard to structures, equipment or personnel of the Sewer System; inhibiting the biological activity in the wastewater treatment plant; otherwise interfering with the Sewer System's proper operation; constituting a hazard through exposure to sewer effluent; or causing violation of federal, state or local laws.

5.05 Discharge Restrictions - Prohibited Wastes: No Person shall discharge or cause to be discharged into the Sewer System the following wastes:

A. Water from storm drains, floor drains in garages, roof runoff, drainage collection systems, foundation drains, sumps, surface runoff, sub-surface drainage, or cooling processes.

B. Any oil, grease, or other similar petroleum product which is not water soluble. Such prohibited wastes shall include diluted wastes of such nature, including but not limited to, water or wastes containing grease, oil, hydrocarbons, fatty acids, soaps, fats, or waxes which exceed 50 mg/l as determined by solvent (Freon) extraction.

C. Explosive materials, including but not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides. Such limitation shall additionally include any waste capable of raising the Lower Explosive Limit (L.E.L.) of the ambient atmosphere in any Service Line to five percent (5%) for any two successive readings or to ten percent (10%) for any single reading on an explosion hazard meter.

D. Any solid or viscous substances in quantities or sizes capable of causing obstruction to the flow in the sewer lines or other interference with the Sewer System's proper operation, such as, but not limited to, ashes, clothing, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, cattle manure, hair and fleshings, entrails, grit, brick, cement, onyx, carbide, and shredded or whole paper products other than tissue, toilet paper, and other products intended for toilet disposal.

E. Any waste having a temperature higher than one hundred fifty (150) degrees Fahrenheit (66°C).

- F.** Any waste having a pH value lower than 5.5 or greater than 9.0.
- G.** Any toxic substance, or substance requiring pretreatment, as those terms are defined in 40 Code of Federal Regulations § 403, as amended from time to time, unless otherwise covered under this Section.
- H.** Any radioactive wastes or isotopes.
- I.** Any noxious or malodorous substance capable of creating a public nuisance.
- J.** Any animal waste.
- K.** Any wastes having a color concentration in excess of thirty (30) color units, based on the Platinum Cobalt Scale.
- L.** Any wastes having a flash point lower than one hundred eighty-seven degrees Fahrenheit (187°F) (86°C) as determined by the Tagliabue (Tag.) closed-cup method.
- M.** Any waste having a five (5) day Biochemical Oxygen Demand which may contain more than 1,000 parts per million by weight as averaged during any twelve (12) hour period.
- N.** Any wastes containing phenolic compounds over 5 mg/l expressed as phenol.
- O.** Any cyanides or compounds capable of liberating hydrogen cyanide in excess of 1 mg/l expressed as hydrogen cyanide from any individual outlet.
- P.** Any wastes containing sulfides over 3 mg/l expressed as hydrogen sulfide.
- Q.** Any wastes containing toxic or poisonous substances having a twenty-four (24) hour proportionate composite sample concentration, at point of discharge, in excess of the following:

1.	Chromium	as Cr	7.5 mg/l
2.	Copper	as Cu	4.5 mg/l
3.	Nickel	as Ni	15.0 mg/l
4.	Cadmium	as Cd	1.2 mg/l
5.	Zinc	as Zn	12.0 mg/l

6.	Iron	as Fe	15.0 mg/l
7.	Lead	as Pb	15.0 mg/l
8.	Arsenic	as As	0.25 mg/l
9.	Manganese	as Mn	0.25 mg/l
10.	Selenium	as Se	0.05 mg/l
11.	Silver	as Ag	0.25 mg/l
12.	Mercury	as Hg	10. g/l

R. Any waste that would cause a violation of the District’s Discharge Permit.

Any person or entity found to be discharging wastes prohibited by this Section shall be fined five thousand dollars (\$5,000.00) for each day such prohibited discharge continues and for each subsection violated, along with all other remedies available at law or equity, including damages, attorneys’ fees and costs.

5.06 Discharge Restrictions - Special Review: Upon a Customer’s written application, the Board of Directors may specially review a request to discharge into the Sewer System any prohibited waste. Said application shall include an analysis of the types, amounts, concentrations, and times of discharge of each prohibited waste and any other substance the District deems necessary, and an analysis of the impact of such discharge on the Sewer System. The District may, at its sole discretion, complete its own testing of certain discharges and the Customer shall reimburse the District for those tests. After consultation with the District Engineer, the Board may allow discharge of the prohibited waste, provided such discharge does not violate, or cause the District to violate, federal, state, county or local laws.

A. If approved, the Board may prescribe the times, places, concentrations, total amounts, fees and charges, and any other conditions under which such prohibited waste may be discharged. The Board may require the Customer to provide, at its expense, such pretreatment facilities as may be necessary to treat such prohibited waste prior to discharge to the Sewer Main. Plans, specifications, and any other pertinent information relating to proposed pretreatment facilities shall be submitted for the approval of the District and of the Colorado Department of Public Health and Environment, and no construction of such facilities shall be commenced until such written approval is obtained. Where pretreatment facilities are provided for any prohibited waste, they shall be maintained in continuously efficient operation by the Customer, at its own expense.

B. When required by the District, the Customer shall install and maintain, at its expense, a suitable control access hole in the Service Line to facilitate waste observation,

sampling and measurement. If no special access hole has been required, the control access hole shall be considered to be the nearest down-stream access hole in the Sewer Main to the point at which the Service Line is connected.

C. All measurements, tests, and analysis of the characteristics of waters and wastes shall be determined in accordance with "Standard Methods for the Examination of Water and Wastewater," latest edition, and shall be determined at the control access hole, or upon suitable samples taken at said control access hole. Test results shall be available to the Customer at the District office.

5.07 Grease Traps, Oil Separators Required: Certain dischargers shall install grease traps or oil separators as part of their Connection to the Sewer System as detailed in the specifications and procedures set forth in Appendix B.

5.08 Notice Required for All Service Line Cleaning: No Person shall clean any Service Line without providing the District at least forty-eight (48) hours' notice of such cleaning to discuss the plan for collecting downstream debris and schedule the time of cleaning for District inspection. Any emergency Service Line cleaning shall utilize the District's after-hours contact number to accomplish the intent of this section.

5.09 Protection from Damage; Violations of Rules and Regulations: No Person shall break, damage, destroy, uncover, deface or tamper with any portion of the Sewer System.

A. Any Person who violates this Section may be charged pursuant to applicable State statute or local regulation, and if convicted, shall be fined in an amount as established by the court for each Violation. In addition to any other applicable penalties under these Rules and Regulations, any Customer violating this Section shall be subject to a fine of \$1,000.00 per occurrence.

B. Any Person violating any of the provisions of these Rules and Regulations shall, in addition to any and all other remedies and penalties provided for herein or at law or equity, be liable for any expense, loss or damage resulting from such Violation, including attorneys' fees and costs.

ARTICLE VI

APPLICATION FOR WATER OR SEWER SERVICE

6.01 Inclusion: Except as otherwise provided in these Rules and Regulations, service shall be provided only to Persons whose property is included within the District. It shall be incumbent upon the Applicant to furnish evidence of inclusion whenever requested by the District. Satisfactory evidence shall include, without limitation, a tax receipt, or certificate in lieu thereof, received from and signed by the County Treasurer, and any other evidence the District may determine to be satisfactory.

A. An Applicant owning land both within and outside the District Boundaries, who desires service, must include into the District all of its land contiguous to the parcel upon which service is desired, unless the District determines otherwise. The District's standard form of inclusion petition will be furnished to the applicant upon request. The Applicant shall be required to execute a Special Fee and Cost Reimbursement Agreement (in the form set forth in Appendix C) prior to the District's review of the petition. Property inclusions shall be pursuant to C.R.S. § 32-1-401, *et seq.* The Applicant shall be responsible for all of the District's costs, including legal and engineering fees, publication and recording costs and all other actual costs, incurred as a result of an inclusion petition.

B. Any Applicant for inclusion may be required to enter into a pre-inclusion agreement with the District pursuant to C.R.S. § 32-1-402(1)(c) as a condition of the District's approval of the inclusion petition. Said pre-inclusion agreement shall set forth the Applicant's and District's respective rights and obligations with respect to fees, charges, Water or Sewer Main construction, and other terms and conditions under which the Applicant's property may be included in the District. Any inclusion petition, or pre-inclusion agreement that the District provides to the Applicant shall be signed and returned to the District within forty-five (45) days following its receipt. If the Applicant does not return the executed pre-inclusion agreement to the District within forty-five (45) days from receipt thereof, the District's prior approval of the agreement shall be null and void and of no further force and effect, and a new request for approval of the inclusion petition, or pre-inclusion agreement shall be required.

6.02 Service Outside the District: The District may, in its sole discretion, furnish service to properties located outside the District Boundaries, but under no circumstances shall the District construct any Water or Sewer Mains at its expense to service such properties. The District shall not be required to extend service outside of the District's Boundaries, and no service shall be provided to properties located outside the District Boundaries, except upon the District's express written consent.

A. Service charges and Tap Fees for furnishing water or sewer service outside the District Boundaries shall be at the minimum rate of two (2) times the current service charges and Tap Fees for in-District service as provided for in the Fee Schedule in Appendix A, or as the District and Customer may agree.

B. These Rules and Regulations shall be applicable to all Persons outside the District Boundaries who are furnished water or sewer service by the District. No Water or Sewer System Connection shall be permitted until the property owner agrees in writing to comply with the Rules and Regulations and shall have granted the District lien rights as provided in C.R.S. § 32-1-1001(1)(j).

6.03 Application for Water or Sewer Service: Any Person who desires water or sewer service from the District shall submit an application for water or sewer service along with any supporting documentation the District requires.

A. The application shall be on the District's standard form and shall contain at a minimum the following information:

- i.** Applicant's name, address, and phone number;
- ii.** Name, address, and phone number of owner of the property where said Service Line Connection is to be made or laid;
- iii.** Location of the proposed Connection and Service Lines;
- iv.** Size and type of material to be used and any other information required by these Rules and Regulations governing the particular installation proposed;
- v.** Statement as to the type of Connection and type of materials to be discharged into the Water or Sewer System;
- vi.** The Applicant's consent to entry, water use record availability and consent to water shut off pursuant to these Rules and Regulations;
- vii.** Information about the structure(s) to be served to calculate the EQR of sewer service requested;
- viii.** The Applicant's consent to abide by and be bound by these Rules and Regulations, as amended from time to time.

B. The application shall be accompanied by all Tap Fees and any other fees or deposits required by these Rules and Regulations.

C. Each application for water or sewer service is subject to the District's approval. In order to obtain such approval, the Applicant shall submit such information that the District may require.

D. Upon application approval and Tap Fee payment, the District shall issue the Applicant a Tap Permit containing all the information contained in the application. No Tap shall be allowed until: the required Tap Fee has been paid; a Tap Permit has been issued; and any and all other applicable fees have been paid. Tap Fees shall be non-refundable unless the Board expressly agrees otherwise.

6.04 Denial of Service Application: The District reserves the right to deny a service application for any or all of the following reasons:

- A.** There has been misrepresentation in the application as to the property and

fixtures contained in the property;

- B.** The proper fees have not been paid;
- C.** The service applied for would create an excessive demand or adverse impact on the Water or Sewer System, unless the Applicant proposes a means to eliminate such excessive demand or adverse impact to the District's satisfaction;
- D.** The Applicant has violated these Rules and Regulations; or
- E.** The District does not have any remaining, uncommitted capacity in the wastewater treatment plant, or the facilities to be utilized by the Applicant, as determined by the District.

6.05 Change in Customer Service: A Customer shall file an amended application for Water or Sewer Service with the District prior to increasing the size of a structure served by the District or the type of service received. Examples of such changes are the construction of additions to houses or other buildings, changes in use of an existing structure, addition of water fixtures, additional Connections to Water or Sewer Mains, or decreases to the level of water or sewer service, or abandonment of service.

A. If a Customer desires to increase, decrease, or abandon its level of water or sewer service, the Customer shall complete a new application for such service pursuant to the provisions of this Section. A Customer's abandonment of EQR shall be deemed abandonment for all purposes, including Tap Fees previously paid. In the event of a proposed decrease in the EQRs, the water fixtures or other uses included in the proposed decrease must be removed or eliminated before such decrease will be approved.

B. The District shall collect any additional Tap Fees, or service charges due and owing retroactive to the date of any such change.

C. Purchasers of real property in the District are strongly encouraged to verify that the amount and type of service for which the District is currently charging is consistent with the type and amount of service which the seller purports to have paid for and wishes to convey.

D. At any time the Board may review actual water or sewer usage to determine if such actual usage is greater than that implied by the number of EQR units assessed to the Customer at the time the application for water or sewer service was accepted. Winter water use records may be utilized for this purpose. If the Board finds greater actual water or sewer usage, the Customer shall be assessed a greater number of EQR units to reflect actual sewer usage.

E. In no event shall a refund, credit, or rebate of Tap Fees or Main Extension Cost Recovery Fees previously paid be permitted if the type or amount of service is decreased.

6.06 Transfer of EQR Credits: EQR credits purchased directly from the District are considered appurtenant to the structure, or land for which they were obtained and are not transferrable.

6.07 Service Application for Subdivision Developers: Any Developer who desires water or sewer service for a subdivision shall submit a written request to enter into a Water or Sewer Main Extension Agreement to the District. All Developers shall be required to execute a Special Fee and Cost Reimbursement Agreement (in the form set forth in Appendix C) with the District prior to its review of the application. The Developer shall comply with all conditions of these Rules and Regulations.

6.08 Water and Sewer Service Required: The District requires that all Customers connect to both the water and sewer services, if both are available. The District reserves the right to deny service to any Customer that requests only water or sewer service. Water or sewer service shall only be provided separately under exceptional circumstances and upon the Board's express written approval. Exceptional circumstances shall include but are not limited to the following:

A. Financial hardship; and

B. Pre-existing well or septic tank in good working condition and in full compliance with all local and state laws and regulations. However, the District shall require that Connection to the non-connected service occur by a date certain or upon failure of the well or septic tank, whichever occurs first.

However, the District reserves its right under C.R.S. § 32-1-1006(1)(A)(I) to compel the owner of premises located within the District Boundaries and within four hundred feet of a Water or Sewer Line to connect to such lines whenever necessary for the protection of public health.

6.09 Temporary Connections: At the Board's discretion, temporary Connections to the Water or Sewer System may be permitted, pursuant to terms and conditions established by the Board. Any Person wishing to make a temporary Connection must obtain a Tap Permit before making any Connection and shall be subject to inspection by an Authorized Representative. Temporary Connection of construction trailers or non-permanent construction buildings to the Water or Sewer System may be made for periods not to exceed six months, or such longer period as the Board may approve. At the time of making the application for water or sewer service, the Applicant shall either pay the Tap Fee for 1.0 EQR of water or sewer service and demonstrate that a Tap Fee for at least 1.0 EQR of water or sewer service has been paid for the building under construction. The construction trailer or non-permanent construction building shall thereafter be assigned an EQR value of 1.0 for purposes of calculating monthly water or

sewer service charges, which charges shall be assessed at two (2) times the monthly rate then in effect.

6.10 Reimbursement of Costs And Fees to District: Any Person requesting inclusion or exclusion of property into or from the District, constructing a line extension project, or undertaking any other activity requiring preparation of plats or plans, legal and engineering review and advice, inspections, filing or recording fees, or other out-of-pocket expenses by the District shall be required to reimburse the District for all such costs and fees. Such Person shall be required, prior to commencement of the project or activity, to enter into a Special Fee and Cost Reimbursement Agreement substantially similar to that set forth in Appendix C. Pursuant to that agreement, the Person shall make such deposit as the Board deems appropriate.

ARTICLE VII

WATER AND SEWER MAIN EXTENSIONS

7.01 Main Extensions: All Water or Sewer Main extensions shall be made under the observation of the District Engineer and constructed according to the specifications and procedures set forth in Appendix B, these Rules and Regulations, and all federal, state, county and local requirements. It shall be unlawful for any Person, and a violation of these Rules and Regulations, to construct a line extension within the District Boundaries without first having made formal application and otherwise complying with these Rules and Regulations and any other District requirements.

7.02 Water or Sewer Main Sizes: The minimum size Water or Sewer Main shall be 8 inches in diameter, except as specifically authorized by the District.

7.03 Line Extension/Connection Agreements: All water or sewer line extensions shall require the execution of a Line Extension Agreement in a form approved by the District's attorney and the Board, prior to the commencement of any construction or the recordation of a final plat. Such Agreement shall set forth the respective rights and obligations of the parties regarding the provision of water or sewer service to the subject property.

A. Any Line Extension or Line Connection Agreement approved by the District shall be executed and returned to the District by the Applicant within forty-five (45) days of approval.

B. If the Applicant fails to execute and return the Line Extension or Line Connection Agreement within forty-five (45) days of approval, the agreement shall be void, and a new request for approval shall be required.

7.04 Location of Water or Sewer Line Extensions: Water or sewer line extensions shall be installed in roads or streets which the County, State Highway Department or other public agency has accepted for maintenance as public right-of-way, or in easements granted to the

District. Prior to the District's acceptance of Water or Sewer Main, all easements necessary for the installation and maintenance of such mains, shall be platted or conveyed to the District by warranty deed, as appropriate, duly recorded in the Pitkin County real estate records.

7.05 Procedure for Water or Sewer Line Extension Construction by Developer: Plans for line extensions shall be submitted to the District for its review and approval along with an application for a line extension no later than the date of preliminary plan submittal to the County. The plans shall be reviewed and approved for compliance with the District's service plan and Rules and Regulations, and the Developer shall be responsible the costs associated with the District's determination of compliance.

A. Security/Sewer Improvements Guaranty: Subject to the exemption listed below, before recording a final plat, the Developer shall provide an improvement guaranty, such as a surety bond, cash or acceptable collateral, a letter of credit, or other security acceptable to the District, guaranteeing the completion of all of the Water or Sewer System improvements necessary for the development, including engineering, construction observation, inspection and legal fees which may be required. Construction costs shall include acquisition of rights-of-way or easements, valves, Water or Sewer Mains, and Service Lines, and any other facilities and appurtenances. Such guaranty shall be deposited in an amount not less than the estimate of the entire cost to complete the Water or Sewer System improvements, plus ten percent (10%). The Developer shall prepare cost estimates for the improvements for the Board's review and approval. If requested, Developer shall adjust such estimates to reflect actual costs and the Developer shall, upon ten (10) days' written notification, deposit the balance due to complete the work.

i. Any Developer constructing a Water or Sewer Main extension may be exempted from posting a water or sewer improvements guaranty, if the District, in its sole discretion, determines such Developer satisfies the following requirements:

a. The Developer provides adequate assurances and documentation establishing that it has posted security with another public entity pursuant to a Subdivision Improvements Agreement (SIA) where such SIA provides for: (1) a guarantee amount sufficient to cover the cost of all necessary water or sewer improvements; (2) the District's written approval of water or sewer improvements prior to the public entity's release of the portion of the guarantee covering the water or sewer improvements; and (3) a provision requiring the District to be a named beneficiary as to the value of all improvements to be dedicated to the District.

b. The Developer requests and receives a written waiver of the water or sewer improvements guaranty from the District.

ii. As improvements are completed, the Developer may petition the District for a release of part or all of the collateral deposited with the District as an improvement

guaranty. Any such partial release shall be made at the District's sole discretion upon a determination that the partial improvements are completed and have been approved by the District in writing. At such time the Developer determines that the water or sewer improvements have been completed in accordance with the approved plans and specifications, the Developer shall deliver its written request for full release of the security. Upon receipt of such request, the District shall have 45 days to deliver written acceptance of the improvements and release of security to the Developer. If the District determines that the Developer will not construct or complete any or all of the required water or sewer improvements within a reasonable period of time, the District may liquidate and withdraw and employ from the deposit of collateral such funds as may be necessary to construct or complete the improvements necessary to provide water or sewer service to Customers within the development.

iii. The District reserves the right to terminate the water or sewer improvements guaranty exemption if a surety bond provided to another public entity is prematurely released and the District determines the necessary water or sewer improvements are not complete.

B. Construction Inspection and Observation: The Developer shall retain, at its sole expense, a licensed professional engineer for appropriate on-site inspection to ensure that all water or sewer improvements are constructed in accordance with the approved plans and specifications. The Developer shall be responsible for payment of any construction observation fees the District incurs including, without limitation, the costs of reasonable review of drawings and specifications, meetings, inspections, administration, and any other time reasonably required of the District Engineer, attorney, or other Authorized Representative.

C. As-Built Drawings: The Developer shall submit, at its sole cost reproducible As-Built Drawings prepared and submitted according to the specifications and procedures set forth in Appendix B, a video inspection of the Water or Sewer Main interiors and written reports of lamp tests, vacuum tests and all other tests required by Appendix B (collectively referred to as "Inspection Report") and a summary of the Developer's actual costs incurred for the improvement project. No Water or Sewer Main extension project shall be approved, and no Water or Sewer Mains shall be accepted until the District receive and approves satisfactory As-Built Drawings and Inspection Report. The District may deny service through any Water or Sewer Main extension until the above requirements have been met and the Board accepts the Water or Sewer Main extension.

i. In addition to the deposit required for line extension project costs, the Developer shall deposit with the District the amount set forth by the Rate and EQR Schedule in Appendix A, to ensure that the As-Built Drawings and Inspection Report are submitted to and approved by the District. The Board shall determine the amount of the As-Built Drawings deposit based on the District Engineer's drawing preparation cost estimate for each line extension project. Said Deposit shall not be released back to the Developer until satisfactory As-Built Drawings and Inspection Report are submitted and approved by the District Engineer.

ii. If the District does not receive satisfactory As-Built Drawings and Inspection Report within thirty (30) days of the completion of construction, the District shall give the Developer written notice specifying the date, time, and place of a hearing in which the Board will consider forfeiture of the Deposit, and the reasons why forfeiture may be required. The notice shall be mailed to the Developer's last known address at least ten (10) days before the hearing. At the hearing, the Developer shall be allowed to present testimony and other evidence. If the Board determines that the Developer's failure to submit acceptable As-Built Drawings and Inspection Report is inexcusable, the Deposit shall be forfeited as liquidated damages. Forfeiture of the Deposit shall be ordered by formal written resolution of the Board, and said Deposit shall be used to obtain acceptable As-Built Drawings and Inspection Report of the project. Additionally, the Developer shall be responsible for any expenses or costs that exceed the Deposit.

