MONUMENT SANITATION DISTRICT

SEWER USE REGULATIONS of the MONUMENT SANITATION DISTRICT

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ADOPTED by the Board of Directors of the Monument Sanitation District on May 17, 2012

PART I

RULES AND REGULATIONS OF THE MONUMENT SANITATION DISTRICT

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Rules and Regulations
Of the
Monument Sanitation District

CHAPTER 1 - GENERAL

1.1 APPLICABILITY

1.1.1 Effective immediately, all property owners and contractors connecting to sewage facilities within the District shall abide by the following rules and regulations.

1.1.2 Except as herein provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended for disposal of sewage on any lot when that lot may be served by sanitation facilities provided by the District.

1.1.3 All construction in the District will be in accordance with the construction specifications of the District. Copies of the construction specifications will be available at the District office. The District has the right to change specifications as needed. The District has the right to impose other construction specifications as it deems necessary on a case by case basis i.e. changing soil conditions, water conditions, location to nearest sewer main etc. The Board of Directors has the sole right to change, modify, include, remove or amend any of the Rules Regulations and Construction Specifications of the District at any time on a case by case or permanent basis.

1.1.4 Any dispute as to the interpretation of these rules and regulations or as to their application in any given case shall be submitted to the Board of Directors, and their decision thereon shall be final.

1.1.5 No wastes from car washes, auto repair and/or lubrication firms, or chemicals from industrial firms shall be discharged to the District system without written approval of the District. All such wastes must first meet the current standards of the State, County, Local Municipality, and any other bodies governing such wastes before applications may be made to the Monument Sanitation District for approval.

1.1.6 Any damages to the District system or contamination to soils around the lines or damage or contamination to the treatment plant because of waste contributed by any user shall be at the expense of the user and any expenses for cleanup or damages will be charged to the users account.

1.1.7 All new restaurant construction, remodel or upon change of ownership of any existing restaurant, applying for Sanitary Sewer Service shall demonstrate that a minimum of a 1,500 gallon functioning grease interceptor is installed. A quarterly report showing all cleaning of the grease interceptor shall be sent to the District office on a quarterly basis

1.1.8 No unauthorized person shall uncover, make any connection with or opening into, use, alter, or disturb any public sewer or appurtenance without first obtaining a written permit from the Manager of the District or other duly appointed persons. Said permit shall be obtained upon application to the Manager or other duly appointed person, and the District shall furnish such form.

1.2 CONNECTION TO THE DISTRICT MAINS

1.2.1 For health and sanitary purposes, the Board of Directors of the Monument Sanitation District shall have the power to compel the owners of inhabited property within the boundaries of the District, to connect their property with the sewer system of the District and upon failure to so connect within sixty (60) days after written notice by the Board of Directors, the Board may cause the connection to be made and a lien to be filed against the property for the expense incurred in making such connection.

1.2.2 The new construction of dwelling places or other places having sewer facilities or the pumping or repair of existing septic tanks or systems shall be and is hereby deemed to be cause for mandatory connection to the Monument Sanitation District sewer system.

1.2.3 At any time a public sewer is extended along the property line, or within 400 lineal feet of the property line and at an elevation capable of serving that lot, the property owner shall be required to discontinue the use of a private sewer system and tap onto the District sewer system.

1.2.4 Property shall be considered as having sewer service available when sewer mains are installed in a street or common area within 400 feet of a property line or corner at an elevation capable of serving the property. Where sewer mains cannot be installed in a street or common area, and must be installed in easements between adjacent pieces of property, the lines will terminate at the point on the line or corner of the property being served which requires the least amount of construction by the District.

1.2.5 Any persons or person desiring to have their property included into the District shall pay all of the costs, including attorney's fees for such inclusions and costs of construction of main and service lines to the property line. Petition for inclusion shall included a legal description for the property requesting inclusion.

1.2.6 Any person desiring sewer service who is not in the District, but a District line crosses the property can be served by the District by submitting an application to the Board of Directors, and upon the Board of Directors favorable decision, the Board will prepare a service agreement and resolution.

1.3. SERVICE

1.3.1 Sewer and sanitation services and facilities operated by the Monument Sanitation District shall be provided in accordance with these Rules and Regulations and the terms of the Customer's Service Contract.

1.3.2 Service shall not be refused to:

1.3.2.1 Anyone complying with these Rules and Regulations and whose property to be serviced lies within the boundaries of the Monument Sanitation District, as those boundaries are set forth and described in the Organizational Decree which is a part of Civil Action No. 43381 of the El Paso County District Court and all property that has been included into the District from that time to the present. Service in the District is subject to the District's ownership of flow capacity at the treatment facility and the location of collection lines to a property.

1.3.2.2 Anyone who has filed an appropriate application for service in the District.

1.3.2.3 Anyone who provides connecting lines to the District's system at their own expense.

1.3.3 Service applications and contract forms shall be distributed or supplied by or through the office of the District, or their duly appointed agent, and shall be of a form approved by the Board of Directors of the District.

1.4 LIABILITY

1.4.1 Upon being issued a permit to tap a public sewer line, a property owner shall assume the responsibility for all damages, costs, expenses, outlays and claims of every nature and kind arising out of the unskillfullness or negligence on the part of himself or the part of his agents in connection with plumbing or excavating in preparation for making a sewer tap.

1.5 COSTS

1.5.1 The property owner shall be responsible for all costs of material and labor for service lines installed from the collection or use point to a sewer main of the District. Subsequent to the tapping, the property owner shall be responsible for the maintenance of the service line, from his point of collection or use to the sewer main of the District.

1.6 RIGHT OF ENTRY

1.6.1 The District's engineer and any other duly authorized employee shall be permitted to enter upon all properties for the purpose of inspection, observation, measurement, sampling and testing, in accordance with the provisions of the rules and regulations of the District.

1.7 TRESPASSING

1.7.1 It shall be unlawful for any unauthorized person to trespass upon the grounds of the Monument Sanitation District or the grounds upon which same is constructed, or in any manner to interfere with the wastewater works or any part thereof, or to meddle or interfere with any wastewater system component used by the District.

1.8 RIGHT TO IMPOSE FINES

1.8.1 The District may impose a fine against anyone who does not comply with the Rules and Regulations and Construction Specifications of the District. A Schedule of Fines is available at the District Office.

1.9 RIGHT TO LIEN

1.9.1 Until paid, all rates, tolls, fees, penalties, fines or charges for sewer service constitute a first and perpetual lien on and against the properties served and any such lien may be foreclosed in the same manner as provided by the laws of the State of Colorado for the foreclosure of mechanics' liens. (32-1-1001(1)(II)(j) C.R.S.)

1.10 RIGHT TO AMEND

1.10.1 The Monument Sanitation District reserves the right to make changes or amend these rules and regulations, including tap fee and service rates, at any regular meeting of the Board of Directors. Such changes are to be posted within the District.

1.11 FINES, PENALTIES AND FEES

1.11.1 Unauthorized tampering and/or opening of District manhole covers shall be subject to a monetary penalty of not less than $1,000.00. Such monetary penalty shall be assessed on a per occurrence basis, each such occurrence of tampering or opening of manholes subject to a separate monetary penalty.

1.11.2 Unauthorized discharge into the District wastewater collection system shall be subject to all applicable fines, penalties, fees, assessments and other sanctions or actions brought by the District per Paragraph 1.11.1, and other local, state and federal regulatory agencies. Unauthorized discharge to the District's system may be in violation of the rules, regulations and statutes of applicable regulatory agencies including, but not necessarily limited to, the Colorado Department of Public Health and Environment (CDPHE), United States Environmental Protection Agency (EPA), and/or the El Paso County Health Department (EPCHD) and subject to the regulatory and enforcement actions levied by these agencies.

MONUMENT SANITATION DISTRICT
PO Box 205, Monument CO 80132 Ph: (719) 481-4886

APPLICATION FOR WASTEWATER SERVICE FOR RESIDENTIAL AND COMMERCIAL BUILDINGS

Date of Application:_____

OWNER and ADDRESS of Property to be Served:_____

Application prepared by:_____ Phone No._____

Sanitary Sewer Connection to be Constructed by:_____ License No._____

Address of Contractor:_____ Phone No._____

Type of Facility to be served:_____ (Residence, Apartments, Restaurant, Retail Store, etc.)

The following indicated fixtures will be connected to the proposed building sewer:

Fixture Type	Fixture Units (DFUs)* Drainage	No. of Units	Total Fixture Units		Fixture Type	Fixture Units (DFUs)* Drainage	No. of Units	Total Fixture Units
Automatic clothes washers, commercial	3				Kitchen sink, domestic with food waste grinder and/or dishwasher	2		
Automatic clothes washers, residential	2				Laundry tray (1 or 2 compartments)	2		
Bathroom group as defined in Section 202 (1.6 gpf water closet	5 [3]				Lavatory	1		
Bathroom group as defined in Section 202 (water closet flushing greater than 1.6 gpf)	6 [3]				Shower	2		
Bathtub [1] (with or without overhead shower or whirlpool attachments)	2				Sink	2		
Bidet	1				Urinal	4		
Combination sink and tray	2				Urinal, 1 gallon per flush	2		
Dental lavatory	1				Wash sink (circular or multiple) each set of faucets	2		
Dental unit or cuspidor	1				Water closet, flushometer tank, public or private	4		
Dishwashing machine [2], domestic	2				Water closet, private (1.6 gpf)	3		
Drinking fountain	½				Water closet, private (flushing greater than 1.6 gpf)	4		
Emergency floor drain	0				Water closet, public (1.6 gpf)	4		
Floor drains	2				Water closet, public (flushing greater than 1.6 gpf)	6		
Kitchen sink, domestic	2							

TOTAL NUMBER OF DRAINAGE FIXTURE UNITS (DFUs) _____

* In accordance with the most recent edition of the International Plumbing Code as adopted by Pikes Peak Regional Building Department and El Paso County

[1] A showerhead over a bathtub or whirlpool bathtub attachment does not increase the fixture unit value.

[2] The District shall use the applicable sections of the IPC for methods of computing DFUs for fixtures not listed in this table.

[3] For fixtures added to a dwelling unit bathroom group, add the DFU value of those additional fixtures to the bathroom group fixture count.

Tap Fee/Plant Investment Fee:

First _____ DFU (minimum) = $_____

Additional DFU = _____ @ $_____/FU = $_____

Total Plant Investment Fee Due = $_____

The undersigned agrees with the Monument Sanitation District that they will comply with the Rules and Regulations of the District; that they will perform all work in a satisfactory manner and does indemnify and hold harmless the District from any liability, loss or damage accruing from the work. In the event of violation of any rule, regulation, or law of the District, State, or Federal agencies, the District may summarily revoke the permit.

A permit is hereby issued by the Monument Sanitation District for the above described connection to the District's wastewater system and receipt of the applicable tap fee is hereby acknowledged. This permit expires 180 days from the Date of Issue unless otherwise terminated or extended in accordance with District Rules and Regulations.

APPLICANT_____ DATE: _____

MONUMENT SANITATION DISTRICT (By):_____

Date of Issue:_____ Date of Expiration:_____

CHAPTER 2 - TAP FEES, TAP PERMITS, SERVICE CHARGES AND REFUNDS

2.1 SERVICE DESCRIPTIONS

2.1.1 **Residential** Any property used as an abode.

2.1.2 **Multifamily** Any duplex, triplex, fourplex, apartment building etc used for an abode to include mobile home park spaces or campground spaces for individual recreational vehicle camp trailers.

2.1.3 **Commercial (light)** Any property used for office space, storage, or sanitary service business. No retail or wholesale inventory sales. This property must meet the requirements of the District Pretreatment/Industrial Waste Control Regulations.

2.1.4 **Commercial (heavy)** Any property used for retail or wholesale inventory sales, food preparation, or any process not requiring chemical or mechanical processes. This property must meet the requirements of the District Pretreatment/Industrial Waste Control Regulations.

2.1.5 **Industrial** Any property used for assembly, mechanical or chemical processing of any materials. This property will also meet the District Pretreatment/Industrial Waste Control Regulations.

2.2 TAP FEES AND REFUNDS

2.2.1 All persons making sewer taps shall be charged a Tap Fee. Tap Fee is the cost of connecting to the collection system. The Tap Fee is only valid for a specific property described by a legal description and is not transferable to other property in the District. Tapping or connection fees shall be paid before obtaining a building permit. An additional fee will be charged if the tap fee is paid after ten days of obtaining a building permit. Payment to the District of a Tap Fee does not guarantee the availability of service. The District may at its sole option and discretion refund any tap fees paid on property that has not connected to the collection system. Acceptance of Tap Fees by the District is not to be construed as a representation, guarantee or promise that a sanitary sewage collection and treatment system are available or will be installed or constructed.

2.2.2 Schedule of current tap fees is available at the District Office.

2.2.3 A Tap Fee shall be paid on each platted lot. Owners of multiple adjacent lots will when applying for service on one of these lots, pay the Tap Fee for each one of those lots before services shall be provided. A certificate shall be provided to the District that the structure to be constructed will not infringe upon any easement between lots.

2.2.4 The owner of property that requires extension of a sewer main, collector, interceptor or lift station shall be solely responsible for all cost associated with the construction and required easements from the District's sewer main

to the owner's closest property line. Construction of sewer mains on the property will include extension from the owner's new line to an elevation of best fall at the adjoining property line(s). There are no "recovery fees" due the owner.

2.2.4.1 If the District has a sewer main to a subdivision boundary (or property), the subdivision owner (or property owner) is solely responsible for construction of all sewers to each of the individual properties so subdivided within the subdivision.

2.3 TAP PERMITS

2.3.1 A Tap Permit is written permission by the district to connect to the collection system. It does not give the owner a "right" to connect to the District's collection system. A Tap Permit will only be given for a specific property with a legal description. The District may charge the property owner for a Tap Permit. The Tap Permit is only valid for the property described and is not transferable to other property in the District. Tap Permits may be revoked at any time at the discretion of the District and subject to available flow capacity at the treatment facility.

2.4 SERVICE CHARGES

2.4.1 The District may fix and from time to time increase or decrease fees, rates, tolls, penalties or charge for services, programs, or facilities furnished by the District.

2.4.2 Commercial and industrial fees will be based on water consumption.

2.4.3 To better assist the commercial user in planning cash flow, an average of the previous year's use is calculated in determining the average use and will be charged according. If a business has been in operation less than one (1) year, the charge will be based on the monthly water consumption.

2.4.3.1 Schedule of the rates for commercial and industrial fees and delinquent charges is available at the District Office.

2.4.4 Service fees for each single-family component of a multifamily unit shall be the same as those for a single-family residential unit. Furthermore, all multiple units shall be billed as a common billing and recorded on the property deed by restricted covenant.

2.4.4.1 Schedule of residential service charges and delinquent fees is available at the District Office.

2.4.5 Service charges will be made to the recorded owner of the real estate.

2.4.6 Payments

2.4.6.1 All service charges commence from and after the time the property owner pays a tap fee to the District or taps the main line of the

District, unless contractual arrangements call for an earlier or later service fee payment time. All properties for which a sewer tap fee has been paid shall pay the following each month:

2.4.6.1.1 The billed regular sewer service fee when connected or,

2.4.6.1.2 An administrative fee for properties that have paid a tap fee but are not connected with the sewer system.

2.4.6.2 Failure to pay the fees required in 2.4.6.1.1 and 2.4.6.1.2 above for a period of 12 consecutive months shall result in loss of the sewer tap, and shall be considered an abandonment of the tap. Payment of a new sewer tap will be required before sewer service will be provided to the subject property. This is in addition to any other rights the District may have in collecting the past due sums.

2.4.6.3 All service fees shall be payable within 15 days of the statement or invoice date. Late fees and interest will be charged to any account that is unpaid 16 days after the statement or invoice date.

2.4.6.4 There will be late fees for each month of delinquent service charges or other charges that may be applied to the account plus interest on the unpaid balance.

2.4.6.5 Until paid, all rates, tolls, fees, penalties, or charges constitute a perpetual lien on and against the properties served and any such lien may be foreclosed in the same manner as provided by the laws of the State of Colorado for the foreclosure of mechanic's liens. (C.R.S. 32-1-1001 (1)(II)(j))

CHAPTER 3 - PLANT INVESTMENT FEES

3.1 The District may charge a fee for the existing wastewater system infrastructure to anyone desiring to include into the District.

CHAPTER 4 - PHYSICAL PLANT

4.1 All lines, lagoons, and other facilities, which are installed and are financed by the original bond issue of the Monument Sanitation District, shall hereafter be known as the "base system".

4.2 The cost of all lines and facilities tapped to or attached to the base system, including connection charges and fees, will be borne by the one making application for service, and no costs or expenses relative thereto will be borne by the District.

4.3 Prior to and as a condition of joining another line or facilities with the line and facilities of the system, the one installing the additional lines or the one owning the land on which the lines or facilities are constructed shall:

4.3.1 execute and deliver to the District a deed conveying a right-of-way not less than fifteen (15) feet on each side of the centerline of the line installed on the property for the purpose of maintaining, servicing, repairing and replacing the line.

4.3.2 pay to the District a tap fee for each tap to be made, which fee shall be determined by the Board of Directors from time to time. Obtain a tap permit before connection to the collection system. A tap is defined as the connection made to one or more lines for purpose of serving one user.

4.3.3 enter into a service contract with the District, the form of which contract shall be approved by the Board of Directors and shall specify the fees and other conditions of use of the wastewater system within the District.

4.3.4 deliver to the District a complete and accurate description of the system or lines which are to be added by the tap, or taps, which description shall include a written description of the system setting forth the name of the contractor, or contractors, names of suppliers of pipe and other parts, the capacity of the system and the date of its installation and a surveyor's map including courses and distances and other references to location of any and all parts and portions of the system.

4.3.5 deliver to the District a bill of sale conveying to the District all right, title and interest in and to the line and facilities added to the system.

CHAPTER 5 - CONSTRUCTION

5.1 All construction shall be in accordance with the specifications furnished by the District and all lines must be inspected for their compliance with the specifications prior to covering the lines. Construction Specifications are available at the District Office.

5.2 CONNECTIONS TO THE SEWER MAIN

5.2.1 The use of compound taps or wye ("Y") taps for sewer or more than one service line for each tap is prohibited unless waived in writing by the District.

5.2.2 No lift stations will be permitted except by prior approval of the District. If approved, ownership will be retained by the owners and in no manner will the District be responsible for maintenance, repairs, legal liability, or anything whatsoever applying to such lift station. Under no circumstances will a lift station be approved if service can be provided by gravity flow.

5.2.3 The materials and joints of sewer service pipes shall possess the strength and durability to prevent the escape of solids, liquids, and gases therefrom under all known adverse conditions such as corrosion, strains due to settlement, temperature changes, vibration and superimposed loads. A copy of construction specifications for sewer mains and service lines is available at the District Office.

5.2.4 A District representative will inspect all sewer taps and service line installations. Inspection does not imply any warranty to the property owner or contractor for workmanship, materials or installation.

5.2.5 No tapping of a District main will commence after 4:00 P.M. without specific approval by the Board of Directors, or by the inspector.

5.2.6 Inspections are to be scheduled 24 hrs in advance. An additional charge will be added to the customer account for each additional inspection.

5.2.7 A copy of construction specifications for tapping into the main line is available at the District Office. All construction must be in accordance with the specifications.

5.3 PRIVATE SERVICE LINES

5.3.1 Property owners must use the minimum four-inch plastic pipe of a gauge approved for sewer lines to include push-on gasket joining method from their collection point to the sewer main. Materials other than plastic will be approved by the District on a case by case basis. The construction of all service lines from the property owner's collection point to the sewer main of the District shall be inspected by a duly authorized representative of the District and approved by said representative. Inspection does not imply any warranty for workmanship, material, or installation to the owner. No back fill shall be commenced before inspection and approval is complete. The size

and slope of the property owner's service lines shall be subject to the approval of the inspector, but is not a warranty that the tap connection will work. A copy of construction specifications is available at the District Office. All construction must be in accordance with specifications. The property owner owns this line. The owner/contractor is responsible for fall and slope in the line and installing the line in accordance with the District's construction specifications. Property owners are responsible for locating their service lines before permitting any digging on their property.

5.3.2 Cleaning of service lines shall be the responsibility of the property owner. The property owner will keep the service line between the unit connected and the sewer main of the District clean and clear of any obstruction and keep said lines in good repair at all times, so that no improper infiltration of water through said line or accumulation of septic wastewater therein occurs. In case of the failure of the property owner to properly maintain or clear said line, the same may be done by the District after forty-eight (48) hours written notice to the property owner or occupant, and the cost of the same charged to the owner of the property and shall constitute a lien on said property until paid.

5.3.3 When stoppage or other trouble occurs in service lines on private property, it is the responsibility of the property owner to verify the condition of his service lines before requesting the District to uncover and check District mains. If the District is requested to service its lines by the property owner and no deficiency of the District equipment is found, all costs of the service on the District mains will be billed to the property owner requesting such service. Should a deficiency be found in the District system, the District will reimburse the property owner for costs incurred on his service lines.

5.4 CONSTRUCTION OF DISTRICT WASTEWATER INFRASTRUCTURE

5.4.1 All construction must be in accordance with the adopted standards that are contained in the Monument Sanitation District Wastewater Collection System Standard Specifications.

5.4.2 Plans must be submitted prior to the start of any construction. These plans will be reviewed by the District's engineer and the District and are subject to the District approval. All costs associated with review of plans and on site construction inspections by the District's engineer shall be borne by the developer/contractor.

5.4.3 A pre-construction meeting with the District and the District engineer is required before any construction commences. The District will determine the time and location of the meeting.

5.4.4 All work must be inspected by a district representative prior to backfilling the pipe or around the manhole. Inspections of work is for the benefit of the District and does not imply any assurance to the developer/contractor as to workmanship, materials, installation or that the installation will work as designed.

5.4.5 All work within the District shall be warranted by the developer for a minimum of two (2) years. The warranty period will begin upon the date of written acceptance of the work by the District and extend thereafter for a period of two (2) calendar years. Any work required to be accomplished under provisions of the warranty shall be determined by the District and accomplished by the developer within a period of no less than 30 calendar days following receipt of written notice of such required warranty work. The work accomplished under the terms of the warranty shall continue to be subject to the remaining original warranty period.

SECTION 6 - DISCONNECTION OF SERVICE

6.1 Upon request to the District, the District will grant a disconnect certificate to anyone making the request for the demolition of a building. The service connection must be sealed off completely with a watertight plug or cap. The property will be billed at its regular monthly service charge. The owner must apply for a tap permit before reconnection will be allowed.

SECTION 7 - ENFORCEMENT

7.1 Any person found to be violating any provision of these rules and regulations shall be served with written notice stating the nature of the violation and providing a reasonable time limit for satisfactory correction thereof. Any person who shall continue any violation beyond the time limit provided above shall immediately be disconnected until such time as said person shall be in compliance with rules and regulations. During the period of disconnection, all persons shall continue to pay their service charge as previously required and shall pay all charges for the disconnection and connection of service.

7.2 Any person violating any of the provisions of these rules and regulations shall become liable to the District for any expense, loss, or damage occasioned by reasons of such violation.

7.3 Any cost incurred by the District in enforcing compliance of the Rules, Regulations and Wastewater Collection System Specifications shall be reimbursed to the District and are subject to paragraph 1.1.5.3 and other rights the District may have.

DATE OF ADOPTION _____

SECRETARY SIGNATURE _____

CORPORATE SEAL

PART II

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

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PART II

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

Chapter 1 - General

1.01 Authority. These Specifications are promulgated by the Monument Sanitation District. The interpretation, enforcement, and revision of these Specifications is hereby delegated to the District Manager of the District.

1.02 Effective Date of Specifications. These Specifications shall be in effect immediately upon adoption by the District board and shall supersede all former standard specifications for installation of sanitary sewer mains within the District.

1.03 Revisions, Amendments or Additions. These Specifications may be revised, amended or added to. Such revisions, amendments and additions shall be binding and in full force and effect when adopted in the manner set forth in Section 1.02.

1.04 District Control. These Specifications will apply to the installation, operation and maintenance of all wastewater collection facilities under the control of the Monument Sanitation District.

1.05 Organization and Interpretation of Specifications. These Specifications are composed of design criteria and provisions, material specifications, installation specifications and standard drawings. The interpretation of any section or of differences between sections, when appropriate, shall be made by the Manager of the District and his/her interpretation shall be binding and controlling in its application.