D. Warranty: A Developer's execution of a Line Extension or Connection Agreement with the District, shall constitute the Developer's warranty of any and all facilities which are conveyed to the District for a period of two (2) years from the date the District accepts the facilities. Specifically, but without limitation, Developer shall warrant that:

- i.** The title conveyed shall be good and its transfer rightful;
- ii.** Any and all facilities conveyed shall be free from any security interest or other lien or encumbrance; and
- iii.** Any and all facilities so conveyed shall be free of any defects in materials or workmanship for a period of two (2) years, as stated above.

E. Acceptance of Water or Sewer Main Extensions: Upon the completion of construction, installation, and Connection of a Water or Sewer Main extension, the Developer shall certify compliance with these Rules and Regulations and request that the District accept the facilities. The Developer's engineer shall give written confirmation to the Board that such facilities have been constructed and installed in accordance with these Rules and Regulations, the approved plans and specifications, and applicable provisions of federal, state, county, and local laws. Upon satisfactory completion of the above requirements, the District may formally accept the Water or Sewer Main extension by a motion entered in the minutes of the Board of Directors. The District shall have no obligation to provide water or sewer service to Developer until acceptance and dedication. The Developer shall, upon the District's acceptance, convey such lines and all appurtenances to the District, free and clear of all liens and encumbrances, by bill of sale.

7.06 Special Structures: Special structures required to ensure proper operation of line extensions shall be constructed from designs as approved by the District Engineer in consultation with the Developer and the cost of construction shall be the responsibility of the Developer.

7.07 Oversizing: The District may, when it determines it is appropriate to accommodate future service needs, require the construction of Sewer Mains of a size larger than the minimum sizes otherwise required for service to a Developer's property. Except as the District may otherwise agree, the Developer shall be responsible for the costs of installing oversized Sewer Mains.

7.08 Preservation of Gravity Sewer System: In those instances where pumping stations and force mains are required, the Sewer System may be designed to permit eventual Connection into a gravity system with a minimum of expense. Where practicable, easements shall be provided and lines constructed to connect into the gravity system. The District may, in its discretion, require deposits to ensure the eventual construction of gravity lines.

7.9 Extension of Sewer Main to Designated Point Required: The Developer or Customer shall extend any Sewer Main constructed pursuant to this Article to a point on the property to be designated by the Board, so that the Sewer System may continue beyond such property. The Board shall determine the point to which each new Sewer Main shall be extended based on the District Engineer's advice, in accordance with the District service plan and the logical extension of service to adjoining properties. The Board shall also consider pre-existing easements and rights-of-way, and Developer-dedicated easements and rights-of-way in designating the Sewer Main extension point.

7.10 Main or Line Extension Construction by District: Notwithstanding any provision of this Article, the District itself may, in its discretion, extend mains under such conditions as the Board deems appropriate. The District shall oversee such line extension projects, and, in conjunction with the District engineer and attorney, carry out all necessary planning, evaluation of bids, selection of contractors, financing, right-of-way acquisition, inspections and preparation of As-Built Drawings. Where water mains or sewer interceptors or collectors cannot be installed in a street, private drive or common area, and must be installed in easements along adjacent pieces of property, the mains will terminate at point on the line or corner of the property being served which requires the least amount of construction by the District. The District reserves the right to impose a Line Extension Fee surcharge payable by Customers utilizing District constructed water main and/or sewer interceptor extensions to recover the District's actual costs together with interest.

7.11 Extensions of Water or Sewer Mains to Serve Unplatted Property, Inside the District Boundaries: Extension of water mains and/or sewer interceptors or collectors to serve property already in the District, but not part of a platted subdivision, shall be financed by the Developer or Customer who constructs the mains, subject to the right of reimbursement as hereinafter provided, as otherwise provided by future agreement, or as provided in Tap Fee Purchase Agreements.

7.12 Extensions of Water or Sewer Mains Outside the District Boundaries: No

water mains or sewer interceptors or collectors shall be extended outside the District limits, except with the purpose of servicing property that is within the District (across islands, or between peninsulas). Exceptions may be granted upon the express consent of the Board of Directors under the terms of a revocable permit.

7.13 Connecting Water Main Loops: Connecting water main loops and cross-ties within a subdivision shall be constructed and paid for by the Developer. If the connecting loop is such that property outside the subdivision abuts such loops or ties, and connections are made to such lines, the cost recovery provisions of these Rules and Regulations shall apply.

7.14 Soil Compaction Tests: Whenever a Developer or Customer seeking sewer service is required to obtain a road cut permit from a governmental entity to install a Sewer Main in an existing public road, such person shall provide the District Engineer with soil compaction tests from a registered soils engineer. The soils engineer shall conduct a minimum of one test for each layer or lift for each 250 linear feet or less of trench during construction as the District Engineer determines to confirm that ninety-five percent (95%) of maximum density based upon ASTM D69 or AASHTO T99 has been achieved. The District Engineer shall not accept Sewer Mains or approve Service Lines which have been installed in public roads if such compaction test results are not submitted and approved by the District Engineer.

ARTICLE VIII

DISTRICT FEES AND CHARGES

8.01 Application of this Article: This Article applies to all charges levied for provision of water or sewer service by the District. To adequately maintain, preserve and protect the Water and Sewer System, the District must impose and collect Tap Fees, System Development Fees, Service Charges, Surcharges, Inactive Tap Service Charges, Recovery Fees, Fines for Violation of these Rules and Regulations, together with late charges and interest on delinquencies, and the District's cost and expenses incurred to collect any amount due, enforce or take any action permitted under these Rules and Regulations including, without limitation the District's attorneys' fees and costs ("District Charges"). The District has a duty to ensure payment of District Charges from Customers and other Persons that seek to benefit from the Water or Sewer System. The Board shall establish rates and charges, which shall remain in effect until modified by the Board pursuant to these Rules and Regulations, or applicable law. Nothing contained herein shall limit the Board from modifying rates and charges or from modifying any classification.

8.02 Type of Service: Water service shall be metered by the District. Unless otherwise stated, rates, charges and fees for water or sewer service shall be based on EQRs of service calculated in accordance with the EQR Schedule in Appendix A. The charge per EQR shall be at the rates in the Fee Schedule, as the same may be amended from time to time.

8.03 Tap Fees: A Tap Fee shall be charged to all Customers prior to any Connection to

the Water or Sewer System and no Tap onto, or service from, the Water or Sewer System shall be allowed until all required Charges have been paid and a Tap Permit has been issued. Tap Fees are non-refundable. The Board may establish differential Tap Fees in its absolute discretion. Such fees shall be assessed as provided for in the EQR Schedule at Appendix A, as the same may be amended from time to time, or pursuant to a Tap Fee Purchase Agreement that sets or determines the applicable Tap Fees or charges. In those situations where a Person applies for a Tap Permit for service to a structure not defined in these Rules and Regulations, or where, in the Board's opinion, said structure represents a classification not contemplated, the Board shall establish an EQR value for said structure. Upon receipt by the District of payment for Tap Fees, a Tap Permit shall be provided to the Customer.

8.04 Service Charge: Full service charges, calculated under the Rules and Regulations and EQR Schedule, shall commence and accrue six (6) months from the date a building permit is issued or upon the issuance of a temporary certificate of occupancy or certificate of occupancy for the structure being served, whichever first occurs. Each Customer shall be charged a minimum service charge based upon one (1) EQR. The Customer shall be liable for payment of service charges regardless of whether the Customer actually uses the Connection for water or sewer service.

A. Sewer service charges shall be as provided in the Rate and EQR Schedule in Appendix A.

B. Monthly water service charges shall be based on the EQR value applicable to the property and the quantity of water used during that month. The rate structure is set forth in the Rate and EQR Schedule in Appendix A. In addition to the above water service rates, the Customer will be assessed a base rate as set forth in the Rate and EQR Schedule in Appendix A.

C. Service charges which accrue on or after the date the Certificate of Occupancy is issued shall be due and payable whether or not the premises are occupied. There shall be no right to refund, rebate, or credit for such charges, except as otherwise stated in this Article.

8.05 Zone or Other Surcharges: Where any defined part of a property's potable water or sewer service depends on a pumping station or other discrete facility that the District owns and maintains, the Board may establish and charge such Customers a zone surcharge. The zone surcharge shall be based on the pro rata cost to each applicable Customer of the pumping station or other facility and its operation, maintenance, repair or replacement, or other District provided service.

A. Looped Line Surcharges: Where any defined part of the District depends for its potable water or sewer service on looped lines owned and maintained by the District, the Board may establish and charge the Customers in that part of the District a looped line surcharge, which shall be based on a pro-rata cost to each Customer of the looped line and is intended to

reimburse the District for a portion of its expenses in constructing the lines.

B. Per-Gallon Service Charges: Per gallon service charges shall apply to water service from District hydrants as set forth in the Rate and EQR Schedule in Appendix A to these Rules and Regulations.

C. Amended Monthly Service Charges: In those situations where, in the Board's sole discretion, the monthly service charges do not represent a fair, reasonable and equitable charge for the intended use, the Board, at its sole discretion, may adjust said rates.

8.06 Standby Fees: Customers who have purchased EQRs of water or sewer service pursuant to Tap Fee Purchase Agreements, shall begin paying the monthly standby fees equal to thirty-five percent (35%) of the standard service charge when a Service Line is extended to within one-hundred feet (100') of the Customer's property line, and the Customer has not connected to such Service Line. However, any such fees shall be assessed solely for purpose of paying principal and interest on the District's outstanding indebtedness or bonds and shall not be used to pay any operation or maintenance expenses or capital improvements within the District. As used in this section "standard monthly service charge" shall not include the zone surcharges. Additionally, it shall be assumed that the first EQRs a Tap Fee Purchase Agreement Customer purchases shall be the first EQRs that Customer uses when any connection to the Water or Sewer System is made. If any Customer fails to pay the required standby fees, the District may pursue all remedies provided by statute or under the applicable Tap Fee Purchase Agreement.

8.07 Line Extension Fees: In order to recover the District's costs incurred extending a Service Line, the District may charge a Line Extension Fee to any Person desiring to connect to the Water or Sewer System utilizing the Service Line extension.

A. The Line Extension Fee shall be based on the size in acres of the property to be served by the extension, the zoning of the property, the existing and potential uses of the property, the potential EQR demand from the property, and any other similar, relevant factors which the Board believes should be considered in arriving at an equitable reimbursement; provided, however, the collection of Line Extension Fees shall not be construed as an obligation to provide operations, maintenance, repair, or replacement of such Service Line extensions.

B. The Line Extension Fee shall not exceed the actual cost, including engineering fees, of the extension, including interest. All Line Extension Fees shall be due and payable at the time a Tap Permit is issued or a Line Extension Agreement is executed. The District may charge an administrative fee for collection and reimbursement of Line Extension Fees. The District will use its best efforts to collect such fees but shall not be liable for the failure to collect such fees.

8.08 Line Extension Cost Reimbursements: The District may pay Line Extension Fees collected on a Water or Sewer Main constructed by a Developer for a period of five (5)

years after the execution and pursuant to the terms of the Line Extension Agreement. Upon application made prior to the termination of the initial five-year period, and upon District approval, such reimbursements may continue for a maximum of five (5) additional years. The right to such reimbursement shall permanently cease at that time, regardless of the amount of reimbursement received. The reimbursement shall not exceed the Water or Sewer Main's actual construction cost.

8.09 Cost Recovery Provision in Line Extension Agreements: No Line Extension Fee shall be collected or reimbursed to any Developer unless the District and Developer have previously entered into a written Line Extension Agreement containing the following provisions:

- A. The amount of each Line Extension Fee to be charged.
- B. The Developer's right to reimbursement by means of the Line Extension Fees.
- C. The District's procedure for collection of the Line Extension Fees and forwarding them to the Developer, including time limitations, and the District's right to retain an administrative fee from each Line Extension Fee collected.
- D. The District's obligation to use its best efforts to collect Line Extension Fees, and the Developer's agreement to not hold the District liable for non-payment of the Line Extension Fees, or for any failure to collect the same.

8.10 Payment Obligation: All Customers or other Persons benefitting from the Water or Sewer System are legally obligated to pay the District Charges. It is imperative for the Water or Sewer System's proper operation, maintenance and repair that all District Charges be paid in full and on time. The District shall deliver statements for District Charges to Customers no more frequently than monthly but not less frequently than quarterly, or in such other intervals that the Board may establish. Statements shall be sent to the property owner unless the District approves the property owner's written request for statements to be delivered to an occupant.

- A. Except as specifically provided for in these Rules and Regulations, District Charges shall be due and payable fifteen (15) days after the date of the statement. Payments will be deemed late twenty-one (21) days after the date of the statement.
- B. When a Customer receives service for two or more units that are provided water service through one water meter, only one statement shall be sent for water or sewer service for such properties.
- C. Nothing herein shall constitute a waiver of the owner's liability for District Charges, including penalties and interest, nor a waiver of the District's statutory lien rights.

8.11 Liability for Nonpayment; Perpetual Lien: All District Charges shall be paid by the owner of the property served. The District shall not be bound by any agreement between an owner and occupant concerning payment of District Charges, regardless of whether the District has been notified of the agreement. Until paid, all District Charges shall constitute a first and perpetual lien on or against the property served, and any such lien may be foreclosed in the manner provided by law. The District shall have the right to collect from any Customer who is delinquent in payment of its account all legal, court and other costs and expenses necessary or incidental to the collection of said account, including reasonable attorneys' fees, filing fees and other costs, and recording fees. A fee in the amount set forth in the Fee Schedule in Appendix A shall be imposed on any payment tendered to the District which, upon presentment to the bank for payment, is returned unpaid due to insufficient funds, an overdrawn or closed account, or for whatever reason. Such fee shall accrue each time a check is returned unpaid.

8.12 Miscellaneous Costs and Expenses: Customers shall be responsible for all costs and expenses incident to Service Line installation and Connection shall be borne by the Customer. In addition, Customers shall indemnify the District for any loss or damage that may directly or indirectly occur as a result of Service Line installation. No Service Line installation or Connection District personnel shall not perform any work on Saturdays, Sundays, or holidays unless written permission is granted by an Authorized Representative. The fees and charges that shall apply to District services are listed in the Fee Schedule in Appendix A.

8.13 Late Charges, Interest and Collection Remedies. Each District Charge, installment thereof, or other amount due to the District that is not paid in full when due shall be subject to a late charge of five percent (5%) of the amount due, or \$15.00, whichever is greater, for each month or part thereof in which such District Charge remains unpaid. Additionally, such delinquent amount shall bear interest from the due date at the rate of twelve percent (12%) per annum. Notwithstanding the foregoing, no Customer shall be assessed late charges or interest exceeding twenty five percent (25%) of the amount due. If any District Charges remain unpaid for thirty (30) days or more from the date of the statement, the District may terminate the Customer's service. Additionally, the District may enforce the Customer's payment obligations by any and all other lawfully available means, including suits for collection, foreclosure of the District's lien on the Customer's property, or certification of amounts due to the County Treasurer for collection along with taxes.

8.14 Seller's and Buyer's Responsibilities: The District assumes no responsibility for agreements between sellers and buyers of property within the District. The buyer shall be responsible for determining whether appropriate District Charges have been paid by the seller. Regardless of ownership, any unpaid District Charges shall constitute a first and perpetual lien on and against the property and such amounts may be collected pursuant to these Rules and Regulations.

ARTICLE IX
WATER RIGHT DEDICATION REQUIREMENTS

9.01 Intent And Purpose: It is the intent and purpose of this Article to require the dedication of Water Rights prior to the extension of treated water service to new Customers; to ensure that the water quantity so dedicated be equal to the water quantity ultimately required to satisfy the uses of the new Customers; to thereby assure an adequate and stable water supply to District service area; to prevent the abandonment of Water Rights to the District's detriment; to ensure the financial stability of the District water utility; and to promote the general welfare of the public.

9.02 Basic Dedication Requirements:

A. A dedication or transfer of direct flow or storage Water Rights to the District shall be required prior to the approval of the annexation of any land to the District; prior to all extensions of treated water service outside the District Boundaries; and prior to the District providing or extending any potable water service within the District.

B. The dedication requirement shall be calculated on forms provided by the District in accordance with the EQR Schedule in Appendix A and Section C below. Such forms shall be accompanied by a historical use affidavit. For those persons whose total EQR value, for purposes of compliance with subsection (C) or (D) of this Section, is greater than 30 EQR, no historical use affidavit shall be required; however, an engineering analysis acceptable to the District of the historic use of the Water Rights proposed for dedication shall be required.

C. The basic dedication requirement for District water service with standard sewer shall be 0.2 acre-feet per year of historic consumptive use from a Water Right of sufficient legal priority for each EQR of water use calculated under the EQR Schedule in Appendix A.

D. Except as stated below, the basic dedication requirement for District water service with evapo-transpirative sewer shall be 1.0 acre-feet per year of historic consumptive use from a Water Right of sufficient legal priority, for each EQR of water use calculated under the EQR Schedule in Appendix A. With regard to any EQR value assigned by the EQR Schedule for Irrigated Green Space, the basic dedication shall be 0.20 acre-feet per EQR.

E. The basic dedication requirement for raw water or other uses not listed under the EQR Schedule in Appendix A shall be the quantity of water that ultimately will be required to satisfy the use or uses contemplated by the user. If a party required to dedicate water pursuant to this Article can establish by a preponderance of the evidence that his or her actual use will be less than that calculated under the EQR Schedule, that party shall only be required to dedicate the lesser amount.

F. The person seeking approval of annexation, resubdivision, replatting, or the extension of treated water service outside the District, whether or not that person will be the ultimate user(s), shall satisfy the basic requirement.

G. Sufficient Water Rights shall be dedicated so as to enable the District to divert a quantity of water, at any point of diversion it may determine, adequate to allow total consumptive use by the District of the quantities of water calculated under subsection (B) hereof.

9.03 Procedure:

A. In accordance with the basic requirements set forth in this Article, the District shall determine, after consultation with a person or persons skilled in the knowledge of Water Rights, whether the Water Rights proposed for dedication pursuant to the provisions of these Rules and Regulations will be of sufficient priority under the laws of the state to ensure the District's ability to meet the service demands of the new user. This determination will be aided by a historic use affidavit or engineering report which shall be provided by the new user.

B. The Board of Directors shall have the right, in its sole discretion, to accept or reject any Water Rights proposed for dedication which it determines to be without sufficient legal priority. If the Board of Directors determines that the Water Rights proposed for dedication fail to satisfy the basic dedication requirement, or that additional Water Rights cannot at this time be put to beneficial use or for other good cause are not needed, the following alternatives, or combination thereof, may be used to otherwise satisfy the basic dedication requirement:

i. The person required to comply with the basic dedication requirement may pay to the District a cash amount to be determined by the Board in its discretion.

ii. The Board of Directors may, in its discretion, negotiate with the new user to establish other terms or conditions by contract, which shall constitute compliance with the basic dedication requirement of this Article.

C. The new user shall dedicate the appropriate Water Rights to the District by filing an offer with the Board of Directors. It is the intent of this Article that no water service shall be extended to a new user until the appropriate Water Rights have been dedicated to the District. However, if there are matters pending resolution in the water court concerning the Water Rights to be dedicated, or if there is other delay beyond the control of the new user, the Board shall have the discretion to approve the extension of such water service prior to the dedication of Water Rights to the District.

D. The new user shall bear all costs and expenses attendant to the dedication of Water Rights to the District, including legal and engineering fees, filing and recording costs.

9.04 Agricultural and Open Space Property: This subsection shall apply if the owner of property proposed to be annexed, resubdivided, replatted, or to be served with water service outside the District's boundaries desires to retain the land, or any portion thereof, in

agricultural production or as open space prior to development. Such owner shall be permitted to lease back on an annual basis, and for irrigation, stock water, aesthetic, recreational, or historic purposes only, the Water Rights transferred pursuant to this Article. The terms of the lease shall be negotiated with the District.

9.05 Exceptions: This Article does not apply to the extension of new treated water service for which the basic dedication requirement has been previously been fulfilled.

ARTICLE X **RAW WATER IRRIGATION**

10.01 Policy: Use of the District's Potable Water system for irrigation of all existing parks, green space, lawns, yards, and landscaping should be discouraged where a Raw Water source is available. It is the intent of the District to encourage the use of Raw Water irrigation and to provide incentives to use inexpensive irrigation water whenever possible.

10.02 Penalties: Any use of the District's Potable Water supply in violation of this Article shall be subject to paying the full use rates in accordance with these Rules and Regulations.

10.03 Maintenance: The Owner of the Raw Water system shall own, operate, maintain and repair all Raw Water systems.

ARTICLE XI **VIOLATIONS AND ENFORCEMENT**

11.01 Violations: This Article shall apply to all Violations for which the District may revoke services or impose the fines described herein. However, the District shall not be required to comply with this Article prior to imposing late charges or interest on delinquent District Charges or pursuing judicial remedies for collection of District Charges.

11.02 Fines and Revocation of Service: Unless otherwise specifically stated, a fine in the amount of \$500.00 per EQR shall be levied for each Violation. Repeat or continuing violations shall be subject to a daily fine of \$500.00 per EQR until the violation cease. Additionally, the District may revoke Water or Sewer Service for any Violation including, without limitation, non-payment of District Charges. Except as otherwise provided in this Article, the Customer shall be given written notice of a hearing prior to revocation of water or sewer service. Any Person that commits a Violation shall be liable for reimbursement of any and all actual costs or damages the District incurs as a result of the Violation, including, without limitation, legal and engineering fees.