1.06 Definitions. As used in these Specifications, or in any of the drawings where these Specifications govern, unless the context shall otherwise require, the following words defined shall have the meanings herein ascribed:

a. District Manager or Manager. The Manager of the Monument Sanitation District or his/her designated representative.

b. Engineer. The Engineer or consultant of the District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

c. Collection System. Sewer mains, together with all appurtenant and necessary manholes, clean outs, taps, service pipes, and associated materials, easements, property and equipment collecting sanitary sewage from individual customers.

d. Wastewater Main or Sanitary Sewer Main. That portion of the wastewater system which collects wastewater from users and conveys it to the District wastewater treatment plant, excluding service lines.

e. Service Line. The sewage collection pipeline extending from the premises down to and including the connection to the wastewater or sanitary sewer main.

f. Applicant for System Extension. Any person, association, corporation, entity, or government agency desiring sanitary sewer service for premises under their control, often a subdivider, a developer or an owner.

g. Main Extension. Extensions to the existing collection system network.

h. Contractor. In the context of these Specifications a person or persons, partnership or corporation employed by an applicant for the purpose of installing wastewater system extensions or replacements.

i. Inspector. The authorized representative of the District assigned to the project.

j. Standard Drawings. District Standard Drawings are a part of these Specifications.

k. District. The Monument Sanitation District responsible for overseeing the wastewater system's operations.

1 .07 Abbreviations. All references to documents or specifications shall be the latest edition or revision thereof:

a.	ASTM	American Society for Testing and Materials
b.	ANSI	American National Standards Institute
c.	NSF	National Sanitation Foundation
d.	OSHA	Occupational Safety and Health Act
e.	USGS	United States Geological Survey
f.	DIP	Ductile Iron Pipe
g.	PVC	Polyvinyl Chloride Plastic Pipe

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

Chapter 2 - Design Provisions

2.01 Planning Considerations. The land use and population densities approved for the District shall be used to determine wastewater facility design parameters. Where approved master plans do not exist, the following criteria shall be used unless specific approval for other criteria has been given by the District.

a. Design Period: The sewer systems shall be designed for the estimated ultimate tributary population. The tributary areas shall be studied to determine the area for each projected land use.

b. Population densities including public use lands:

1) Single-family units at 3.2 persons per unit.

2) Multi-family and condominiums at 2.5 persons per unit.

3) Four (4) single-family units per acre.

4) Sixteen (16) multi-family cluster housing or condominiums per acre.

c. Per Capita Flows: Sewer systems shall be designed on the basis of not less than the following unless other values are specifically authorized by the District:

1) One hundred (100) gallons per person per day.

2) Three hundred (300) gallons per capita per day peak flow for submains and laterals.

3) Two hundred fifty (250) gallons per capita per day peak flow for main trunk, interceptor or outfall sewers.

4) Infiltration of 100 gallons per day per inch of diameter per mile per manhole run for new systems. New system installations which will service a portion of the existing collection system will require an infiltration allowance as established by the District.

5) Commercial land uses at 1400 gallons per acre per day with a peak factor of 2.

6) Industrial land uses at 1600 gallons per acre per day with a peak factor of 3.

7) Public use, park and open space at 1000 gallons per day with a peak factor of 2.

2.02 Minimum Size. No public sewer shall be less than 8 inches in diameter. No service line shall be less than 4 inches in diameter.

2.03 Minimum Depth. In general, sewers shall be designed deep enough to drain basements and to prevent freezing. No public mains shall be less than 5 feet deep measured from the top of pipe unless special protection is required. Special protection shall consist of:

a. Less than 5 feet but more than 3 feet of cover requires ductile iron, cast iron, reinforced concrete encasement or arch.

b. Less than 3 feet of cover requires:

1) Ductile iron or cast iron with reinforced concrete encasement.

2) Prior approval from the Manager or his/her designated representative.

No building sewer shall be less than 5 feet deep in traffic areas without similar special protection listed above except that concrete driveways may be substituted for protection of service lines.

2.04 Minimum Slopes. All sewers shall be designed to transport average sewage flows at a minimum mean velocity of 2 feet per second based on a Manning's roughness factor of 0.013. The slope between manholes shall be uniform. In no case shall the slope be less than the following for sewer mains and services:

MINIMUM GRADE TABLE

Services

Pipe Diameter	Slope
4 Inches	2% or 1/4 inch per foot
4 Inches	Ductile iron or cast iron pipe - 1% or 1/8 inch per foot
6 Inches	1% or 1/8 inch per foot

Mains and Services

Pipe Diameter	Slope
8 Inches	.40%
10 Inches	.35%
12 Inches	.26%
15 Inches	.20%
18 Inches	.15%

2.05 High Velocity Protection. In the case of sewers where the slopes are such that over 15 percent grades are attained, special provisions as determined by the District shall be made to prevent excessive erosion of material surfaces or displacement by impact. Such high velocity protection shall be shown on detail drawings and approved by the District on a case-by-case basis.

2.06 Alignment

a. Sewers in Streets

When the sewers are placed in streets, they shall be placed as follows:

1) Collection system sewers shall be placed on the centerline of street sections located midway between curb and gutter on each side of the traveled surface.

2) On streets running north and south where it is not possible to locate the pipe on centerline, the sewer line shall be placed no more than 10' (ten feet) west of the centerline of the street.

3) On streets running east and west where it is not possible to locate the pipe on centerline, the sewer line shall be placed no more than 10' feet (ten feet) south of the centerline of the street.

4) On streets shaped as a "U" or on streets having unusually sharp turns, the sewer line will conform to the above specifications as near as is practical, but the final locations shall be as determined by the Engineer or other District representative. Curvilinear sewer mains shall not be allowed without prior approval of the District. Designs must attempt to minimize the use of manholes and maximize the operability and maintainability of the collection system.

5) In no case shall the sewer line be installed closer than 5'-0" to the lip of the pan or gutter.

b. Sewers in Easements

In areas where sewer lines are placed in easements, all sewer lines shall be located within the easements shown on the contract drawings. All sewer easements must be minimum of 30' (thirty feet) in width, and must be prepared in accordance with Part I of the District Sewer Use Regulations. No sewer shall be located less than 5' (five feet) from the edge of the easement.

1) All sewer lines in easements between lots shall be Pressure Class 350 ductile iron pipe per Section 3.02.

2.07 Pipe Alignment in Manholes

a. Intersections. All pipes shall have free discharge into the collection system. Where possible, the flow line of the intersecting pipe shall be the spring line (horizontal center of pipeline) of the collection sewer. All manhole inverts shall be designed with no less than 0.1 foot drop except for changes in alignment in excess of 30° shall have a 0.3 foot drop in the invert through the manhole. Changes in direction at intersections shall not be greater than 90°.

When the intersecting pipe is smaller in diameter than the pipe exiting the manhole, the crown or inside-top of the intersecting pipe shall match the crown or inside-top of the main pipe entering the manhole. In no case shall the difference in elevation between the flowline of the pipe exiting the manhole and the flowline of the intersecting sewer be less than 0.3 feet.

b. Increasing Size: When sewers are increased in size with no intersecting sewers, the invert of the larger sewer shall be lowered sufficiently to maintain the same energy gradient.

2.08 Manhole Location. Manholes shall be installed at the end of each line, at all pipeline intersections, changes in grade, size, alignment and at intervals not greater than 400 feet. Manholes must be located to allow unassisted and unrestricted access by District maintenance vehicles. Lines and manholes located in areas where access, in the opinion of the District, is not possible, will not be approved for construction.

2.09 Manhole Details

a. Manhole Sizes. The inside diameter of the manhole shall not be less than 5 feet on lines 8 inches through 36 inches in diameter; not less than 6 feet on lines in excess of 36 inches in diameter for standard design manholes (see standard drawings for standard manhole design).

b. Drop Manholes. External drop manholes will be permitted only in extreme and special conditions where approval has been granted by the District. As a general criteria, a minimum difference in elevation of 1.5 feet between the inlet and outlet is required before considering use of external drop manhole design. The maximum amount of vertical drop allowable in a drop manhole shall be 10 feet. The external drop sections must be totally encased in reinforced concrete and placed on an adequate foundation (see standard drawing for standard drop manhole design). A cleanout must be placed in the manhole at the level of the main sewer line. All drop manholes must be completely lined with coal tar epoxy 45 mils thick or an acceptable form of protective coating.

c. Manhole Channels. The flow channel shall be made to conform to the slope and shape of the sewer pipe entering and exiting the manhole. The channel shall be formed from cast-in-place concrete to a cross-section matching the circular pipes. The channel shall be constructed with vertical walls from a point one-half the pipe diameter above the channel flowline as shown in the standard drawings. At intersections with other lines, channels shall be formed with a curve to minimize turbulence. The flow channel shall be constructed to have a minimum depth equal to the pipe diameter. Refer to standard drawings.

d. Manhole Gaskets. The pipes entering and exiting the manhole shall be equipped with a manhole gasket placed around the pipe and cast in the base. If a precast base is used, a watertight seal shall be obtained by use of a premanufactured rubber gasket in the precast base section equal to a Kor-N-Seal boot.

e. Rings and Covers. The ring and cover shall be constructed of cast iron for traffic bearing conditions and cast aluminum or cast iron for non-traffic bearing conditions. All manholes located outside of dedicated street or alley rights-of-way will be designed and constructed with a locking type cover and the ring bolted to the concrete cone. Concrete grade adjustment rings between the ring and cover and the concrete cone cap shall not exceed 12 inches in total height.

f. Watertightness. Precast concrete manhole joints shall be made watertight. Manholes of brick or segmented block shall not be used in the sanitary sewer system.

1) Each precast manhole segment shall be joined with a rubber "O" ring, Ram-Nek, Con-Seal or similar approved material.

2) The District reserves the right to require the interior manhole joints above the flow channel to receive a 3/8-inch to ½-inch thick coating of cement grout, dependent upon existing ground water conditions.

3) If required, interior concrete manhole joints above the flow channel shall receive a 3/8-inch to ½-inch thick coating of cement grout. Concrete surfaces shall be thoroughly wetted and damp prior to the application of cement grout. Liquid membrane curing compound shall be applied to the finished cement grout surface to facilitate proper curing. Where exterior cement grouting is required, it shall be applied prior to the application of dampproofing material and the liquid membrane curing compound shall be deleted. Exterior cement grout shall be film cured utilizing polyethylene sheets.

4) All exterior concrete manhole surfaces shall be coated with an approved dampproofing material. Where ground water is present or, in the opinion of the District, ground water could be present, the District may require all exterior joints receive a 3/8-inch to ½-inch thick coating of cement grout. The joint shall be wrapped with an external elastomeric concrete joint wrap covering the area.

5) Dampproofing materials shall be applied to clean, dry surfaces in accordance with the coating manufacturer's written instructions/recommendations and the following:

a) Preparation

(1) Examine surfaces to receive dampproofing to assure conditions are satisfactory for application of materials

(2) Remove dirt, dust, sand, grit, mud, oil, grease and other foreign matter

(3) Brush down surfaces to remove all loose scale, fins, dust, etc.

(4) Complete surface preparation in accordance with manufacturer's recommendations

b) Application

(1) General

i. Apply in two (2) coats with high pile rollers or by spray equipment.

ii. Provide adequate forced ventilation when applying coating in enclosed spaces.

iii. Do not use benzol or other volatile solvents for thinning coating.

(2) First coat

i. Apply only when surface of concrete is dry and at a suitable temperature for adequate penetration

ii. Thin as recommended by manufacturer.

iii. Apply for maximum penetration.

iv. Cover surface with approximately 12 mil dry film thickness.

v. Allow to cure for a minimum of two (2) hours.

(3) Second coat: Cover surface with 5 mil film.

(4) Cure material as recommended by manufacturer.

(5) Do not cover with backfill until installation is accepted by inspector.

(6) Design basis: DISSCO 521 or approved equal.

6) If ground water is present, or in the opinion of the District ground water could be present, the exterior surface of the manhole must be coated with coal tar epoxy.

a) Preparation: As outlined above

b) Application

(1) General

i. Apply in two (2) coats with air spray or airless spray equipment

ii. Provide adequate forced ventilation when applying coating in enclosed spaces.

iii. Thin in accordance with manufacturer's recommendations.

(2) First coat

i. Apply only when surface of concrete is dry and at a suitable temperature for adequate penetration.

ii. Thin as recommended by manufacturer.

iii. Apply for maximum penetration.

iv. Cover surface with approximately 8 mil dry film thickness.

v. Allow to cure prior to recoating in accordance with manufacturer's recommendations.

(3) Second coat: Cover surface with approximately 10 mil dry film thickness.

(4) Cure material as recommended by manufacturer.

(5) Do not cover with backfill until installation is accepted by inspector.

(6) Design basis: Tnemec Hi-Build Tneme-Tar® Series 46H-413 or approved equal.

g. Stub Outs from Manholes. Stub outs from manholes shall not exceed 40 feet except for lines which will be extended in the future. Whenever practical, designs to complete the manhole run shall be submitted to the District Manager for review to insure proper grade and alignment for future construction. Future extension of stub outs shall be of like material using the same grade and alignment.

h. Design Features for Deep Manholes. Manholes which are more than sixteen (16) feet from the finished cover to the pipe invert shall be considered deep manholes subject to special design. The items given below shall be given special attention and subject to approval by the District.

1) Intermediate platforms constructed with manhole shaft offsets shall be governed by the OSHA regulations. Regardless of the application of OSHA regulations, an offset intermediate platform will be required on any manhole greater than 24 feet in depth at no more than 12 foot intervals.

2) Structural integrity of precast or cast-in-place concrete structures shall be verified and certified by the responsible design professional for all manholes in excess of 16 feet in depth. Specific attention shall be given to concrete thickness, reinforcing design and concrete strength.

i. Underdrain. Where an underdrain must be used, the underdrain must be carried around the manhole base. In no case shall any underdrain, sump pump or trench drain be connected to the public sewer main.

j. Service Connection to Manholes. In general, sewer service lines will not be allowed to connect to manholes. Certain exceptions, however, may be made by the District. No sewer service shall connect to the main line closer than 5' to the uphill manhole.

2.10 Relation to Water Mains and Water Supplies. Sewer lines shall be located a minimum of 10 feet horizontally from existing or proposed water mains and the sewer lines shall be a minimum of 18 inches clear distance vertically below the water main. If this clear distance is not feasible, the crossing must be designed and constructed so as to protect the water main from potential cross connections and minimize the potential for structural damage to either pipeline. Minimum protection shall consist of the installation of an impervious and structural sewer as follows:

a. Where the sewer pipe is above the water main, regardless of separation, one length of ductile iron pipe or AWWA C900 PVC pipe, green in color, at least 18 feet long centered over the water main and jointed to the sanitary sewer pipe with a manufactured adapter specifically for such jointing shall be installed. It shall include rubber gasketed fittings with stainless steel tightening bands. The joints shall be enclosed in a concrete collar at least 6 inches thick and extending at least 6 inches either side of the joint.

b. Where the sewer is beneath the water main but less than 18 inches clear distance vertically, the sewer pipe of any material shall be encased in reinforced concrete. Encasement shall be at least 6-inches thick and extend a distance of 10 feet on either side of the water main crossing. Reinforcing shall consist of a minimum of four No. 4 bars placed at quarter points around the pipe being encased.

The above-described protection from potential cross connections shall apply to service lines as well as sanitary sewer mains where the above described protection and special installation is required.

c. In lieu of a. and b. above, the sanitary sewer main (carrier pipe) may be placed in a casing pipe. The casing pipe shall extend 10 feet on either side of the water main crossing. The carrier pipe shall be placed at a continuous percent of slope and be supported with non-metallic skids. The end of the casing shall be sealed with a high density rubber with stainless steel strap and clamp.

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

e. While no general statement can be made to cover all conditions, it is generally recognized that sewers must be kept remote from public water supply wells or other water supply sources and structures in accordance with the applicable Health Department Standards.

2.11 Stream and Drainage Channel Crossings

a. All stream and drainage channel crossings shall be ductile iron pipe encased in reinforced concrete where the installation is below the flow line of the stream or drainage channel.

b. Crossings less than 4 feet below existing or proposed channel bottoms shall be supported by reinforced concrete caissons constructed in accordance with the approved special design.

c. Where the pipeline crossing will be above the stream or drainage channel flow line, special approval and design will be required by the District. All details of the design shall be submitted to the District for review and approval.

d. With District approval, stream and drainage channel crossings may be accomplished by placing the ductile iron carrier pipe in a steel casing pipe. All details of the design shall be submitted to the District for consideration prior to review and approval.

2.12 Railroad, Highway and Street Crossings

a. All work shall be accomplished in accordance with the appropriate permit issued by the responsible agency having jurisdiction over the work.

b. Crossings under railroads, highways, and streets shall consist of polyvinyl chloride (PVC), ductile iron (DIP), high density polyethylene (HDPE), or epoxy coated steel pipe (carrier pipe) laid inside a steel pipe conduit (casing pipe), which is placed beneath the track or roadway. The steel conduit pipe (casing pipe) shall be jacked horizontally through the ground on substantially the grade of the sewer, with due allowance for the bells or joints of the carrier pipe. As the pipe is jacked along, the earth shall be excavated from the face and removed so that it will not be necessary to force the pipe through solid ground. Specifications for materials and installation of the railroad or highway agency shall govern.

c. The District reserves the right to require a casing pipe be placed when crossing under a state, county, town, or city street.

d. The casing pipe diameter for 16-inch and smaller carrier pipes shall be a minimum of 8 inches larger than the carrier pipe and the casing pipe diameter for larger than 16-inch diameter carrier pipe shall be a minimum of 12 inches larger than the carrier pipe.

e. After the conduit has been completed, the carrier pipe shall be placed inside and blocked in exact position and grade with a support at least every 8 feet and behind each bell or coupling. A minimum of three blocks or other points of support shall be installed to prevent displacement by floating.

f. Each end of the casing pipe shall then be plugged tight around the carrier pipe and inside the casing pipe. The plug may consist of a prefabricated rubber boot with stainless steel tightening bands specifically for sealing casing pipe ends.

2.13 Service Lines (Building Sewers)

a. Service lines and stub outs from main sewers shall be extended to each property at a point 5 feet inside the property line and generally 5 feet above the low lot corner.

b. Stub outs from a sewer main may be made to an unoccupied lot provided it is part of an officially platted and recorded subdivision. Such stubs shall be extended to 5 feet inside property line and plugged with a watertight and airtight cap or plug insert. Plugging or capping shall be sufficient to perform air testing of the pipeline. As-constructed records of the depth and location of the end of the service stub shall be recorded by party responsible for construction and submitted to the District for future reference.

c. Four-inch diameter service lines shall have a maximum length of 250 feet. A 4-inch diameter cleanout shall be installed on the service lines where the total length exceeds 100 feet and at 75 foot intervals thereafter up to a maximum of 250 feet in length and at each horizontal directional change. The cleanout shall have a proper waterproof cap. For cleanout access, a prefabricated formed wye with a riser pipe shall be installed to the finished grade. A minimum of 10-inch long cast iron riser box with "SEWER" cast in the lid shall be placed over the cleanout access, flush with finished grade.

   Service lines projected to be longer than 250 feet in length shall have pipe 6 inches in diameter or as otherwise required by the District. Provisions for cleanouts shall also apply to pipelines 6 inches in diameter.

d. No service line within the District's service area will serve more than one property or customer. Each house, building or business shall have an individual connection to the sewer main and service line from the main to the structure served.

e. All service lines for commercial buildings or multi-family buildings shall be no less than 6 inches in diameter.

f. A cleanout shall be installed on private sewer services at all changes in direction requiring bends.

g. Service line connections to a sewer main shall be located at intervals of no less than three (3) feet measured center to center along the main.

h. Service line connections to a sewer main shall be located no less than five (5) feet from a manhole.

i. Service line design and construction shall be accomplished to provide a horizontally and vertically straight, consistent alignment between the wye connection at the public wastewater pipeline and the building being serviced. Should it be necessary to construct bends to avoid existing underground obstructions or conflicting utilities, a maximum of three pipe bend fittings may be used to adjust horizontal and/or vertical alignment, each bend having no more than a 45-degree deflection.

Where two 45-degree bend fittings are required to be installed to attain the required alignment and have been approved by the District, a cleanout shall be constructed between the two bend fittings. All cleanouts shall be installed upstream of each bend allowing access to the service line in the direction of flow. Other applicable District specifications may also dictate the installation of cleanout fittings.

2.14 Encasement and Casings

a. General

Concrete encasements shall be installed under the following conditions:

1) Where sewer lines are at a depth too shallow to sustain traffic load or any other load to which they are subjected. The depth may range from 0 to 4 feet, depending on the loading conditions.

2) At all locations where infiltration is likely to be high.

3) At locations where horizontal movement of the sewer mains may be experienced, such as in stream beds with less than 5 feet of cover.

4) At potable water supply crossings.

5) At any location designated by the District Engineer.

b. Design Considerations

1) All concrete encasements shall be reinforced in accordance with the District's standard details and shall be of a length to completely span the condition encountered.

2) Unless so designed, encasements are for the purpose of pipeline protection and are not to be considered a structural beam. Therefore, special attention to a good foundation and compaction effort for the encasement must be provided.

c. Pipe Casings

Pipe casing shall be used where bores are required under rights-of-way by the governing agency. All pipe casings shall be constructed to conform with the District's standard details, the Colorado Department of Transportation Standards, and the requirements of any other applicable approving agency.

2.15 Pump Station Design Parameters. Design of pump stations within the District's collection system shall be accomplished on a case by case basis. Pump stations shall not be used wherever gravity sewer service is available. Preliminary considerations and a rationale for the need of the pump station shall be reviewed in detail with the District's Manager prior to proceeding with preliminary and final design. As general guidelines for planning purposes, any pump station considered by the District must include, but is not necessarily limited to the following design features:

a. Dry pit or wet well mounted pumping equipment.

b. Multiple pumps.

c. Standby power generation or dual source of power supply

d. Ventilation, heating and dehumidification equipment.

e. Automatic controls.

f. Remote alarm system for operating functions.

g. Emergency overflow storage

2.16 Owner/Developer Costs

a. Plans and Specifications. All costs associated with the design of sanitary sewer mains and services in accordance with District Rules and Regulations for undeveloped property shall be at the expense of the Owner/Developer.

b. Construction. All costs associated with the furnishing and installation of sanitary sewer mains and services in accordance with District Rules and Regulations shall be at the expense of the Owner/Developer.

c. Plan Review and Construction Administration. The Owner/Developer of property shall pay all District costs including administrative, legal, and engineering fees in regard to plan review, preconstruction and construction progress meetings, field inspections, installation compliance, punch list preparation and all other construction expenses related to the development of the property.

d. All Owner/Developer costs associated with this Section 2.16 are subject to lien rights as outlined in Paragraph 1.9.1 of the Rules and Regulations of the Monument Sanitation District.

2.17 Sanitary Sewerage Plan Submittal Requirements

a. Plans and Specifications. Three (3) copies of all plans and specifications for facilities to be installed under these rules and regulations shall be furnished to the District. One (1) copy will be returned to the applicant when approved by the District and bear evidence of such approval or comments requiring correction.

b. Plan Content. As a minimum, the following information shall be required on all plans.

1) Plan View: The plan view shall show streets, alleys, rights-of-way and utility easements with the location and size of the sewers, locations and distance between manholes, the slope and other appurtenances indicated. It is desirable for plans to show the proposed size and location of service stubs and the location of all existing or proposed underground utilities and structures located

within 20 feet horizontally or vertically, of the centerline of the proposed sewer extension. (The scale is optional; however, 1"=50' is commonly used.)

2) Profile View: The profile view with vertical and horizontal grids shall show the existing ground surface (dotted) and proposed surface (solid). The profile view should also show the proposed sewer with elevations of manhole rims and inverts, the distance and grade between manholes and elevations of utility crossings.

3) Vertical Datum: Plans shall be prepared utilizing the NGVD 1929 vertical datum.

4) Detail drawings: Special detail drawings, made to scale, shall clearly show the nature of design and construction of the following:

   a) Special sewer appurtenances such as non-standard manholes and elevated sewers.

   b) Special joints and utility or storm sewer crossings.

   c) Stream and drainage channel crossings with elevations of normal high and low water levels.

c. Supporting Data. Submit with the plans and specifications all necessary supporting data to fully describe the proposed installation. This data shall include but not necessarily be limited to the following:

   1) A copy of the recorded plat of the subdivision in which the improvements are proposed to be installed and copies of dedicated rights-of-way.

   2) Easements in which improvements are proposed to be installed.

   3) Submit copies of necessary permits from other governmental or private agencies having jurisdiction in the area of the proposed work.

   4) Should a site application for a collection system extension be required by the Colorado Department of Public Health and Environment, the individual party responsible for construction of the facility shall also be responsible for obtaining this site approval.

d. Upon completion of construction and prior to acceptance by the District, two (2) copies of "as-constructed" plans and two (2) sets of electronic data files of the plans shall be submitted to the District for record.

   1) The two (2) copies shall be complete with all "as-constructed" information together with a certification by the party responsible for construction that all data thereon is accurate and represents actual constructed conditions.

   2) The two plan sets shall be submitted on sheets that are 24" x 36" in size.

3) The plan set shall be on a durable media that can be run through photocopying equipment.

4) The two electronic data formats shall be submitted. The first electronic data file set shall be in AutoCAD 2006 or newer format with no external reference drawings. All external references must be bound into the drawing set. The second set of electronic data files shall be in Adobe Acrobat .pdf format.

5) "As-constructed" plans shall be submitted within two weeks of completion of the sanitary sewer construction in any identifiable phase of a development.

6) No authorization to connect to the system or discharge to the system will be allowed until the "as-constructed" documents have been received and accepted by the District.

e. All plans, specifications and supporting documents shall be prepared by or under the direct supervision of a professional engineer licensed to practice in the State of Colorado. All plans and specifications shall bear the seal and signature of said licensed professional engineer.

2.18 Sewage System and Trench and Foundation Drains

a. In no case shall any trench drains, foundation drain or other drainage fixture be connected to the District's system which may introduce any wastewater other than sanitary sewage into the system.

b. All piping material incorporated into the District's sanitary sewage system shall not be white unless utilizing Schedule 40 PVC. At the time of the preparation of these specifications, the predominant pipe color is green. Any deviation from the use of green pipe must be approved by the District.

c. All trench or foundation drainage piping shall be white to preclude accidental cross-connection of the drainage systems. All foundation drainage branch piping shall be three (3) inches in diameter.

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

Chapter 3 - Pipe and Manhole Materials

3.01 PVC Pipe and Fittings (Polyvinyl Chloride)

a. Conformance

ASTM 3034; Standard Dimension Ratio (SDR) shall be maximum of 35.

b. Joints

ASTM D3212; bell and spigot, push-on with single rubber gasket.

Jointing of dissimilar pipe materials shall be accomplished with a specially manufactured rubber connection with stainless steel tightening bands (Mission Rubber Company, Fernco or equivalent).

c. Length of Joints

The length of joints for flexible conduits shall not exceed 14 feet for grades less than one percent.

d. Criteria for Acceptance. Pipe which has any of the following visual defects will not be accepted.

1) Improperly formed pipe such that pipe intended to be straight has an ordinate, measured from the concave side of the pipe exceeding 1/16 inch per foot of length.

2) Pipe which is out-of-round to prohibit proper jointing.

3) Improperly formed bell and spigot ends or bells which are less than 1½ inches in length.

4) Pipe which is fractured, cracked, chipped or damaged in any manner.

5) Pipe that has been damaged during shipment or handling.

6) Pipe or fittings not properly marked as required by the following specifications.

e. Marking of Material. The following shall be clearly shown on the exterior of the pipe:

1) Manufacturer's name.

2) Appropriate ASTM designation.

3) Appropriate SDR number of 4-inch and 6-inch pipe.

4) Homemark.

f. Material Handling and Storage. Avoid damage to pipe from impact, bending, compression or abrasion during handling and storage.

Store pipe on flat surface which provides even support for the pipe barrel with bell end overhanging. Do not stack pipe higher than 5 feet. Do not store pipe and fittings in direct sunlight for extended periods (greater than two to three weeks). Any discoloration of the pipe material shall be evidence of ultraviolet damage and shall be reason for rejection and the removal from the project.

Ship rubber gaskets in cartons and store in a clean area away from grease, oil, ozone producing electric motors, heat and the direct rays of the sun.

Use only nylon protected sling to handle pipe. The use of hooks, bare cables or chains will not be permitted.

For pipe slopes less than one percent, the maximum pipe joint length shall be fourteen (14) feet.

g. All PVC pipe installed in the District's sanitary sewer system including mains and services shall be green in color, unless otherwise directed by the District. Trench and foundation drain piping used in the District shall be white to better assure that there is no accidental connection between the two separate drainage systems.

h. PVC pipe shall not be installed at depths in excess of fourteen (14) feet without specific approval of the District.

3.02 Ductile Iron Pipe

a. Conformance

ANSI 21.51/AWWA C151; ASTM A536, Grade 60-42-10; Pressure Class 350, unless otherwise required for internal or external loading.

Fittings shall conform to ANSI 21.10 for flanged, mechanical joints and push-on joints (AWWA C110 or C153).

b. Joints

1) Mechanical Joint: ANSI A21.11

2) Push-On: ANSI A21.11

3) Flanged: ANSI B16.1, 125 lb. drilling

4) Rubber Gaskets: AWWA C111 (ANSI A21.11)

c. Protective Coatings and Linings

1) Exterior Coating: Manufacturer's standard bituminous coating approximately 1 mil thick.

2) Interior Lining:

a) Ceramic epoxy lined.

(1) Thickness: 40 mil dry film thickness.

(2) Design basis: US Pipe, PROTECTO 401 or equivalent.

(3) Alternate interior lining: Tnemec Series 431 Perma-Shield® PL.

d. Polyethylene Wrapping. All ductile iron pipe shall be installed with an 8 mil thick polyethylene wrapping. The polyethylene wrapping shall conform to AWWA C105 latest revision.

e. Criteria for Acceptance. In addition to any deficiencies covered by the reference specifications above, any of the following visual defects will not be accepted.

1) Improperly formed pipe such that pipe intended to be straight has an ordinate, measured from the concave side of the pipe exceeding 1/16 inch per foot of length.

2) Pipe which is out-of-round to prohibit proper jointing.

3) Pipe which is fractured, cracked, chipped or damaged in any manner.

4) Pipe that has been damaged during shipment or handling.

5) Pipe which has lining which is fractured, cracked, chipped or damaged in any manner and would not provide satisfactory service under the conditions intended.

f. Marking of Material & Certification of Manufacturer. All materials shall be marked with the name of the manufacturer of origin. Manufacturer will provide a certification to the District that all products supplied to the project site are in conformance with these specifications.

g. Material Handling and Storage. Handle pipe, pipe fittings and accessories using lifting hoist or skidding to avoid shock or damage. Do not drop such materials. Do not allow pipe unloaded on skidways to be skidded or rolled into pipe previously unloaded. Protect the pipe coatings and linings from damage during delivery and handling.

3.03 High Density Polyethylene (HDPE) Plastic Pipe

a. Conformance

1) ASTM D3350-02.

2) Dimension ratio: DR11 or as directed by the District.

3) Pipe joints: Butt heat-fusion.

b. Pipe and Fittings Fabrication

1) Continuous winding of a special profile onto suitably sized mandrels.

2) Produced to constant internal diameters.

3) Pipe wall profile in accordance with the manufacturer's recommendation.

4) Homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects.

5) Uniform in color, opacity, density and other physical properties.

6) No evidence of splitting, cracking or breaking down when tested.

7) Conform to requirements of ASTM F894.

c. Criteria for Acceptance

1) Pipe which has any visual defects will not be accepted.

2) Defects such as weak structural components that adversely affect execution and quality of work including cracks, dents, abrasions, holes, foreign inclusions or other defects.

3) Deviations beyond allowable tolerances.

d. Marking of Material

1) Manufacturer's name.

2) Appropriate ASTM designation.

3) Appropriate dimension ratio (DR).

4) Marked with "Green Stripe" designating wastewater pipeline.

e. Material Handling and Storage

1) Handle pipe, pipe fittings and accessories using lifting hoist or skidding to avoid shock or damage. Do not drop such materials. Do not allow pipe unloaded on skidways to be skidded or rolled into pipe previously unloaded. Protect the pipe coatings and linings from damage during delivery and handling.

3.04 Manholes. Except as otherwise specifically approved by the District, manholes shall be precast concrete and manufactured in accordance with the referenced specifications.

a. Conformance

Precast concrete in conformance with ASTM C478.

b. Size of Manholes

Size of Sewer Main	Inside Diameter of Manhole
8 inches through 30 inches	5 feet
Greater than 30 inches	6 feet

The internal manhole diameter shall be increased as directed by the District to accommodate multiple intersecting pipes and other conditions. The intent is to provide for optimum operation and maintenance of the completed facility.

c. Cement

All cement used in manhole construction shall be Type II or Type IILA. All concrete shall have a 28-day compressive strength of at least 3,000 pounds per square inch (psi).

Rubber gasketed joints for pre-cast manhole sections shall be an R-4 joint and designed in accordance with ASTM C443.

Manhole joints may be joined with flexible plastic/rubber gaskets constructed of Ram-Nek, Rubber-Nek, Con-Seal or equivalent.

3.05 Cast-In-Place Concrete. All cast-in-place concrete utilized in sanitary sewer construction shall have a minimum compressive strength of 3000 psi at 28 days unless specifically required otherwise by the project.

a. Aggregates

Conform to ASTM C33, maximum size shall be ¾-inch nominal diameter.

b. Cements

Portland Cement in accordance with ASTM C150, Type II or IILA will be used for all concrete.

c. Admixtures

Air entraining admixtures will be permitted in conformance to ASTM C260. Maximum entrained air shall be 6.5% and minimum shall be 5.0%. Water reducing and retarding admixtures may be utilized with the specific approval of the District. Such admixtures shall be in conformance with ASTM C493. Flyash or calcium chloride are not permitted for use.

d. Water/Cement Ratio

Maximum water cement ratio shall be 0.45.

e. Slump. Maintain within the following limits:

1 inch minimum, 3 inch maximum for all concrete to be incorporated in sanitary sewerage facilities.

3.06 Castings

a. Cast Iron

1)	Conformance:	ASTM A48
2)	Applicable Items:	Manhole rings and covers with non-slip surface with "SEWER" cast in the cover. Combined weight will not be less than 310 pounds. Ring shall he a minimum of 4 inches in height and 22 inch minimum diameter clear opening.

3.07 Steps. All manholes shall have steps at a maximum of 12 inches vertical spacing unless otherwise specifically directed by the District.

a.	Conformance:	Federal Spec. QQ-A-200/8.
b.	Material:	Aluminum with drop front design or safety nosing and non-skid grooves.
c.	Width:	12 inches.
d.	Capacity:	1000 pounds at 6 inches from wall.
		1500 pounds at 4 inches from wall.

OR

a. Material: Plastic (co-polymer polypropylene) with 1/2" diameter Grade 60 steel reinforcement as manufactured by M.A. Industries, Inc.

b. Design Equipment: PS-2-PFS Manhole Step with non-skid grooves and safety nosings or drop front design.

3.08 Cement Mortar

a. Conformance: ASTM A270, Type M.

3.09 Cement Grout

a. Cement

Portland Cement in accordance with ASTM C150, Type II or II LA.

b. Sand

Clean, well-graded, natural sand in accordance with ASTM C33.

c. Proportioning

One part Portland Cement, 2½ parts sand, by weight, with minimum water required for placement and hydration.

3.10 Non-Shrink Grout

a. Approved commercial factory mix product made especially for intended use.

b. Utilize nonmetallic chemical grout for non-shrink applications.

3.11 Dampproofing and Waterproofing Material

a. Dampproofing

1) DISSCO 521 or similar approved material.

b. Waterproofing

1) Tnemec Hi-Build Tneme-Tar® Series 46H-413 or similar approved material.

c. External concrete joint wrap; elastomeric protective film wrap, minimum 12 inches wide; Henry Company Sealants Division, "RUB'R-NEK External Concrete Joint Wrap" or similar approved material.

3.12 Casing Pipe and Appurtenances

a. Carrier Pipe. As approved by the District.

b. Casing Pipe

1) Type: Fabricated welded steel

2) Conformance: AWWA C200, latest revision

3) Steel: ASTM A36 or ASTM A283, Grade C or D, minimum yield strength of 35,000 psi

4) Ends: Beveled for field welding

5) Pipe diameter: As shown on plans (16" minimum)

6) Wall thickness: 0.25" minimum

7) Exterior coating: None

8) Interior coating: None

c. Casing Pipe End Seals

1) High density rubber with stainless steel strap and clamp.

a) Model S as manufactured by PSI Industries.

d. Casing Pipe Spacers

1) Non-metallic spacer system.

a) Ranger II model as manufactured by PSI Industries or approved equivalent.

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

Chapter 4 - Pipe Installation

4.01 Subgrade Preparation

See Part III of these regulations.

4.02 General Requirements

a. A pre-construction meeting must be arranged by the contractor and held prior to the start of any work. The District Engineer, Contractor, and Owner or Owner's Engineer must be represented at this meeting, which shall be held at the office of the District.

b. All contractors must notify the District at least 24 hours prior to start of construction.

c. Approved plans and a copy of these specifications must be kept on the job site by the contractor at all times.

4.03 Pipe Laying

a. Prior to the start of any work where sewer mains to be installed tie into existing District sewer systems, the nearest manhole to the point of tie-in shall be plugged with a plumber's plug on the outlet side by the contractor. This plug shall remain in place until final acceptance by the District. Its purpose is to prevent any mud, water, or other materials from entering the existing line during construction. The contractor shall be responsible for pumping and cleaning these manholes and removing the plug when so instructed by the District Engineer.

b. Begin pipe laying at the lowest point, unless directed otherwise by the District, and install the pipe with the spigot ends pointing in the direction of flow.

c. Unless required or directed otherwise by the District, lay all pipe straight between changes in alignment and at uniform grade between changes in grade or slope.

d. As each length of pipe is placed in the trench, the joint shall be completed in accordance with the pipe manufacturer's recommendations and the pipe shall be brought to the correct line and grade. The offset at the invert shall be less than 1% of the inside pipe diameter.

e. If approved, the length of joints for curvilinear sewer shall be determined by the radius using radius of curvature not exceeding the manufacturer's recommendations, three degree couplings or a combination of both.

f. Secure the pipe in place with imported Class B bedding material tamped under and around the pipe. Do not walk on small diameter conduit or otherwise disturb any conduit after jointing has been completed.

g. All foreign matter or soil shall be removed from the inside of the pipe before it is lowered into its position in the trench and shall be kept clean at all times during and after laying. All openings along the line of the sewer shall be securely closed and during suspension of work at any time, suitable pipe plugs or closures shall be placed to prevent water, soil or other materials from entering the pipeline.

4.04 Fittings, Couplings, Wyes and Saddles

a. Fittings, couplings, wyes and saddles shall be the same material as the pipeline or as specifically manufactured for a particular installation.

b. Jointing of dissimilar materials shall be permitted only with approval of the District representative. Jointing of such dissimilar materials shall be through the use of fittings, couplings, wyes, saddles, adapters or adhesives specifically manufactured for such transitions.

4.05 Service Lines

a. Prepare subgrade in accordance with Part III of these regulations.

b. Installation of any and all service lines whether from the main line to the property line or from properly line to the building, must be inspected by the District Manager or District Engineer, who shall be notified by the contractor at least 24 hours prior to installation.

c. The type of service line connection fitting to be utilized when connecting to the main line shall be at the discretion of the District.

d. Connect all service lines to new mains with an in-line, prefabricated wye fitting and all service lines to existing mains with a wye saddle. The use of a tee or tee saddle shall only occur with prior approval of the District. All service lines shall connect into the top one-half of the sewer main. Connections to be made in the lower half or at mid-point of the main shall only be accomplished with prior approval of the District and may require the installation of a backflow prevention device.

e. Connection of Service Lines to Mains

1) Wye saddles with rubber gaskets shall be used for connection to the main line of pipe, secured in place with stainless bands.

2) Connection to the main line piping with a wye shall be made by cutting a hole using the appropriate hole template, tapping machine or hole saw no more than ¼-inch larger in diameter than the template outline.

3) A 45-degree or 22½-degree bend shall be used from the wye fitting to attain the desired alignment and slope for the service line piping.

4) The in-line wye or wye saddle shall be furnished with an integral rubber-gasketed bell.

5) All service line piping between the main line and the property line of the property to be serviced shall be pipe in accordance with these specifications with integral rubber gasketed push-on joints.

6) In general, no change in horizontal alignment will be permitted between the connection at the main line and the property line of the property being serviced.

f. Service line connections shall be separated by a minimum of 3 feet measured center to center along the main.

g. Plug all service line stubs with water and air tight cap or plug unless the service line will be immediately connected to a building sewer.

Where new street construction is proposed immediately following construction of sanitary sewer facilities, extend the service line to 5 feet inside the property line, install the appropriate watertight plug and mark with a vertical wood marker extending above the surface and having dimensions of 2" x 4" minimum.

h. Conform to the installation requirements for sewer mains for the installation of sewer service lines in the public right-of-way or easement. Imported Class B bedding shall be required.

i. The Contractor and/or Developer shall provide complete as-built information on each service line connection installed within his/her work. As a minimum, this information shall include the location of the connection to the main referenced to the nearest manhole or other permanent improvement, the location of the end of the service line stub, the direction of the service line as it relates to surrounding permanent surface improvements, the size, the material of construction and the date and name of the installer. All such information shall be provided to the District's representatives for incorporation into the District's permanent records. (See Section 2.17, d. for as-constructed plan submittal requirements.)

j. Connection of service lines and service line construction shall be accomplished by experienced, qualified personnel with adequate equipment. The District's representative shall have authority to reject work and may not permit work to be accomplished unless done by qualified personnel.

k. Inspection by the District representative shall be required of each service connection prior to commencing any backfill.

l. All sanitary sewer service lines shall be field identified by marking an "S" in the top of the curb where service lines pass under the curb and gutter.

1) Neatly mark 3-inch high letter in plastic concrete

2) Neatly remove concrete to depth of 1/16-inch with hand or power tools to form letter in hardened concrete.

4.06 Manholes

a. Precast Base

1) Prepare subgrade and place 12 inches of ¾-inch rock under base section.

2) Place base section to the design elevation.

3) If ground water or an unstable subgrade is encountered, the contractor shall:

a) Notify the District representative.

b) Dewater as necessary.

c) Remove any unstable subgrade material.

d) Install 2-inch to 4-inch stabilization rock as necessary to stabilize the subgrade prior to placement of ¾-inch rock and base section.

b. Cast-In-Place Concrete Manhole Base

1) Prepare the subgrade and excavation in accordance with the specifications.

2) Provide reinforcing, grade 60 reinforcing bar, No. 4 at 12 inches on center each way for manholes 12 feet or less in depth. Place steel at 8 inches on center each way on manholes in excess of 12 feet in depth.

3) Place concrete against undistributed soil to the depth, thickness and other dimensions shown on detailed drawings.

4) Finish and cure the cast-in-place concrete for a minimum period of 24 hours prior to placing precast manhole sections on the cast-in-place base.

5) Maintain ground water below the bottom of the cast-in-place concrete for a minimum period of 24 hours following placement of concrete by maintaining pumping equipment in operation below the subgrade of the manhole base.

6) Concrete shall contain a minimum of 564 lbs of Type 2 portland cement per cubic yard (6 sacks mix), be placed with a maximum slump of 2 inches with maximum size course aggregate of ¾-inch (ASTM C33).

c. Provide segmental precast concrete barrel sections a maximum of 4 feet in length with preformed flexible gasket material between each barrel section as jointing material or install rubber gaskets in precast R-4 joint grooves per manufacturer's recommendations.

d. Provide Dampproofing of all Manhole Joints

1) If directed by the District, provide interior dampproofing consisting of a ⅜-inch to ½-inch thick layer of cement grout extending a minimum of 4 inches each side of all manhole segment joints. Work the cement grout in the joint to completely fill all voids.

2) Provide exterior dampproofing consisting of a ⅜-inch to ½-inch thick layer of cement grout extending a minimum of 4 inches each side of all manhole segment joints. Work the cement grout in the joint to completely fill all voids. After installation of cement grout, apply dampproofing material in accordance with Paragraph 2.09, f., 5).

3) When ground water is present or potentially present in the opinion of the District representatives, coal tar epoxy dampproofing material shall be applied to the completed manhole structure after installation of cement grout and prior to backfilling. Apply coal tar epoxy in accordance with Paragraph 2.09, f., 6).

4) During construction of all dampproofing measures ground water shall be maintained below the subgrade elevation in the manhole excavation during the time sufficient for all materials to properly cure, no less than 24 hours.

e. Provide one, one (1) foot high barrel section beneath a reducing ring or cone cap to bring the manhole ring and cover to within 6 inches of desired grade.

f. Provide precast concrete 2-inch-high grade adjustment rings to bring the ring and cover to desired grade. A minimum of (2) 2-inch adjustment rings are required with a maximum of six grade adjustment rings being permitted. A maximum dimension of 1.5 feet shall be permitted between the manhole ring and the top manhole step.

g. Where the manhole base is constructed from cast-in-place concrete, the sewer pipes entering the base shall be cut to length to match the inside of the manhole barrel and set to grade. Manhole gaskets shall be placed over the pipe and centered between the end of the pipe and the outside of the cast-in-place base. The cast-in-place base shall then be constructed to the lines and grades required by the District's standard specifications and the accepted plans. Sewer pipe shall not be laid through the manhole base and the concrete base and/or invert placed around the pipe.

Where preformed rubber "boots" such as Kor-N-Seal boots are used in precast manhole bases, manhole gaskets on the pipe are not required.

h. Where intersecting pipelines or pipelines requiring deflections at manholes require that the invert of the manhole be shaped to match the pipe cross sections, such construction shall be accomplished in accordance with the detail drawings of these specifications. Form the flow line configuration of intersecting pipes to allow for free uninterrupted flow of sanitary sewage through and out of the manhole. All channel inverts shall be finished smooth by steel troweling. All inverts shall be placed and finished with a single pour of cast-in-place concrete. Placement of grout and/or other

material to repair and/or reshape the manhole invert shall not be permitted unless specifically approved by the District's representative.

i. Cast-in-place bases for manholes shall be constructed in a manner to provide for a smooth level surface on which vertical barrel sections shall be placed. Completely watertight joints shall be made utilizing preformed flexible gasket material or a precast concrete base section may be utilized. The manhole shall be constructed such that no single section varies from true vertical by more than two percent of the section length.

j. All manholes constructed in the District shall have the ring and cover elevations set at final street grades or at a point not more than 6 inches above the existing ground in non-traffic areas unless directed otherwise by the District. The Developer/Contractor shall be responsible for adjusting the manhole rings and covers to the final elevations.

k. In areas where street paving will be placed, the manhole ring adjustment shall be accomplished in a two-step process prior to placement of pavement. The manhole ring shall be constructed 0.5 feet below finished pavement surface elevation. Pavement shall then be placed in accordance with the applicable rules, regulations and specifications. Following completion of paving, the sanitary sewer manhole rings will be raised by the Developer/Contractor to finished grade in accordance with the specifications of the District.

l. The ring shall be adjusted with precast concrete rings a maximum of 12 inches in height. Cement grout shall be placed to adjust the ring to conform to the surface. A concrete collar shall be placed around the adjusting rings and the ring of the manhole up to a point 2 inches below finished grade. Paving material shall then be placed over the concrete and match the surrounding pavement surface. Tack coat material shall be placed between new and existing asphaltic concrete surfaces, the manhole casting and the concrete collar.

WASTEWATER COLLECTION SYSTEM STANDARD SPECIFICATIONS

Chapter 5 - Testing of Pipelines and Appurtenances

5.01 Infiltration. Use where ground water may be above the pipeline invert.

a. Infiltration tests shall be conducted on each segment of the sanitary sewer system where it could be anticipated that ground water may rise above the flow line of the pipeline. Tests shall be conducted by placing an approved calibrated V-notch weir in the line just above the next lower manhole and plugging the line just above the next higher manhole. Sufficient time will be allowed to permit the water level behind the weir to stabilize before reading. Any foreign material hanging to the weir will be dislodged before reading. Successive readings shall be taken until consistent results are obtained.

b. The maximum allowable infiltration shall be 100 gallons per day per inch of pipe diameter per mile of pipe.

c. Each segment of pipeline between manholes or other major appurtenances must satisfy and pass the infiltration tests.

d. Should it be determined that the infiltration rate is in excess of that permitted by these regulations, any repair and/or replacement of pipelines, manholes or other appurtenances shall be at the Contractor's and/or Developer's expense. Satisfactory repair and replacement shall be accomplished prior to the consideration of acceptance of any facility by the District.

e. The Contractor and/or Developer will furnish all labor, equipment and materials required to accomplish such testing.

5.02 Air Test. All segments of sanitary sewer mains shall be subjected to an air pressure test. Where ground water levels are above the conduit, increase the test pressures given below to compensate for the pressure on the conduit from the ground water.

a. The Contractor may conduct an initial air test of the sewer main line after compaction of the backfill but prior to the installation of any service lines. Such tests shall be considered for the Contractor's convenience in quality control of the project construction. Final consideration for acceptance of the sanitary sewer by the District shall be based on satisfactory completion of testing with all service line stubs installed.

b. Preparation of Tests. Flush and clean the sewer line prior to testing in order to wet the pipe surfaces and produce more consistent results. Plug and brace all openings in the main sewer line and the upper end of any connections. Check all pipe plugs with a soap solution to detect any air leakage. If leaks are found, release the air pressure, eliminate the leaks and start the test procedure over again.

c. Procedure of Test. Add air until the internal pressure of the sewer line is raised to approximately 4.0 psi gage at which time the flow of air shall be reduced and the

pressure maintained between 3.5 and 4.5 psi gage for a sufficient time to allow the air temperature to come to equilibrium with the temperature of the pipe.

d. After the temperature has stabilized the pressure shall be permitted to drop to 3.5 psi gage at which time a stop watch or a sweep second hand watch shall be used to determine the time lapse required for the air pressure to drop to 3.0 psi gage.

e. If the time lapse is less than that shown in the table, the Contractor shall make the necessary corrections to reduce the leakage to acceptable limits.

f. If the time lapse exceeds that shown in the table, the pipe shall be presumed to be within acceptable limits for leakage.