11.03 Unauthorized Connections or Use: Any Connection to, or discharges into the Water or Sewer System without first paying the appropriate fees and obtaining the appropriate

permits shall constitute a Violation, and each day of such use or Connection shall constitute a continuous or repeat Violation. Any such fines shall be in addition to the District's right to charge for all services used and shall not limit any and all other remedies which the District may have. In such circumstances, the District may require, or carry out immediate disconnection, and shall be entitled to collect any and all of its resulting costs and damages, including the fees set forth in the Fee Schedule in Appendix A; or the District may authorize Connection on such terms and conditions as the District may approve.

11.04 Notice of Violation and Right to Hearing. If the Board determines that notice and hearing is necessary, it shall send a written notice of violation (“Notice”) to the Customer’s last known address by registered or certified mail, or first-class U.S. mail. The Notice shall: (i) describe the Violation; (ii) explain whether the Violation is a Continuous Violation (as described below); (iii) direct that the Customer immediately cease the Violation; (iv) explain that a fine may be imposed, water and sewer service may be revoked, or other action may be taken. Additionally, the Notice shall state the date, time and location of a regular or special Board meeting at which a hearing will be held where the Customer may present evidence to the Board, and explain that, if the Customer fails to appear at the hearing or otherwise respond, the Board may proceed to make a determination based on the known facts and circumstances. The Notice shall also state that the Customer will be charged \$250.00 for the cost of the hearing if they fail to appear. Such hearing shall be no less than ten (10) days after the date of the Notice.

11.06 Hearing. Each hearing shall be held by the Board and the Board shall introduce the case by describing the Violation. The Board shall determine the procedure to be followed during the hearing, subject to the following:

- A. The Board may impose rules of conduct as may be appropriate under the circumstances.
- B. Each party may make an opening statement, present evidence and witness testimony, and make a closing statement.
- C. The Customer is not required to be in attendance at the hearing if represented by counsel.
- D. The Board’s decision, either for or against the Customer, will be by a majority.
- E. The Board shall base its decision on the credible evidence presented at the hearing.
- G. The Board may give its decision at the conclusion of the hearing and shall give written notice of its decision as set forth below.

H. Failure to strictly follow the hearing procedure set forth above will not constitute grounds for appeal of the decision absent a showing of denial of due process.

11.07 Notice of Decision. Within fifteen (15) days of after hearing, the Board shall issue a written Memorandum of Decision, which decision shall be final. Thereafter, the District may revoke water or sewer service by turning off, disconnecting, severing or blocking the Service Line to the property. Such actions shall be subject to the fees set forth for inspection, disconnection, and reconnection as described in the Fee Schedule in Appendix A, and upon disconnection of water or sewer service, the District shall notify the local building authority.

11.08 Repeat or Continuous Violations. Two or more Violations that are interrupted by one day or more are repeat violations. Continuous Violations are violations of Customer obligations that are uninterrupted by time, as determined by the Board. Each day of a repeat or continuous violation constitutes a separate Violation. Any Person that is determined as having a repeat or continuous Violation may be subject to a fine of \$500.00 per EQR for each day that the Violation persists following delivery of Notice and completion of a hearing as set forth above. Separate Notices and hearings are not required for a Person to be subject to the daily fine for a repeat or continuous Violation.

11.09 Waiver of Fines. The Board may waive all, or any portion, of the fines if, in its sole discretion, such waiver is appropriate under the circumstances. Additionally, the Board may conditionally waive of all or part of a fine upon the Customer coming into and staying in compliance with the Rules and Regulations.

A P P E N D I X A

REDSTONE WATER & SANITATION DISTRICT FEE AND EQR SCHEDULES

Date: December 10, 2024

I. FEE SCHEDULE (Date Adopted: 12/10/2024)

- A. Standard District Tap Fees:
 - 1. Water. \$10,000/EQR
 - 2. Sewer. \$10,000/EQR
- B. District Sewer Charges (per month).
 - 1. Base Rate: \$57.00/EQR
- C. District Potable Water Service Charges (per month):
 - 1. Base Rate: includes 10,000 gallons per EQR. \$51.00/EQR
25,000 gallons from May 1 - October 1
 - 2. Water Use in excess of Base Rate \$7.65/1,000 gallons
- D. Per-Gallon Service Charges for Water: \$7.65/1,000 gallons
- E. Miscellaneous Fees and Charges:

1. Each inspection of a water or sewer connection.	\$50.00/each
2. Late Fee	5% of late amount per month
3. Interest on unpaid charges (over 30 days)	1% per month
4. Each water or sewer disconnection, line blocking or unblocking physically carried out by District personnel (does not include location, excavation, and materials).	\$150.00/each
5. Final meter readings.	\$25.00/each
6. Location, excavation, and materials.	Actual cost
7. As-built drawing deposit fee.	\$5,000 up to 50 EQR; \$100 per EQR over 50

- F. Returned Check Fee (for each time a check is returned unpaid). \$25.00
- G. Out of District Rates: The fee for Customers outside of the District boundaries shall be assessed at the rate of 2 (two) times the service charges described herein for in-District service as provided in the aforementioned subsections A, B, C, and D, as the same may be amended from time to time, or as agreed upon by the District and Customer.

II. EQR SCHEDULE

CLASS OF USE

EQR VALUE

A. RESIDENTIAL CLASSIFICATIONS

1. Single Family Residential Units, Accessory Dwelling Units, Duplexes, and Multi Family Residential Units.

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| a. | Each living Unit, Up to 4 bedrooms. | 1.00 |
| b. | Each additional bedroom. | 0.15 |
| c. | For irrigated green space, such as lawns and gardens, see Special Classification Section (D)(2) below. | |

NOTE: Swimming pools, hot tubs, and spas are additional, per Section D(3) below.

NOTE: Rental privileges of all kinds are not included in the above values and constitute a separate unit.

Only one kitchen is permitted in each unit. If a residence has more than one kitchen, then additional 0.5 EQR value shall be assigned in accordance with the values given for multi-family residential units.

NOTE: Values include common laundry facilities or individual laundry hook-ups.

2. Transient Residential Units. Hotels, motels, mobile home parks, dormitories, recreational vehicle parks, short-term rental units in residences, bed and breakfast establishments and similar facilities.

NOTE: Values include laundry facilities in mobile homes. Otherwise, laundry facilities, central kitchen facilities, and swimming pools, hot tubs and spas are additional. Room counts shall include rooms furnished to employees. Values for recreational vehicle parks include central bath house facility, but not laundry, retail, or restaurant spaces.

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| a. | Manager's unit, use multi-family or Single Family Residential Unit classification as applicable (per unit). | See Paragraph 1 Above |
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b.	Motels, hotels, and rooming houses without kitchen facilities:	
i.	Rooms having not more than two (2) beds (per rental unit).	0.20
ii.	Rooms having more than two (2) beds per rental unit (per additional bed).	0.05
c.	Motels with kitchen facilities:	
i.	Units having not more than two (2) beds (per rental unit).	0.20
ii.	Units having more than two (2) available bed spaces (per rental unit).	0.05
d.	Mobile home parks (per each available space or per living unit).	1.00
e.	Dormitories without cooking facilities (per each rental bed).	0.10
f.	Recreational vehicle parks (spaces filled by recreational vehicles on a year-round basis shall be evaluated under the "mobile home park" category).	
i.	Camping or vehicle spaces without sewer hookup (per space).	0.35
ii.	Camping or vehicle spaces with sewer hookup (per space).	0.40
iii.	Camper dump station.	By Special Review
g.	Add for central laundry facilities (per washing machine or available hookup)	1.05
h.	Add for central kitchen facilities per Section B(1)	
i.	For irrigated green space, such as lawns and garden, see Special Classification (D)(2) below	

NOTE: Initial Tap Fees, System Development Fees, and monthly service charges for all Multi-Family Residential Units and Transient Residential Units, during construction, shall be calculated on the basis of 1.0 EQRs of service per building. Said initial Tap Fees and System Development Fees shall be paid by the Customer to the District at the time the user submits an application for a tap permit, which shall occur prior to the issuance of a building permit by the County or Town, and prior to physical connection to the District's Water or Sewer Systems, whichever occurs first. The balance of the Tap fees and System Development Fees for all Multi-Family Residential Units and Transient Residential Units, calculated according to this Section A, shall be due and payable immediately upon receipt of the temporary or permanent Certificate of Occupancy for the structure or unit within such structure in question. Service charges accruing after receipt of the temporary or permanent Certificate of

Occupancy shall be adjusted in accordance with Section 7.04 of these Rules and Regulations.

B. COMMERCIAL CLASSIFICATIONS

1. Restaurants, Bars, Banquet Rooms and Drive-Ins:
 - a. Restaurants and bars (per 10 seats). 0.65
 - b. Banquet rooms (per 10 seats). 0.35
 - c. Drive-ins (per car stall). 0.15
2. Laundromats (commercial laundries evaluated per (B)(5) below):
 - a. Per washing machine or available hookup. 0.50
 - b. For each toilet or urinal with manual flush mechanism. 0.50
 - c. For each toilet or urinal with continuous flow. 1.00
 - d. For each lavatory, sink or mop sink. 0.20
 - e. For each shower, tub or combination. 0.30
3. Service Stations: (car washes that are located at or a part of a service station are additive per part (B)(4) below).
 - a. Per fuel nozzle. 0.40
4. Car Washes:
 - a. For each self-service bay/rack with wand and/or foaming brush. 3.15
 - b. For each automatic car wash bay. 15.6
5. Commercial or Public Buildings. Non-grocery stores, offices and industrial warehouses, (having no process water or non-domestic waste loads, and which use the sanitary sewer only for nonsolid waste disposal):
 - a. For each toilet or urinal with manual flush mechanism. 0.30
 - b. For each toilet or urinal with continuous flow. 1.00
 - c. For each lavatory, sink or mop sink. 0.10
 - d. For each shower, tub or combination. 0.20
 - e. For each washing machine or available hook-up. 0.15

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| f. | For each other water-using fixture or appliance except as otherwise specified in this table, including drinking fountains which are not continuous flow or decorative fountains which recycle water. | 0.30 |
| g. | Continuous flow drinking or decorative fountains (nonrecycling). | Special Review |
| 6. | <u>Barber/Beauty Shops.</u> (per chair). | 0.30 |
| 7. | <u>Theaters.</u> (per 25 seats or part thereof). | 0.60 |
| 8. | <u>Grocery Stores.</u> (per 1000 square feet or part thereof). | 0.20 |
| 9. | Commercial establishments which discharge process water to the collection system shall be evaluated based on Section (4) above and based on the metered water inflow (per 1,000 gpd, maximum day). | 2.50 |
| 10. | <u>Irrigated Green Space.</u> For irrigated green space, such as lawns and garden, see Section (D)(2) below. | |

NOTE: Initial Tap Fees, System Development Fees, and monthly service charges for all Commercial Classifications, during construction, shall be calculated on the basis of 1.0 EQRs of service per building. Said initial Tap Fees and System Development Fees shall be paid by the Customer to the District at the time the user submits an application for a tap permit, which shall occur prior to the issuance of a building permit by the County or Town, and prior to physical connection to the District's Water or Sewer Systems, whichever first occurs. The balance of the Tap Fees and System Development Fees for all Commercial Classifications, calculated according to this Section B, shall be due and payable immediately upon receipt of the temporary or permanent, whichever first occurs, Certificate of Occupancy for the commercial structure in question. Service charges accruing after receipt of the temporary or permanent Certificate of Occupancy shall be adjusted in accordance with Section 7.04 of these Rules and Regulations. In any instance in which it is unclear which EQR value to assign to a commercial structure, the lowest EQR value for commercial classifications shall be used, subject to later adjustment at the Board's sole discretion. Any change in use of a commercial structure may be subject to increased fees and charges in accordance with Section 6.07 of these Rules and Regulations.

C. CHURCH AND SCHOOL CLASSIFICATIONS

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| 1. | <u>Churches.</u> (per 100 seats; rectories or other living areas are additional). | 1.00 |
| 2. | <u>Schools.</u> Day care centers, public and private day schools including administrative centers, warehouses, buildings for equipment repair and/or storage (such as for buses). Swimming pools, hot tubs, spas and similar facilities are additional. Staff includes teachers, librarians, custodians, and administrative personnel associated with school functions. | |
| a. | Without gym or cafeteria (per 50 potential students and staff). | 1.50 |

- b. Without gym but with cafeteria, or with gym but without cafeteria (per 50 potential students and staff). 1.85
 - c. With gym and cafeteria (per 50 potential students and staff). 2.10
3. Irrigated Green Space. For irrigated green space such as lawns and garden, see Section (D)(2) below

NOTE: Initial Tap Fees, System Development Fees, and monthly service charges for all Church and School Classifications, during construction, shall be calculated on the basis of 1.0 EQRs of service per building. Said initial Tap Fees and System Development Fees shall be paid by the Customer to the District at the time the user submits an application for a tap permit, which shall occur prior to the issuance of a building permit by the County or Town, and prior to physical connection to the District's Water or Sewer Systems, whichever first occurs. The balance of the Tap Fees and System Development Fees for all Church and School Classifications, calculated according to this Section C, shall be due and payable immediately upon receipt of the temporary or permanent, whichever first occurs, Certificate of Occupancy for the structure in question. Service charges accruing after receipt of the temporary or permanent Certificate of Occupancy shall be adjusted in accordance with Section 7.04 of these Rules and Regulations.

D. SPECIAL CLASSIFICATIONS

- 1. Common Areas, Parks and Vacant Lands. (For each 1,000 square feet or fraction thereof of irrigated green space) 0.15

- 2. Irrigated Green Space:

- a. Single-Family Residential Units (including associated Accessory Dwelling Units), Duplexes, and Multi-Family Residential Units shall be allowed 3500 square feet of irrigated green space for each 1.0 EQR otherwise calculated under this schedule. If the calculation results in a fractional EQR value (e.g. 1.5 EQR), the allowed square feet of irrigated green space shall be determined by multiplying the EQR value by 3500 (e.g. 1.5 x 3500 = 5250 square feet of irrigated green space allowed).

For each additional 1000 square feet or fraction thereof of irrigated green space above the allowed amount, add (e.g. 1.0 EQR, but 5000 square feet of irrigated green space –1500 square feet above the 3500 square feet allowed: $1.5 (1000 \text{ sq. ft.}) \times 0.15 = 0.225 \text{ EQR}$ added to the Customer's EQR value.) 0.15

- b. Transient Residential Units, Commercial Classifications, and Church and School Classifications shall be assigned additional EQR values for all irrigated green space. Add, for each 1.0 EQR otherwise calculated under this schedule, an additional 0.35 EQR for any irrigated green space up to 3500 square feet per EQR (e.g. 2.0 EQRs with 4000 square feet of irrigated green space equals 2000 square feet of irrigated green space per 1.0 EQR. $2.0 \text{ EQRs} \times 0.35 \text{ each} = 0.70 \text{ additional EQR}$).

Total EQR value will be 2.70 EQR.) 0.35

Add, for each 1.0 EQR otherwise calculated under this schedule, an additional 0.15 EQR for each 1000 square feet of irrigated green space beyond 3500 square feet per EQR(e.g. 2.0 EQRs with 8500 square feet of irrigated green space equals 4250 sq. ft. of irrigated green space per EQR. The first 3500 square feet per EQR adds 0.70 EQR as above. The additional 750 square feet of irrigated green space per EQR adds 0.15 per EQR, or a total of 0.30 EQR. Total EQR value equals 2.0 plus 0.70 plus 0.30, or 3.0 EQR.). 0.15

3. Swimming Pools, Hot Tubs, Spas, Splash Pools

- a. Separate buildings which house swimming pools or hot tubs, and which are not covered by any other classification in this fee schedule, shall be evaluated under Section (B)(5), above, as well as the following:
- b. Swimming pools, per 25,000 gallons of capacity (lesser amounts shall be prorated accordingly). 1.00
- c. Hot tubs and spas, greater than 500 gallons. 0.20 per 500 gallons
- d. Hot tubs and spas, less than 500 gallons. 0.00
- e. Splash Pools. Special Review

4. Unclassified Uses. For any water use or water-using structure or appliance not otherwise covered by this schedule, the Board of Directors shall determine the EQR value on a case-by-case basis according to anticipated water use and consumption.

E. MODIFICATIONS AND REVISIONS:

- 1. The District Board of Directors reserves the right to classify and reclassify establishments and to change EQR rates and values as the needs of the District require.
- 2. Water or Sewer Usage Review and Recalculation. For purposes of computing and re-computing the number of EQR units attributable to a particular use and the assessment and collection of Tap Fees and service charges in connection therewith, the Board shall have the following authority:
 - a. At any time the Board may review actual water usage to determine if such actual usage is greater than that implied by the number of EQR units assessed to the Customer at the time application for water and/or sewer service was accepted. For this purpose, 350 gallons per day (gpd) equals one (1) EQR. If the Board finds greater actual water usage, the Customer shall be assessed a greater number of EQR units to reflect actual usage. Any time the Board deems it necessary to evaluate or re-evaluate the appropriate EQR value assessed to a particular Customer, the Customer

shall reimburse the District for the actual costs of that review.

- b. Upon any recalculation and increase in the number of EQR units attributable to use pursuant to the terms of this Section, the Customer shall pay additional Tap Fees for each additional EQR unit assessed to his or her use at the rate set forth in this Appendix A prior to the issuance of any necessary permit from the Board or within thirty (30) days of the increased assessment of EQR units, whichever occurs first. The Customer's monthly service fee will henceforth be based upon the revised number of EQR units.
- c. Notwithstanding the general provisions of this Appendix A or the particular provisions of this Section, nothing herein is intended to automatically modify, revise or amend the terms of any prior individualized assessment or agreement memorialized by a writing or reflected in District minutes, motions or resolutions, nor shall it prevent such modification, revision or amendment at the sole discretion of the Board.

A P P E N D I X - B

REDSTONE WATER and SANITATION DISTRICT

RULES AND REGULATIONS

September 2020

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I. SUBMITTAL INFORMATION

1.00 GENERAL

1.01 Scope. This section shall cover the required submittal material necessary for the Redstone Water and Sanitation District ("the District" or RWSD) to review a water and sewer project to ensure that it conforms to these regulations. Included in this section are the requirements on preliminary, final and as-built drawings, specifications, soils reports, and other supporting documents. Finally, this section will cover the submission and review procedures to be followed for the District. Upon request of a Developer, and after consultation with the District Engineer, the District may approve variances from the Technical Specifications and Procedures contained herein. See Rules and Regulations for procedures.

2.00 PRELIMINARY DRAWING REQUIREMENT

2.01 General. This section shall include the requirements necessary for preliminary drawing submittal, specifications, calculations and soils reports.

2.02 Title Sheet. The first sheet of the drawings shall be the title sheet and shall have the following shown thereon.

- A. Location map, North arrow, numerical and graphical scale.
- B. Index to sheet of the drawings.
- C. General notes.
- D. Title block. The title block should not include the words "Title Sheet," but should contain the project name and a description of the information shown thereon.
- E. Title sheet shall be stamped "Preliminary Not for Construction"

2.03 Plan. The following items shall be included on all plan drawings.

- A. Scale: *Use a maximum scale of one-inch = 50-feet*. Show scale numerically and graphically.
- B. North arrow.
- C. Show outline of water and sewer main and service lines. Show centerline of water and sewer line with appropriate ties to centerline of street or survey control lines, curbs, property lines or right-of-way lines *and easement lines*.
- D. Show right-of-way or easement lines, street centerline and name, property lines, curbs, gutters, cross gutters, sidewalks, driveways, paving and other improvements, existing and proposed.
- E. On each sheet of the plan, show a sufficient number of typical sections to give the relative location of surface and underground improvements with respect to proposed sewer main. Indicate size, type and other appurtenant data for all improvements.
- F. Drawings shall be on standard 24--inch x 36-inch sheets.

G. Utilities, sewers and storm drains.

1. Indicate the type, size and ownership of all existing utilities in streets or rights-of-way or rights-of-way in which the water and sewer lines are to be connected. Tie utilities, sewers, house connections and storm drains to streets rights-of-way centerline or to street property line.
2. Indicate portions of existing utilities that are to be abandoned because of water and sewer construction.

H. Details. At intersections where tees, crosses, valves and concrete reaction blocks are to be provided, or at any other sections of the lines where a large number of fittings will be involved, show a large scale view of the appurtenances with dimensions to each separate fitting.

2.04 Calculations. One set of calculations supporting the design criteria used shall be furnished with the preliminary drawings. Each sheet of calculations shall be dated and have the name or initials of individual making the calculations. All calculations shall be by a professional engineer registered in the State of Colorado.

2.05 Soils Report. A soils investigation report shall be provided with the preliminary drawings. Sufficient subsurface exploration borings and analyses shall be made to permit the RWSD to make an adequate assessment of any soil problems that may be encountered. The soil investigation report shall contain the findings and supporting data for the following:

- A. The relative density type and extent of material to be encountered.
- B. Excavation problems.
- C. Location and extent of excavation.
- D. The suitability of excavated materials for use as backfill or bedding.
- E. The compaction characteristics of the soils.
- F. The groundwater level and conditions.
- G. The earth resistivity, moisture content, pH, degree of variation, presence of sulfates, and the likelihood of stray, direct currents.
- H. Test Holes. The depth of test holes shall be at least two-feet below the proposed pipeline elevation. The spacing of test holes shall be a minimum of 600-feet or where unusual conditions exist. The spacing shall be such to adequately define soil.
- I. The soils report shall make recommendation on the consolidation, hydrocompaction shrinkage potential

2.06 Surveys. All the existing conditions, including rights-of-way easements and horizontal and vertical control information, shall be prepared by a registered land surveyor in the State of Colorado.