Pipe Dia.(in.)	Minimum Time (min:sec)	Length For Minimum Time (ft.)	Time for Longer Length (L, ft.) (sec)	LENGTH (ft.)			
				100	200	300	400
4	1:53	597	0.190L	1:53	1:53	1:53	1:53
6	2:50	398	0.427L	2:50	2:50	2:50	2:51
8	3:47	298	0.760L	3:47	3:47	3:48	5:04
10	4:43	239	1.187L	4:43	4:43	5:56	7:54
12	5:40	199	1.709L	5:40	5:42	8:33	11:24
15	7:05	159	2.671L	7:05	8:54	13:21	17:48
18	8:30	133	3.846L	8:30	12:49	19:14	25:38
21	9:55	114	5.235L	9:55	17:27	26:11	34:54
24	11:20	99	6.837L	11:24	22:48	34:11	45:35
27	12:45	88	8.653L	14:25	28:51	43:16	57:42

g. Safety. The air test may be dangerous if proper precautions are not taken. All plugs must be sufficiently braced to prevent blowouts and the pipeline must be completely vented before attempting to remove the plugs.

As a safety precaution, pressurizing equipment shall be provided with a regulator setting of 5 psi to avoid overpressurizing and damaging an otherwise acceptable line.

5.03 Alignment Testing

a. Each section of pipeline on a linear alignment between manholes will be subject to testing by lamping by the District's representatives to determine where proper alignment has been accomplished and whether any displacement of the pipe has occurred during construction.

The Contractor and/or Developer shall provide suitable assistance to the District's representative in accomplishing this work. The Contractor and/or Developer shall be responsible for repairing any alignment, displaced pipe or other defects discovered during this testing in accordance with these specifications.

b. For pipelines installed at grades less than 1%, a minimum of 90% of the full pipe cross section shall be visible at the opposite end of the segment being observed.

c. For pipelines installed at grades greater than 1%, a minimum of 75% of the full pipe cross section at the opposite end of the segment shall be observed.

d. The determination of the acceptability of the pipeline alignment by lamping shall rest solely with the District's representative and his decision shall be final.

e. Pipelines not meeting the requirements of the alignment tests shall be completely excavated, removed and relaid on prepared bedding material, backfilled and compacted in accordance with these specifications and then subjected to infiltration, air pressure and alignment testing.

5.04 Deflection Tests

a. Proper construction in accordance with these specifications and the manufacturer's recommendations should result in a vertical deflection of the pipe less than 5% of the internal diameter. At the option of the District, the Contractor and/or Developer may be required to perform testing to determine conformance with this requirement.

b. Should the District determine that deflection testing is required, the Contractor and/or Developer shall provide all necessary equipment, labor and other facilities. Data supplied by the pipe manufacturer's representative for dimensional quality shall be utilized.

c. Should the vertical deflection of the pipe be found to exceed 5% of the internal diameter, the Contractor will remove the pipe, install proper bedding, replace the pipeline material and properly place and compact all backfill material in accordance with these specifications. Any areas removed and replaced shall be subject to infiltration, air pressure and alignment testing.

5.05 Manhole Vacuum Test

a. All manholes shall be subjected to a vacuum test prior to acceptance by the District.

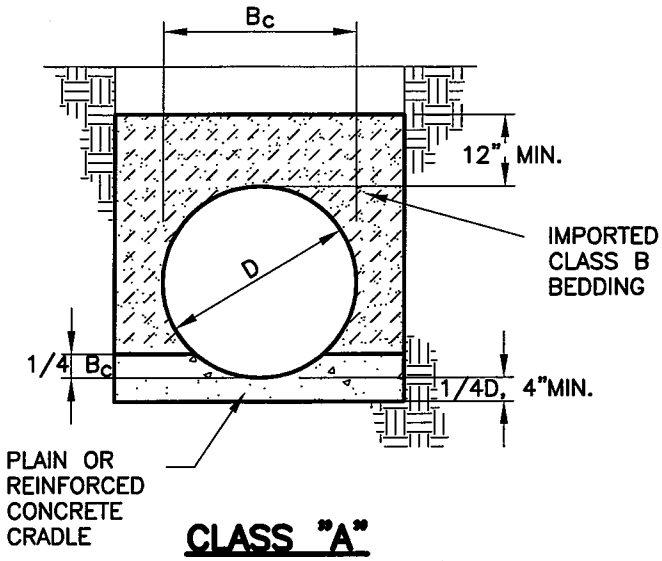
5.06 Internal Video Inspection

a. All sewer main construction in the District shall be inspected with internal video camera and recording equipment.

    1) Sewer mains shall be professionally cleaned prior to any internal video inspection.

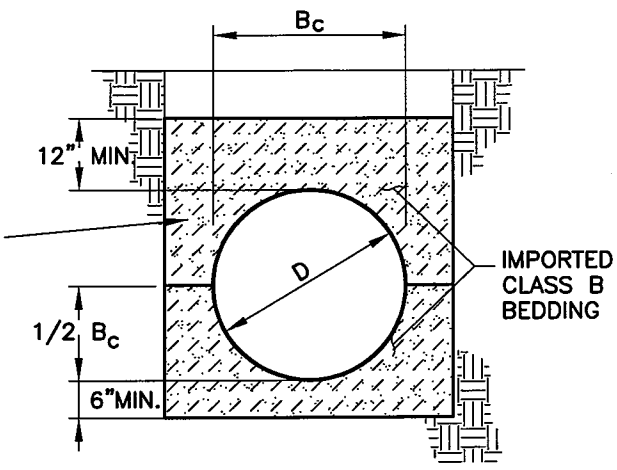
b. All costs of the internal video inspection shall be borne by the Contractor and/or Developer.

c. The individual and/or company and permanent video tape recording shall be subject to the acceptance and approval of the District.



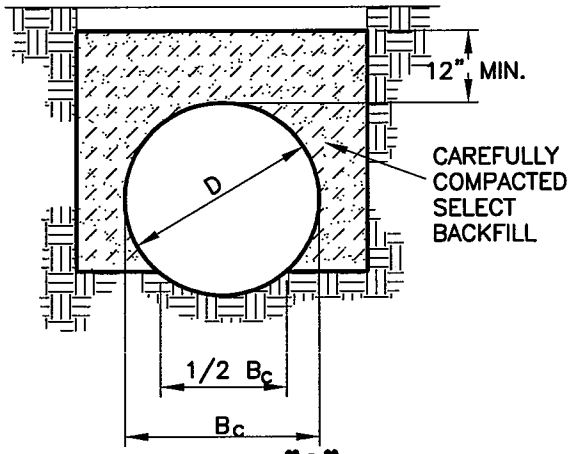
CLASS "A" (CONCRETE CRADLE)

L.F.=2.8



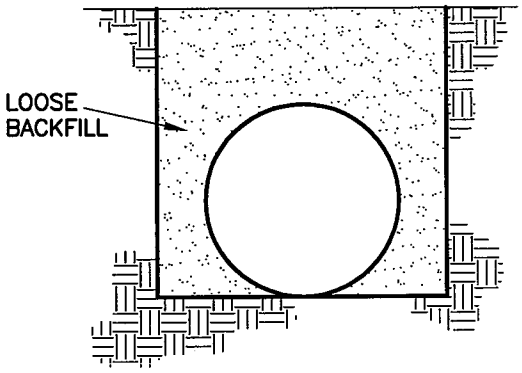
CLASS "B" (GRANULAR BASE)

L.F.=1.9



CLASS "C" (SHAPED BOTTOM)

L.F.=1.5



CLASS "D" (FLAT BOTTOM)

L.F.=1.1

NOTES:

1. FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVEREXCAVATED A MINUMUM OF 6" AND REFILLED WITH GRANULAR BEDDING MATERIAL AS DEFINED BY CLASS "B" BEDDING.
2. L.F. = LOADFACTOR
3. CLASS "C" BEDDING ONLY AS DIRECTED BY THE DISTRICT.
4. CLASS "D" BEDDING WILL NOT BE ACCEPTABLE UNDER ANY CONDITION.
5. MINIMUM DENSITY FOR CAREFULLY COMPACTED SELECT BACKFILL SHALL BE 95% OF STD. PROCTOR DENSITY OR AS SPECIFIED FOR THE TRENCH BACKFILL, WHICHEVER IS GREATER.

MONUMENT SANITATION DISTRICT	PIPE BEDDING		
	DRAWN: SDS	REVISED: 12/28/00 BEDDING DESCRIPTION	DWG–01
	DATE: JAN. 2000	REVISED: 11/03/11 REVISIONS	
	SCALE: NONE	REVISED: 01/12/12 UPDATED	

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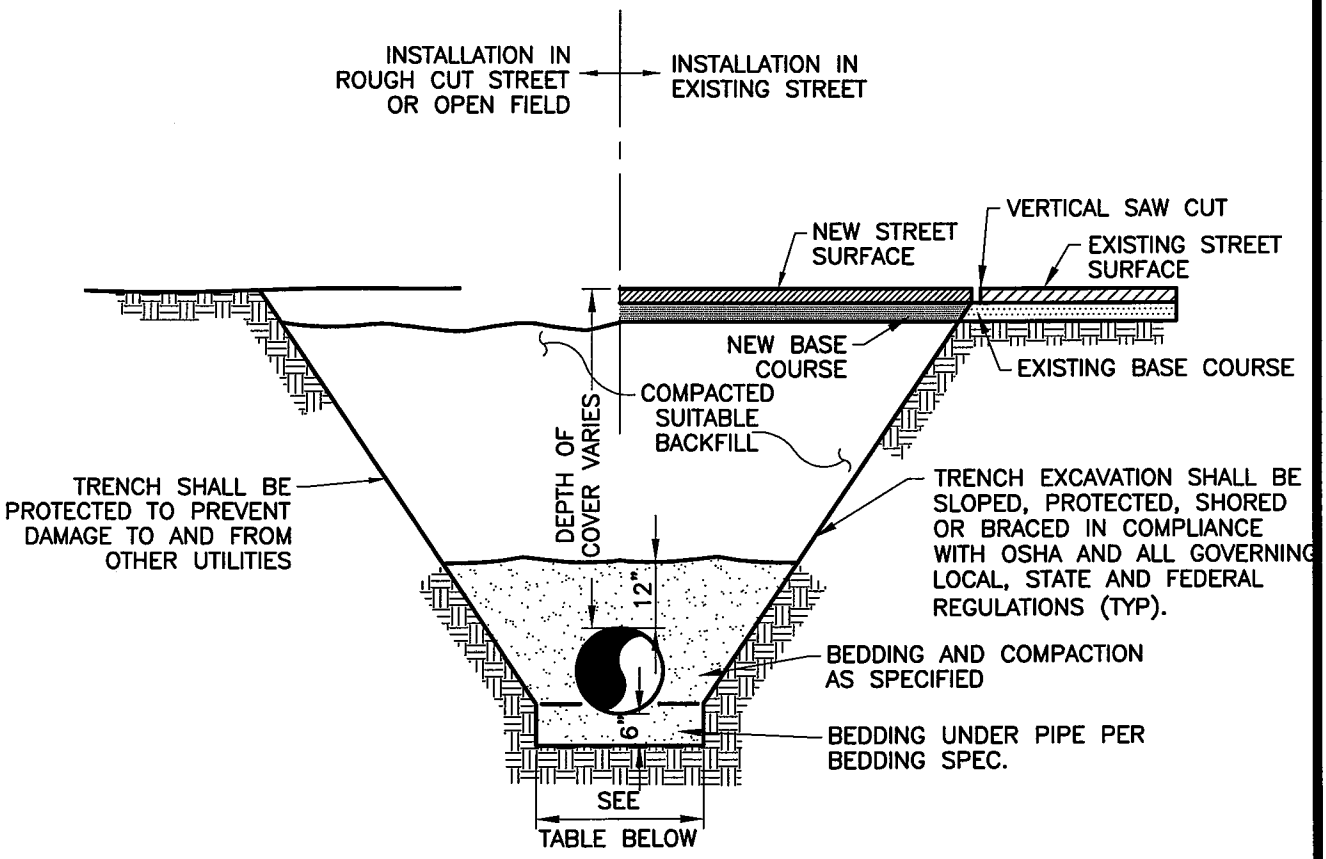

BOTTOM OF TRENCH WIDTH		
PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'–5"	3'–9"
6"	1'–7"	3'–11"
8"	1'–9"	4'–1"
12"	2'–1"	4'–5"
16"	2'–6"	4'–9"
20"	2'–10"	5'–2"
24"	3'–2"	5'–6"

1. ALL PIPE EMBEDMENT SHALL BE IMPORTED CLASS B BEDDING UNLESS OTHERWISE DIRECTED.

2. AN OVER EXCAVATED TRENCH SHALL BE REFILLED AND THOROUGHLY COMPACTED UNDER THE DIRECTION OF THE MONUMENT SANITATION DISTRICT.

3. UNDER NO CIRCUMSTANCES WILL PIPE BE LAID IN A PROPOSED FILL AREA PRIOR TO IT BEING COMPLETELY FILLED. THE FILL WILL BE PLACED FIRST TO THE PROPOSED GRADE AND COMPACTED AS REQUIRED. A TRENCH THEN WILL BE EXCAVATED AND THE PIPE INSTALLED IN THE USUAL MANNER.

4. REFER TO STANDARD SPECIFICATIONS FOR LIMITATIONS AND CONDITIONS FOR THE DEPTH OF COVER.

MONUMENT SANITATION DISTRICT	TYPICAL TRENCH CROSS SECTION		
	DRAWN: SDS	REVISED: 12/28/00 BEDDING DEPTH/DESCR.	DWG–02
	DATE: JAN. 2000	REVISED: 01/12/12 ADDED NOTE 4.	
	SCALE: NONE	REVISED:	

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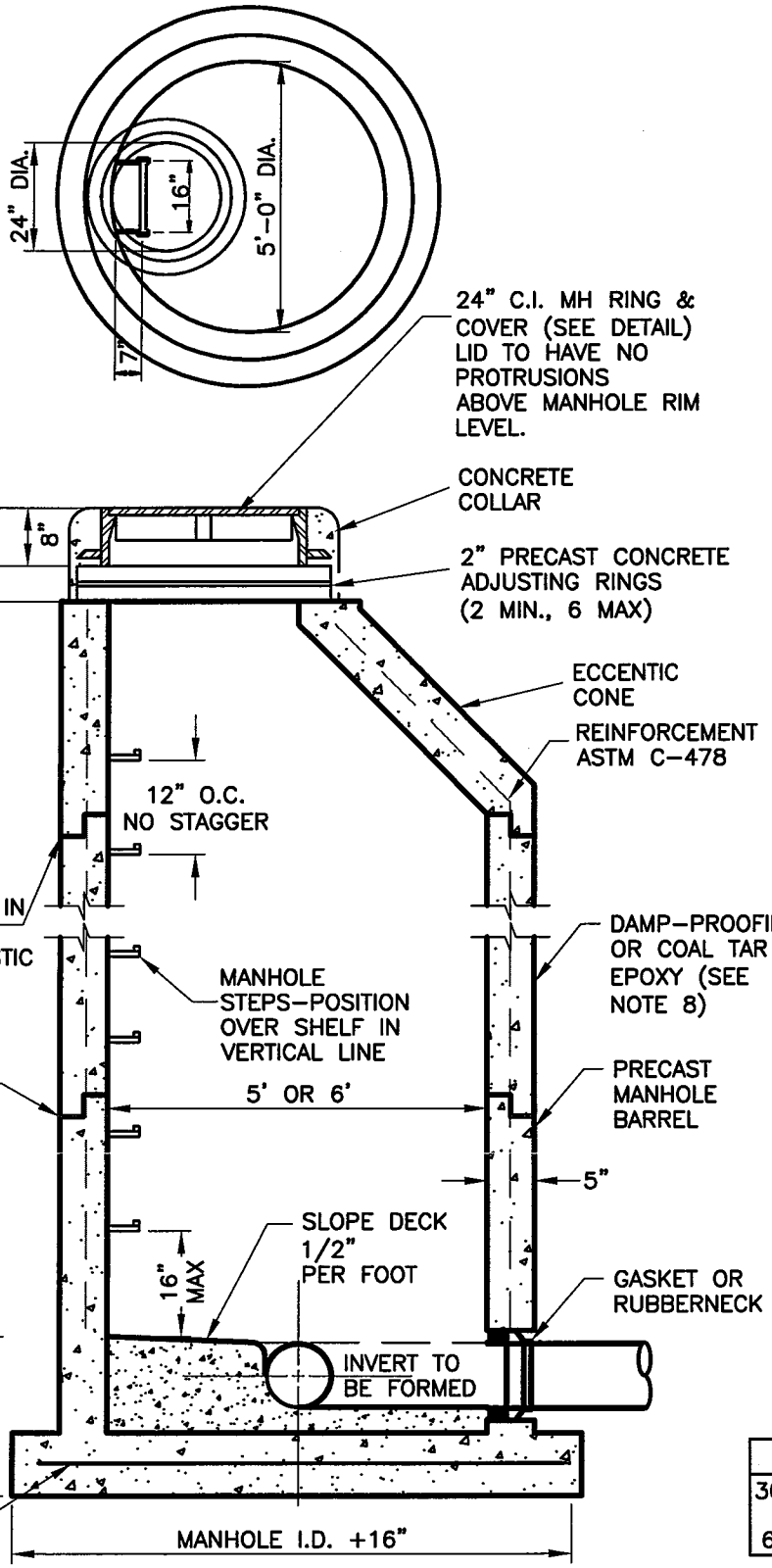


1. MANHOLE BARREL MINIMUM DIAMETER SHALL CONFORM TO TABLE.

2. SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING/SHAPING CONCRETE BASE.

3. THE MANHOLE STEPS SHALL BE SIMILAR AND EQUAL TO COPOLYMER ENCAPSULATING A 1/2" GRADE 60 REINFORCING ROD.

4. PRECAST SECTIONS TO CONFORM TO ASTM C-478.

5. STUB-OUTS SHALL EXTEND 12"-18" PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED.

6. CONCRETE MANHOLES MAY BE CAST-IN-PLACE ONLY WITH PRIOR DESIGN AND INSPECTION APPROVAL.

7. ALL MORTAR GROUT SHALL BE MIXED WITH TYPE V CEMENT.

8. APPLY DAMP-PROOFING TO ALL EXTERIOR CONCRETE SURFACES. APPLY COAL TAR EPOXY IF MANHOLE IS PLACED WHERE GROUND WATER IS PRESENT OR MAY BE PRESENT.

9. CENTER REINF. OR WIRE MESH IN BASE. POUR BELOW PIPE O.D. AT FL.

10. THE TOP MANHOLE STEP SHALL BE BETWEEN 24" AND 30" BELOW THE FINISHED SURFACE OF THE MANHOLE RING AND COVER.

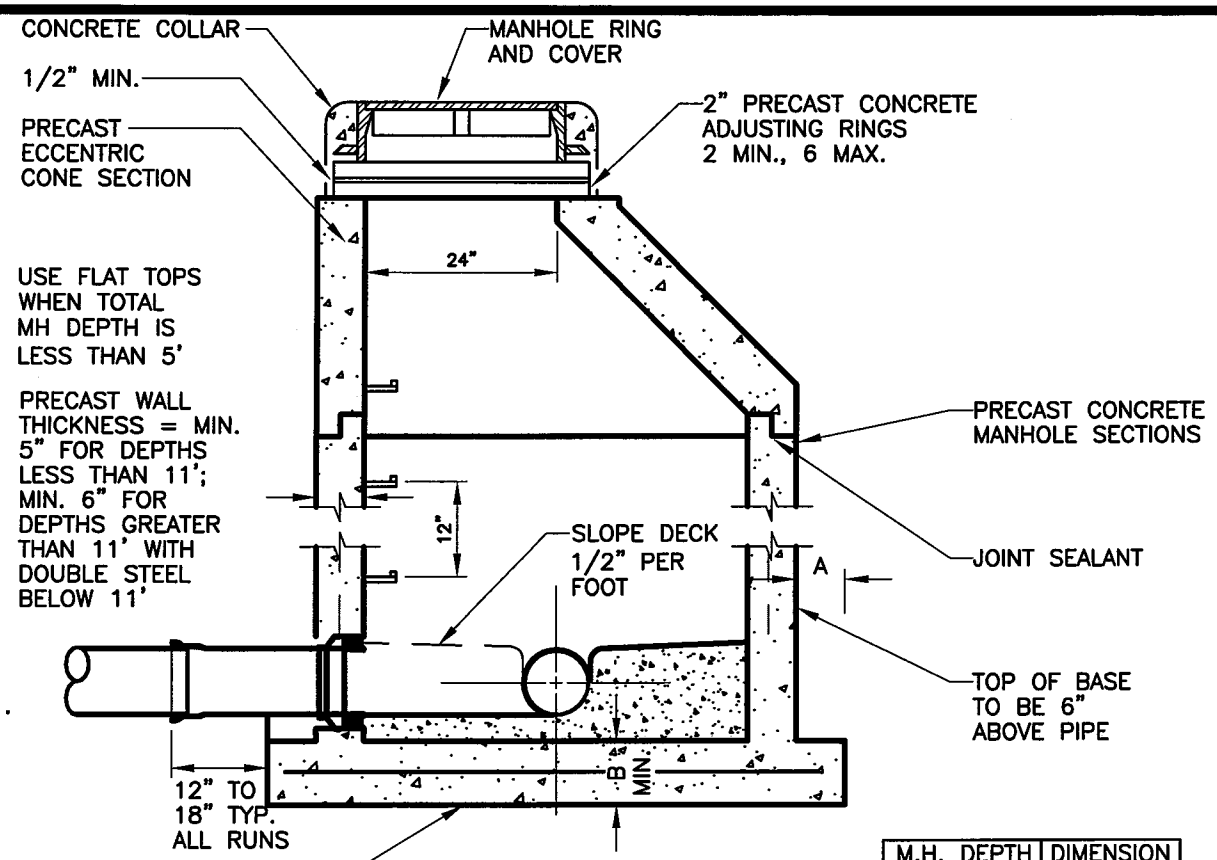
11. ALL EXTERIOR JOINTS SHALL BE COVERED WITH AN ELASTOMERIC JOINT WRAP

PIPE I.D.	MANHOLE I.D.
30" & SMALLER	5'-0"
36" TO 54"	6'-0"
60" & LARGER	SPECIAL DESIGN

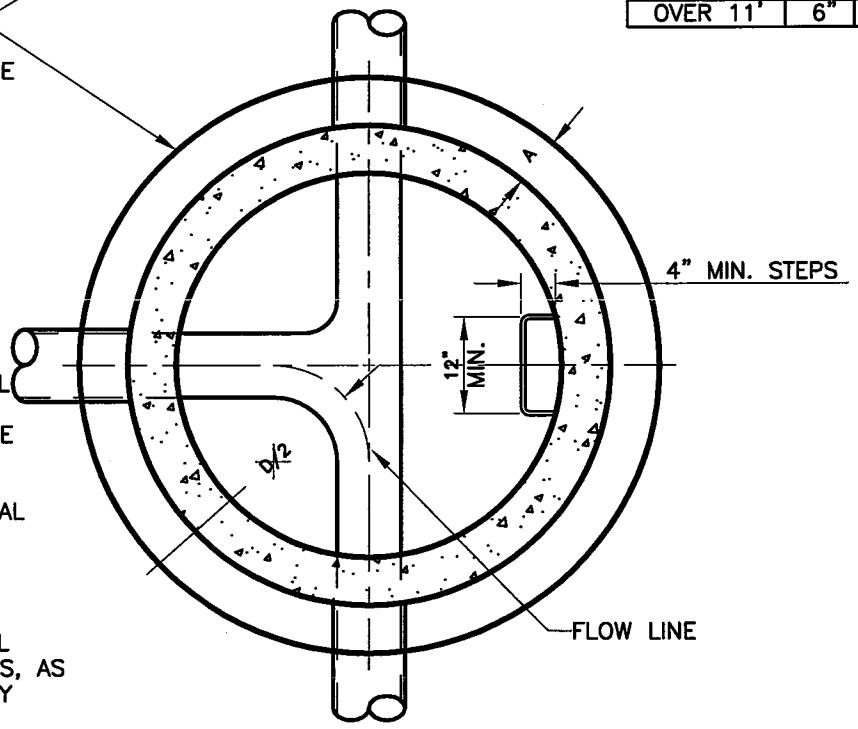
MONUMENT SANITATION DISTRICT

PRECAST MANHOLE

DRAWN: DRF	REVISED:	DWG-03
DATE: JAN. 2012	REVISED:	
SCALE: NONE	REVISED:	



M.H. DEPTH	DIMENSION	
	A	B
0' TO 11'	6"	8"
OVER 11'	6"	10"



WATERPROOFING REQUIREMENTS

1. APPLY CEMENT GROUT LAYER (3/8" TO 1/2" THICK) TO ALL INTERIOR JOINTS ABOVE FLOW CHANNEL AS DIRECTED BY THE DISTRICT.
2. APPLY DAMPPROOFING OR COAL TAR EPOXY TO ALL EXTERIOR CONCRETE SURFACES.
3. APPLY CEMENT GROUT LAYER (3/8" TO 1/2" THICK) TO ALL EXTERIOR CONCRETE SURFACES, AS DIRECTED BY DISTRICT. APPLY PRIOR TO DAMPPROOFING.
4. ALL EXTERIOR JOINTS SHALL BE COVERED WITH AN ELASTOMERIC JOINT WRAP.