3.00 SUBMISSION AND REVIEW PROCEDURE

3.01 Procedures. This section shall cover the procedures and time frame necessary to submit water and sewer drawings to the RWSD.

3.02 Preliminary Drawing Review.

- A. One set of blueprints and specifications, on paper and electronic format, of the proposed water and sewer system accompanied by one set of supporting data shall be submitted to the District at least 45-days prior to a regular meeting of the RWSD Board of Trustees ("the Board"). The preliminary drawings and specifications of the proposed water and sewer system shall be reviewed in general and, if in acceptable form for processing, shall be referred by the District Manager to the following offices and interested persons for study and recommendation at least 30-days prior to a regular Board meeting.
1. The District Engineer (SGM, Inc.)
 2. Pitkin County
 3. Redstone Water and Sanitation District

When transmitting the preliminary drawings and specifications for review, the District shall indicate to the reviewing agency the date and time of the RWSD meeting at which the proposed water and sewer system will be discussed and formal action taken by the Board.

- B. During the regular meeting, at which the proposed water and sewer system is to be considered, the Board shall review all written and oral recommendations presented and shall, upon diligent evaluation of the facts, approve or disapprove the preliminary plans for the proposed sewer system.
- C. Should the Board approve the preliminary plans, written notice of said approval shall be transmitted to the Applicant along with any modifications required by the District. Such approval of preliminary plans shall permit the Applicant to prepare final construction drawings in accordance with the standards established by the Board and incorporate any modifications required by the District.

3.03 Final Drawing Review.

- A. Final drawings and specifications shall be prepared in the form prescribed for preliminary drawing requirements. In addition, the title sheet shall provide a space for certification of construction approval the RWSD.
- B. Final drawings consisting of four sets of prints, one set of drawings in electronic format and the AutoCAD file for the project shall be submitted to the Board for final review at least 10-days prior to a regular meeting.
- C. If the final drawings are found to be in compliance with the District's standards and these regulations and any modifications requested by the Board, the RWSD shall recommend approval of the plans at the next regular Board meeting.
- D. If the final drawings and specifications are found not to be in compliance with the District standards and any modifications requested by the Board, the District Engineer shall recommend disapproval of the plans and submit a written itemization of the deficiencies at the next regular meeting of the Board. Non-conformity of the final plans with the District's standards and requirements of the Board may result in disapproval of the project by the RWSD.
- E. The Applicant is strongly advised against receiving construction bids or beginning construction until certification of approval of final plans and specifications has been received from the District.

3.04 Construction Procedures. Following final approval of the plan(s) by the District, the Applicant may proceed with construction. In addition, to all construction requirements contained in other portions of the Specifications, the Applicant and their Contractor shall observe the

following:

- A. A mandatory pre-construction meeting shall occur 48-hours prior to any excavation. Participants may include, but are not limited to the following: Representatives of the Contractor, Excavator, Engineer, Applicant, and District.
- B. In the event that said construction does not commence within six months of the approval date, the plans must be resubmitted for review and approval. If construction on the main installation is halted for more than six months, plans must be resubmitted for review and approval.

3.05 Record Drawings. Two sets of record drawings, one set of drawings in an acceptable electronic format and the AutoCAD file of the project shall be submitted to the District within 30-days of completion of construction. The record drawings shall be prepared according to the following general requirements:

- A. A certified survey shall be provided to the District that shall show the location of the sewer line to permanent physical objects located in the field. All valves, tees, curb boxes, hydrants, storage tanks and pump stations and other major appurtenances shall be given two swing ties to a physical permanent object in the field. In all cases, the distance from sewer line and appurtenance items shall be dimensioned to rights-of-way easements and property lines.
- B. The benchmarks or benchmarks used on the project to determine sewer line depth shall be shown on the drawings and shall be based on U.S.G.S datum.
- C. All sewer lines shall have manhole rim and invert elevations, percent slope and horizontal distance of each line between manholes shown. Sewer service lines stubbed to property lines shall have two swing ties provided to permanent objects and shall be marked with fence posts.
- D. Manufacturer's literature and product data, including catalog sheets and descriptive literature for all materials and equipment used, shall be provided with record drawings.
- E. CADD files shall be submitted to the District in AutoCAD format, either on an acceptable electronic media or e-mailed. Data shall contain GPS points that can be easily incorporated into the District's GIS database.
- F. All sewer main lines eight-inches or larger shall be televised. The video shall have a running-footage meter showing the exact-footage from the entry manhole. The video shall be provided with a log showing the location of all defects and service lines.

End of Section I

II. WATER TRANSMISSION AND DISTRIBUTION LINES

1.00 GENERAL

1.01 Scope. This section shall include all materials, labor, equipment and miscellaneous items necessary to install all raw water, potable water transmission and distribution pipelines and appurtenances as specified herein for the RWSD.

1.02 Protection of Work. All pipe, fittings, valves and equipment shall be carefully handled, stored and protected to prevent damage to materials, protective coatings and linings. At no time shall such materials be dropped or dumped into the trench.

Precautions shall be taken to prevent foreign matter from entering the pipe, fittings and valves prior to and during installation. No debris, tools, clothing or any other material shall be placed in the pipe during installation. Whenever pipe installation is suspended, either temporarily or overnight, the open end of the pipe shall be sealed with a watertight plug to prevent the entrance of trench water, debris or foreign matter into the pipeline system.

Under no circumstances shall trench water be allowed to enter the pipeline. When water is present in the trench, the plug shall remain in place until the trench is pumped dry. Whenever trench water becomes evident, measures shall be taken to prevent pipe flotation.

If, in the opinion of the Engineer, the Contractor is incapable of keeping the pipe free of foreign matter during installation, the Engineer shall require the Contractor to protect the pipe ends with water tight plugs until the start of the joining operation.

2.00 MATERIALS

2.01 General. This item covers the types of materials that will be required for the construction and installation of water lines. All materials used shall be new, of the best quality available, and conform to applicable standards as indicated herein.

2.02 Ductile Iron Pipe and Fittings.

A. Ductile Iron Pipe.

1. Reference Standard - ANSI, 21.51/AWWA C151, latest revision.
2. Thickness Class - Minimum Class 52, unless design conditions warrant higher-class pipe.
3. Pipe joints shall be push-on joints, except where specifically shown or detailed otherwise.
4. Restrained joint pipe shall be Griffin Snap Lok or approved equal.

B. Fittings.

1. Type - All fittings shall be mechanical joint, except where specifically shown or detailed otherwise.
2. Reference Standard - ANSI/AWWA C153 for flanged mechanical joint and push-on joints (3-inch - 24-inch).
3. Material - Ductile iron.

4. Pressure Rating - 350 psi.
- C. Joints.
1. Mechanical, Reference Standard - ANSI A 21.53/AWWA C153, latest revision.
 2. Push-on, Reference Standard - ANSI A 21.52/AWWA C153, latest revision.
 3. Flanged, Reference Standard - ANSI B 16.1, Class 125, latest revision.
- D. Gaskets.
1. Type - Rubber ring gaskets shall be suitable for the specified pipe sizes and pressure.
 2. Reference Standard - AWWA C111, latest revision.
 3. Lubricant - A non-toxic vegetable soap lubricant shall be supplied with the pipe.
- E. Protective coatings – Refer to Detail 1.
1. Underground Service - Manufacturer's standard bituminous coating - minimum 1-mil thickness.
 2. Polyethylene Film Envelope - Polyethylene encasement shall conform to AWWA C105, latest edition, or ANSI A.21.5. Film shall be Class C with a nominal thickness of 8-mils. Tape for securing the film shall have a minimum thickness of 8-mils and a minimum width of 1-inch. The polyethylene film shall be free of streaks, pinholes, tears or blisters.
- F. Protective Lining.
1. Type - Cement mortar.
 2. Reference Standard -ANSI A 21.4/AWWA C104, latest revision.
 3. Thickness - Standard.

G. Couplings.

1. Style - Solid sleeve.

H. Tracer Wire

1. Tracer wire shall be 12 gauge or larger, insulated, stranded copper installed on all water mains. All splices shall be watertight and underground.

3.00 INSTALLATION

3.01 General. All transmission and distribution lines to be dedicated to the RWSD, shall be located a minimum of 10-feet inside a public easement. The location of water lines within side lot line easements or rear lot easements is discouraged. Refer to Detail 11.

When site conditions allow, the water line should be located outside paved areas. At all times, water lines shall be located so that District maintenance personnel can easily maintain and operate those lines.

Easements or rights-of-way used during installation of water mains shall be a minimum width of 25-feet, 12.5-feet on either side of centerline. In dredge areas and other special conditions, a wider easement may be required.

3.02 Pipeline Depth. The minimum depth of bury of water mains shall be as follows: (Depth of bury equals depth to top of pipe).

- A. Mains shall be buried a minimum depth of 5.5-feet or 66-inches (below existing or proposed grade) in all locations.
- B. When water mains are to be located underneath storm drains, culverts or any other submerged air space, the required depth of bury shall be 5.5-feet deeper than crossing elevation. This is necessary to ensure that the water line is beyond the frost depth associated with the storm drain culvert, etc. In some cases, the District Engineer may allow insulation in place of increased depth where water lines cross under one of the above.

3.03 Cleaning and Inspection. Clean all pipe, fittings, valves and related materials thoroughly of all foreign material; inspect for cracks, flaws, or other defects prior to installation. Mark all defective, damaged or unsound materials with bright marking crayons or paint and remove from job site. Of particular concern should be the gasket groove in the pipe bell. All spurs, excess paint, and any other defects within the gasket groove shall be either removed or repaired, or the pipe shall be deemed unacceptable.

The Contractor shall take all necessary precautions to prevent any construction debris from entering the water lines during construction of water lines and appurtenances. If debris shall enter the distribution system, the Contractor shall furnish all labor and materials necessary to clean the system. Under no circumstances will the Contractor flush the debris into an existing distribution system.

3.04 Installation. Pipe shall be laid in straight sections with bell ends facing the direction of laying unless otherwise directed by the District. Where pipe is laid on grade of 1% or greater, the installation shall proceed uphill with the bell ends facing upgrade. The pipeline shall be installed so that a continuous positive or negative grade is maintained between high and low points to avoid air pockets. At no time will a high point in the line be acceptable unless an air and vacuum valve is installed to relieve air pockets. Jointing of the pipe shall be made in accordance with the directions of the manufacturer of the pipe and the manufacturer of the couplings. The allowable pipe deflection per joint shall not exceed the maximum deflection tolerances specified by the manufacturer.

Pipe shall be lowered into the trench with ropes, slings or machinery. Under no circumstances should the pipe be pushed off the bank and allowed to fall into the trench.

In joining the pipe, the exterior 4-inches of the pipe end (at the spigot), and the inside of the adjoining bell shall be thoroughly cleaned to remove oil, grit, tar and other foreign material. The gasket shall be placed in the bell so it will spring into its proper position inside the pipe bell. A thick film of the non-toxic joint lubricant shall be applied over the entire surface of the gasket. The spigot end of the pipe shall then be wiped clean and inserted into the bell to contact the gasket. The pipe shall be pushed all the way into the bell by crowbar or by jack and choker slings. Extreme care shall be exercised when joining the pipe to avoid damaging the bell or rolling the gasket. The bell end of the pipe shall be protected by a piece of wood when pushing the pipe. Generally, every pipe has a depth of insertion stripe on the spigot end. The pipe shall be inserted to the full depth of the stripe. Check bells for rolled gasket with feeler gauge.

The cutting of pipe for fittings or closure pieces shall be done in a neat and workmanlike manner to prevent damage to the pipe or lining. All cuts should leave a smooth end at right angles to the axis of the pipe. Flame cutting on pipe, by means of an oxyacetylene torch, will not be allowed. Once a pipe is cut, the cut end shall be beveled free of spurs, which may damage rubber gaskets.

3.05 Connection to Existing Water Facilities. All main line connections between existing and proposed piping shall be made during non-business-hours or at a time, which is acceptable to the District. All shut-offs shall be planned 24-hours in advance and all persons affected by the shut-off shall be given a 24-hour notice. Take all precautions to prevent contamination when making connections to existing potable water lines. No trench water, mud, or other contaminating substances shall be permitted to enter the pipeline.

3.06 Future Connections. At intersections, dead-end runs, or other locations where the possibility may exist for a future connection, a tee or cross and a valve should be provided. In addition, the stub out must extend to the property line. This procedure allows a future connection to be made while keeping the existing main line in service at all times. In each case, the valve shall be properly restrained to the tee or cross, using restraining rods with eyebolts. In addition, a concrete reaction block will be placed on the plugged end of the valve.

3.07 Protection of Water Supplies. Water lines shall be located a minimum of 10-feet horizontally from existing or proposed sewer mains. Wherever the sewer line crosses above or within 18-inches beneath the water lines, the sewer line shall be made impervious by any of the three methods listed below, also refer to Detail 13:

- A. **Method 1**. Twenty-feet of AWWA DR18 C-900 PVC, shall be used for sewer pipe and centered over the water main. The joints between the sewer pipe and the placement pipe (DIP or PVC) shall be encased in a concrete collar. The concrete collar will be a minimum of 1-foot thick, centered on the joint.
- B. **Method 2**. Twenty-feet of AWWA DR18 C-900 PVC, shall be used for sewer pipe and centered over the water main. The joints between the sewer pipe and the placement

pipe (DIP or PVC) shall be sealed with solid sleeves with transition gaskets.

- C. **Method 3.** The sewer pipe shall be reinforced with concrete encasement. The encasement shall be at least 6-inches thick on either side of the water main, and extend 10-feet each side of the water main. In all cases, select granular backfill shall be used to prevent any settling of the higher pipe.

All work should be in strict conformance with the Colorado Department of Health's "*Design Criteria for Potable Water Systems*".

3.08 Reaction Anchor and Blocking. Concrete thrust blocks shall be provided as shown in Detail 2 for all tees, elbows, plugs, reducers, valves, fire hydrants, and crosses if one or more sides of the cross are plugged. The bearing area of the block shall be at least equal to that stated on the attachment. The bearing surface shall be against undisturbed earth. The block shall be placed normal to the thrust as show on the drawings. Concrete for thrust blocks shall have a 28-day 3,000 psi compressive strength. (NOTE: No other materials other than concrete may be used in thrust blocks).

If the concrete has not had sufficient time to cure (e.g., restoring water service), the Contractor shall be required to use temporary bracing for added strength. Use of additional wood bracing will help prevent fitting and valves from leaking or "blowing off" when water pressure is restored to the main line.

Whenever a concrete thrust block is placed, wood or plastic sheets shall be used to prevent concrete from adhering to nuts and bolts. Any concrete splattering onto a nut or bolt will be removed before the line is backfilled.

3.09 Tracer Wire. Electrical tracing wire shall be required on all water mains. The wire shall be taped to the top of the pipe at 10-foot intervals to prevent dislocation of the wire during backfilling. The tracer wire shall be extended to the surface at all valves and fire hydrants. The wire shall be extended towards the ground on the outside of the valve box until the wire is within 4-inches of the top of the lid, at which point it shall be brought back inside the box and securely fastened. Sufficient slack in the outside of the wire shall be provided to compensate for any future adjustment to the valve box. The tracer wire shall be continuity tested prior to acceptance of the pipeline.

4.00 SIZING OF MAINS

4.01 General. All main water lines shall be sized for peak-hour flow plus fire flows required by the Carbondale Rural Fire Protection District (CRFPD) at a 20 psi residual flow. Minimum size shall be 8-inches in diameter.

End of Section II

III. WATER SERVICE LINES AND APPURTENANCES

1.00 GENERAL

1.01 Scope. This section shall include furnishing all materials, labor, equipment and miscellaneous items necessary to install all water service lines and appurtenances as specified herein for the District. Note: The RWSD will own and maintain that portion of the service line from the main line up to and including the curb valve. The curb valve shall be placed on the property line; however, at all times, it will fall on the District side of the property line. All work and materials from the curb valve to the building shall be in conformance to the most recently adopted Uniform Plumbing Code.

2.00 MATERIALS

2.01 Copper Service Pipe.

- A. Reference Standard - ASTM B88, latest revision, Type K soft.
- B. Size - See 3.06 below.
- C. Do not use any pipe lubricants for service line fittings.

2.01 Eagle Pure Core HDPE Service Pipe.

- A. Reference Standard - AWWA C901, latest revision.
- B. Material - SDR9 CTS, HDPE 2408, ASTM D2239 and ASTM D2737.
- C. Size - See 3.06 below.

2.03 Corporation Stops.

- A. Material - Brass or bronze.
- B. Size - Same as copper service line.
- C. Reference Standard - AWWA C800, latest revision.
- D. Inlet - Threaded CC type.
- E. Outlet - Compression fittings.

2.04 Service Saddles.

- A. Materials - Bronze service clamp, 'O' ring gasket, double strap, IPS thread.
- B. The District will require saddles to be installed.

2.05 Curb Stop.

- A. Materials - Cast bronze body, resilient 'O' ring seals, standard tee head operator, Teflon ball valve type.
- B. Inlet - Compression fitting.
- C. Outlet - Compression fitting.

- D. Standard reference AWWA C800, latest revision.
- E. Manufacturer's reference - Mueller B25204.

2.06 Curb Box.

- A. 0.75-inch to 1-inch, Manufacturer's reference - Mueller H-10314 or equal.
- B. 1.25-inch to 1.5-inch, Manufacturer's reference - Mueller H-10336 or equal.
- C. Curb box must be traffic rated when located within traffic areas.

2.07 Couplings.

- A. Materials - Compression fittings.

3.00 INSTALLATION

3.01 Service Line Installation. All trenching, backfilling and compaction shall conform to Section VI of these regulations. All service lines shall be disinfected and pressure tested as per Sections VII and VIII of these regulations. Refer to Detail 3.

3.02 Service Line Depth. A depth of bury for all service lines shall be a minimum of 5.5-feet.

3.03 Tapping Pressurized Mains. All 0.75-inch – 1.5-inch taps on pressurized mains shall be made by the District. Those greater than 1.5-inches shall be performed by others with acceptable tapping equipment.

3.04 Tapping Unpressurized Mains. All taps on unpressurized mains (new subdivision mains) shall be performed by the District. Upon special request, District may allow Contractor to tap main.

3.05 Permits. A road cut permit for excavation in Pitkin County streets, alleys and easements must be completed prior to tap. Forty-eight-hour notice is required by the District prior to making taps and locating lines. Taps and locations will not be done without a water application filled out by the Customer.

3.06 Service Line Sizing. Service lines are to be sized by the Customer but the maximum copper service line allowed will be 1.5-inches. The maximum allowed HDPE service line will be 2-inches. The customer is encouraged to have an engineer size the service line. The District will not provide this service.

3.07 Tracer Wire. Electrical tracing wire shall be required on all service lines. The wire shall be taped to the top of the pipe at 10-foot intervals to prevent dislocation of the wire during backfilling. The tracer wire shall be extended to the surface at all curb stops. The wire shall be extended towards the ground on the outside of the curb box until the wire is within 4-inches of the top of the lid, at which point it shall be brought back inside the box and securely fastened. Sufficient slack in the outside of the wire shall be provided to compensate for any future adjustment to the curb box. The tracer wire shall be continuity tested prior to acceptance of the pipeline.

3.08 Final Inspection. The final inspection shall be scheduled with the District 48-hours in advance. The inspection will include inspection of the service connection, water meter, backflow device, rain sensor, curb valve and sewer cleanout.

4.00 METERS

4.01 Type. Magnetic drive, sealed register, radio read meter interface unit. Turbo meters for 3-inch and larger.

4.02 Manufacturer's Reference. Neptune T10 Brass Meter with E-coder and Radio Read MIU

4.03 Installation. Install all meters in a horizontal position with a suitable holding device to support piping, meter and provide electrical bond when meter is taken out for testing. Pre-manufactured holding devices or yolks are available which cut down labor time to install meter. Install in building where meter and pressure reducing valve will not freeze. Upon final inspection, if the meter is not able to be read by radio from the street, the MIU may need to be relocated on an outside wall at least 6-feet above grade where it is freely accessible and where falling or melting snow will not cover it (stucco construction can prevent the meters from being read by radio).

Turbine meters should be installed with five pipe diameters upstream or downstream of bends, valves, PRV's, check valves or any other fitting that causes turbulence.

4.04 Meter Inspection. The water meter must be inspected by the District at final inspection after it is installed and before the Certificate of Occupancy is issued.

5.00 PRESSURE REDUCING VALVE (PRV) (Required in-house)

5.01 Manufacturer's Reference. Watts U-5-B or equal.

5.02 Installation. Install upstream of the meter on 1-inch and 0.75-inch meters only. Install downstream of the meter for 1.25-inch and larger meters. Allow for easy access to strainer and cleanout plug.

5.03 Pressure Testing. Downstream pressure to be set at 40 to 75 psi.

5.04 Inspection. PRV will be inspected during final inspection.

6.00 CHECK VALVE

6.01 Type. Rubber seat and spring assist.

6.02 Manufacturer's Reference. Ford H series or equal.

7.00 BACKFLOW PREVENTION DEVICE

1. Type. Double check backflow preventer or as required by state law

2. Manufacturer's Reference. Febco

3. Installation. Backflow prevention device must be installed after the meter.

4. Inspection. Backflow preventer will be inspected during final inspection.

End of Section III

IV. FIRE PROTECTION FACILITIES

1.00 GENERAL

1.01 Scope. This section shall include furnishing all materials, labor, equipment and miscellaneous items necessary to install fire hydrants as specified herein for the RWSD.

2.00 MATERIALS

2.01 Fire Hydrants.

- A. Type - Dry barrel, traffic model with breakaway flange bolts and coupling.
- B. Reference Standard - AWWA C502, latest revision
- C. Outlet Size - One 4.5-inch NST, two 2.5-inch NST
- D. Hydrant Size – 5.5-feet or greater, from bury line to top of pipe
- E. Inlet Size - 6-inch
- F. Operation – 1.5-inch pentagonal national standard operating nut, open counterclockwise, lubricating reservoir.
- G. Depth of Bury – 5.5-feet minimum
- H. Additional Requirements - Furnish hydrant complete with pipe and tee, 6-inch restrained mechanical joint gate valve and thrust blocks. Hydrant shall be restrained to the hydrant tee by 0.75-inch threaded rods protected from corrosion by the use of an approved bituminous coating. Furnish hydrant with bronze seat and lubrication reservoir. If the hydrant valve is located at the main then a 6-inch MJ x MJ swivel tee shall be used.
- J. Manufacturer's Reference - "Mueller" Centurion A423
"Kennedy" K-81A Guardian
- K. Color - Hydrant to be painted red above the bury line.
- L. Pressure Rating - 250 psi

3.00 INSTALLATION

3.01 Hydrant Spacing. The development density and type of development shall determine the spacing of fire hydrants that each hydrant is to serve. In a low-density residential area, the maximum spacing of fire hydrants shall not exceed 500-feet. In medium to high-density residential areas, the maximum spacing shall not exceed 400-feet. In commercial and high-risk areas, the spacing shall not exceed 300-feet. The maximum distance from commercial buildings to hydrants shall be 150-feet, and shall be based on hose length.

3.02 Location. Fire hydrants shall be located whenever possible at an intersection and in a public right-of-way or a utility easement. There shall be a minimum of 1.5-feet between outlet nozzle and back of curb or sidewalk. In all cases, hydrants shall be located out of the direct flow of pedestrian and vehicular traffic. Wherever possible, hydrants located consecutively along a street shall be placed on opposite sides of the street so that stringing fire hoses across a street during a fire can be kept to a minimum. Hydrants shall be placed at all intersections, at end of

cul-de-sacs and at all dead-end runs. Hydrant location shall be approved by CRFPD.

3.03 Installation. The bury line shall be located at finished grade. If the previously mentioned conditions are not met after the hydrant is installed and the street is at final grade, the hydrant must be brought to proper grade by installing extensions or other modifications as required. Bag all hydrants that are not in service. If the hydrants have been accepted by the District and the hydrant needs to be raised due to Homeowner landscaping problems then the cost of the hydrant raising will be the responsibility of the homeowner. Refer to Detail 4.

3.04 Hydrant Appurtenances. All fire hydrants shall be connected to the main line by means of a mechanical joint tee with 6-inch Class 52 ductile iron pipe branch piping to hydrant. Each fire hydrant shall have a 6-inch valve on the branch pipe conforming to standards as outlined under Section V of these standards. The 6-inch gate valve shall not be located in the sidewalk, curb line, or gutter of the proposed street and shall be rodded to the main tee. Refer to Detail 4.

3.05 Hydrant Restraint. The hydrant shall be restrained to the main line with 0.75-inch all-thread rod extending from the main line tee to the 6-inch valve and then from the 6-inch valve to the hydrant. The 0.75-inch rods shall be tied to each joint with the use of eyebolts. A bitumastic coating (to prevent corrosion) shall be liberally applied to the all thread rod and eye bolts. In addition, the hydrant and main line tee shall be provided with concrete thrust blocks. Refer to Detail 2.

3.06 Dry Barrel Type Drainage. All hydrants shall be provided with a minimum of 0.33 cubic yards of 0.75-inch screened, crushed rock and shall be placed under the weep hole outlet to assure proper drainage. The crushed rock shall be encased in separator fabric to prevent the mitigation of fines. Prior to the screened rock being placed under the weep hole outlet, the area around the weep holes on the hydrant will be covered with plastic sheeting allowing enough room under the sheeting for the hydrant to drain and also preventing concrete from entering the weep holes.

3.07 Inspection. Prior to backfilling around the hydrant, a visual test shall be conducted to ensure the proper operation of the weep holes. The hydrant shall be partially opened and then closed. Water trapped in the hydrant barrel section should begin to drain. If water is not draining, the well holes should be cleared of any obstructions restricting the flow of water.

End of Section IV

V. VALVES

1.00 GENERAL

1.01 Scope. This section shall include furnishing all materials, labor, equipment, and miscellaneous items necessary to install gate valves, butterfly valves, air release and vacuum valves, and valve boxes as specified herein for the RWSD.

2.00 GATE VALVES

2.01 Materials.

A. Resilient seat.

1. Size - As shown on plans up to 12-inch (14-inch and larger shall be butterfly valves).
2. Reference Standard - AWWA C509, latest revision.
3. Style - Body, bonnet, and wedge: Cast iron, ASTM A126, Class B or Ductile iron, ASTM A536 Grade 65-45-12.
4. Pressure Rating - 200 psi.
5. Wrench Nut - 2-inch square, open by turning to the left (counterclockwise).
6. Stem - Non-rising.
7. Manufacturer's Reference - Mueller.

2.02 Location. Whenever possible, water main valves shall be located at street intersections. Valves must be placed on all runs of a tee or cross. For instance, each cross shall have four valves located at the intersection while tees shall have three valves located at the intersection. Valves shall be located at the intersection. Valves shall be located at the end of all dead-end intersections for future connections.

2.03 Valve Spacing. Valves on cross-connecting or looped mains shall be spaced such that no single break shall require more than 500-feet of line to be out of service at one time. All distribution mains connecting to transmission mains must be valved at the tie-in.

2.04 Installation. All gate valves shall be installed with the 2-inch operating nut plumb and true with the vertical and centered within the valve box. District personnel will inspect the valve and valve box after installation to ensure that a valve key can easily be set on the operating nut. The operating nut shall be within 6-feet of finished grade or an extension must be provided attached to the nut. Refer to Details 5 and 6.

3.00 BUTTERFLY VALVES

3.01 Materials.

- A. Reference Standard - AWWA C-504, latest revision.
- B. Type - Rubber-seated, tight closing type.
- C. Ends - Both ends shall be mechanical joint for direct bury. Valves in vaults shall be flanged.
- D. Valve Body - Shall be high strength cast iron ASTM A 126, Class B with 18-8 type 304 stainless steel body seat.
- E. Operator - Valve operator shall be of the traveling nut type, sealed, gasketed and lubricated for underground service. Operating nut shall be 2-inch square and shall open left (counter clockwise).
- F. Rated Working Pressure - Class 150B, 150 psi. Above 150 psi working pressure, use Class 250B or equal.
- G. Manufacturer's Reference - Mueller Line Seal III.

4.00 AIR RELEASE AND VACUUM VALVES

4.01 General. This specification covers all air release, vacuum valves or combination air release valves. The type of valve used shall be dependent upon the conditions under which it will operate.

4.02 Materials.

- A. Size - To be designed by Engineer for proper application.
- B. Body - Cast iron.
- C. Float - Stainless steel.
- D. Seat - Buna-N.
- E. Pressure Rating - 200 psi.

4.03 Locations. Air release, vacuum valves or combination air release valves shall be installed on transmission and long distribution lines to permit efficient filling or draining of long pipelines. In addition, they should provide protection against vacuum and shall continuously vent pockets of air accumulated in the pipeline. The type of valve shall depend upon the intended use of operation.

4.04 Installation. Air release, vacuum valves or combination release valves shall always be installed at the extreme high point of the distribution or transmission line. These valves shall be installed in a precast manhole vault with the fitting as shown in Detail 7.

5.00 VALVE BOXES

5.01 Materials.

- A. Material - Cast iron.

- B. Type - Three piece, screw type.
- C. Size – 5.25-inch diameter.
- D. Cover - Deep socket type with the word "Water" cast in the top.
- E. Base - No. 160 type with 20.5-inch wide oval base.
- F. Valve Markers - For valves that fall outside of road pavement and shoulders, install a 6-foot long, green "carsonite" marker or green metal "T" stake on all new valves. Marker shall have valve decal at top.

5.02 Installation. Valve boxes shall be installed plumb and true, and centered over the 2-inch operating nut. Bricks shall be placed under the flange of the valve box bottom so that at no time loadings on the valve box will be transmitted to the valve. Valve box lid to be placed 0.25-inch - 0.5-inch below grade when located in asphalt or concrete. A debris cap shall be installed as close as possible to the cast iron cap without interfering with the operation of the cap. Refer to Details 5 and 6.

End of Section V

VI. TRENCHING, BACKFILLING AND COMPACTION

1.00 GENERAL

1.01 Scope. This section shall include all labor, materials, equipment, and miscellaneous items necessary to perform all excavation, backfilling and compaction of underground waterlines and appurtenances as specified herein for the RWSD.

It shall be the Contractor's responsibility to secure all required excavation permits and pay all costs thereof.

1.02 Protection of Work.

- A. All excavation shall be protected by barricades, lights, signs, etc., as required by governing federal, state and local safety codes and regulations. Under no circumstances will more than 20-feet of trench be left open at night. Any trench left open at night will be protected by a temporary snow fence barricade and reflective tape.
- B. Sheeting, Shoring and Bracing - Where trench walls are not excavated at a stable slope, the Contractor shall provide and maintain sheeting sufficient to prevent caving, sliding or failure and property or bodily damage.

Under normal construction conditions, sheeting shall be removed as work progresses. Sheeting shall remain installed if directed by the District or if pipe does not have sufficient strength to support backfill based on trench width as defined by the sheeting.

The Contractor shall be held solely responsible for any violations of applicable safety standards. Particular attention is called to minimum requirements of OSHA and State of Colorado Occupational Safety and Health laws.

- C. Site Drainage - Excavation to be protected from surface water at all times.

2.00 MATERIALS

2.01 Embedment Materials. Pipeline embedment materials shall comply with the appropriate material as listed below and as illustrated in Detail 8.

- A. Class 6 Aggregate Base Course - Use for all distribution and transmission mains. In addition, use for all water service lines. Densely compacted 0.75-inch Class 6 aggregate, 4-inches below bottom of pipe with densely compacted 0.75-inch Class 6 aggregate to 12-inches above top of pipe.

2.02 Backfill Material.

- A. Characteristics - made of materials free from debris, organic matter from frozen material. Uniformly graded sufficient to allow proper compaction.

- B. No boulders greater than 6-inches in diameter in top 12-inches of backfill; bottom, 12-inches; or sides, 12-inches.

Generally, no boulder greater than 12-inches in diameter in remainder of trench.

3.00 METHODS AND PROCEDURES

3.01 Site Preparation.

- A. Clearing - Remove all vegetation, stumps, roots, organic matter, debris and other miscellaneous structures and materials from work site.
- B. Topsoil Removal - Strip existing topsoil from all areas to be disturbed by construction. Topsoil to be stockpiled separately from excavated materials.
- C. Pavement Removal - Asphalt and bituminous pavements to be cut to the full depth of pavement. The vertical face of the cut shall be a straight line parallel to the limit of excavation. Cuts shall be made with a flat-bladed air hammer, concrete saw, or as approved by the District Operator. The method used should provide a straight, true cut. All asphalt located within trench limits to be hauled off site.

Concrete pavements, including curbs, gutters and sidewalks, to be saw cut to the full depth of pavement at the nearest construction joint. The vertical face of the cut shall be a straight line parallel to the limit of excavation.

All pavement removal shall be disposed of off site. Broken pavement shall not to be used in backfill material.

3.02 Trench Excavation.

- A. Limits of Excavation - Trenches to be excavated along lines and grades as approved by the District. Trench widths for pipe loading shall be measured 12-inches above top of pipe.

Minimum trench width shall be the outside diameter of the pipe or conduit plus 16-inches.

Maximum trench width to be the outside diameter of the pipe or conduit plus:

- (1) 24-inches for outside pipe diameter of 24-inches or less.
- (2) 30-inches for outside pipe diameter of greater than 24-inches.

Trench excavation shall not to be completed more than 100-feet in advance of pipe installation. Backfill shall be completed within 20-feet of pipe installation by the end of any working day.

- B. Groundwater Control - Contractor to maintain facilities on site to remove all groundwater from trench. Water shall be kept at least 12-inches below the trench bottom, to a point such that a firm base for pipe or conduit installation exists. Facilities shall be maintained until all concrete is cured and backfilling is in place at least 24-inches above anticipated water levels before water removal is discontinued. All water removal shall be subject to approval by the District.
- C. Stockpile Excavated Material - Excavated material to be stockpiled so as to not endanger the work or public safety. Maintain existing vehicular and pedestrian

traffic with minimum disruption. Maintain emergency access and access to existing fire hydrants and water valves. Maintain natural drainage courses and street gutters.

3.03 Bottom Preparation.

- A. Where soils are suitable and have adequate strength, bottom to be graded and hand-shaped such that the pipe barrel rests uniformly on embedment material.
- B. Bell Holes - Material to be removed to allow installation of all fittings and joint projections without affecting placement of pipe.
- C. Over-Excavation - Whenever trench is over-excavated to eliminate point bearing rocks or stones or when undisturbed grade tolerances of 0.1-foot is exceeded, the Contractor is to re-establish grade using aggregate bedding materials.
- D. Unstable Materials - Materials that are not capable of supporting super-imposed loadings are defined as unstable materials. Should unstable materials be encountered during excavation, immediately notify the District. If unstable material is encountered, the trench bottom shall be over-excavated (minimum 6-inches) and backfilled with clean 2-inch to 6-inch rock with filter fabric installed around it to prevent migration of fines. The rock backfill provides increased water movement and helps stabilize the trench bottom.
- E. Rock Excavation - Rock shall be removed to a 4-inch depth below in bottom pipe grading. Additionally, all rock loosened during jacking, blasting, etc., shall be removed from the trench.

3.04 Backfilling.

- A. Tamping Equipment - Except immediately next to the pipe, mechanical or air operated tamping equipment is to be used. Hand equipment, such as T-bar, is to be used next to pipe if necessary. Care is to be taken when compacting under, alongside and immediately above pipe to prevent crushing, fracturing, or shifting of the pipe. The Contractor is to note densities required for materials being backfilled and shall use appropriate approved equipment to obtain those densities.
- B. Moisture Control - Generally, maintain moisture of the backfill material within 2% of optimal moisture content as determined by ASTM D 698. Maintain close tolerances as needed to obtain densities required.
- C. Compaction - Maximum density (100%) based upon ASTM D698 or AASHTO T99.
 - 1) Bedding Material. Includes material used for over-excavation of any kind: 95% Standard Proctor.
 - 2) Select Material: 95% Standard Proctor.
 - 3) Backfill beneath existing or proposed pavements, roadways, sidewalks, curbs, utility lines and other improvements or within 5-feet horizontally of such improvements 95% Standard Proctor.
 - 4) Backfill within public or designated right-of-way: 90% Standard Proctor or as shown on the Drawings for those areas outside of No. 3 above.

- 5) Backfill within undeveloped, green or designated area: 85% Standard Proctor.
- D. Placing Backfill - The maximum loose lifts of backfill material to be as follows (use smaller lifts where necessary to obtain required densities):
 - 1) Bedding and select material: 6-inches;
 - 2) Backfill Material: 12-inches where 95% compaction required; 24-inches where less than 95% compaction required.
- E. Maintenance of Backfill - Contractor to maintain all backfill in a satisfactory condition during the extent of the contract and warranty period. The Contractor will be responsible for repairing any deterioration or settlement of the road surface. The District will issue notification of the required repairs. All costs for repair and all liability, as a result of surface deterioration or settlement, shall be the responsibility of the Contractor.

3.05 Surface Restoration. All existing surface improvements and site disturbed or damaged during construction to be restored to a condition equal to pre-construction condition. All restoration costs are considered incidental to the excavation and backfill.

- A. Improvements - Replace, repair or reconstruct all improvements as required. Work will not be accepted until the District accepts restoration and all affected property owners. Improvements include, by example, other utilities, culverts, structures, curb and gutter, mailboxes, signs, etc.
- B. Roadways - All roadways to be restored to original condition with the following minimum depths required:
 - 1) Minimum base course material on gravel roadways or minimum depth gravel on hard surface roadways to be 12-inches.
 - 2) Minimum bituminous surfacing to be 3-inches.
 - 3) Minimum concrete paving to be 6-inches.
- C. If any pavement, street, shrubbery, sod, rock, fences, poles or other property surface structures have been damaged, removed or disturbed by Contractor or subcontractor of Contractor, whether deliberately or through failure to employ standards, such property and structures shall be replaced or repaired to the District's satisfaction, at the expense of the Contractor.

4.00 QUALITY CONTROL - FIELD

4.01 Compaction. It should be fully understood that it will be the sole responsibility of the Contractor to achieve the specified densities for all embedment and backfill materials placed. Contractor will be responsible for ensuring that correct methods are being used for the placement and compaction of said materials. Correct backfill methods include, but are not limited to:

- A. Use of proper equipment for existing soil condition encountered.
- B. Moisture content of existing soils; determination if water should be added or if soil should be air-dried to reduce moisture content.
- C. Thickness of backfill lift.

Contractor may, at their own expense, have an approved geotechnical engineer monitor the methods of backfill and compaction used to ensure that the desired densities are being obtained.

4.02 Inspection and Testing. Inspection and testing to be performed at the direction of the District. Contractor to cooperate fully with all persons engaged in testing. Contractor shall excavate as required to allow testing. Contractor shall backfill all test excavations in accordance with these regulations.

4.03 Density Testing and Control.

- A. Reference Standards - Density/moisture relationships to be developed for all soil types encountered according to ASTM D698 or AASHTO T99.
- B. Field Testing - Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- C. Frequency of Testing - Minimum of one (1) test for each 100-feet of trench or as directed by the District. Contractor to excavate to depths required by Engineer for testing and backfill test holes to density specified. Testing to be paid for by the Contractor.

End of Section VI

VII. PRESSURE TESTING AND FLOW TESTING

1.00 GENERAL

1.01 Scope. This section shall include furnishing all materials, labor, equipment and miscellaneous items necessary to perform pressure and leakage tests all distribution, transmission and service lines as specified herein for the District.

1.02 Hydrostatic Tests. Pressure and leakage tests shall be conducted on all newly laid pipe and service lines. Contractor to furnish all the necessary equipment and materials to conduct the test. Contractor shall test through fire hydrants if possible and will be responsible for installing the appropriate taps as approved by the District engineer if a hydrant is not available used.

The test shall be conducted between valved sections of the pipeline, or as approved by the District. Water service lines will be tested up to the closed curb stop. A visual inspection of the water service connection, at the water main and at the curb stop, will be performed to check the leakage; thus, Contractor shall not backfill the corporation and curb stop connections until inspection by District representative has been completed and accepted.

Furnish the following equipment and material for the tests:

<u>Amount</u>	<u>Description</u>
2	Approved graduated containers.
2	Pressure gauges.
1	Hydraulic force pump approved by the District.
1	Additional 0.75-inch pressure tap for District's gauge.
1	Suitable hose and suction pipe as required.

Conduct the tests after the trench has been backfilled or partially backfilled with the joints left exposed for inspection, or when completely backfilled, as permitted by the District. Where any section of pipe is provided with concrete reaction blocking, do not make the pressure tests until at least 5-days have elapsed after the concrete thrust blocking is installed. If High-Early cement is used for the concrete thrust blocking, the time may be cut to 2-days.

Conduct pressure test in the following manner unless otherwise approved by the District: After the trench has been backfilled as specified, fill the pipe with water, expelling all air during the filling. The test pressure shall be 1.5 times normal static system working pressure of the pipe at the point of lowest elevation (test minimum 150 psi).

A. Duration

1. The duration of each pressure test shall be 2-hours, unless otherwise directed by the District.

B. Procedure

1. Slowly fill the pipe with water and allow to stand for 24-hours. Expel all air from the pipe. Apply and maintain the specified test pressure by continuous pumping in necessary for the entire test period. The test pressure shall be calculated for the point of lowest elevation, or as specified by the District. The pump suction shall be in a barrel or similar

device, or metered so the amount of water required to maintain the test pressure may be measured accurately.

2. Before the line is pressurized, the District shall verify that all the necessary main line valves are open or closed with regard to the section of line being tested. In addition, the District shall verify that all hydrant valves are open.

C. Leakage

1. Leakage shall be defined as the quantity of water necessary to hold the specified test pressure for the duration of the test period. No pipe installation will be accepted if the leakage is greater than the number of gallons per hour as determined by the following formula:

$$L = \frac{SD\sqrt{P}}{148,000}$$

In the above formula:

L = Allowable leakage, in gallons per hour.

S = The length of pipe being tested, in feet.

D = Nominal diameter of pipe, in inches.

P = Average test pressure during the leakage test, in pounds per square inch gauge.

D. Correction of Excessive Leakage

1. Should any test of pipe laid disclose leakage greater than that allowed, locate and repair the defective joints or pipe until the leakage of a subsequent test is within the specified allowance.

E. Flow Test

1. After new main has been leak tested, the line shall be flushed by opening 1 or more fire hydrants for approximately 10-minutes or until sediment has been flushed from system.

End of Section VII

VIII. DISINFECTION OF POTABLE WATER LINES

1.00 GENERAL

1.01 Disinfection. The following procedure shall apply to all main extensions within the District service area. Pipe extensions shall be chlorinated in accordance with AWWA C600 and C651 *Standard for Disinfecting Water Mains*.

THE CHLORINATION OF THE FINISHED PIPELINE SHALL BE DONE PRIOR TO THE INSTALLATION OF ANY SERVICE TAPS.

Before filling the pipe with water, the pipe shall be clean and *free of* debris to the satisfaction of the RWSD.

The District shall perform disinfecting by chlorination of the pipe prior to acceptance. The chlorinating agent and method of application shall be in accordance with AWWA C651. The Contractor shall provide material for disinfecting of water mains.

If the tablet method of chlorination is used, during construction, calcium hypochlorite granules shall be adhered, with a CDPHE approved adhesive, to the inside top of every stick of pipe. The quantity of granules shall be as shown in the table below. This method may be used only if the pipes and appurtenances have been kept cleaned and dry during construction. This method is **not be used** on solvent welded plastic or on screwed joint steel pipe because of the danger of fire or explosion from the reaction of the joint compound with the calcium hypochlorite.