MONUMENT SANITATION DISTRICT	SANITARY SEWER MANHOLE		
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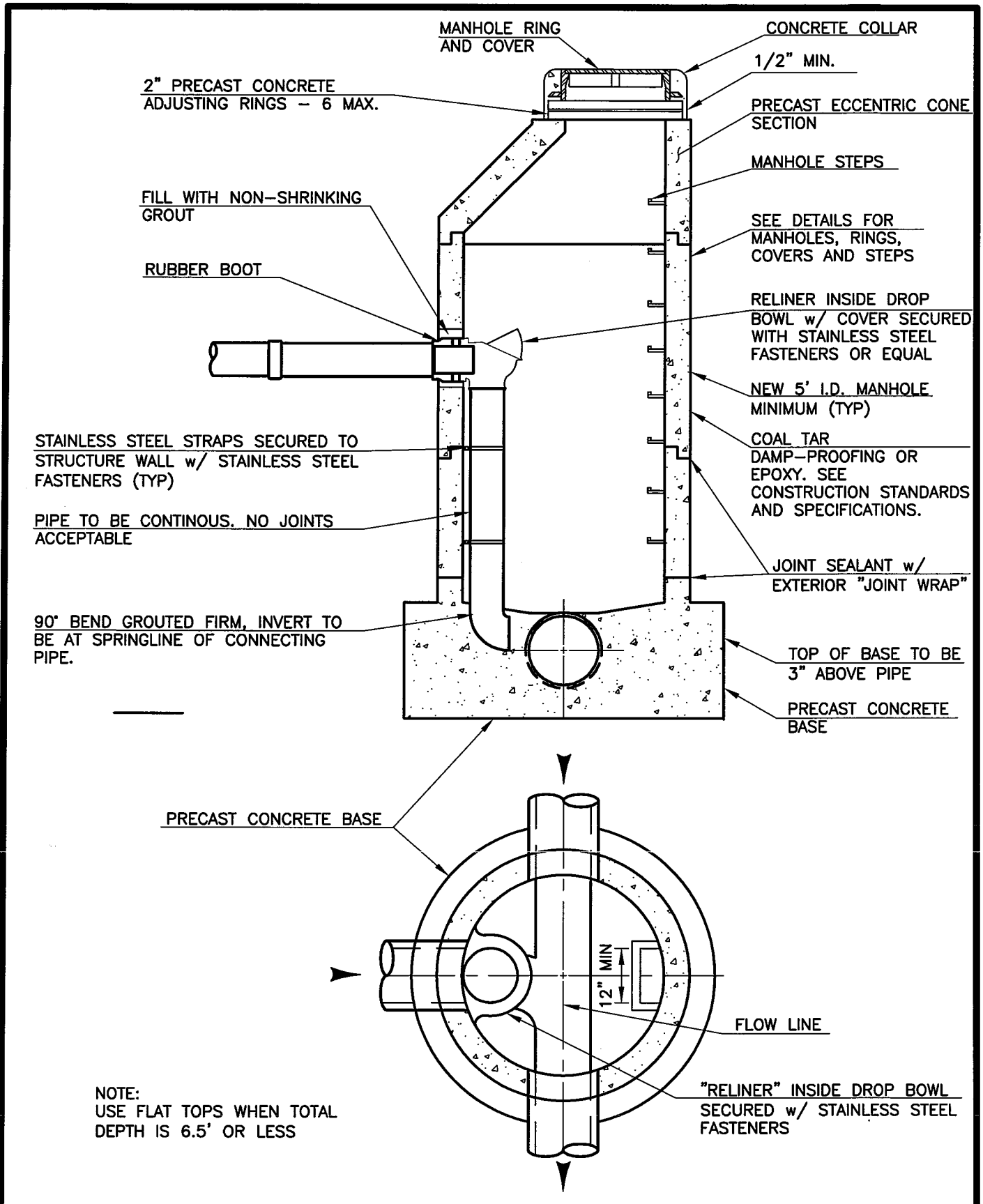
	DATE: JAN. 2012	REVISED:	
	SCALE: NONE	REVISED:	



NOTE:
USE FLAT TOPS WHEN TOTAL DEPTH IS 6.5' OR LESS

MONUMENT SANITATION DISTRICT	INTERNAL DROP SANITARY SEWER MANHOLE DETAIL		
	DRAWN: DRF	REVISED:	DWG–05
	DATE: JAN. 2012	REVISED:	
	SCALE: NONE	REVISED:	

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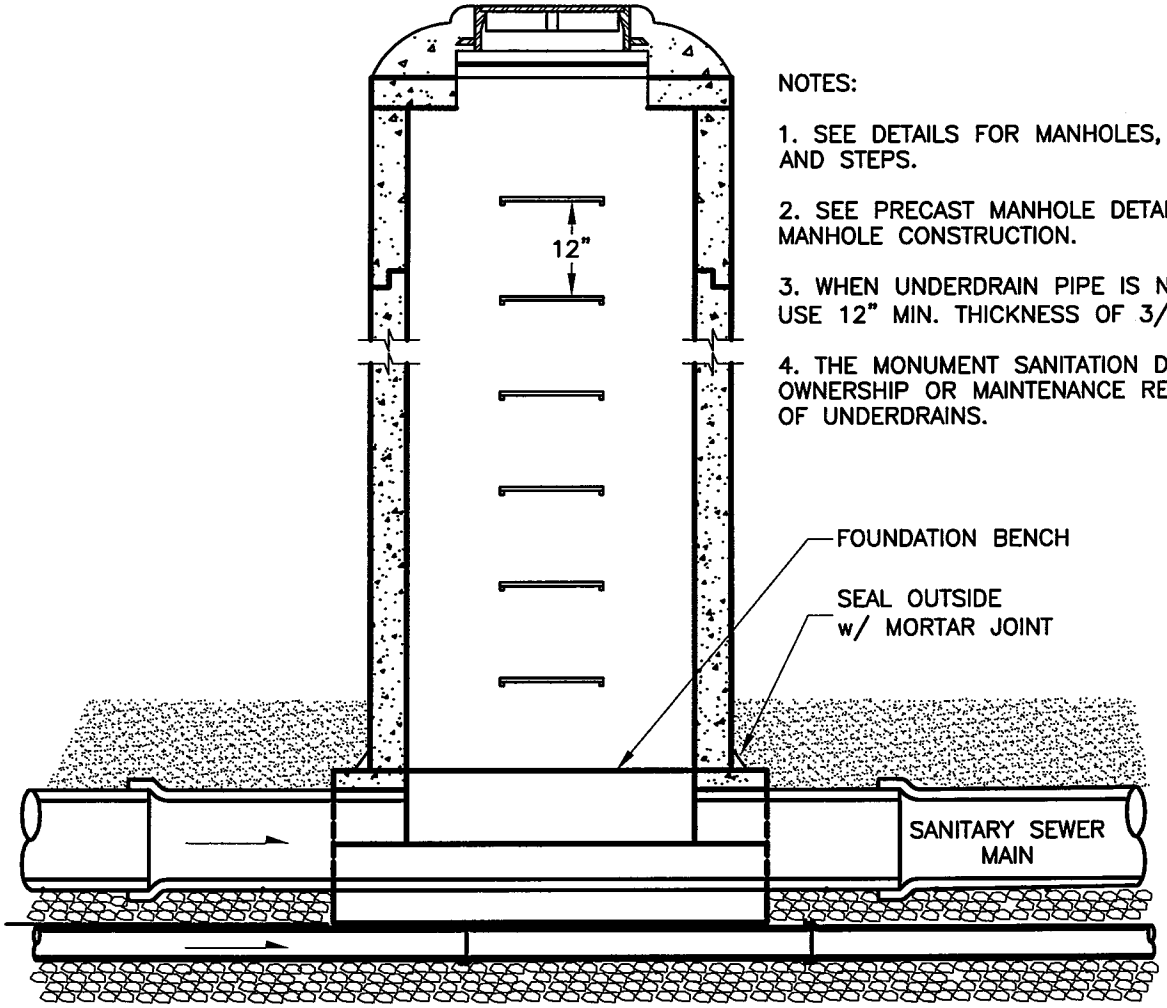
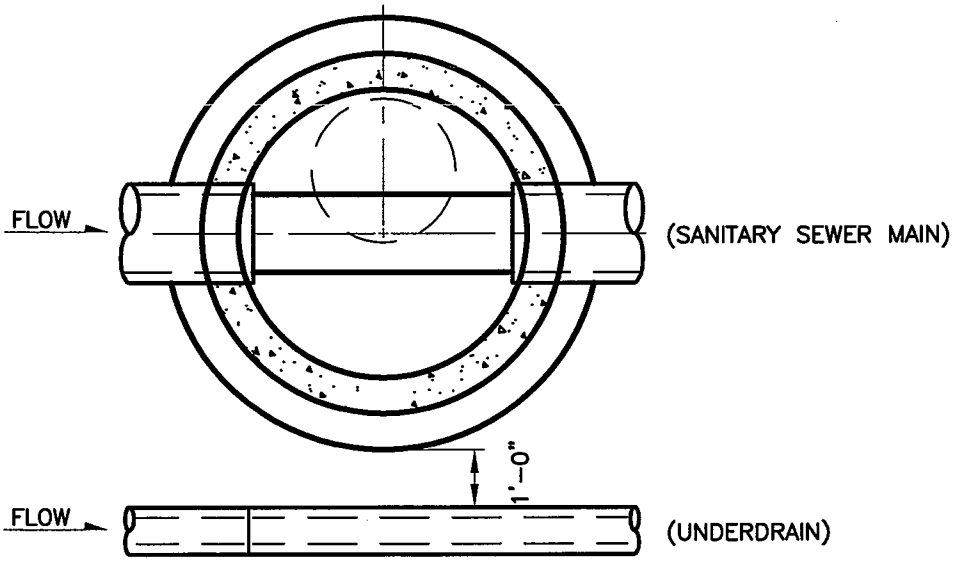


NOTES:

1. SEE DETAILS FOR MANHOLES, RINGS, COVERS AND STEPS.
2. SEE PRECAST MANHOLE DETAILS FOR MANHOLE CONSTRUCTION.
3. WHEN UNDERDRAIN PIPE IS NOT REQUIRED USE 12" MIN. THICKNESS OF 3/4" ROCK.
4. THE MONUMENT SANITATION DISTRICT HAS NO OWNERSHIP OR MAINTENANCE RESPONSIBILITIES OF UNDERDRAINS.



MONUMENT SANITATION DISTRICT

MANHOLE WITH UNDERDRAIN DETAIL

DRAWN: SDS	REVISED: MARCH 27, 2000	DWG–06
DATE: JAN. 2000	REVISED: 11/03/11 UPDATED	
SCALE: NONE	REVISED: 01/12/12 UPDATED	

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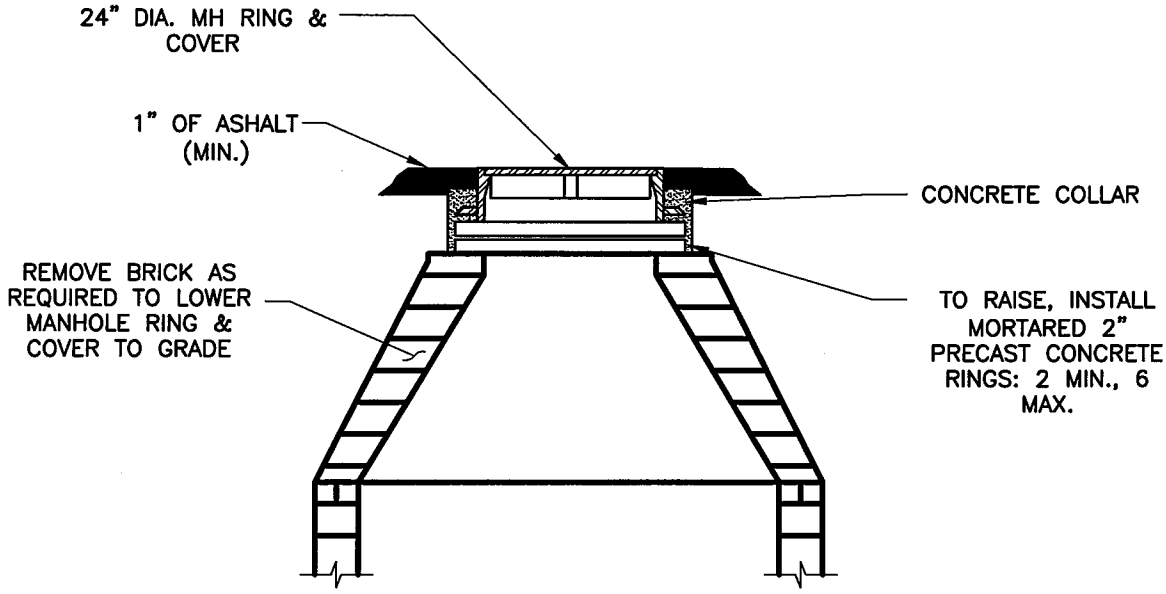

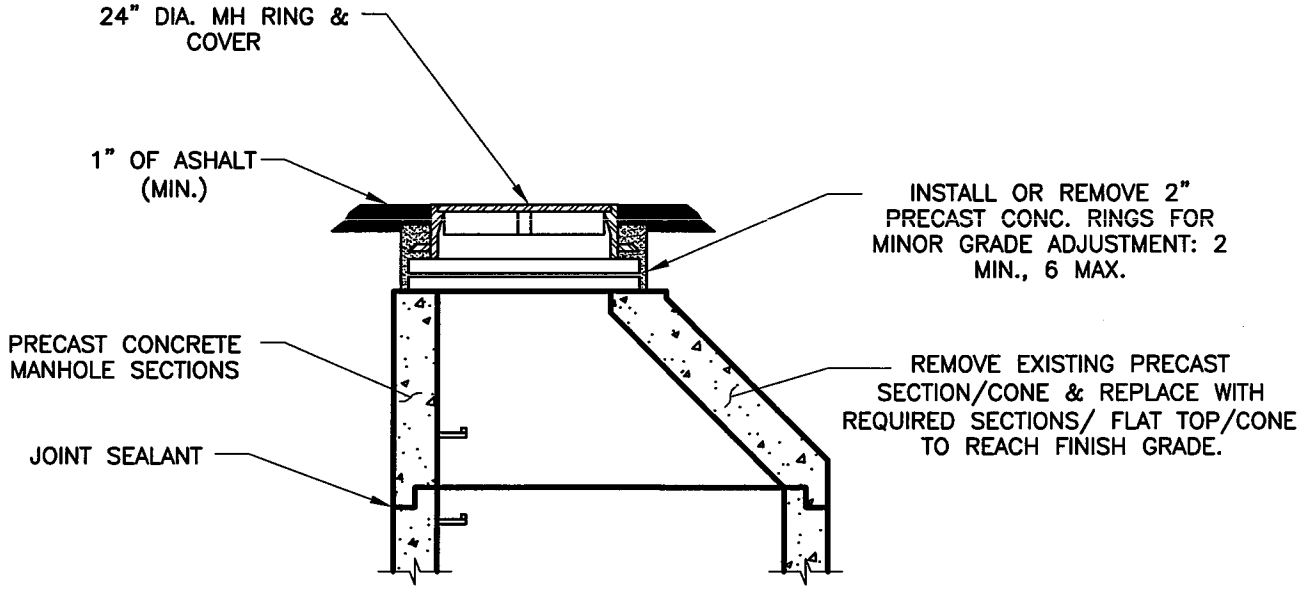

MONUMENT SANITATION DISTRICT	MANHOLE ADJUSTMENT DETAIL		
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	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

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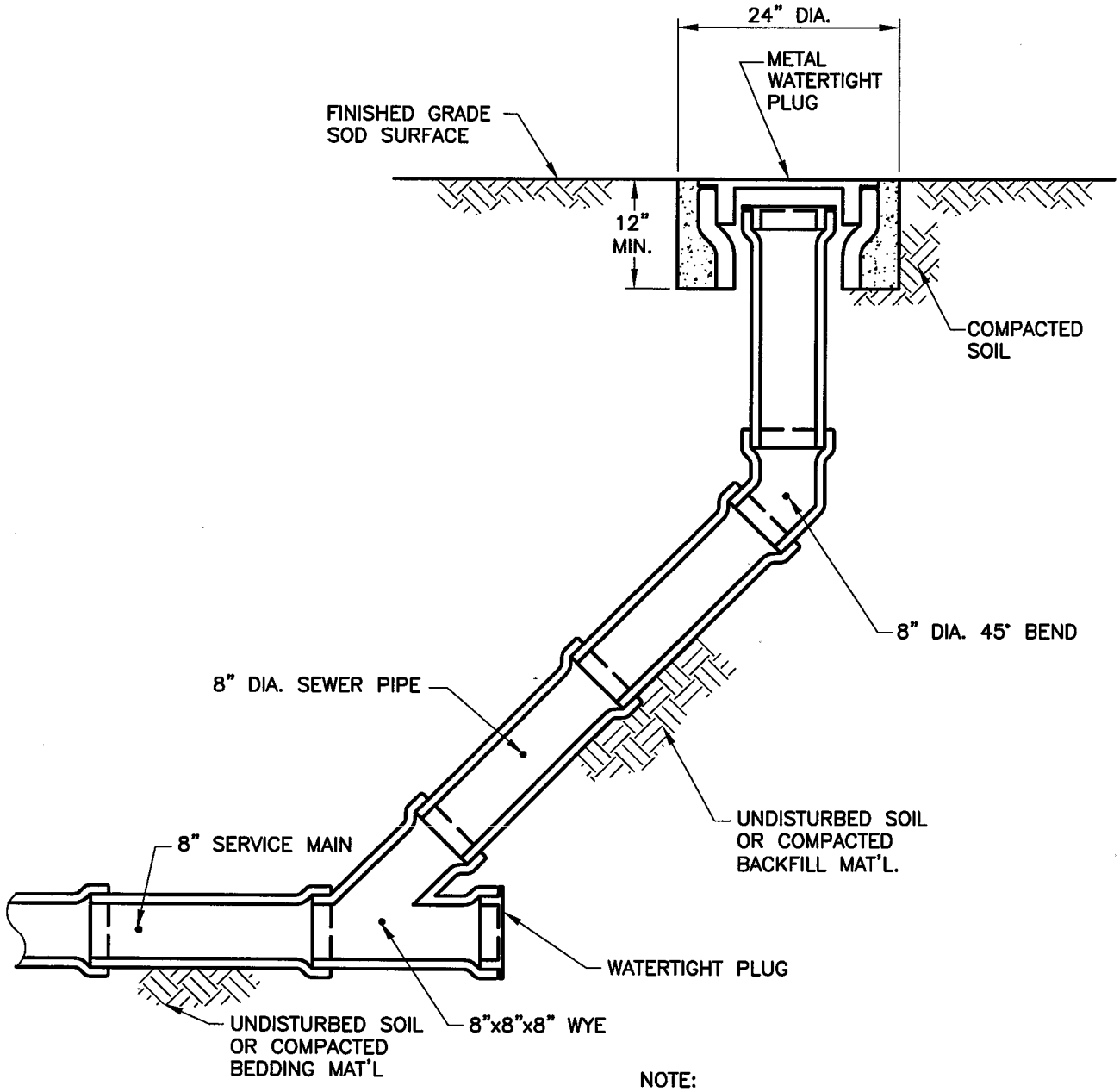

NOTE:
SERVICE LINE CLEANOUTS SHALL BE PLACED 2" BELOW GRADE WITH A 10" LONG (MIN.) METAL RISER BOX PLACED AT GRADE WITH "SEWER" CAST IN THE LID.

MONUMENT SANITATION DISTRICT	8" SEWER MAIN CLEANOUT DETAIL		
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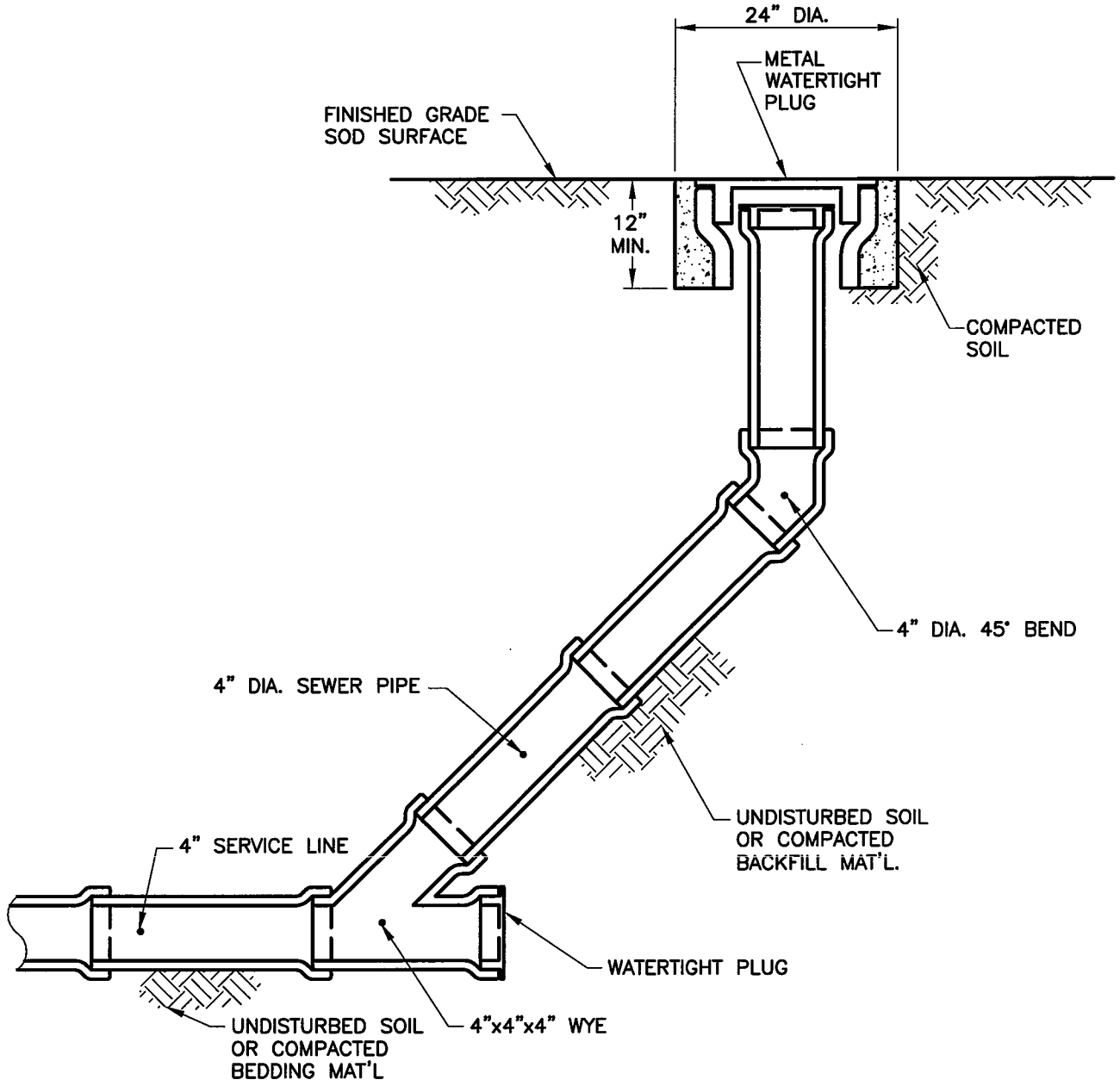
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	



NOTE:
SERVICE LINE CLEANOUTS SHALL BE PLACED 2" BELOW GRADE WITH A 10" LONG (MIN.) METAL RISER BOX PLACED AT GRADE WITH "SEWER" CAST IN THE LID.