65% CALCIUM HYPOCHLORITE GRANULES

To be placed at the beginning of main and at each 500-foot interval.

<u>Pipe Diameter</u>	<u>Ounces</u>
4"	0.5
6"	1.0
8"	2.0
12"	4.0
16" and larger	8.0

After the pipe is filled with water and chlorine, and unless approved otherwise by the District, the chlorinated water shall be held in contact with the pipe for 24-hours. At the end of the 24-hour period, the water in the pipeline shall be tested by the District to ensure residual chlorine content of not less than 25 mg/l. The pipeline shall then be tested by the District thoroughly flushed to remove the heavily chlorinated water and/or debris. Care shall be taken in flushing the pipeline to prevent property damage and danger to the public. Discharge of highly coordinated water shall not be released to any stream or watercourse. Samples of water will be collected for bacteriological examination and residual chlorine content testing before the pipeline is put into service. The District will do testing of residual chlorine and bacteriological sampling and testing.

If the continuous feed method of chlorination is used, the Contractor is to provide the written procedure to the District Inspector for acceptance of the method at least 48-hours prior to starting the work.

No main that has been disinfected and flushed shall stand stagnant for more than 15-days without being re-flushed and a new disinfecting test performed, passed and approved by the District. **No main shall be tapped until the main has been flushed of all highly chlorinated**

water.

- 1.02 Discharging Chlorinated Water. Contractor or Developer shall not discharge chlorinated water to any water body until the chlorine is neutralized and eliminated.

End of Section VIII

IX. SPECIAL CONSTRUCTION

1.00 GENERAL

1.01 Scope. This section shall include the design and construction of aerial crossings, river crossings, storage tanks, pressure reducing vaults and booster stations. Because each of these structures will require an engineered design to meet field conditions and individual design criteria, this section will not attempt to provide complete design guidelines and specifications. Rather, it will provide a general listing of guidelines that must be followed unless the District approves an equivalent alternative.

2.00 AERIAL CROSSING

2.01 General. This section shall cover the design criteria to be used on aerial crossings, including water lines suspended from existing and proposed bridges, and lines aerially supported over steep canyons and arroyos. In both of the above crossings, an underground or river crossing will be required unless special circumstances render the below grade alternative prohibitive. If it is determined that a bridge crossing is acceptable to the District, and then the following design criteria shall be followed.

2.02 Pipe Supports. If pipe is to be supported from an existing bridge, a structural analysis shall be performed to determine if the bridge can withstand the additional loading. If being installed on a new bridge, then additional pipe loading should be included as a dead load consideration.

Pipe shall be supported with a pipe hanger that allows longitudinal movement. Support shall be an adjustable steel yoke pipe roll or approved equal. In addition, a horizontal support from pipe hanger to the bridge shall be provided so that the pipe assembly will not move horizontally due to wind loads, etc. The spacing of the pipe hangers shall depend upon the maximum recommended load of hanger.

2.03 Pipe Insulation. Aerial pipelines shall be prevented from freezing by pipe insulation. The insulation R-value and thickness shall be designed to a generally accepted standard for the RWSD area. The insulation should have a minimum R-value of 20. The insulation shall be non-absorbing to water.

2.04 Insulation Protection. Provide an aluminum jacket with moisture barrier strapped with stainless steel bands. Jacketing thickness shall be a minimum of 16 mil. Provide insulation protection shields.

2.05 Pipe. Provide Class 52 ductile pipe with flanged joints, ANSI A.21.15, AWWA C 115, latest revision.

2.06. Expansion Coupling. Provide a restrained expansion coupling between each rigidly supported point of the pipe. Follow all manufacturer's recommendations when installing. Expansion couplings shall be accessible to water department personnel for maintaining and making adjustments in couplings.

2.07 Air and Vacuum Vaults. If bridge crossing is at a high point in line, install all air and vacuum valves appropriate for design conditions.

2.08 Isolation Valves. An isolation valve shall be provided on either end of the bridge. If a break occurs, the line can be easily isolated.

2.09. Accessibility. Generally, the pipe should be placed in a location where personnel can easily access and maintain the pipe.

3.00 RIVER CROSSINGS

3.01 General. This section covers the design criteria to be used on river crossings.

3.02 Encasement. Pipe shall be encased in concrete for the length of pipe underneath high water mark.

3.03 Pipe. For river crossing, the pipe joints shall be push-on joints with joint restraint, Class 52 D.I.P. Manufacturer's reference - Griffin Snap-Lok pipe or approved equal by District Engineer.

3.04 Bend Restraint. All vertical bends shall be restrained with vertical reaction blocks and all thread rods between bends or between bends and concrete thrust tie.

3.05 Permits. Generally, a river crossing will require a 404 Permit or Nationwide Utilities Permit from the Army Corps of Engineers. The Applicant should begin the permit process as soon as possible, as the process can take from 30-90 days to secure the permit.

4.00 STORAGE RESERVOIRS

4.01 General. This section covers the design criteria to be used on storage reservoirs. The District may allow either a buried concrete or aboveground steel reservoir. The District reserves the right to require either a concrete or steel tank depending on the field conditions, size and location of the tank. The District shall determine the size and location of the storage tanks.

4.02 Foundation Design. A soil and geological report shall be provided which makes recommendations on the required foundation.

4.03 Structural Design. Complete structural design, with calculations and shop drawings submitted by a professional engineer shall be provided. If a welded steel tank is provided, it shall conform to AWWA D100, latest revision.

4.04 CDPHE Requirements. All Colorado Department of Public Health and Environment, Water Quality Control Division "Design Criteria for Potable Water Systems" shall be followed.

4.05 Flow Measuring. A magnetic flow meter capable of measuring flow in both directions shall be provided. Two remote recording charts with totalizers shall be provided at the District office. The flow meter shall be housed in a vault outside the tank. The vault shall conform to the same basic requirements as a PRV vault (see Section 5.00 of this section). The vault shall contain heat, lights and two 110-volt outlets. Install lightning arresters on mag meter power sensor lines to eliminate surge and transient voltages (located at both ends).

4.06 Tank Insulation. Not Applicable.

4.07 Steel Tank Painting. Use an AWWA approved paint system for tank interior and exterior coating on all steel tanks. Painting shall conform to AWWA D102, latest revision.

5.00 PRESSURE REDUCING VAULTS (PRV) – Detail 9

5.01 General. This section shall cover the design criteria to be used on pressure reducing vaults. The District shall determine the location of PRV's.

5.02 PRV Valve. The PRV valve shall be a Clayton valve as manufactured by the Cla-Valve Company. The main valve shall be a single seated, hydraulically operated, pilot controlled,

diaphragm-type globe valve.

5.03 Pilot Control System. Cast bronze ASTM B62 with 303 stainless steel trim. Install isolation cocks, closing and opening speed control and strainers on pilot controls.

5.04 Pressure Gauges. Install two stainless steel, liquid-filled, hermetically sealed pressure gauges with pressure snubbers, and isolation cocks. Locate at main inlet and outlet of vault so that if one PRV is isolated, gauges will still register.

5.05 Bypass Piping. Install a bypass around main PRV valve so that mainline can be filled and service maintained with PRV valve out of service. Bypass shall be installed with an isolation valve.

5.06 Pressure Relief Valve. If damaging downstream pressure can result when PRV is stuck in open position, then a pressure relief valve shall be installed on downstream side of PRV on either the main line or bypass line. Pressure relief valve shall be piped to daylight.

5.07 Isolated Valves. Install isolation resilient seat gate valves inside of vault so that main PRV valve can be isolated.

5.08 Air Release. Install an air release and vacuum valve on both inlet and outlet of pipe in vault. Each air release valve to have an isolation valve.

5.09 PRV Vault. All valves, appurtenances and pipe to be enclosed in a concrete or steel vault. Install link seal or equivalent between pipe inlets, outlets and vault wall. Provide frost-proof aluminum manhole lid marked "Water" on concrete vaults. Plastic covered steel MH rungs shall be provided on concrete vault with the first step not being greater than 18-inches from finished grade. Install concrete supports under PRV and tees. All vaults to be provided with one 110-volt outlet and a drain that daylights.

5.10 Fittings. All main line fittings shall be ductile iron flanged fittings.

6. Waterline Insulation – Detail 11

6.1. General. This section shall cover the installation to be used on water lines when insulation is required. The District engineer will approve the use of insulation on waterlines if the conditions will not allow the waterline to be buried deep enough to obtain 5.5-feet of depth below the lowest storm drain pipe.

6.2. Installation. In areas where 5.5-feet of depth is unable to be obtained between the waterline and the lowest storm drain pipe insulation can be approved by the District engineer. The insulation shall encase the waterline 4-feet in either direction of the crossing. Four-inch thick polystyrene (Blue board) shall be installed 1-foot away from the pipe on both sides and the top. Contractor shall provide a minimum of 18-inches between the top of the insulation and the invert of the storm drain.

7. Transmission Line Tapping – Detail 12

7.1. General. This section shall cover the installation of a distribution line water tap onto a pressurized transmission main.

7.2. Installation. Tapping a pressurized transmission main for a new distribution line will only be allowed when the transmission line can not be shut down to install a traditional Tee and 3 valves. Pressurized taps will only be performed by contractors approved by the District. Tapping sleeve shall be stainless steel to prevent corrosion and shall be covered with 4 mil polyethylene plastic with a 0.75-inch tap for pressure testing. Gate valve shall be flange by MJ with a mega-lug or approved equal and with standard valve box as

shown in Detail 5. A Thrust block shall be installed behind the tapping sleeve and shall be sized according to the Detail 2 for a Tee of 250 psi or less.

7.3. Testing. Tapping sleeve shall be air tested to gate valve with 1.5 times normal working pressure or 150 psi; whichever is greater for 5-minutes.

7.4. Manufacture's Reference. Cascade CST - EX

8. Pipe Jacking/Boring – Details 14 – 15

8.1. General. This section shall cover the installation of utilities within a pipe casing that has been jacked or bored. Refer to Details 15 and 16 for design and installation details.

9. Water Meter Vault – Detail 16

9.1. General. This section shall cover the design criteria to be used on water meter vaults. Refer to Detail 16 for water meter vault details.

End of Section IX

X. BACKFLOW PREVENTION

1.00 GENERAL

1.01 Scope. This section shall include the use of backflow prevention devices to prevent cross connection.

1.02 Requirements. All work within the District must comply with the current requirements under Colorado law for prevention of cross connections and backflows. Such laws include, but are not limited to, Colorado Department of Health Statutes, C.R.S. ' 25-1-114(h); Colorado Primary Drinking Water Regulations, S.C.C.R. 1003-1 (Article 12); and the "*Colorado Department of Health Cross Connection Manual*".

In general, the law states that it is illegal to have or to maintain a cross connection on a public water supply. Cross connection is defined as any connection which would allow water to flow from any pipe, plumbing fixture or water system into a water system supplying drinking water to the public.

1.03 Public Education. The RWSD will educate system users about the potential health risk that cross-connections pose, with an emphasis on cross-connections. Contact the District Administrator regarding public education.

1.04 Types of Cross Connections. The following are common (but not limited to) cross connections and required devices to prevent backflow:

- A. Hose bibs - Vacuum breaker
- B. Irrigation lines/systems
- C. Fire sprinkler systems
- D. Boiler systems
- E. Dishwashers
- F. Solar homes using potable water as heat source
- G. Any building over 3 stories tall

5. Backflow Preventers. Be advised that each cross connection will require different types of backflow prevention devices, and is beyond the scope of these regulations. District personnel must give approval of backflow preventers.

6. Annual Testing. Article 12 requires that backflow prevention devices be tested annually by a certified backflow prevention technician. Contact District Operator for a list of certified backflow prevention technicians.

End of Section X

XI. SANITARY SEWER LINES

1.00 GENERAL

1.01 Scope. Work under this section shall include furnishing all materials, labor and tools necessary to perform all installation, cleaning and testing of all sanitary sewer lines and appurtenances as specified herein and shown on the Drawings.

1.02 Protection of Work. All pipe, fittings and equipment shall be carefully handled, stored and protected in such a manner as to prevent damage to materials. At no time shall such materials be dropped or dumped into trench.

Precaution shall be taken to prevent foreign matter from entering the pipe and fittings prior to and during installation. Place no debris, tools, clothing or other materials in the pipe during installation.

At such time as pipe installation is suspended, either temporarily or over night, the open end of the pipe shall be sealed with a watertight plug to prevent entrance of trench water, debris or foreign matter. A mechanical-type fitting shall be used for this seal. At no time shall duct tape or any other tape be used for this seal.

Under no circumstances shall trench water be allowed to enter the pipeline. When water is present in the trench, the seal shall remain in place until such time the trench is pumped dry. Whenever trench water becomes evident, adequate measures shall be taken to prevent pipe flotation. Contractor shall bear all costs associated with keeping trench free of liquids.

If, in the opinion of the Engineer, the Contractor is incapable of keeping the pipe free of foreign matter during installation, the Engineer shall require the Contractor to protect the pipe ends with water tight plugs until the start of the joining operation.

2.00 MATERIALS

this item covers the types of materials that will be allowed for the construction and installation of sewer lines. All materials used shall be new, of the best quality available and conform to applicable standards as indicated herein.

2.01 Ductile Iron Pipe and Fittings. Not permitted for gravity lines.

2.02 Polyvinyl Chloride (PVC) Pipe and Fittings (Gravity Main)

A. PVC Pipe, through 15-inch diameter.

1. Material Reference Standard - ASTM D1784
2. Pipe Reference Standard - ASTM D3034
3. Class – SDR-35
4. Markings - Manufacturer's name, nominal size, PVC classification, Type PSM, SDR-35, PVC gravity sewer pipe, ASTM D3034 and code number, green coloring dyed into PVC.

B. PVC Pipe, 18-inch to 27-inch diameter.

1. Material Reference Standard - ASTM D1784
2. Pipe Reference Standard - ASTM F679
3. PS 46 PVC Sewer Pipe and ASTM F679. Green coloring dyed into PVC.
4. Variance - PVC piping meeting the stiffness requirement of ASTM F679 but not meeting wall thickness requirement will be allowed under

specification. Manufacturers will be required to provide a list of at least five similar projects with references in which pipe has been successfully used and laboratory testing data showing the pipe meets the structural requirements of ASTM F679.

- C. Restrained Joint PVC Pipe, through 16-inch diameter.
 - 1. Material Reference Standard - ASTM D1784
 - 2. Class – SDR-32.5
 - 3. Manufacture’s Reference – CertainTeed - Certa-Lok Yelomine
 - 4. Markings - Manufacturer's name, nominal size, PVC classification, SDR-32.5, PVC gravity sewer pipe.

- D. Fittings
 - 1. Type - PVC push-joint
 - 2. Materials - ASTM D1784
 - 3. Reference Standard - ASTM D3034 or ASTM F679

- E. Joints
 - 1. Type - push-on rubber gasket
 - 2. Gasket reference standard - ASTM F477

2.03 Force Main

- A. PVC Pipe.
 - 1. Materials - ASTM D 1784, Type 1, Grade 1, PVC 1120, 2000 psi design stress.
 - 2. Reference Standard - AWWA C-900.
 - 3. Class - 150 (DR-18), (or, dependent upon internal pressure, may require Class 200).
 - 4. Markings - Manufacturer's name, nominal size, class pressure rating, PVC 1120, NSF logo, identification code.
 - 5. Specialties - Electrical tracing wire, 14 gauge solid copper insulated wire.
 - 6. Size - Shall conform to outside diameter of DIP.

- B. Fittings.
 - 1. Type - All fittings shall be restrained mechanical joint except where specifically shown or detailed otherwise. Fittings in a vault shall be flanged.
 - 2. Reference Standard - AWWA/ANSI C153/A 21.53
 - 3. Pressure Rating - 350 psi
 - 4. Gasket Reference Standard - AWWA C-111
 - 5. Fittings shall be coated with Permafuse epoxy coating inside and out.

- B. Ductile Iron Pipe.
 - 1. Reference Standard - ANSI 21.51/AWWA C151, latest edition.
 - 2. Thickness Class - 52
 - 3. Pipe joints shall be push on joints, except where specifically shown or detailed otherwise.
 - 4. Pressure Rating - 350 psi

C. Fittings

1. Type - All fittings shall be mechanical joint.
2. Reference Standard - ANSI/AWWA C153, latest edition, for mechanical "compact" joints.
3. Material - Ductile iron
4. Pressure Rating - 350 psi
5. Fittings shall be coated with Permafuse epoxy coating inside and out.

D. Joints

1. Mechanical, Reference Standard - ANSI A. 21.53/AWWA C153, latest edition.
2. Push-on, Reference Standard - ANSI A 21.15/AWWA C115, Class 125.
3. Flanged, Reference Standard - ANSI B 16.1, Class 125

E. Gaskets

1. Type - Rubber-ring gasket for gravity main.
2. Type - Rubber-ring Field-Lok gasket, or equal, for force main shall be suitable for the specified pipe sizes and pressure
3. Reference Standard - AWWA C111, latest edition.
4. Lubricant - A non-toxic vegetable soap lubricant shall be supplied with the pipe.

F. Protective Coating

1. Underground Service - Manufacturer's standard bituminous coating - minimum 1 mil thickness.
2. Polyethylene Film Envelope - Polyethylene encasement shall conform to AWWA C105, latest edition, or ANSI A.21.5. Film shall be Class C with a nominal thickness of 8 mils. Tape for securing the film shall have a minimum thickness of 8 mils and a minimum width of 1-inch. The polyethylene film shall be free of streaks, pinholes, tears or blisters.

G. Protective Lining - Gravity Main

1. Type - Cement mortar
2. Reference Standard - ANSI A 21.4/AWWA C104, latest edition.
3. Thickness - Standard

H. Protective Lining - Force Main

1. Type - Lining designed for sewer service equal to Protecto 401 by Clow or Permafuse epoxy coating.

2.04 Small Diameter, Low Pressure Sewerline less than 4-inch.

A. Pipe Materials

1. High density Polyethylene pipe and fittings, HDPE 3408 Plastics Pipe Institute, DR9
2. Polyvinyl Chloride pipe (PVC) ASTM D-1784 & D-2241, DR21, 200 psi

B. Joints

1. Butt fusion for HDPE

2. Gasketed for PVC, 2-inch and larger; solvent weld for 12-inch and smaller.

C. Appurtenances

1. Air/Vacuum valve - Crispin SU20 sewage air/vacuum or approved equal
2. Isolation valve - PVC ball valve or approved equal.

2.05 Concrete for Thrust Blocks and Encasing of Pipe. Concrete for thrust blocks and for encasing the sewer pipeline shall have 28-day compressive strength of not less than 3000 psi.

2.06 Manholes. Details A, B, C, D

A. Concrete Rings/Cones

1. Type - Precast
2. Reference Standard - ASTM C478
3. Size - Four-foot or five-foot inside diameter

B. Manhole Bases

1. Shall be precast or cast-in-place, depending upon local jurisdiction standards, with integrally cast-in water stops. Tee tops of base shall be at least 12-inches above top of pipe.
2. Reference Concrete Standard – ASTM C478

C. Manhole Steps. Manhole steps shall conform to ASTM C478-94 and shall be steel reinforced copolymer polypropylene with materials conforming to the following:

Materials:

1. The deformed steel reinforcing bar shall be 2-inch conforming to ASTM A-615 Grade 60.
2. The copolymer polypropylene shall conform to ASTM D4101-92b PP0344B33534Z02.
3. Manufacturer's Reference: M.A. Industries Model PS1-PF, or approved equal.

D. Joints

1. Type - Rub'r Nek preformed gasket as manufactured by K.T. Snyder Co., Inc, Houston, Texas, or equal.
2. Cement Mortar Material Reference Standard - One part Portland cement, Type II, modified with three parts of sand. Cement mortar to be used with concrete grade rings only.

E. Grade Adjustment Rings

1. Type - Precast ASTM C150 Type II modified concrete.
2. Size - Not less than 6-inch wide x heights to allow for two-inch adjustments.
3. Alternate - HDPE grade rings.
4. Manufacturer's reference: Ladtech, Inc., or approved equal.

F. Frame and Cover.

1. Material Reference - Grey Iron, ASTM A48-83, Class 35B, traffic bearing.
2. Cover - Stamped with "SEWER"," machined bearing surface with ring.
3. Type - Heavy, weight of cover greater than 140 pounds.
4. Manufacturer Reference -Castings MH-400-24CI.

2.07 Sewer Service Line Materials.

A. Full Body Wyes - Required for all new and existing sewer line construction.

1. Material - ASTM D3034 PVC
2. Strength - for use with SDR-35
3. Joint - Slip-on rubber gasket

2.08 Shear Gates. Not applicable.

2.09 Flap Gate. Not applicable.

2.10 Butterfly Valves. Not applicable.

2.11 Gate Valves . Not applicable.

2.12 Valve Boxes. Not applicable.

2.13 Tracer Wire. Tracer wire shall be 12-gauge insulated stranded copper wire. Tracer Wire shall be installed on all sewer mains and services. Wire continuity to be tested prior to pipeline being accepted.

3.00 METHODS AND PROCEDURES

3.01 Cleaning and Inspection. Clean all pipe, fittings and related materials thoroughly of all foreign material and inspect for cracks, flaws or other defects prior to installation. Mark all defective, damaged or unsound materials with bright marking crayon or paint and remove from job site.

The Contractor shall take all necessary precautions to prevent any construction debris from entering the sewer lines during construction. If this debris should enter the pipeline system, the Contractor shall furnish all labor and materials necessary to clean the system. Under no circumstances will the Contractor flush the debris into an existing sanitary sewer system.

3.02 Placement of Pipe.

- A. Laser Beam. All sanitary sewer pipes must be installed with a laser. If bending of the beam due to air temperature variations becomes apparent with "in pipe" units, a fan shall be provided to circulate air in the pipe. Air velocity shall not be so excessive as to cause pulsating or vibrating of the beam. If, in the opinion of the Engineer, the beam cannot be accurately controlled, this method of setting line and grade shall be abandoned.

3.03 Pipe Embedment. Detail E

- A. Placing embedment material - Refer to Section XII for placement methods.

- B. Embedment Classes - Refer to Section XII for embedment materials for each class listed below:
 - 1. Class A - Use of all PVC, DIP, CMP and Concrete pipelines.
 - 2. Class B - Use where indicated on the Drawings and where improper trenching or unexpected trench conditions require its use as determined by the Engineer.

3.04 Pipe Installation.

- A. Installation of Ductile Iron Pipe Lines. Not applicable.
- B. Installation of Polyvinyl Chloride (PVC) Pipe.
 - 1. Pipe Handling. Pipe should be carefully lowered into the trench to avoid pipe falling into trench.
 - 2. Pipe Laying. Pipe shall be laid true to line and grade, in an uphill direction, with bell ends facing in the direction of laying. When pipe laying is not in progress, a watertight plug shall close the open end of the pipe.
 - 3. Joining the Pipe. The outside of the spigot and the inside of the bell shall be thoroughly wiped clean. Set the rubber ring in the bell with the marked edge facing toward the end of the bell. Lubricate the spigot end using a thin film of the manufacturer-supplied lubricant. Push the pipe spigot into the bell. Position the completed joint so that the mark on the pipe end is in line with the end of the bell.
 - 4. Pipe Cutting. The cutting of pipe for manholes or for fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or lining and so as to leave a smooth end at right angles to the axis of the pipe. Bevel the end of the pipe with a beveling tool after the pipe is field cut. Place a clearly visible position mark at the correct distance from the end of the field-cut pipe.
 - 5. Solvent Weld or Butt Fusion Joints. All cutting and field fabrication shall be done according to printed recommendations of the pipe manufacturer or associated pipe manufacturer organizations. Piping shall be cleaned to the extent required for joint completion.
- C. Installation of Slipline Pipe. Not applicable.

3.05 Sewer Manhole Installation. Details A, B, C, D

- A. General. Manholes shall be furnished and installed to depths and dimensions shown on the Construction Drawings and/or staked in the field. Manholes shall be constructed of precast concrete rings in accordance with details shown on the Construction Drawings.
- B. Connections to Manholes. Connection of manhole with pipe shall be made with flexible connector detail. In addition, extra care shall be taken by grouting or other means of sealing to assure positive watertight manholes around the inlet or outlet pipes.
- C. Manhole Floor and Inverts. Manhole bases shall be constructed to conform to the details shown on the Drawings. The invert channels shall be smooth and semi-circular in shape, conforming to the inside of the incoming and outgoing sewer

pipelines. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly. Where large differences in invert elevations exist, sloped flow channels shall be formed so the wastewater does not undergo a vertical drop. The invert channels may be formed directly in the concrete of the manhole base. The floor of the manhole outside the channel shall be smooth and shall slope toward the channels.

- D. **Finish Grade and Adjustment.** To bring the manhole cover to the correct elevation, the top section of each manhole shall be constructed of pre-cast concrete grade adjustment rings. These rings shall be not less than 6-inch wide and furnished in heights to allow for 2-inch adjustments. Grade adjustment with rings shall be 8-inch maximum and 2-inch minimum. All rings shall be grouted in place with non-shrink grout.

Finish Grade and Adjustment HDPE Alternate. High-density polyethylene grade rings may also be used to bring manhole cover to correct elevation. Grade rings shall be molded from HDPE as defined in ASTM Specification D1248-84. Available thicknesses are 1.25-inch, 1.50-inch, 2.00-inch 4.00-inch and a sloped thickness 0.75-inch x 1.50-inch. When this alternate is used, pavement slope should be matched using one or more sloped rings. Manufacturer's reference - Ladtech, Inc., or approved equal.

Grade rings shall be a combined maximum height of 1-foot. If more than 1-foot of grade rings are required then a 1-foot manhole section shall be installed along with grade rings.

- E. **Manhole Stubs.** Stubs shall extend approximately 24-inch from the outside face of the manhole and shall be capped or plugged with manufactured fittings to form a watertight installation.
- F. **Manhole Steps.** Manholes steps shall be installed so that the first step is a maximum of 18-inches from finished grade. The steps below the first step shall be installed within 1-inch horizontally of the first step. This will be measured by hanging a plumb bob from a corner of the top step and measuring from that line to the same corner of each step.

3.06 Connection to Existing Sewer Facilities. Connections to existing sewer facilities where live flows exist shall be made only after prior consultation with and receipt of written permission from the District Engineer. No bypass of sewage to the surface will be allowed in the completion of this connection. All connections between pipes of different materials shall be made with approved manufactured connectors.

3.07 Protection of Water Supplies. Sewer lines shall be located a minimum of 10-feet horizontally from existing or proposed water mains. Where the sewer line crosses above the waterline, or is less than 18-inches vertically below the invert of the water line, or is less than 10-feet horizontally from the water main, the sewer line shall be made impervious by either of the methods listed below or as shown in Detail 14.

- A. The sewer pipe shall be reinforced with a concrete encasement. The encasement shall be at least 6-inches thick on all sides of the sewer pipe and extend 10-feet on either side of the water main. Use three No. 4 rebar the length of the encasement.
- B. Install one piece of C-900 PVC pipe centered over the waterline with a solid sleeve coupler with transition gaskets

- C. Install a ground collar over the two sewer joints on either side of the water crossing. The grout collar shall be around the entire perimeter of the joint.

If clearance is less than 12-inches vertically, the space between the water and sewer mains shall be filled by 3,000 psi concrete.

In all cases, bedding material shall be used to prevent any settling of the higher pipe.

3.08 Service Connections. Customer service connections shall be installed in accordance with Detail F. After the service connection is installed, the end shall be plugged watertight with a manufactured plug and marked with a stake except as shown otherwise on the Drawings.

4.00 FIELD QUALITY CONTROL

4.01 Alignment and Grade. Sewer pipelines will be checked by the Engineer to determine whether any displacement of the pipe has occurred after the trench has been backfilled. The test will be as follows:

A light will be flashed between manholes, or if the manholes have not yet been constructed, between the locations of the manholes, by means of a flashlight. If the illuminated interior of the pipeline shows poor alignment, displaced pipe, earth or other debris in the pipe, or any other kind of defect, the defects as determined by the Engineer shall be remedied by the Contractor at their own expense. Test will be repeated after completion of backfilling and any poor alignment, displaced pipe, or other defects determined by the Engineer, shall be corrected.

4.02 Leakage Test. Sewerlines shall be tested using a low-pressure air test only; water tests will not be allowed. Only after the sanitary sewers, including appurtenances and sanitary laterals, water mains and water services have been installed and backfilled to finish grade, shall the Contractor proceed with an air test on the installed facilities.

- A. Low Pressure Air Test Procedure. The section of sewerline to be tested should be flushed and cleaned prior to conducting the low-pressure air test. This serves to clean out any debris, wet the pipe, and produce more consistent results. Isolate the section of sewerline to be tested by means of inflatable stoppers or other suitable test plugs. One of the plugs should have an inlet tap, or other provision for connecting a hose to a portable air control source.

If the test section is below the groundwater level, determine the height of the ground water above the spring line of the pipe at each end of the test section and compute the average. For every-foot of groundwater above the pipe spring line, increase the gauge test pressure by 0.43 pounds per square inch. Connect the air hose to the inlet tap and a portable air control source. The air equipment should consist of necessary valves and pressure gauges to control the rate at which air flows into the test section and to enable monitoring of the air pressure within the test section. Also, the testing apparatus should be equipped with a pressure relief device to avoid the possibility of loading the test section with the full capacity of the compressor. Locate valves and gauges above ground.

Add air slowly to the test section until the pressure inside the pipe is raised to 5.0 psig greater than the average backpressure of any groundwater that may be over the pipe. After a pressure of 5.0 psig is obtained, regulate the air supply so that the pressure is maintained between 4.5 and 5.0 psig (above the average ground water back pressure) for a period of 2-minutes. This allows the air temperature to stabilize in equilibrium with the temperature of the pipe walls. The pressure will normally drop slightly until temperature equilibrium is obtained.

Determine the rate of air loss by the time/pressure drop method. After the 2 minute air stabilization period, the air supply is disconnected and the test pressure allowed decreasing to 4.5 psig. The time required for the test pressure to drop from 4.5 psig to 4.0 psig is determined by means of a stopwatch and this time interval is then compared to the required time in the attached table to determine if the rate of air loss is within the allowable time limit. If the time is equal to or greater than the times indicated in the tables, the pipeline shall be deemed acceptable.

Nominal Pipe Size (Inches)	Minimum Test Time (min/100-feet)
3	0.2

4	0.3
6	0.7
8	1.2
10	1.5
12	1.8
15	2.1
18	2.4
21	3.0
24	3.6
27	4.2
30	4.8
33	5.4
36	6.0

Upon completion of the test, open the bleeder valve to allow air to escape. Plugs should not be removed until all air pressure in the test section has been released. During this time, no one should be allowed in the trench or manhole while the pipe is being decompressed. Air test shall also include service lines and appurtenances.

4.03 Manhole Inspection. During the construction of the manholes, the Contractor shall, in accordance with good practice, ensure that no earth, sand, rocks or other foreign material exists on the joint surfaces during assembly of the section. The Engineer shall check each manhole to determine whether the manhole fulfills the requirements of the approved Drawings and Specifications.

- A. Visual Examination. The Engineer shall visually check each manhole, both exterior and interior, for flaws, cracks, holes, or other inadequacies that might affect the operation or watertight integrity of the manhole. Should any inadequacies be found, the Contractor, at their own expense, shall make any repairs deemed necessary by the Engineer.
- B. Leakage Test. All manholes shall be tested for leakage and all tests shall be witnessed by the Engineer. The leakage test shall be conducted after the manhole has been backfilled to finished grade and shall be carried out in the following manner:
 - 1. Stub-outs, manhole boots and pipe plugs shall be secured to prevent movement while the vacuum is drawn.
 - 2. Installation and operation of vacuum equipment and indicating devices shall be in accordance with equipment specifications for which performance information has been provided by the manufacturer and approved by the Engineer.
 - 3. A measured vacuum of 10-inches of mercury shall be established in the manhole. The time for the vacuum to drop to 9-inch of mercury shall be

recorded.

4. Acceptance standards for leakage shall be established from the elapsed time for a negative pressure change from 10-inches to 9-inches of mercury. The maximum allowable leakage rate for a 4-foot diameter manhole shall be in accordance with the following:

MANHOLE DEPTH	MINIMUM ELAPSED TIME- FOR A PRESSURE CHANGE OF 1-inch Hg
10 ft. or less	60 seconds
> 10 ft. but < 15 ft.	75 seconds
> 15 ft. but < 25 ft.	90 seconds

For manholes 5-feet in diameter, add an additional 15-seconds and for manholes 6-feet in diameter, add an additional 30 seconds to the time requirements for 4-foot diameter manholes.

5. If the manhole fails the test, necessary repairs shall be made and the vacuum test and repairs shall be repeated until the manhole passes the test or the manhole shall be tested in accordance with the standard exfiltration test and rated accordingly.

4.04 Deflection Test for Non-Rigid Pipe. The maximum allowable pipe deflection for a completely backfilled, non-rigid sewer pipe shall not exceed 5% of the nominal internal pipe diameter. Deflections in non-rigid pipe shall be checked by measurement or by pulling a mandrel with the minimum allowable diameter through the pipe. The minimum allowable diameter shall be equal to the minimum interior diameter of the pipe, as specified in the applicable portions of the ASTM Standard Specifications or the pipe manufacturer's recommendations, minus 5% of the minimal interior diameter of the pipe. Those sections of non-rigid pipe with deflections greater than the maximum allowable 5% shall not be acceptable and the Contractor will remove and replace these sections at their own expense.

Deflection tests will be run if in the opinion of the Engineer testing is warranted. The program for testing shall be mutually determined by the Engineer and the Contractor. The Contractor shall furnish all labor, tools and equipment necessary to make the tests and to perform any work incidental thereto.

4.05 Pressure Testing of Force Main and Low Pressure, Small Diameter Sewerline. Make pressure and leakage tests on all newly laid pipe. Furnish all necessary equipment and material, make all taps in the pipe as required, and conduct the tests. The tests shall be conducted between valved sections of the pipeline, or as approved by the Engineer. The Engineer will monitor the tests.

Furnish the following equipment and material for the tests:

<u>Amount</u>	<u>Description</u>
2	Approved graduated containers

2	Pressure gauges
1	Hydraulic force pump approved by the Engineer
1	Additional 0.5-inch pressure tap for Engineer's test gauge Suitable hose and suction pipe as required

Conduct the tests after the trench has been completely backfilled. Where any section of pipe is provided with concrete reaction blocking, do not make the pressure test until at least 5-days have elapsed after the concrete thrust blocking is installed. If high-early cement is used for the concrete thrust blocking, the time may be cut to 2-days.

Conduct pressure test in the following manner, unless otherwise approved by the District Engineer: after the trench has been backfilled, fill the pipe with water, expelling all air during the filling. The test pressure shall be 1.5 times normal working pressure at the point of lowest elevation of the test gauge.

A. Duration

1. The duration of each pressure test shall be 2-hours, unless otherwise directed by the District Engineer.

B. Procedure

1. Slowly fill the pipe with water and allow to stand for 24-hours. Expel all air from the pipe. Allow and maintain the specified test pressure by continuous pumping if necessary for the entire test period. The test pressure shall be calculated for the point of lowest elevation, or as specified by the District Engineer. The pump suction shall be in a barrel or similar device, or metered so that the amount of water required to maintain the test pressure may be measured accurately.
2. Before the line is pressurized, the Engineer shall verify that all necessary main line valves are open or closed with regard to the section of line being tested.

C. Leakage

1. Leakage shall be defined as the quantity of water necessary to hold the specified test pressure for the duration of the test period. No pipe installation will be accepted if the leakage is greater than the number of gallons per-hour as determined by the following formula:

$$L = \frac{SD\sqrt{P}}{148,000}$$

In the above formula:

L = Allowable leakage, in gallons per-hour.

S = The length of pipe being tested, in-feet.

D = Nominal diameter of pipe, in-inches.

P = Average test pressure during the leakage test, in pounds per

square-inch gauge.

D. Correction of Excessive Leakage

1. Should any test of pipe laid, reveal leakage greater than that allowed, locate and repair the defective joints or pipe until the leakage of a subsequent test is within the specified allowance.

4.06 Televising Main. All sewer connection lines 8-inches or larger shall be televised. The video shall have a running-footage meter showing the exact-footage from the entry manhole. The electronic copy shall be provided with a log showing the location of all defects and service lines.

Installed sewerline shall be re-televised at the end of the warranty period to verify that no movement has occurred.

5.00 DESIGN CRITERIA - GRAVITY SEWER

5.01 Sizing. All collection sewer lines shall be designed to flow approximately half full at peak flow. One hundred gallons per capita day shall be used as the per capita contribution for average daily flow. A peaking factor of 4.0 shall be used for peak flow. Minimum line size shall be 8-inches.

5.02 Velocities. All velocities shall be maintained between 2.5 fps and 15 fps. Minimum velocity shall be 2 fps.

5.03 Slope. Minimum sewer line slopes shall be as follows:

8"	0.004 ft/ft
10"	0.003 ft/ft
12"	0.0022 ft/ft
15"	0.0015 ft/ft
18"	0.0012 ft/ft
21"	0.0010 ft/ft
24"	0.0009 ft/ft
27"	0.0008 ft/ft

5.04 Distances. The distance between manholes shall not exceed 400-feet, unless approved by the District Engineer. Manholes shall be required on all changes in grade or alignment.

5.05 Curved Sewer. Not Allowed.

5.06 Small Diameter Pressure Sewerlines. Under special conditions, such as low tributary population, or areas where it may be determined by the District, that central lift stations are not applicable, small diameter pressure sewer technology may be used. Small diameter technology may include pressure, vacuum and small diameter, gravity sewers.

The Engineer shall submit an integrated plan for review and approval. That plan shall include the design of main line sewers and their appurtenances, service lines and on-site pumping systems. Components of the integrated design shall include, but not be limited to, the following:

- A. The District will maintain a list of acceptable manufacturers for these integrated systems. Those manufacturers' lists may be obtained from the District office.
- B. The on-site pumping system shall include a simplex or duplex, effluent or grinder pump, alarm and monitoring controls, an effluent pipe check valve, a means to isolate the on-site pumping systems during maintenance and a minimum 20-foot usable access easement to allow inspection by District personnel.
- C. The service line shall include a shutoff means to allow extension of the service line onto individual properties after the main system is in operation.

- D. The main line sewer system shall include air and vacuum release valves with vaults at high points, pressure cleanouts at high points (in combination with air release and vacuum valve vault), pressure cleanouts at intersections and pressure cleanouts at minimum 1,000-foot intervals. Pressure cleanouts shall be installed in a standard manhole for access.
- E. The system design shall provide for minimum cleansing velocities of 2 fps at design conditions. Minimum cleansing velocities shall be maintained at less than design flow conditions where excessive headloss at design flows are not introduced. It is recognized that minimum cleansing flows may not be maintained during the early stages of build-out. A plan shall be prepared to address operations during the times when cleansing velocities cannot be maintained. This plan should investigate multiple main lines, odor control facilities and increased maintenance requirements.

6.00 GREASE INTERCEPTORS

6.01 General. Because of the impact of grease on the District's lines and treatment plant, grease interceptors are required on establishments preparing or serving food.

All grease interceptors shall be new and the interceptor and its installation shall be in conformance with the latest edition of the Uniform Plumbing Code except as modified herein.

6.02 Requirements For Grease Interceptors. An approved type grease interceptor complying with the provisions of this section shall be installed in the waste line leading from sinks, drains and other fixtures or equipment in the following establishments: Restaurants, cafes, lunch counters, cafeterias, bars and clubs; hotels, hospitals, factory or school kitchens, or other establishments where grease may be introduced into the drainage or sewage system. A grease interceptor is not required for individual dwelling units or for any private living quarters.

6.03 Specifications and Procedures For Grease Interceptors.

- A. Plans shall be submitted to and approval obtained from the District prior to the installation of any grease interceptor in any establishment set forth in Subsection 6.02.
- B. No grease interceptor shall be installed which has an approved rate of flow of more than 55 gallons per minute, except when specially approved by the District.
- C. No grease interceptor shall be installed which has an approved rate of flow of less than 20 gallons per minute.
- D. Each plumbing fixture or piece of equipment connected to a grease interceptor shall be provided with an approved type flow control or restricting device installed in a readily accessible and visible location in the tail piece or drain outlet of each such fixture. Flow control devices shall be so designed that the total flow through such device or devices shall at no time be greater than the rated capacity of the interceptor. No flow control device having adjustable or removable parts shall be approved.
- E. Each grease interceptor required by this section shall have an approved rate of flow which is not less than that given in the District's EQR schedule for the total number and size of fixtures connected thereto or discharging thereunto. The total capacity in gallons from fixtures discharging into any interceptor shall not exceed 2.5 times the flow rate of the subject interceptor.

Any grease interceptor installed or located in such a manner that the inlet is more than 4-feet lower in elevation than the outlet of any fixture discharging into such interceptor, shall have an approved rate of flow which is not less than 50% greater than that given in the District's EQR schedule.

- F. No more than four separate fixtures shall be connected to or discharged into any one grease interceptor.
- G. For the purpose of this section, the term "fixture" shall mean and include each plumbing fixture, appliance, apparatus or other equipment required to be connected to or discharged into a grease interceptor by any provision of this section.
- H. Each grease interceptor shall be vented as required by the Uniform Plumbing Code and each fixture discharging into a grease interceptor shall be individually trapped and vented in an approved manner, except that an approved type grease interceptor may be used as a fixture trap for a single fixture when the horizontal distance between the fixture outlet and the grease interceptor does not exceed 4-feet and the vertical tail pipe or drain does not exceed 2-feet.
- I. Each grease interceptor shall be installed and connected so that it shall be at all times easily accessible for inspection, cleaning and removal of the intercepted grease.
- J. Interceptors shall be maintained in efficient operating conditions by periodic removal of the accumulated grease. No such collected grease shall be introduced into any drainage piping, public or private sewer, and it shall be disposed of in an environmentally safe manner. Maintenance and inspection shall occur every 6 months or as approved by the District and the records shall be provided to the District once a year.
- K. Each grease interceptor shall be constructed of durable material satisfactory to the District and shall have a full size, gas tight cover that can be easily and readily removed.
- L. No water-jacketed grease interceptor shall be approved or installed.
- M. Each grease interceptor shall have an approved water seal of not less than 2-inches in depth or the diameter of its outlet, whichever is greater.
- N. No grease interceptor required by this section shall be installed until the type and model of each size thereof has been approved by the District.
- O. The District may require such tests as may be necessary to determine the grease collecting efficiency of the various types and kinds of grease interceptors to establish the rate of flow or other rating thereof. Such test requirements may be revised or modified from time to time as may be deemed necessary by the District. A list of approved and acceptable interceptors shall be kept on file in the office of the District.
- P. No grease interceptor shall be installed which does not comply in all respects with a type or model of each size approved and accepted by the District. Whenever it shall come to the attention of the District that any grease interceptor does not so comply, the District shall immediately suspend or revoke such approval.

7.00 CLEANOUTS

All service lines shall have a minimum of one cleanout, and then one cleanout per 100-feet of pipeline length. A cleanout consisting of a wye the diameter of the service line shall be provided at the property line between the building being served and the main line. The upper 24-inch of the vertical riser shall be cast or ductile iron and at grade in unimproved areas, finished driveways, sidewalks, etc., and be plugged with a water-tight cast iron plug (see Details G and H).