MONUMENT SANITATION DISTRICT	4" SERVICE LINE CLEANOUT DETAIL		
	DRAWN: DRF	REVISED:	DWG–08A
	DATE: JUNE 2009	REVISED:	
	SCALE: NONE	REVISED:	

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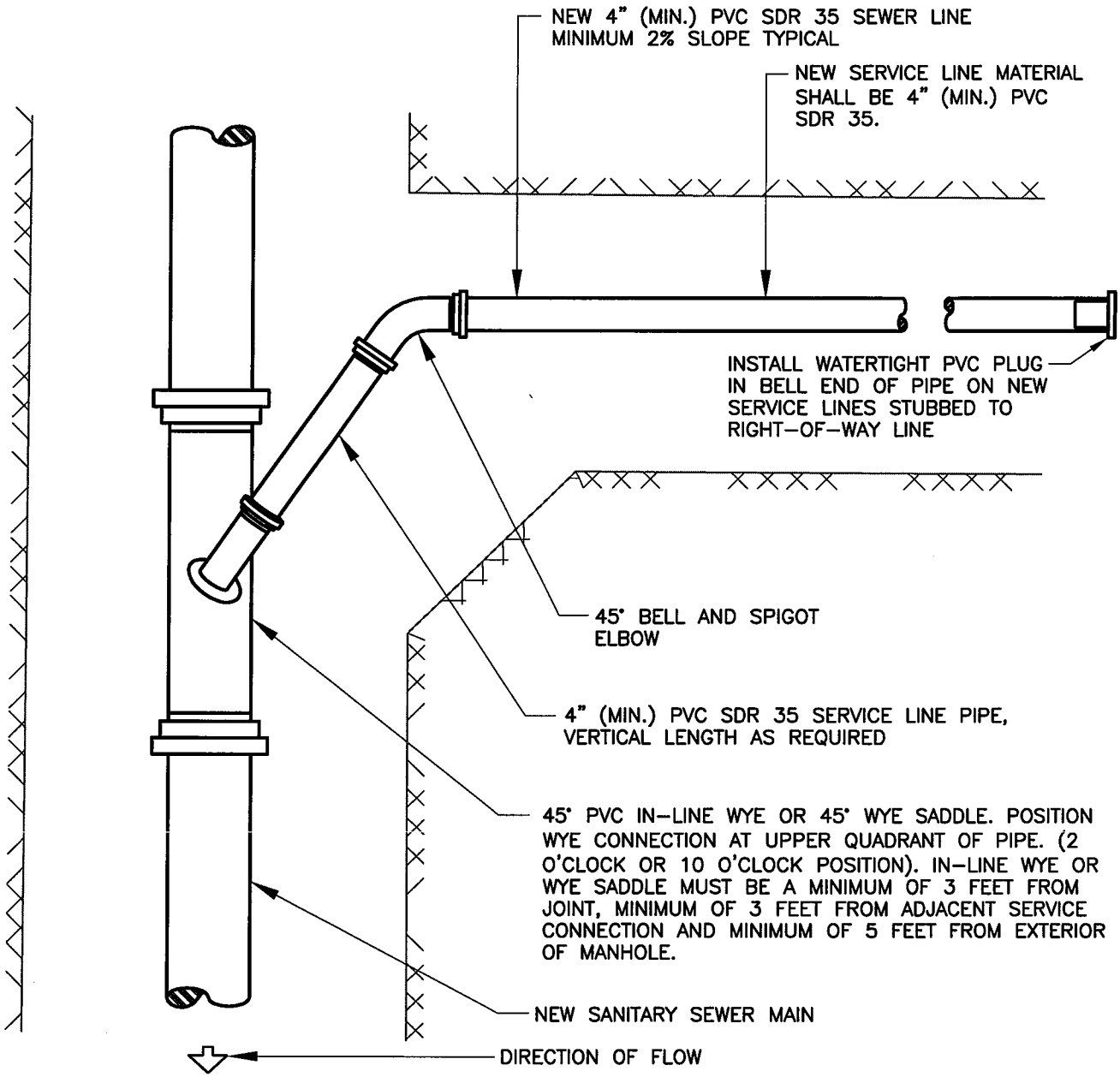

MONUMENT SANITATION DISTRICT	SEWER SERVICE CONNECTION DETAIL		
	DRAWN: DRF	REVISED: FEBRUARY 12, 2002	DWG-09
	DATE: JAN. 2000	REVISED: MAY 19, 2009	
	SCALE: NONE	REVISED: 01/12/12 UPDATED	

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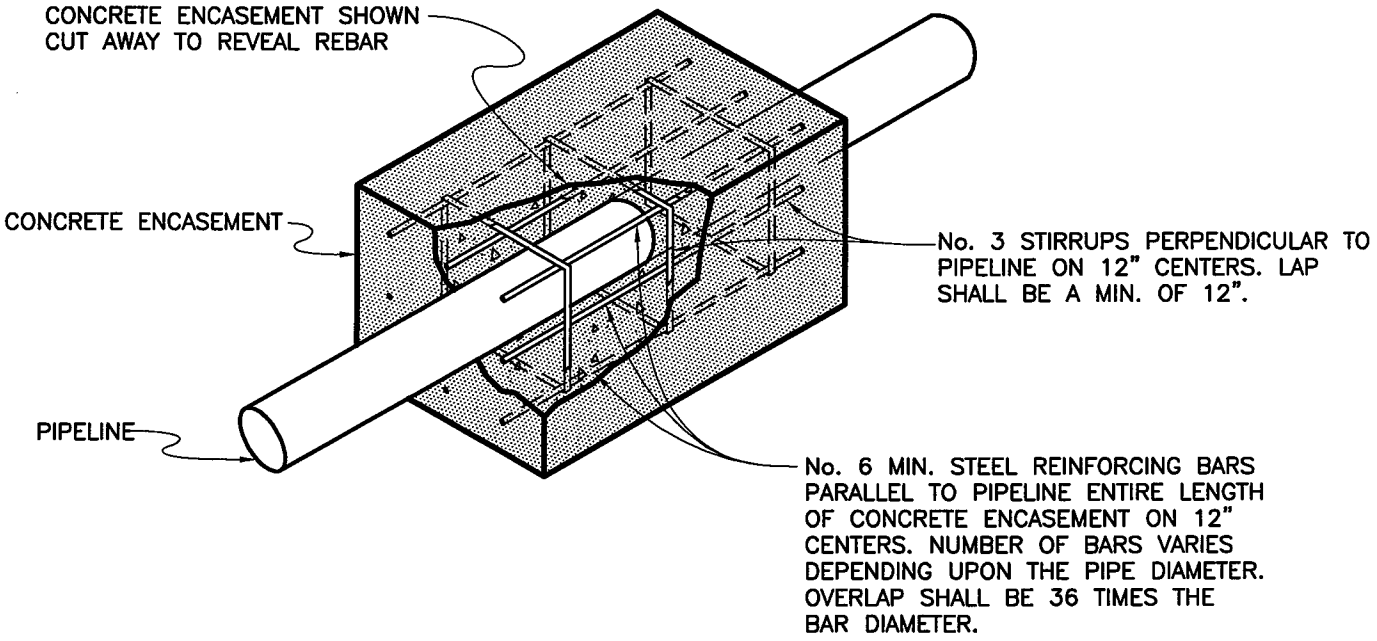

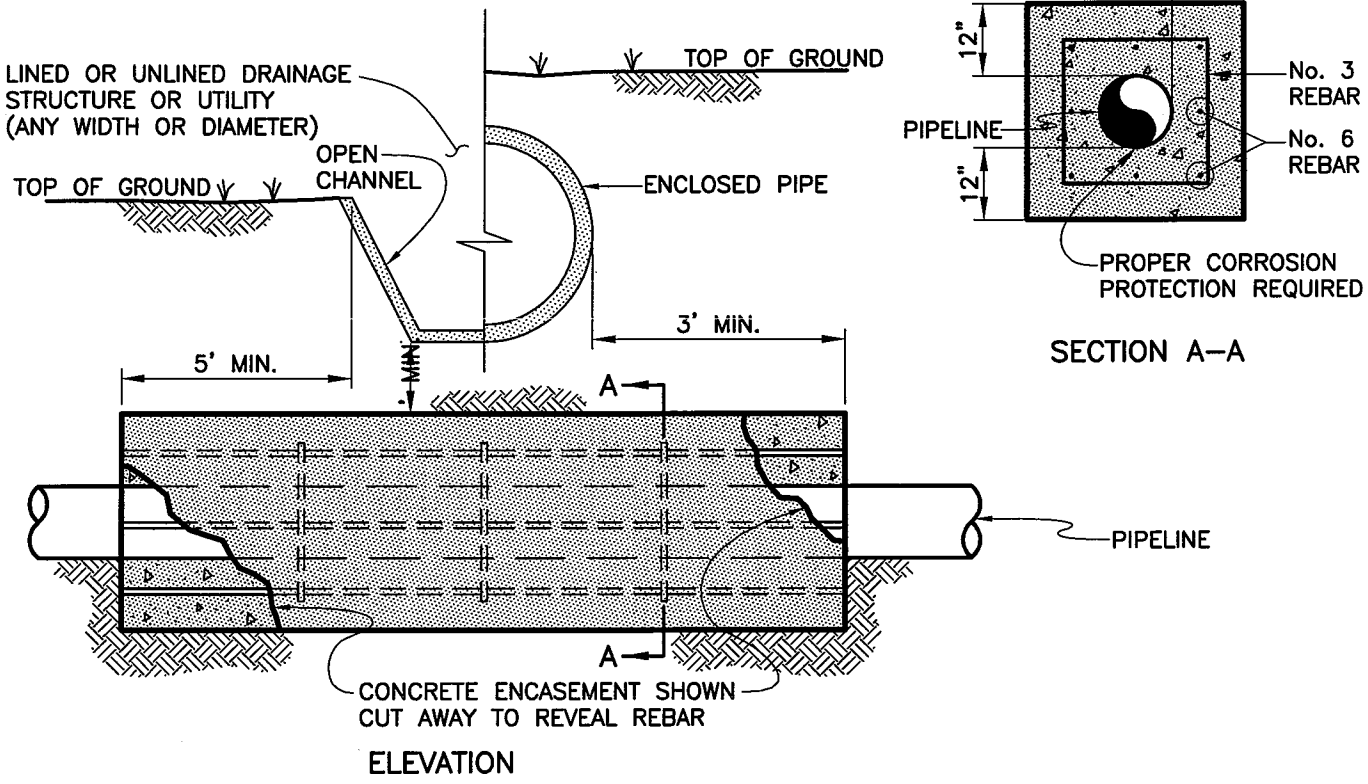

MONUMENT SANITATION DISTRICT	PIPE ENCASEMENT DETAIL		
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	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

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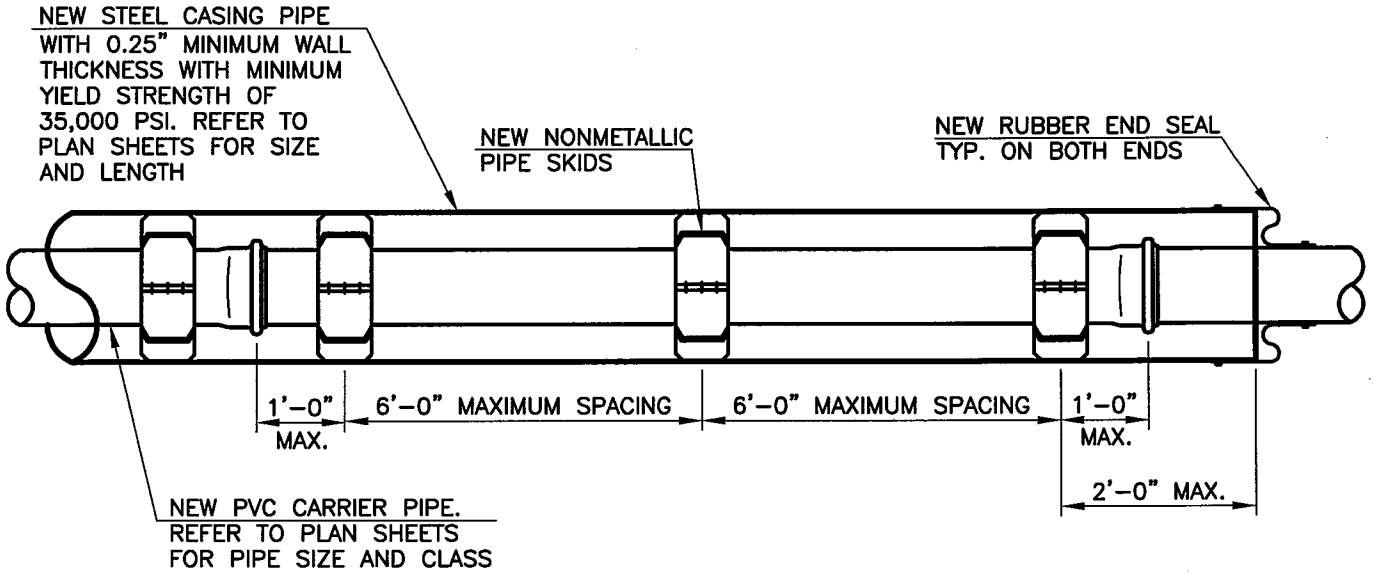
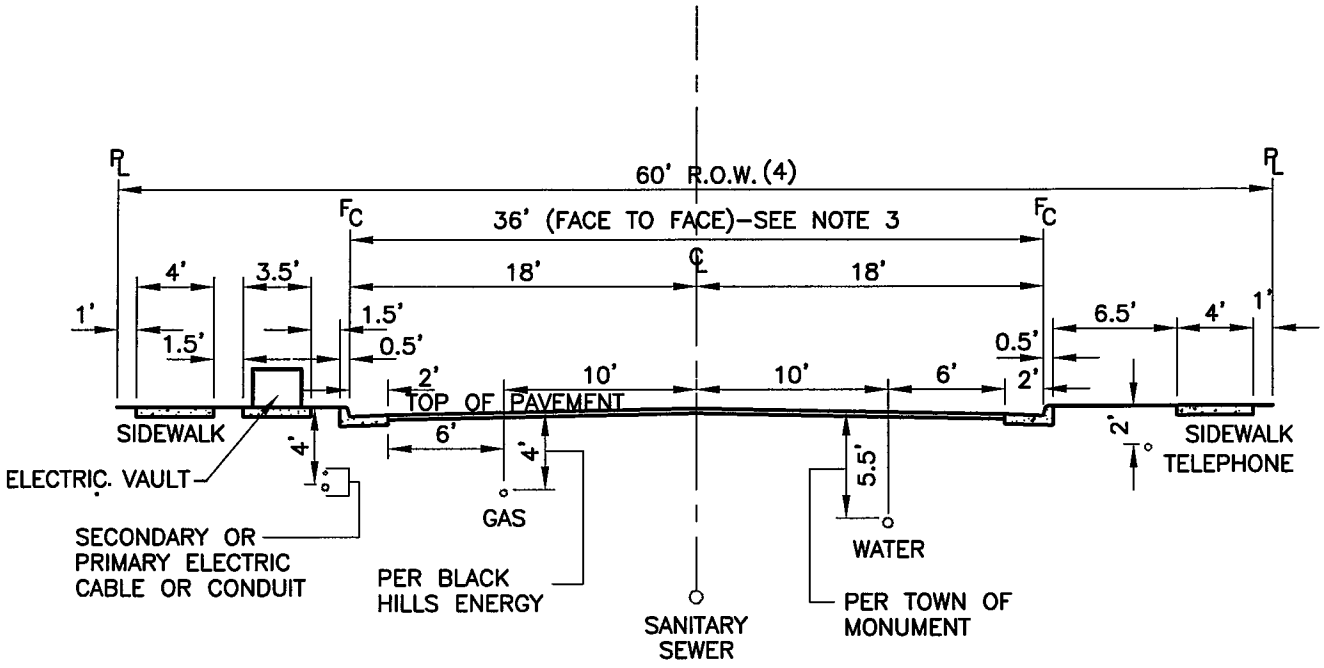


MONUMENT SANITATION DISTRICT	CASING PIPE DETAIL		
	DRAWN: DRF	REVISED:	DWG–10B
	DATE: JAN. 2012	REVISED:	
	SCALE: NONE	REVISED:	



TYPICAL CROSS SECTION
UTILITIES LOCATION

GENERAL NOTES

1) STORM SEWERS SHALL MAINTAIN A 10' CLEAR SEPARATION FROM WATER.

2) ELECTRIC CONDUITS SHALL BE ON THE OPPOSITE SIDE OF THE STREET FROM WATER.

3) FOR 40' WIDE STREET SECTIONS, MAINTAIN WATER 10 FEET FROM SANITARY SEWER AT STREET CENTERLINE.

4) FOR 50' WIDE RIGHT–OF–WAY (ROW), A 5–FOOT WIDE SIDEWALK AND UTILITY EASEMENTS ARE REQUIRED ADJACENT TO THE STREET ROW. FIVE (5) FOOT WIDE ATTACHED SIDEWALK IS USED WITH ELECTRIC UTILITIES BEHIND WALK IN EASEMENT.

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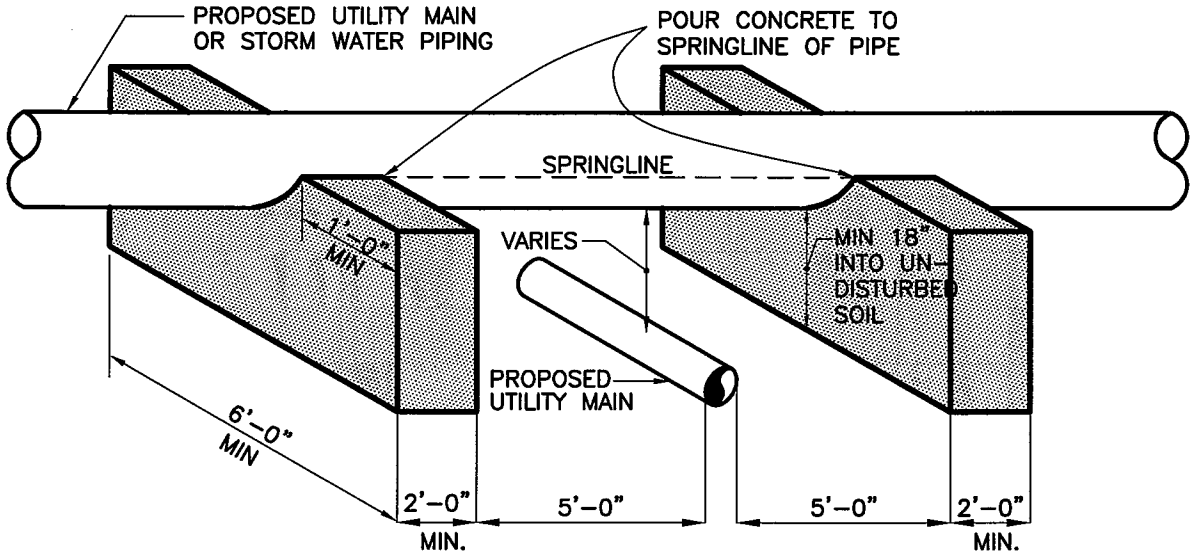
MONUMENT SANITATION DISTRICT	TYPICAL UTILITIES LOCATION		
	DRAWN: GSM	REVISED: 11/03/11 UPDATED	DWG–11
	DATE: JAN. 2000	REVISED: 01/12/12 UPDATED	
	SCALE: NONE	REVISED:	



NOTES :

1. CONCRETE BRIDGING BLOCKS TO BE REINFORCED WITH No. 6 REBAR PLACED AT 12" ON CENTER.
2. NO JOINTS OF UTILITY MAIN SHALL BE ALLOWED BETWEEN CONCRETE BRIDGING BLOCKS.

MONUMENT SANITATION DISTRICT	PIPE BRIDGING DETAIL		
	DRAWN: SDS	REVISED: 11/03/11 UPDATED	DWG–12
	DATE: JAN. 2000	REVISED: 01/12/12 UPDATED	
	SCALE: NONE	REVISED:	

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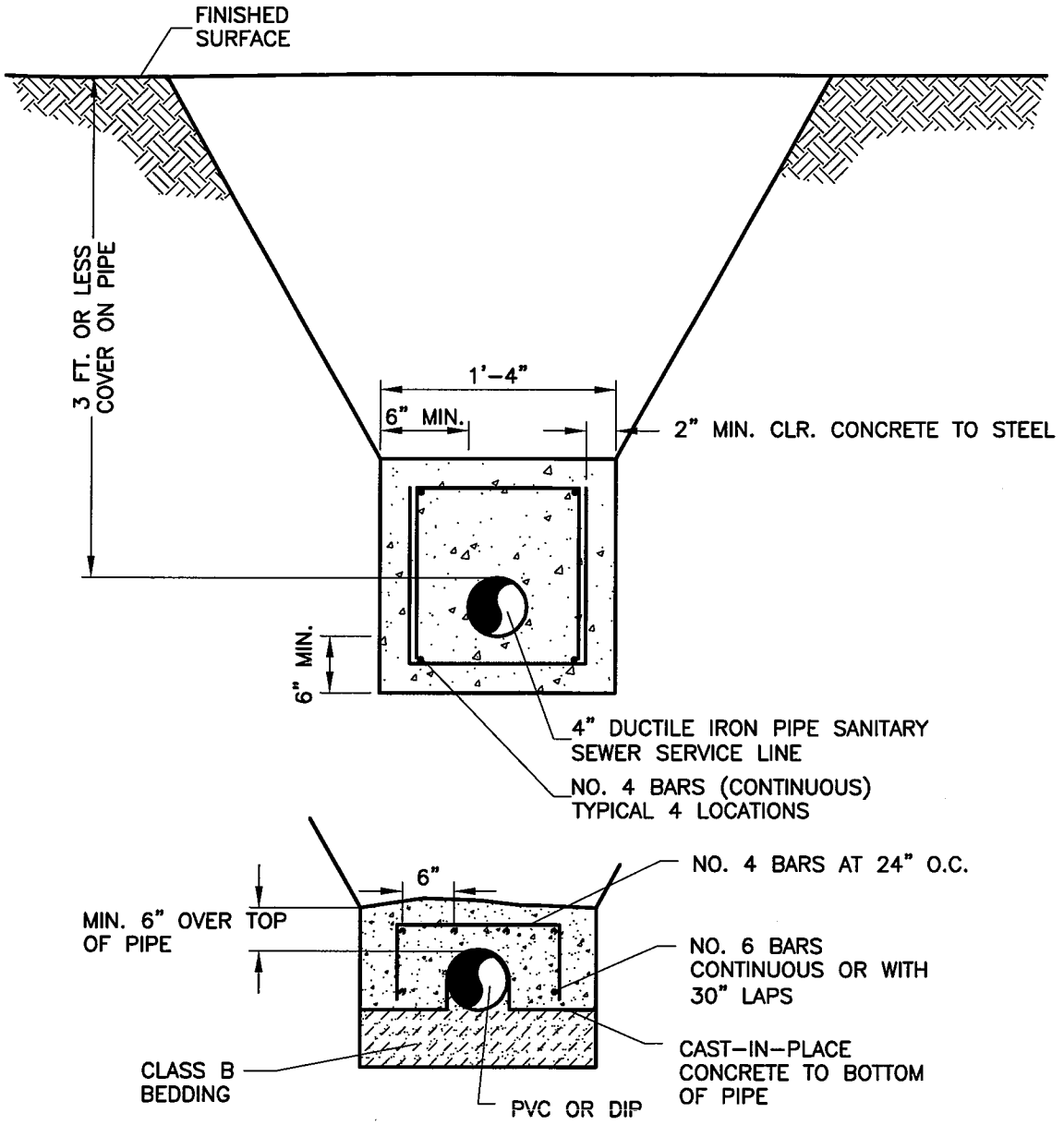
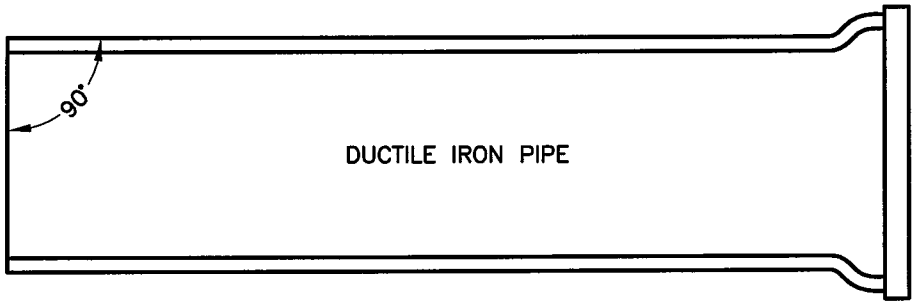


REINFORCED CONCRETE PIPE CAP

NOTES:

1. DUCTILE IRON PIPE WITHOUT CONCRETE ENCASEMENT MAY BE PERMITTED BY THE DISTRICT IF FINAL PIPE COVER IS MORE THAN 3 FEET.
2. CONCRETE ENCASEMENT PER THIS DRAWING IS REQUIRED WITH DUCTILE IRON PIPE WHERE FINAL PIPE COVER IS 3 FEET OR LESS.
3. IF THE CONCRETE ENCASEMENT IS REQUIRED ON A SANITARY SEWER SERVICE LINE, THE PROPERTY OWNER/CUSTOMER IS COMPLETELY RESPONSIBLE FOR OPERATION, MAINTENANCE AND REPLACEMENT OF ANY SEWER SERVICE LINE FROM THE DISTRICT'S SEWER MAIN TO THE STRUCTURE SERVED.
4. THE DISTRICT MAY ACCEPT CONCRETE CAP FOR PIPE PROTECTION IN SPECIAL CONDITIONS
5. REFER TO DISTRICT STANDARD SPECIFICATIONS FOR PIPE MATERIAL ALTERNATIVES WHERE DEPTH OF COVER IS LESS THAN 5 FEET.

MONUMENT SANITATION DISTRICT	SHALLOW SANITARY SEWER LINE ENCASMENT		
	DRAWN: SDS	REVISED: 01/12/12 ADDED REIN. CONC. CAP	DWG-13
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	



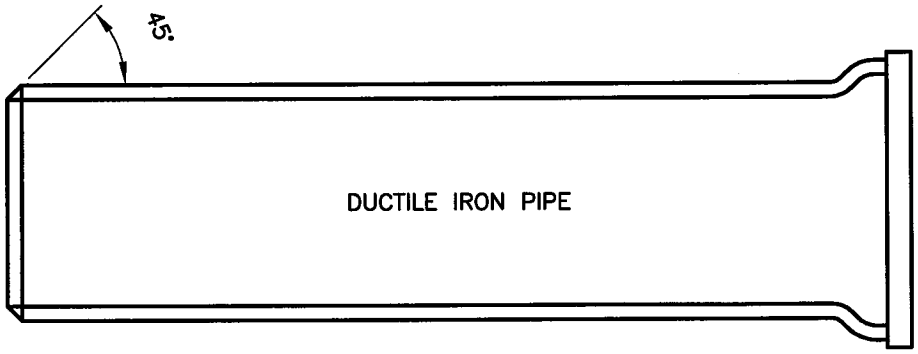
MECHANICAL JOINT CONNECTION

PIPE MUST BE CUT AT RIGHT ANGLES TO LONGITUDINAL CENTERLINE IN ALL CASES.

PIPE ENDS SHALL BE FREE OF BURRS.

MORTAR LINING SHALL BE FLUSH WITH PIPE END.

GOUGES CUT IN PIPE ENDS SHALL NOT BE ALLOWED.



SLIP JOINT CONNECTION

PIPE CUT IN STRAIGHT LINE AND BEVELED AT 45° ANGLE ON END.

GENERAL NOTES:

1. ALL PIPE CUTTING EQUIPMENT AND PIPE CUTS MUST BE APPROVED BY THE MONUMENT SANITATION DISTRICT

2. ALL PIPE ENDS TO BE USED IN INSTALLATION SHALL BE DRESSED SMOOTH TO THE SATISFACTION OF THE INSPECTOR PRIOR TO INSTALLATION.

3. SEAL CUT ENDS OF PIPE WITH A TOUCH-UP MATERIAL COMPATIBLE WITH PIPE LINING IN ACCORDANCE WITH MANUFACTURER'S PREPARATION AND COATING REQUIREMENTS.

MONUMENT SANITATION DISTRICT	PIPE CUTTING		
	DRAWN: SDS	REVISED: 01/12/12 UPDATED	DWG-14
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

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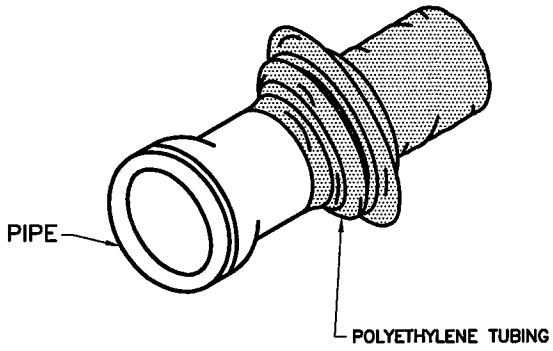
FIELD INSTALLATION OF POLYETHYLENE WRAP

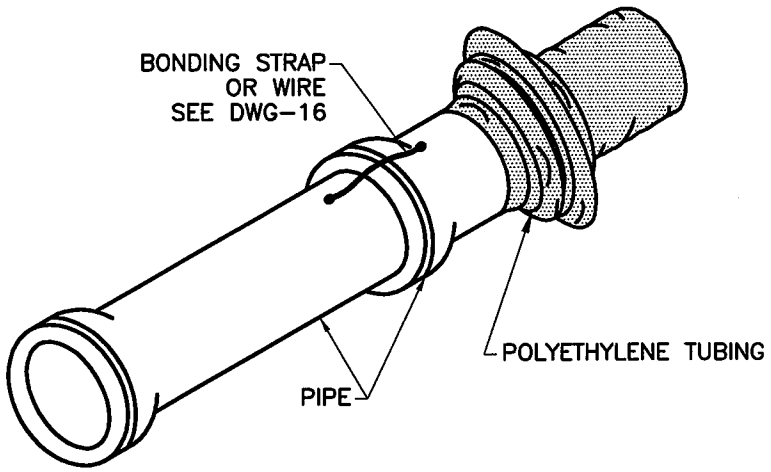
STEP 1:

PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.



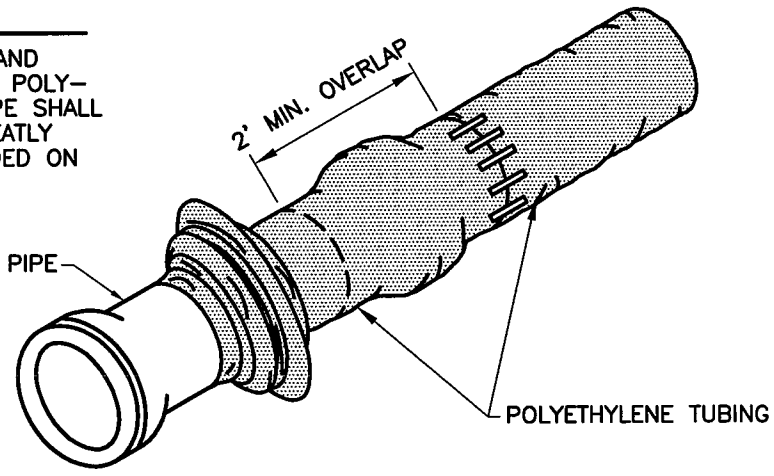
STEP 2:

PULL TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO END AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE. INSTALL BONDING STRAP OR WIRE AT EVERY JOINT OF PIPE PRIOR TO WRAPPING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



STEP 3:

OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLY-ETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.



MONUMENT SANITATION DISTRICT	POLYETHYLENE WRAP		
	DRAWN: SDS	REVISED:	DWG-15
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

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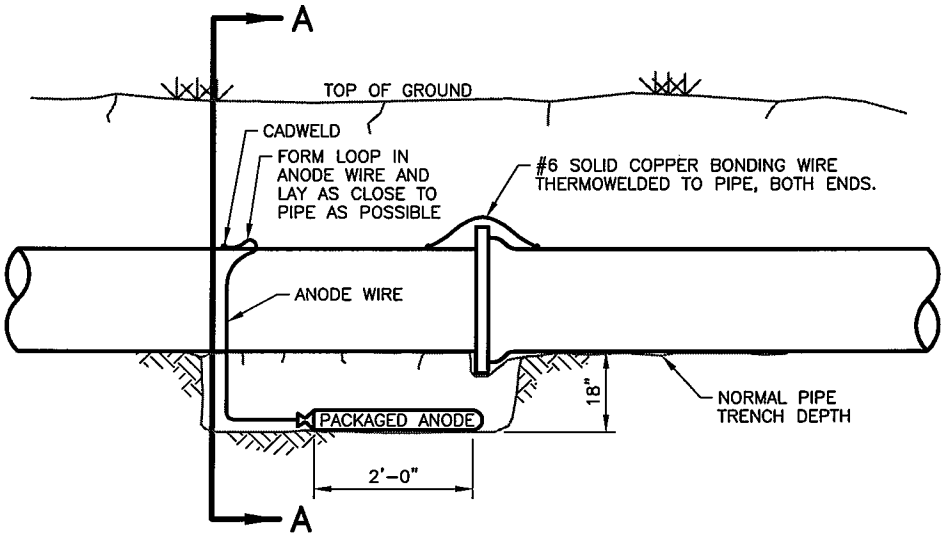
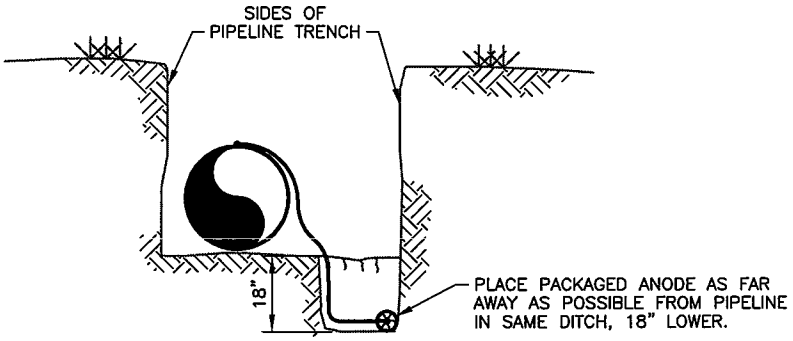


ELEVATION



SECTION A–A

NOTE:

1. CADWELD CONNECTION TO BE PRIMED AND COATED CAREFULLY. PACKAGED ANODE SHOULD BE COVERED WITH FINE SOIL CONTAINING NO ROCKS OR DIRT CLUMPS, TAMPED.

2. WHEN ANODES ARE REQUIRED WITH METAL FITTINGS AND APPURTENANCES TOGETHER WITH PVC PIPE INSTALLATION, THE ANODES SHALL BE PLACED AND ATTACHED TO THE METAL IN SAME MANNER AS SHOWN ON

MONUMENT SANITATION DISTRICT	CADWELD/ANODES CONNECTION DETAIL		
	DRAWN: SDS	REVISED:	DWG–16
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

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MAXIMUM DEFLECTION

PER SLIP JOINT OF D.I.P.

PIPE DIAMETER			MFRS. DEFL.	DESIGN DEFLECTION (80% MAX.)			APPROX. RADIUS FOR DEFLECTING CURVES WITHOUT BENDS	
I.D.	O.D.(IN.)	O.D.(FT.)			MAX. DEFL. DIST. (1)	MAX. DEFL. DIST. (2)	20'L	18'L
4"	4.80"	.400'	5°00'00"	4°00'00"	16"	15"	286'	258'
6"	6.90"	.575'	5°00'00"	4°00'00"	16"	15"	286'	258'
8"	9.05"	.754'	5°00'00"	4°00'00"	16"	15"	286'	258'
10"	11.10"	.925'	5°00'00"	4°00'00"	16"	15"	286'	258'
12"	13.20"	1.100'	5°00'00"	4°00'00"	16"	15"	286'	258'
14"	15.30"	1.275'	3°00'00"	2°24'00"	10"	9"	477'	430'
16"	17.40"	1.450'	3°00'00"	2°24'00"	10"	9"	477'	430'
18"	19.50"	1.625'	3°00'00"	2°24'00"	10"	9"	477'	430'
20"	21.60"	1.800'	3°00'00"	2°24'00"	10"	9"	477'	430'
24"	25.80"	2.150'	3°00'00"	2°24'00"	10"	9"	477'	430'
30"	32.00"	2.666'	3°00'00"	2°24'00"	10"	9"	477'	430'
36"	38.30"	3.192'	3°00'00"	2°24'00"	10"	9"	477'	430'
42"	44.50"	3.708'	2°00'00"	1°36'00"	6"	6"	716'	645'

(1) 20'L = NORMAL 20-FOOT JOINT LAYING LENGTH
(2) 18'L = NORMAL 18-FOOT JOINT LAYING LENGTH

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MONUMENT SANITATION DISTRICT	MAXIMUM PIPELINE DEFLECTION DATA		
	DRAWN: SDS	REVISED:	DWG-17
	DATE: JAN. 2000	REVISED:	
	SCALE: NONE	REVISED:	

PART III

EARTHWORK STANDARD SPECIFICATIONS

TABLE OF CONTENTS

CHAPTER 1 - GENERAL

CHAPTER 2 - TRENCHING, BACKFILLING AND COMPACTING

PART III

EARTHWORK STANDARD SPECIFICATIONS

Chapter 1 - General

1.01 Authority. These Specifications are promulgated by the Monument Sanitation District. The interpretation, enforcement, and revision of these Specifications is hereby delegated to the District Manager of the District.

1.02 Effective Date of Specifications. These Specifications shall be in effect immediately upon adoption by the District board and shall supersede all former standard specifications for earthwork within the District.

1.03 Revisions, Amendments or Additions. These Specifications may be revised, amended or added to. Such revisions, amendments and additions shall be binding and in full force and effect when adopted in the manner set forth in Section 1.02.

1.04 District Control. These Specifications will apply to the installation of water and wastewater facilities under the control of the Monument Sanitation District.

1.05 Organization and Interpretation of Specifications. These Specifications are composed of written Standards of Engineering Practice, Material Specifications and Standard Drawings. The interpretation of any section or of differences between sections, when appropriate, shall be made by the Manager of the District and his/her interpretation shall be binding and controlling in its application.

1.06 Definitions. As used in these Specifications, or in any of the drawings where these Specifications govern, unless the context shall otherwise require, the following words defined shall have the meanings herein ascribed:

a. District Manager. The Manager of the Monument Sanitation District or his/her designated representative.

b. Engineer. The Engineer or consultant of the District, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

c. Collection System. Sanitary sewer mains, together with all appurtenant and necessary manholes, cleanouts, taps, service pipes and associated materials, easements, property and equipment collecting sanitary sewage from individual customers.

d. Wastewater Main or Sanitary Main. That portion of the wastewater system which collects sewage from the user extending to the wastewater treatment plant, excluding service lines.

e. Service Line. The sanitary sewer pipeline extending from the premises up to and including the connection to the wastewater or sewer main.

f. Contractor. In the context of these Specifications a person or persons, co-partnership or corporation employed by an applicant for the purpose of installing sanitary sewage collection or replacement.

g. Inspector. The authorized representative of the District assigned to the project.

h. Standard Drawings. District Standard Drawings are a part of these Specifications.

1 .07 Abbreviations. All references to documents or specifications shall be the latest edition or revision thereof:

a.	ASTM	American Society for Testing and Materials
b.	ANSI	American National Standards Institute
c.	NSF	National Sanitation Foundation
d.	OSHA	Occupational Safety and Health Administration
e.	USGS	United States Geological Survey
f.	CIP	Cast Iron Pipe
g.	DIP	Ductile Iron Pipe
h.	PVC	Polyvinyl Chloride-Plastic Pipe
i.	psi	Pounds per Square Inch
j.	PPM	Parts per Million

EARTHWORK STANDARD SPECIFICATIONS

Chapter 2 - Trenching, Backfilling and Compacting

2.01 General Provisions

a. Unless otherwise indicated on the drawings, all excavations shall be made by open cut. Provisions for installation of sanitary sewer pipelines and appurtenances in other than open cut conditions shall be specifically detailed in the drawings and contract documents for the project.

b. The Contractor and/or Developer shall be responsible for obtaining all permits necessary to accomplish the work. This includes all permits by any local general purpose governing agency relative to excavation and construction within public right-of-way, permits required by state highway agencies, permits required by railroad and other utility agencies and permits required by the State of Colorado, Water Quality Control Division including necessary site approvals, if appropriate.

c. All work to be accomplished shall be done under the review and inspection of District representatives. Notification to the District shall be made by the Contractor and/or Developer indicating proposed schedules and times of work. Work accomplished without notification and review of the District's representatives may not be acceptable to the District. It shall be the responsibility of the Owner/Developer to adequately demonstrate to the District that all facilities have been constructed in accordance with the rules and regulations of the District.

d. All rules and regulations of the District shall be applicable to all construction and operation of sanitary sewerage facilities within the boundaries of the District and those which are proposed for acceptance by annexation to the District. These rules and regulations shall be supplemented by all rules and regulations of the State of Colorado, Water Quality Control Division, in so far as they do not conflict with these rules and regulations. Any conflict shall be governed by an interpretation and ruling by the Manager, whose decision shall be final.

e. Earthwork shall include all clearing, grubbing, grading, excavation, fill, backfill, excess excavation, bedding material, borrow material, and surface restoration as may be required to complete the work.

2.02 Job Conditions

a. Protection of Existing Facilities

1) Surface Improvements

The Contractor shall protect from damage or restore to their original condition all surface improvements encountered during trenching or construction. Said improvements shall include but not be limited to the

following: surfacing; sidewalks; curbs; valley gutters; trees and shrubs; other surface vegetation; driveways; mailboxes; utilities; signs; or other improvements.

2) Underground Utilities and Obstructions

The Contractor shall protect from damage any underground pipes, utilities or structures encountered during construction. Restore any damaged underground obstructions to their original condition at no cost to the District unless evidence of other arrangements satisfactory to all parties is presented to the District.

Before commencing work, obtain information concerning location, type and extent of concealed existing utilities on the site and adjacent properties. Consult records and personnel of local utility companies, municipal utility department and telephone company. File Notice of Excavation with these agencies prior to commencing work.

3) Underground obstructions known to exist, except service lines, are to be shown on the drawings or otherwise referred to in the specification. The locations shown may prove to be inaccurate and other obstructions not shown may be encountered. In any case, it shall be the responsibility of the Contractor to protect or restore all underground obstructions encountered.

b. Sheeting, Shoring, and Bracing. Except where trench banks are cut back on a stable slope, provide and maintain all sheeting necessary to protect adjoining grades and structures from caving, sliding, erosion or other damage and suitable forms of protection against bodily injury all in accordance with applicable codes and governing authorities. Comply with the most recent standards adopted by the Occupational Safety and Health Administration (OSHA). Do not remove any sheeting unless the pipe strength is sufficient to support the trench loads based on trench width measured to the back of sheeting. Remove sheeting and shoring as excavations are backfilled in a manner to protect the construction or other structures, utilities or property. Do not remove any sheeting after backfilling.

c. Blasting. In general, blasting will be allowed in order to expedite the work if a permit by the local authority having jurisdiction is granted and a copy presented to the District. All explosives and appurtenances shall be transported, handled, stored and used in accordance with the laws of the local, state and federal governments, as applicable.

All blasting shall be controlled so as not to injure any existing structure or facility. The protection of life and property and all liability for blasting shall be placed solely on the person or persons conducting the blasting operation. The hours of blasting shall be fixed by the Inspector in accordance with the permit of the local authority. Owners or occupants of nearby structures or facilities, must be notified by the Contractor at least 72 hours in advance of blasting, in writing. The notice shall state the date, the time of blasting and who is

responsible for the blasting. The District shall be notified a minimum of 48 hours in advance of any blasting.

Blasting shall be controlled to avoid making any excavation unduly large or irregular and so as not to shatter the rock on the bottom or sides of any excavation or surface upon or against which concrete is to be placed. If, in the opinion of the District, blasting is liable to damage rock foundations or supports, concrete, other utilities or structures, all blasting shall be terminated and excavation shall be continued by hammering, boring, wedging or other methods.

d. Drainage. Maintain the excavations and site free from water throughout the work. Remove any water encountered in the trench to the extent necessary to provide firm subgrade, to permit joints to be made dry at the final grade and to prevent entrance of water into the pipeline. Accomplish the foregoing by the use of sumps and gravel blankets, well points, drain lines or other means approved by the District.

e. Interruption of Service. Coordinate interruptions of utility services with the District or utility owner as appropriate. Make connections to the existing system requiring the interruption of service during the time designated by the District or utility owner.

Obtain permission to cut and replace existing service lines to facilitate trenching. Notify affected users a minimum of two hours in advance of, and restore service within four hours after any interruption. Repair all lines at no cost to the District unless otherwise provided for.

f. Detours and Other Traffic Controls. When construction operations are located within streets make provisions at cross streets and walks for free passage of vehicles and pedestrians by bridging or other approved methods. Do not block streets or walks without prior approval.

Maintenance of access through the construction site by the traveling public shall be maintained by the contractor unless a street closure is approved in writing by the District or other governing authority. Access to all abutting residences and properties shall be maintained to the maximum extent possible. It shall be the responsibility of the Contractor and/or Developer to coordinate access to all adjacent private properties with the respective owners.

To protect persons from injury and to avoid property damage, adequate barricades, construction signs, safety flasher lights and guards as required shall be placed and maintained during the progress of the construction work and until it is safe for traffic to use the roadway. All material piles, equipment and pipe that may serve as obstructions to traffic shall be enclosed by fences or barricades and shall be protected by proper lights when the visibility is poor. All safety and traffic rules and regulations of local authorities shall be observed. All barricading and detours shall be coordinated as appropriate with the Monument Sanitation District, the Town of Monument, El Paso County and/or the Colorado Department of Transportation and shall be in accordance with their regulations.

Controls shall be in accordance with the "American Traffic Safety Services Association Guide," latest edition.

Should the District be contacted regarding a failure to properly barricade a construction area and the responsible Contractor cannot be contacted, the District shall set the necessary barricades at the Contractor's expense.

The Contractor shall carry on the work in a manner that will cause the least interruption in traffic and may close to through travel, not more than two (2) consecutive blocks, including the cross street intersected when so approved by the District. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways. The Contractor shall post, where directed by the District, suitable signs indicating that a street or a portion of a street is closed and necessary detour signs for the proper maintenance of traffic.

g. Sequencing. Pipeline installation shall follow trench excavation within 50 lineal feet. Trench backfill shall follow pipe installation within 50 lineal feet. Approved cleanup shall follow trench excavation with 200 linear feet.

2.03 Guarantee

a. The Contractor and/or Developer shall guarantee all materials and workmanship for a period of two years from the date of initial acceptance by the District. Initial acceptance shall be made by the District's official written confirmation of acceptance.

b. The guarantee shall include the maintenance of acceptable trench backfill for a period of two years from initial acceptance. Acceptable trench backfill shall include maintenance of an acceptable surface configuration matching surrounding grade or conforming to the finished street cross section. Removal and replacement of finished street surfacing due to excessive settlement shall be the responsibility of the Contractor and/or Developer within the two-year warranty period.

c. The Contractor and/or Developer shall guarantee to protect and maintain landscaped areas including native grass seeded areas by watering, fertilizing, replanting and weeding or other necessary measures until acceptance by the District at the end of a two-year warranty period. Acceptance will be based on satisfactory germination of the seed.

2.04 Products

a. Embedment Materials. All sanitary sewer mains are to receive Class A or imported Class B embedment extending from 6 inches below the bottom of the pipeline to 12 inches over the pipeline.

1) Concrete. The pipeline embedment with concrete shall utilize concrete having a 28-day compressive strength of a minimum of 3000 psi and other characteristics as set forth in these Specifications.

2) Class B embedment for sanitary sewer main and sanitary sewer service lines:

a) ¾-inch imported rock, crushed or naturally angular shape.

b) Imported, well-graded, coarse aggregate in conformance with the requirements of ASTM C33, Gradation 67 with the following gradation:

Sieve Size	Total Percent Passing by Weight
1"	100
¾"	90-100
½"	----
⅜"	20-55
No. 4	0-10
No. 8	0-5

c) Recycled concrete products meeting the requirements of ASTM C33, Gradation 67.

3) Alternative Class B embedment for sanitary sewer service lines: Fine granular material.

a) Imported, well-graded coarse aggregate in conformance with the requirements of ASTM C33, Gradation 8 with the following gradation:

Sieve Size	Total Percent Passing by Weight
½"	100
⅜"	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5

4) Class C Bedding: Select backfill.

a) Class C bedding to be used as embedment material only as directed by the District.

b) Select backfill from 6" below pipe to 12" above the pipe.

(1) Graded gravel

Sieve Size	Total Percent Passing by Weight
1"	100
¾"	85-100
⅜"	50-80
No. 4	35-60
No. 40	15-30
No. 200	5-10

i No clay or lumps of organic matter.

ii Liquid limit not greater than 25 and pasticity index not greater than 5 for fraction passing No. 4 sieve.

(2) Natural sands/gravels.

(3) Select on-site excavated materials.

b. Backfill Materials

1) Suitable Material. Soil obtained from the excavation that is free of frozen material, stumps, roots, brush, other organic matter, debris and other items. In addition, suitable material shall meet the following requirements:

2) Upper Portion of Trench. Material placed within one (1) foot of pavement subgrade or finished surface in unimproved areas shall be soil free from rocks, greater than 3 inches in nominal diameter.

3) Other Portions of Trench. Material within 6 inches below and 12 inches above the pipe shall contain particles of a size to conform to the embedment class required. From a point 12 inches above the pipeline to within one (1) foot of the pavement subgrade or finished surface in unimproved areas, maximum size of any rock in the trench backfill shall be 3 inches nominal diameter.

4) Public Highways. Provide and install material in conformance with the Colorado Department of Transportation requirements where they do not conflict with other provisions of these regulations. Should a conflict exist, submit a request for clarification to the District in writing prior to proceeding with work.