End of Section XI

XII. TRENCHING, BACKFILLING AND COMPACTION

1.00 GENERAL

1.01 Scope. Work to be performed under this section shall include all labor, equipment, materials and miscellaneous items necessary to perform all excavation, backfilling and compaction of underground pipelines, conduits, cables and appurtenances shown on the Drawings and specified herein.

All work within the rights-of-way of the Federal Government of the Colorado Division of Highways, County Governments or Municipal Governments shall be done in compliance with requirements issued by those agencies. All such requirements shall take precedence over these Specifications. It shall be the Contractor's responsibility to secure all required excavation permits and pay all costs thereof. Contractor will be required to obtain necessary road cut permits.

1.02 Field Conditions.

- A. Existing Utilities. Underground utilities, except service lines, known to the Engineer have been shown on the Drawings. Locations are approximate only and may prove to be inaccurate. The Contractor is responsible for verification of the existence, location and protection of all utilities within the construction area.

Before commencing with work, the Contractor shall notify all public and private companies who may have utilities within the project limits. The Contractor shall coordinate with these entities all excavation performed. The Contractor shall obtain all permits required by utility owners.

In the event of damage to any existing utility, the Contractor shall be solely responsible for the repair and payment for repair of all such damage.

The Contractor shall make arrangements for and pay all costs for relocation of utilities requiring relocation as indicated on the Drawings. Should utility obstructions, not shown on the Drawings, be encountered and require relocation, the Contractor shall notify the Owner and the Engineer and shall make arrangements necessary for such relocation. The Owner shall pay the costs for such relocation.

- B. Existing Improvements. The Contractor shall restore or protect from damage all existing improvements encountered in performance of the work. Improvements damaged, as a result of this work shall be restored to original condition or better, as determined by the Engineer.

Adjacent property shall be protected by the Contractor from any damage. The Contractor shall be held solely liable for any damage to adjacent property and shall be responsible for all costs resulting from repair of such damage.

- C. Soil Conditions. It shall be the responsibility of the Contractor to examine soil conditions and characteristics, including the presence of groundwater that will be encountered within the limits of construction.

1.03 Protection of Work.

- A. Safety. All excavation shall be protected by barricades, lights, signs, etc., as required by governing federal, state and local safety codes and regulations.

- B. Sheeting, Shoring and Bracing. Where trench walls are not excavated at a stable slope, the Contractor shall provide and maintain support sufficient to prevent caving, sliding or failure and property or bodily damage. Any damage due to inadequate support shall be repaired at the sole expense of the Contractor.

Under normal construction conditions, support shall be removed as work progresses. Support shall remain installed if directed by the Engineer or if pipe does not have sufficient strength to support backfill based on trench width as defined by the sheeting. Sheeting shall not be removed after the start of backfilling.

Use of a movable trench shield or coffin box will not be allowed where pipe strength is insufficient to support backfill as defined by the trench width after the trench shield is removed.

The Contractor shall be held solely responsible for any violation of applicable safety standards. Particular attention is called to minimum requirements of OSHA and Colorado Occupational Safety and Health (COSH).

- C. Site Drainage. Excavation to be protected from surface water at all times. At no time shall excavated area be allowed to fill with storm water runoff. Contractor shall provide proper, temporary drainage structures at their cost to detour runoff from excavated areas.

1.04 Blasting. No blasting shall be permitted without written consent of the Engineer. Blasting shall be done only after Engineer receives permission from the appropriate governmental authority(ies). Blasting shall be performed only by properly licensed, experienced individuals and in a manner such that no damage to any property or persons will occur due to either the blast or debris. Contractor shall provide proof of insurance as required by these Specifications, the governing authority or as required by Engineer prior to any blasting. All damage, as the result of blasting shall be repaired, at the Contractor's expense, to the satisfaction of the Engineer. All earth or rock loosened by blasting shall be removed from excavations prior to proposed construction.

1.05 Construction in Streets. When construction operations are located within streets make provisions at cross streets and walks for free passage of vehicles and pedestrians. Do not block streets or walks without prior approval.

1.06 Submittals.

- A. Bedding Material
 - 1. Submit sieve analysis
- B. Select Fill
 - 1. Submit sieve analysis

2.00 MATERIALS

2.01 Embedment Material. Pipeline embedment material shall comply with the appropriate classes as listed below and as illustrated in the approved Construction Drawings:

- A. Class A - Use for all PVC, DIP, CMP and concrete pipe under normal construction conditions.

1. Characteristics - Densely compacted Class 6 aggregate granular foundation of depth shown on Typical Details with densely compacted Class 6 aggregate 12-inches above top of pipe.
- B. Class B - Use where improper trenching or unexpected trench conditions require its use as determined by the Engineer.
 1. Characteristics - Concrete cradle foundation with densely compacted Class 6 aggregate base backfill to 12-inches above top of pipe, or densely compacted Class 6 aggregate granular foundation with concrete arch cover to 6-inches above top of pipe.

* 3/4-inch screened rock shall not be used unless approved by the District Engineer.

2.02 Select Material. Subject to approval by the Engineer, select material shall be allowed in place of the aggregate backfill for Class A when excavation and soil conditions allow, but only if approved by Engineer.

Contractors shall bid project based upon Class A. If Class B or select material is used, price adjustments shall be made.

- A. Characteristics - Soil materials free from rocks, clods, and organic material.

2.03 Concrete for Embedment. Shall be 2,000 psi concrete (28-day compressive strength).

2.04 Backfill Material.

- A. Characteristics - Native materials free from debris, organic matter and frozen material. Uniformly graded sufficient to allow proper compaction.
- B. Gradation - No boulders greater than 6-inch diameter in top 12-inches of backfill. Generally, no boulders greater than 12-inch diameter in remainder of trench.

3.00 METHODS AND PROCEDURES

3.01 Site Preparation.

- A. Clearing. Remove all vegetation, stumps, roots, organic matter, debris and other miscellaneous structures and materials from project site. Dispose of off site.
- B. Topsoil Removal. Strip existing topsoil from all areas to be disturbed by construction. Topsoil to be stockpiled separately from excavated materials.

3.02 Trench Excavation.

- A. Limits of Excavation. Trenches to be excavated along lines and grades shown on the Drawings, or as modified in the field by the Engineer. Trench widths for pipe loading to be measured 12-inches above top of pipe.

Minimum trench width to be the outside diameter of the pipe or conduit plus 16-inches.

Maximum trench width to be the outside diameter of the pipe or conduit plus 24-inches for all pipes or conduits with outside diameter of 24-inches or less, and plus 30-inches for all pipes or conduits with outside diameters greater than 24-inches.

If maximum trench width is exceeded, Contractor will provide at their expense, higher strength pipe or special bedding including concrete at the direction of the Engineer.

Trench excavation not to be completed more than 100-feet in advance of pipe installation. Backfill to be completed within 100-feet of pipe installation.

- B. Groundwater Control. Contractor to maintain facilities on-site to remove all groundwater from trench and keep water at least 12-inches below the trench bottom, to a point such that a firm base for pipe or conduit installation exists.
- C. Facilities shall be maintained until all concrete is cured and backfilling is in place at least 24-inches above anticipated water levels before water removal is discontinued; all water removal shall be subject to approval by the Engineer.
- D. Stockpile Excavated Material. Excavated material to be stockpiled so as not to endanger the work or public safety. Maintain existing vehicular and pedestrian traffic with minimum disruption. Maintain emergency access and access to existing fire hydrants and water valves. Maintain natural drainage courses and street gutters.

Backfill material to be segregated from stockpiled topsoil and unusable backfill materials.

- E. Excavation for Appurtenances. Excavation to be done in accordance with these Specifications and as shown on the approved Drawings. Adequate working clearances to be maintained around appurtenances. Provisions for base and bottom preparations shall apply to all appurtenances.

Precautions to be taken to maintain trench widths in the vicinity of adjacent pipelines and conduits.

3.03 Bottom Preparation.

- A. Undisturbed Foundation. Where soils are suitable and have adequate strength, bottom to be graded and hand-shaped such that pipe barrel rests uniformly on undisturbed soil. All rocks or stones that may result in a point bearing on the pipe shall be removed.

Undisturbed grades shall be within 0.1-foot tolerance. Soils for final pipe grade placed within these limits shall be fine granular (100% passing No. 4 sieve) or may be native materials, hand compacted to 95% maximum density.

- B. Bell Holes. Material to be removed to allow installation of all fitting and joint projections without affecting placement of pipe.
- C. Over excavation. Whenever trench is over-excavated to eliminate point bearing by rocks or stones or when undisturbed grade tolerances of 0.1-foot are exceeded, the Contractor is to re-establish grade using Class 6 aggregate bedding material. Compaction shall be 95% maximum density. All work to re-establish grade shall be at the Contractor's expense.
- D. Unstable Materials. Materials that are not capable of supporting super-imposed loadings are defined as unstable materials. Should unstable materials be encountered during excavation, immediately notify Engineer. If, in the opinion of the Engineer, unstable soil excavation is required and the Contractor could not have reasonably been expected to discover the existence of such materials during their site investigation, then a contract price for Unstable Soil Excavation shall be negotiated between Owner and Contractor. No payment shall be made for materials excavated prior to notification of the Engineer and negotiation of payment for extra work.

Inclusion of a bid item for Unstable Soil Excavation indicates such excavation is anticipated. The Contractor is to notify the Engineer prior to any unstable soil excavation; no payment shall be made for excavation prior to authorization of Engineer.

- E. Rock Excavation. Rock excavation shall be defined as removal of boulders in excess of 3 cubic yards of solid or fractured rock, which makes hand shaping of the bottom impossible and which requires techniques, such as blasting or jacking for removal, other than those which are being employed by the Contractor or are normally used in trench excavation, such as use of backhoes, trenchers, draglines, etc. Should unanticipated rock conditions be encountered, immediately notify the Engineer. If in the opinion of the Engineer, rock excavation is required and the Contractor has in fact made a diligent and determined effort to remove the material using normal excavation procedures as stated above, and the Contractor could not have reasonably been expected to determine the existence of such material during their site investigation, then a contract price for rock excavation shall be negotiated between the Contractor and the Owner. No payment shall be made for excavation performed prior to determination of a negotiated price.

Rock shall be removed to a 4-inch depth below grade. Additionally, all rock loosened during jacking, blasting, etc., shall be removed from the trench. For payment purposes, maximum trench width to be paid for shall be as defined in Subsection 3.02, A. Maximum depth to be paid for shall be 12-inch below required grade. All over-excavation shall be replaced as specified in Subsection 3.03, C.

Inclusion of a bid item for rock excavation indicates such excavation is anticipated. Contractor to notify Engineer prior to any rock excavating; no payment shall be made for excavation prior to notification.

3.04 Backfilling.

- A. Tamping Equipment. Except immediately next to the pipe, mechanical or air operated tamping equipment to be used. Hand equipment, such as T-bar to be used to pipe if necessary. Care to be taken when compacting under, along side and immediately above pipe to prevent crushing, fracturing shifting of the pipe. The Contractor is to note densities required for materials are or being backfilled and shall use appropriate approved equipment to obtain those densities.

Wheel rolling is not considered to be an adequate compaction technique to meet these Specifications and will not be allowed. Where 85% compaction is required, wheel rolling may be considered. Before acceptance, the Contractor shall backfill a portion of the trench and pay for density testing to verify adequacy of the proposed backfill techniques.

A hydro hammer may be allowed to obtain the specified density up to 4-feet in depth. The Contractor will be required to re-excavate those areas that have been tamped so that density tests can be taken to insure that the specified density is being obtained full depth.

- B. Moisture Control. Generally maintain moisture of backfill material with 2% of optimum moisture content as determined by ASTM D698. Maintain closer tolerances as needed to obtain densities required.
- C. Compaction. Maximum density (100%) based on ASTM D698 or AASHTO T99.
1. Bedding Material, including material used for over-excavation of any kind: 95%.
 2. Select Material: 95%
 3. Backfill beneath existing or proposed pavement, roadways, sidewalks, curbs, utility lines and other improvements or within 5-feet horizontally of such improvements: 95%.
 4. Backfill within public or designated right-of-way: 90% or as shown on the approved Drawings.
 5. Backfill within undeveloped, green or undesignated area: 85%.
 6. Backfill for any fill over overcut grading in areas of lot/home construction: 95%.
- D. Placing Backfill. The maximum loose lifts of backfill material to be as follows: use smaller lifts where necessary to obtain required densities:
1. Bedding and select material: 6-inches (or see Section 3.03A).
 2. Backfill Material: 12-inches where 95% compaction required; 24-inch where less than 95% compaction required.

- E. Backfilling Appurtenances. Backfilling to be done generally at the same time as adjacent pipelines. Backfilling procedure to conform to this section. Use special techniques or materials as shown on drawings.
- F. Disposal of Excess Excavation. Contractor to dispose of excess excavation off site. The Owner shall have the right to elect to have the excess excavation disposed of at a designated site within the project limits. Excavation may be wasted on-site only if approved by the Engineer. Disposal in any case shall be the sole responsibility of the Contractor.
- G. Jetting. Jetting and water inundation are generally not permitted methods of compaction. The Engineer may allow jetting under certain field conditions. Techniques including depth of lifts, amount of water to be used, penetration of hose jet, etc., shall be at the direction of the Engineer. No jetting will be allowed on materials with a 200 minus gradation of greater than 15%. Contractor shall pay cost of all water used, soil classification testing and retesting or recompaction required. No jetting shall be done prior to written approval and direction of the Engineer.
- H. Maintenance of Backfill. Contractor to maintain all backfill in a satisfactory condition during the extent of the contract and warranty period. All surface deterioration determined to be the responsibility of the Contractor and the Contractor upon notice by the Owner shall repair all settlement at once. All costs for repair and all liability, as a result of surface deterioration or settlement, shall be the responsibility of the Contractor.
- I. Clay Barrier Water Stops. Because of the presence of ground water, a clay barrier may be required to be installed full depth in trench in place of all bedding material and backfill. This barrier shall be full depth and two-feet thick and installed every 100 linear feet of trench. Clay barrier installation shall be considered incidental to the pipe installation and not paid for separately.

3.05 Surface Restoration. All existing surface improvements and site conditions disturbed or damaged during construction to be restored to a condition equal to pre-construction condition. All restoration costs are considered incidental to excavation and backfill.

- A. Improvements. Replace, repair or reconstruct all improvements as required. Work will not be accepted until restoration is accepted by Engineer and all affected property owners. Improvements include, by example, other utilities, culverts, structures, curb and gutter, mailboxes, signs, sprinkler systems, etc.
- B. Final Grading. The Contractor is to re-establish existing final grade or finish final grades as modified and shown on the approved Drawings. The Contractor is to backfill to proper subgrade elevation with backfill material to allow placement of surface improvements or materials.
- C. Roadways. All roadways to be restored to original condition with material types removed. Materials and methods to conform to applicable portions of current Colorado Department of Transportation (CDOT) specifications. Additional requirements are:
 - 1. Minimum base course material on gravel roadways or minimum depth gravel on hard surface roadways to be 8-inch, unless shown otherwise on approved Drawings.

2. Minimum bituminous surfacing to be 3-inch unless shown otherwise on approved Drawings.
3. Minimum concrete pavement surfacing to be 6-inch, unless shown otherwise on approved Drawings.

4.00 QUALITY CONTROL - FIELD

4.01 Compaction. It should be fully understood that it will be the sole responsibility of the Contractor to achieve the specified densities for all embedment and backfill material placed. Contractor will be responsible for ensuring that correct methods are being used for the placement and compaction of said materials. Correct backfill methods include, but are not limited to:

- A. Use of proper equipment for existing soil condition encountered.
- B. Moisture content of existing soils; determination if water should be added or if soil should be air dried to reduce moisture content.
- C. Thickness of backfill lift. Contractor may, at their own expense, have an approved geotechnical engineer monitor the methods of backfill and compaction used to ensure that the desired densities are being obtained. Inspection and testing will be performed as directed by the District. Testing will be conducted as a quality control check to verify the Contractor's compliance with the standards indicated the Specifications.

4.02 Inspection and Testing. Inspection and testing to be performed at the direction of the Engineer. Contractor to cooperate fully with all persons engaged in testing. Contractor to excavate as required to allow testing. Contractor to backfill all test excavations in accordance with these Specifications. Any areas, which require a specified density, including fill, backfill, trenches, embankments, road base, hot bituminous pavement, backfill for structures, shall be tested.

4.03 Density Testing and Control.

- A. Reference Standards. Density/moisture relationships to be developed for all soil types encountered according to ASTM D698 or AASHTO T99.
- B. Field Testing. Testing for density during compaction operations to be done in accordance with ASTM D2922 using nuclear density methods.
- C. Frequency of Testing. Minimum of 1 test every 250' trench per lift or as directed by Engineer. Contractor to excavate to depths required by District for testing and backfill test holes to density specified.
- D. Retesting. In the event of failure to meet compaction criteria, Contractor shall re-excavate and re-backfill at direction of District. All retesting to be paid for by Contractor and to be performed by soils testing firm approved by the District.

End of Section XII

APPENDIX C

REDSTONE WATER AND SANITATION DISTRICT SPECIAL FEE AND COST REIMBURSEMENT AGREEMENT

This Special Fee and Cost Reimbursement Agreement is entered into by and between the Redstone Water and Sanitation District, whose address is 1091 Redstone Blvd., Carbondale, CO 81623 (hereinafter "District") and _____, whose address is _____ (hereinafter "Petitioner");

WITNESSETH:

WHEREAS, the District is a Colorado special district and quasi-municipal corporation formed and functioning under the authority of C.R.S. § 32-1-101, *et seq.* and § 31-35-401, *et seq.*, providing water and sanitary sewer service to the area in and around Redstone, Colorado; and

WHEREAS, Petitioner is the owner of that certain real property described in Exhibit A, attached hereto and incorporated herein by this reference, and desires to undertake the projects or activities described in Paragraph 1; and

WHEREAS, the above activity or project will require the District to provide the special services and incur the costs set forth in Paragraph 2; and

WHEREAS, pursuant to C.R.S. § 32-1-1001(1)(d), (j-m) and § 31-35-402(1)(f), the District has the authority to require reimbursement of its out-of-pocket costs in providing services to District Customers, including but not limited to water and sewer connections, inclusions and exclusions from the District, and planning and review of line extensions; and

WHEREAS, the District's Rules and Regulations provide that the District may charge legal, engineering, publication, recording, inspection, and other fees of Customers desiring services from the District; and

WHEREAS, the special fees paid and collected by virtue of this Agreement shall be used solely to pay for the cost of planning, engineering review and inspection, legal review, administrative review, and actual out-of-pocket costs incurred by the District in relation to the anticipated project; and

WHEREAS, the Board of Directors of the District and Petitioner desire to set forth their agreements and understandings concerning this matter.

NOW, THEREFORE, in consideration of the mutual covenants and promises of the parties, and for other good and valuable consideration, the adequacy and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Petitioner desires to undertake the following projects or activities involving the District or its Water and Sewer System:

- _____ Inclusion into the District
- _____ Exclusion from the District
- _____ Water and/or sewer line extension
- _____ Other (describe) _____

2. The activity or project being undertaken by Petitioner will require the District to provide the following special services or incur the following costs:

- _____ Engineering review and advice
- _____ Legal review and advice
- _____ Preparation of plats or plans
- _____ Inspections
- _____ Recording fees
- _____ Filing fees
- _____ Publication costs
- _____ Administrative costs (*i.e.*, long distance phone calls, faxes, etc.)
- _____ Other (describe) _____

3. Petitioner agrees to pay the District in full for all special services provided or actual costs incurred by the District in relation to the project or activity described above on receipt of an itemized billing for those services from the District. All such amounts are due within thirty (30) days of the date of the bill, with interest on any overdue amounts to be assessed at one percent (1%) per month. In the event that such amounts remain unpaid thirty (30) days after the date they are billed, the District reserves the right to cease supplying any and all water and sewer services being provided, review and processing of applications for service, inclusion, exclusion, and line extension. In the event the District is forced to pursue collection of any amounts due and unpaid under this provision, it shall be entitled to collect attorney's fees, filing, and recording fees incurred in such collection efforts in addition to the unpaid amounts due, plus interest.

4. Petitioner agrees to provide a deposit to the District in the amount of \$_____ at the time of making the initial application for the_____. The District shall not commence to provide any of the services desired by the applicant, or advance any costs, until this deposit is received by the District. Any amount by which the applicant's deposit exceeds the cost assessed under this Section shall be refunded to the applicant within a reasonable time after final action has been taken on the project. Any amount by which the deposit is less than the total costs due to the District under this Agreement shall be due and payable subject to the provisions of Paragraph 2, above.

5. The District specifically does not agree to act favorably on the application made by Petitioner in exchange for payment of the special fees set forth above.

6. This Agreement constitutes the entire and complete agreement of the parties on the subject matter herein. No promise or undertaking has been made by any party, and no understanding exists with respect to the transaction contemplated, except as expressly set forth herein. All prior and contemporaneous negotiations and understandings between the parties are embodied and merged into this Agreement.

7. This Agreement may be amended from time to time by amendments made by the parties in written form and executed in the same manner as this Agreement.

8. This Agreement shall be binding upon and inure to the benefit of the parties and their assigns and successors in interest.

9. If any covenant, term, condition, or provision under this Agreement shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such covenant, term, condition, or provision shall not affect any other provision contained herein.

10. The parties agree and intend that this Agreement shall run with the land described in Exhibit A, attached hereto, and be a burden upon that property until final payment has been made to the District of all fees due and payable under this Agreement, or until the earlier termination of this Agreement.

IN WITNESS WHEREOF, the parties have executed this SPECIAL FEE AGREEMENT on the day and year adjacent to their respective signatures.

REDSTONE WATER AND SANITATION DISTRICT:

Date: _____

By: _____
President

ATTEST:

Secretary

PETITIONER:

Date: _____

By: _____