2.05 Preparation of Trenching

a. Construction Staking. All work shall be constructed in accordance with lines and grades shown on the drawings and as established by the Engineer-of-Record and/or District. These lines and grades may be modified by the Engineer-of-Record only after reapproval by the District.

Sanitary sewer facilities shall be staked as follows:

Line and grade stakes shall be set for each manhole or other appurtenance and at each 25-foot station along the pipeline. When laser beam equipment is being utilized for alignment of the pipeline, construction stakes shall be set at each manhole and 25 feet, 50 feet and 75 feet and each 100 feet thereafter proceeding upstream from the manhole. The Contractor shall check the elevation at each grade stake and at intervals between stakes from a string line placed between the grade stakes. Should a variance from the design elevation

be found, the pipeline shall be removed to a point where vertical and horizontal alignment is satisfactory and reconstructed in accordance with these specifications.

All facilities, equipment and assistance shall be furnished by the Contractor and/or Developer to facilitate checking alignment and grade of the pipe by the District's representative and workmen involved in the construction.

b. Pavement Removal. Before trenching begins, remove any pavement, curbs, gutters, sidewalks and other surface improvements necessary to install the pipeline and appurtenances.

Remove bituminous pavement to clean, straight lines at locations necessary to accommodate the work. Width of removal for pipelines shall be kept to a minimum as dictated by trenching operations but shall extend 6 inches to 12 inches beyond limits of trench excavation. Make pavement cuts with spade-bitted air hammer, saw or other approved method so to provide a straight and square edge. Should a cut edge become damaged during the course of construction, the edge will be recut prior to placement of surfacing material.

Remove concrete surfacing materials to neatly sawed edges with sawcuts made to a minimum depth of 1½ inches or as otherwise required to neatly remove surfacing materials.

Make sawcuts in straight lines and at right angles to the alignment of sidewalks or curb and gutter. If the sawcut should fall within 30 inches of an existing construction joint, expansion joint or edge, the concrete shall be removed to the joint or edge.

c. Clearing. Remove all stumps, roots, brush, other vegetation and debris from areas that will be disturbed by the construction operations.

d. Sod Removal. In lawn areas, cut and roll back sod before trenching. Store sod for reinstallation after completion of backfilling operations.

e. Topsoiling. Strip existing topsoil from areas to be disturbed by construction operations. Stockpile in areas designated by the Engineer-of-Record. Keep topsoil segregated from non-organic trench excavation materials and debris.

2.06 Excavation – Open Cut

a. Caution in Excavation. The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground utilities and structures, both known and unknown, may be determined, and he/she shall be held responsible for the repair of such structures when broken or otherwise damaged because of carelessness on his/her part.

b. Exploratory Excavation. In the opinion of the District, it is necessary to explore and excavate to determine the location of underground utilities and structures

that may interfere with construction, the Contractor shall make the explorations and excavations for such purposes.

c. Limitation of Disturbed Area. The area disturbed by construction activities shall be confined within the construction limits as shown on the plans. The length of trench to be opened at any one time shall be limited in accordance with the requirements of Part III, Section 2.02.g. of these specifications.

d. Drainage and Protection. The sides of the trench shall be sloped or braced and the trench drained so that workmen can work safely and efficiently. All work must be done in a dry trench and no water will be permitted to be discharged down the pipe previously laid. The discharge from pumping shall be laid to an approved natural drainage channel or other location to prevent drainage into the sanitary sewer facilities and damage to public or private property.

All pipe trenches or structure excavation shall be kept free from water during pipe laying and other related work. The method of dewatering shall provide for a completely dry foundation at the final lines and grades of the excavation.

Dewatering shall be accomplished by the use of well points, sump pumps, rock or gravel drains placed below subgrade foundations or subsurface pipe drains. All water shall be disposed of in a suitable manner without being a nuisance to public health or causing inconvenience, erosion or damage to public or private property. No water shall be drained into other work being completed or under construction.

Discharge from dewatering shall be subject to the regulations and permit requirements of the Colorado Department of Public Health and Environment. The Contractor shall be solely responsible for full compliance with those requirements.

The dewatering operation shall continue until such time as it is safe to allow the water table to rise in the excavations. Pipe trenches shall contain enough backfill to prevent pipe flotation. When pipe is installed in a casing or tunnel longer than thirty (30) pipe diameters, the pipe inside and casing or tunnel shall be secured so flotation does not occur when the pipe is empty.

Water shall not be allowed to rise until any concrete has set and the forms have been removed. Water shall not be allowed to rise unequally against unsupported structural walls.

Pile material suitable for backfilling in an orderly manner a sufficient distance from banks of the trench to avoid overloading and prevent slides or cave-ins.

Remove and waste excavated materials not suitable or not required for backfilling from the site. All surplus excavated materials shall be removed from the job site and disposed of properly. If the surplus excavated material is disposed of on private property, written permission shall be obtained from the owner of the property and a copy given to the District Inspector.

e. Excavation to Grade. Accurately grade trench bottoms to provide uniform bearing and support for each section of pipe on undisturbed soil at every point along its entire length. Provide a smooth uniform surface in the pipe subgrade where bedding material will be placed. If the subgrade material is over-excavated more than 2 inches, backfill shall be accomplished with compacted granular material in accordance with the bedding requirements.

f. Limiting Trench Widths. Excavate trenches to provide adequate working space and pipe clearance for proper pipe installation, jointing and embedment. Provide a minimum clearance of 6 inches on each side of the pipe for a pipe 12 inches in diameter or less and 8 inches for pipe between 14 inches and 30 inches in diameter. The maximum allowable width of trench at one (1) foot above the top of the pipe shall not be greater than the outside diameter of the pipe plus 24 inches for all sizes.

g. Bell Holes. Dig bell holes and depressions for joints after the trench bottom has been brought to final grade. Bell holes and depressions shall be only of such length, depth and width as required for properly making the particular type of joint. The use of earth mounds for bedding the pipe and adjusting for grade shall not be allowed.

h. Preparation of Pipe Bearing Areas. Shape the pipe subgrade or bedding material to provide a continuous uniform bearing support at all points along its length except at required bell holes.

i. Pipe Clearance in Rock. Where rock excavation is necessary, over excavate the trench bottom a minimum of 6 inches below the bottom of the pipe for pipe 24 inches in diameter or less and 9 inches for pipe larger than 24 inches. Backfill over depths with granular material specified.

j. Excavation for Structures. Except as otherwise dictated by construction conditions, the excavation shall be of such dimensions as to allow for the proper installation and removal of concrete forms, or precast structures, and to permit the construction of the necessary pipe connections. Care shall be taken to insure that the excavation does not extend below established grades. If excavation is made below such grades, the resulting excess excavation shall be filled in with approved material deposited in horizontal layers not more than 6 inches in thickness, after being compacted, as directed by the District.

k. Unstable Pipe Subgrade. If the bottom of the excavation at subgrade is found to be soft or unstable or to include ashes, cinders, refuse, vegetation or other organic material, or large pieces or fragments of inorganic material that, in the opinion of the inspector, cannot satisfactorily support the pipe or structure, the Contractor shall further excavate and remove such unsuitable material to the width and depth specified by the Inspector. Before the pipe or structure is installed, the subgrade shall be made as specified by the District.

Where the bottom of the trench at subgrade is found to consist of material that is unstable to such a degree that, in the opinion of the District, it cannot be removed and replaced with an approved material which will support the pipe or

structure properly, the Contractor shall be required to construct a special foundation or support for the pipe or structure, consisting of pilings, timbers, or other materials, as specified by the District.

2.07 Pipe Embedment

a. Placement of Embedment Material. Embedment material shall be placed in the trench on prepared subgrade in accordance with the requirements of these specifications. The embedment material shall be brought to a density beneath the proposed pipeline as required herein. The embedment material shall be shaped to conform to a cylindrical surface with a radius equal to the radius of the outside of the pipe with a width sufficient to allow 60% of the width of the pipe barrel to be uniformly supported by the bedding. Bedding material shall then be placed in two lifts, each being compacted to the densities specified herein to a depth of 1 foot above the top of the pipe.

b. Embedment Classes.

Class A – Concrete Cradle or Arch

1) Concrete Cradle

The pipe shall be bedded in a monolithic cradle of plain or reinforced concrete as specified on drawings, having a minimum thickness of one-fourth the inside pipe diameter or a minimum of 4 inches under the barrel and extending up the sides for a height equal to one-fourth the outside diameter. The cradle shall have width at least equal to the outside diameter of the pipe barrel plus 8 inches. Backfill above the cradle and extending to 12 inches above the crown of the pipe shall be compacted carefully.

2) Concrete Arch

The pipe shall be embedded in carefully compacted granular material having a minimum thickness of one-fourth the outside diameter between barrel and bottom of trench excavation and extending halfway up the sides of the pipe. The top half of the pipe shall be covered with reinforced concrete arch having a minimum thickness of one-fourth the inside diameter of the crown and having a minimum width equal to the outside pipe diameter plus 8 inches.

Class B – Granular Bedding

Imported granular material or fine granular material meeting pipe embedment requirements in Part III, Section 2.04.a. Place as described in Part III, Section 2.07.a and compact in accordance with trench backfilling requirements.

Class C

To be used as trench backfill material only, not acceptable for pipe embedment.

Class D – Impermissible bedding condition.

2.08 Trench Backfilling and Compacting

a. Place backfilled material above embedment materials in a manner to prevent damage or misalignment of the pipeline. Place in lifts of a thickness necessary to acquire the specified backfill density or in conformance with other regulatory requirements. Backfilled material shall conform to the requirements of Part III, Section 2.04.b. of these specifications.

b. Backfill Density Requirements. Unless otherwise specified or required by local governing authority, all backfill should be placed in a manner to achieve the density specified below.

1) State Highway

100% of maximum in paved and shoulder areas

95% of maximum in all other areas

2) Paved roadways, sidewalks and other areas to receive pavement

95% of maximum density for entire trench depth

3) Gravel roadways

95% of maximum density for entire trench depth

4) Sodded or lawn areas over a dedicated easement or right-of-way

90% of maximum density

5) Zone 6" below to 12" above pipe

95% of maximum density for all pipelines

Where another governing agency having jurisdiction over work within a road right-of-way has specifications requiring a greater backfill density, the requirements of the more stringent specification shall apply.

c. Method of Compaction. In general, backfill shall be mechanically compacted by means of tamping rollers, sheep foot rollers, pneumatic tire rollers, vibrating rollers and other mechanical tampers.

Compaction by jetting shall not be permitted unless material is of suitable granular material as determined by the District. In no case will compaction by jetting be permitted in state highways or paved or gravel roadways.

2.09 Backfill for Structures. Backfill and fill within 3 feet adjacent to all structures and for full height of the walls shall be selected non-swelling material. It shall be relatively impervious, well graded, and free from stones larger than 3 inches. Material may be job excavated, but selectivity will be required.

No backfilling will be allowed in freezing weather except by permission of the District. No additional backfill will be allowed over any frozen material already in the trench.

All water required for backfill and compaction operations must be provided by the Contractor including furnishing all required personnel, valving, hose and other equipment needed to deliver the water to the desired location on the project.

2.10 Field Quality Control

a. Density Testing and Control. Density testing as may be required by the District's representatives shall be the responsibility of the Contractor and/or Developer. Results of such density testing shall be reported directly to the District by the testing agency. All reports shall be submitted with the seal and signature of a registered professional engineer experienced in the testing of soil materials.

b. Soil Compaction Tests. Conduct in accordance with the requirements of ASTM D698 or AASHTO T99, "Standard Method of Test for Moisture Density Relations of Soils Using a 5.5 lb. Rammer and a 12 inch Drop." Use method A, B, C or D as appropriate on soil condition and judgment of the testing laboratory. Samples tested shall be representative of materials to be placed (or altered). Obtain optimum moisture density curve for each type of material or combination of materials encountered or utilized. Use test results as a basis for compaction control. Testing includes Atterberg Limits, grain size determination and specific gravity.

Density Control

Conduct tests for density control during compaction operations in accordance with the requirements of:

ASTM D2922 - Tests for Density of Soil and Soil - Aggregate In-Place by Nuclear Methods

ASTM D1556 - Tests for Density of Soil and Soil - Aggregate In-Place by the Sand Cone Method

OR

ASTM C2167 - Test for Density of Soil In-Place by the Rubber-Balloon Method

c. Test Frequency. The District representative shall determine the location of all density testing to be accomplished. As a minimum, three tests at three (3) different levels for every 300 lineal feet of trench shall be performed and at each manhole. The tests shall be taken approximately one foot above the pipe, mid-trench depth and within the top one (1) foot of the trench. The Contractor and/or Developer shall excavate backfilled material to the depths directed by the District representative to accommodate the testing and backfill test holes in accordance with these regulations.

2.11 Surface Restoration. Fine grade all areas disturbed by the construction operations after completion of backfilling and compacting. Areas which are to receive pavements, surfacing, topsoil or landscaping shall be graded as required to allow installation of the specific surface treatment. Grade all other areas to match the existing ground line.

Replace suitable topsoil to the depth of stripping over all areas disturbed by the construction that do not receive other surface treatment. Do not compact topsoil during stripping, stockpiling or placing.

The Contractor shall restore all pavement, sidewalks, curbing, gutters or other surface structures removed or disturbed as part of the work to a condition meeting the standards of the governing agency, and shall furnish all incidental labor and materials. No permanent pavement shall be restored until, in the opinion of the District or agency having control, the condition of backfill is such as to properly support the pavement.

If any pavement, street, landscaping, shrubbery, sod, native grass areas, rock, fences, poles or other property and surface structures have been damaged, removed or disturbed by the Contractor, whether deliberately or through failure to carry out the requirements of the controlling agency or the specific directions of the District, or through failure to employ usual and reasonable safeguards, such property and surface structures shall be replaced or repaired, to the satisfaction of the owner, at the expense of the Contractor.

2.12 Surface Improvement Repair and Restoration. Replace and repair any surface improvements damaged or removed. Meet the requirements specified for the particular type of improvements to be repaired or replaced. All surface improvements shall meet the requirements of the local governing agency and/or the requirements shown on the contract drawings as approved by the District.

2.13 Cleanup. Upon completion of the work, all rubbish, unused materials, concrete forms, debris from excavation, scrap pipe materials and other like materials shall be removed from the jobsite. All excess excavation shall be disposed of as specified and the areas shall be left in a state of order and cleanliness.

PART IV

GREASE INTERCEPTOR/GREASE TRAP

AND SAND/OIL INTERCEPTOR REGULATIONS

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GREASE INTERCEPTOR/GREASE TRAP AND SAND/OIL INTERCEPTOR REGULATIONS

Chapter 1 – Grease Interceptor/Grease Trap Regulation

1.01 General

a. Grease interceptor or grease trap shall be provided when, in the judgment of the District, they are necessary for the proper handling of liquid wastes containing grease or solids which may be harmful to, or cause obstruction of the publicly owned wastewater collection system, or interfere with the operation of the publicly owned treatment works.

b. An adequate grease interceptor shall be installed as specified on the wastewater drainage system from any non-residential customer participating in the preparation and/or sale of food to the general public, including but not limited to restaurants, cafes, fast food outlets, pizza outlets, delicatessens, sandwich shops, and any and all other kinds and types of food vending establishments in which any food preparation (including heating or defrosting in or by means of any kind of oven or heating device) takes place on the premises, whether or not such facilities are located in a separate building or structure that is occupied by other businesses, as well as schools, churches, boarding houses with communal kitchen facilities, nursing homes, and day care centers which have kitchens and engage in the preparation of food. The adequacy of the grease interceptor or grease trap shall be determined by compliance with the design, sizing, and other requirements of this regulation.

1) All drains from the kitchen, food preparation, and dishwashing areas shall be connected to a grease interceptor or grease trap. Fixtures to be connected include, but are not limited to, scullery sinks, pot and pan sinks, dishwashing machines, soup kettles, and floor drains located in areas where grease containing materials may exist.

2) When deemed necessary by the District, garbage disposals (garbage grinders) may be required to be connected to an approved grease interceptor. Connection of garbage disposals (garbage grinders) to grease traps will typically not be permitted.

3) Toilets, urinals and similar fixtures shall not waste through a grease interceptor or grease trap. Such fixtures shall be plumbed directly into the building sewer and waste system.

c. A variance as to the requirement for a grease interceptor or grease trap on any non-residential structure may be granted after due consideration by the District for good cause shown including, without limitation, the particular hardship and unique circumstances of the customer which are not brought about as a result of the customers acts or omissions. The granting of any variance shall be at

the sole discretion of the District based upon the facts and circumstances of each request.

1.02 Definitions

a. For the purpose of this Regulation, the terms "grease interceptor" and "grease trap" shall be defined as follows:

1) Grease Interceptor: A unit of at least 1,500 gallons capacity designed to retain grease from one or more fixtures and which shall be located remote from the fixtures being served, typically outside the building being served. This is the minimum capacity allowed by the District.

2) Grease Trap: A unit designed to retain grease from one to a maximum of four fixtures and which may be located inside the building being served. Generally these types of units will not be permitted by the District.

3) Fixture Unit Equivalent (FUE): A value which permits the comparison of different sized fixtures based on the drainage load produced.

a) One (1) FUE = Discharge flow rate of 7.5 gpm.

1.03 Design and Sizing

a. The design and sizing of grease interceptors shall be in accordance with the International Plumbing Code (IPC) and this Regulation, and shall be designed, sized, installed, maintained and operated so as to accomplish their intended purpose of intercepting the grease and solids from the customer's waste water and preventing the discharge of such grease and solids to the District's waste water treatment plant.

1) The edition of the IPC currently utilized by the local building permitting authority shall be applicable.

b. The size, type and location of each grease interceptor shall be approved by the District, in accordance with this Regulation. Except where otherwise specifically permitted, no wastes other than those requiring separation shall be discharged into any grease interceptors. One set of plans, including complete mechanical and plumbing sections shall be submitted to the District for approval prior to construction. Such plans shall include the size, type and location of each interceptor. Such approval shall not exempt the user from compliance with any applicable code, ordinance, rule, regulation or order of any governmental authority. Such approval shall not be construed as or act as a guarantee or assurance that any discharge is or will be in compliance with any applicable code, ordinance, rule, regulation, or order or any governmental authority. Any subsequent alterations or additions to such facilities shall not be made without due notice to and prior approval of the District.

c. Design

1) All waste shall enter the grease interceptor or grease trap through the inlet pipe only.

2) Grease interceptors and grease traps shall be so designed and located as to be readily accessible for cleaning, and shall have a water seal of not less than six (6) inches for grease interceptors and two (2) inches or the diameter of the outlet, whichever is greater, for grease traps.

3) Grease interceptors shall be constructed in accordance with the design specifications contained herein, shall be approved by the District and shall have a minimum of two (2) compartments with fittings designed for grease retention. There shall be a minimum of two (2) manholes to provide access for cleaning and inspection of all fixtures and compartments of the interceptor, a minimum of one (1) per ten (10) feet of interceptor length. In the case of smaller, or circular interceptors, where it is not practical to install two manholes, a single manhole shall be located so as to permit entrance to the first compartment, and inspection of the second. All areas of the second compartment shall be accessible for cleaning. Manhole covers shall be gastight in construction having a minimum opening dimension of twenty (20) inches. In areas where traffic may exist, the interceptor shall be designed to have adequate reinforcement and cover, meeting HS-20 load specifications.

   a) A flow control device will not be required preceding a grease interceptor.

4) Grease traps shall be equipped with a flow control or restricting device installed in a readily accessible and visible location ahead of the grease trap. Flow control devices shall be designed and rated such that the flow through such a device shall at no time be greater than the rated capacity of the grease trap. No flow control devices having adjustable or removable parts will be permitted.

5) If an existing grease trap does not meet the design and sizing criteria as set forth, the grease trap shall be replaced with a grease interceptor.

6) A grease trap will only be allowed in those establishments utilizing a grease trap at the time the Grease Interceptor/Grease Trap Regulation was adopted.

7) All new restaurant construction or upon change of ownership of any existing restaurant, any applicant for Sanitary Sewer Service shall demonstrate that a minimum of a 1,500 gallon functioning grease trap is installed and in addition, a quarterly report showing all cleaning of the grease trap shall be sent to the District Office on a regular basis.

8) Grease interceptors and grease traps shall be so designed that they will not become air bound if closed covers are used. The tank and the discharge line shall each be vented, and the vents shall not tie together less than 42 inches above the tank lid elevation.

9) An effluent sampling box shall be provided on the discharge of each grease interceptor or grease trap where so required by the District.

d. Sizing Criteria

1) Grease Interceptors: When determining the minimum size of grease interceptor required, the following shall be considered:

a) The minimum acceptable volume shall be not less than one thousand five hundred (1500) gallons.

b) The size of the interceptor shall be based on the maximum number of meals serviced at the maximum periods of the day (either breakfast, lunch or dinner). Volume, in gallons, of the interceptor shall be 2½ gallons times the maximum meals served during the busiest period of the day.

c) An alternate method of determining the size of the grease interceptor is to multiply seating capacity times a turnover constant of 1.6 times 2½ gallons. Seating capacity can be approximated, using ten (10) square feet of dining area per person. (VOLUME = Seating Capacity x 1.6 x 2.5 gallons.)

d) The size of the grease interceptor shall be determined by the following formula:

Interceptor size (liquid capacity in gallons) = number of meals served per peak hour X waste flow rate X retention time X storage factor served per peak hour to be estimated as follows:

Meals served per peak hour to be established as follows:
Seating capacity X occupancy factor (0.80) X meals per hour per seat (2)

Waste flow rate:	
With dishwashing machine	6 gallons
Without dishwashing machine	5 gallons
Food waste disposal	1 gallon
Retention time:	1.0 hours
Storage Factor:	
Fully equipped commercial kitchen:	
8 hour operation	1
16 hour operation	2
24 hour operation	3
Single service kitchen	1.5

e) An appropriate volume may be determined by multiplying the total rate of flow in gallons per minute from each fixture required to be connected to the interceptor times a minimum retention time of not less than fifteen (15) minutes, the resulting volume expressed in gallons.

2) Grease Traps: Existing grease traps shall be sized based on one of the following methods:

a) Fixture Capacity Method: Under this method, the physical size of each fixture compartment to be connected to the grease trap shall be measured and the capacity determined. The drainage load in gallons shall then be computed assuming the drainage load to be equal to 0.75 times the total physical capacity. The sum of the drainage loads for each fixture compartment to be connected to a single grease trap will be the total grease trap drainage load. The total grease trap drainage load is then divided by the drainage period for the fixture compartments connected to determine the flow rate to the grease trap in gpm. Multiply the grease trap flow rate thus determined, or the rated capacity of the flow control device, by the minimum retention time (15 minutes) to determine the required liquid capacity of grease trap to be installed.

b) Fixture Unit Method: Under this method the fixture compartment outlet or trap arm size shall be utilized to determine the fixture compartment drainage load in gpm, assuming one (1) fixture unit equivalent produces a flow rate of 7.5 gpm. The sum of the drainage loads for each fixture compartment to be connected to a single grease trap or the rated capacity of the flow control device will be the total grease trap drainage load in gpm. Multiply this total drainage load in gpm by the minimum retention time (15 minutes) to determine the required liquid capacity of the grease trap to be installed.

The following fixture unit equivalent values shall be utilized when verifying the size of an existing grease trap under the Fixture Unit Method:

Fixture Outlet Trap or Trap Arm Size	Fixture Unit Equivalent Value
1¼"	1
1½"	3
2"	4
2½"	5
3"	6
4"	8

c) The appropriate size for a grease trap is dependent on the drainage period of the fixtures connected to the trap. By

adjusting the fixture drainage period through use of a flow control device, (1) a smaller grease trap could be utilized for a given fixture size or capacity; (2) multiple fixtures could be connected to the same grease trap.

d) Where the existing grease trap size would exceed that which is commercially available or that which is required, a grease interceptor shall be utilized.

1.04 Installation

a. The installation of grease interceptors shall be in accordance with the International Plumbing Code (IPC) and this Regulation, and shall be accomplished in a workmanlike manner in compliance with the design and sizing requirements hereunder.

1) The edition of the IPC currently utilized by the local building permitting authority shall be applicable.

b. The installation of grease interceptors shall be accomplished by licensed plumbers with documented experience in the installation of such devices.

c. Each grease interceptor shall be readily accessible for inspection, servicing, and maintaining in proper working condition. The use of ladders or the removal of bulky equipment in order to inspect or service interceptors shall constitute a violation of accessibility. Where feasible, all interceptors shall be located outside of the facility served. Interceptors may not be installed in any part of a building where food is handled. Location of all interceptors shall be approved by the District, and shall be shown on the approved building plan.

1) No dishwasher shall be connected to or discharge into any grease interceptor of less than 1,500 gallons capacity which is utilized by other fixtures. Automatic dishwashing units shall be plumbed through their own properly sized grease interceptor or directly into the building sewer and waste system.

2) No food grinder or disposal unit shall be connected to or discharge into any grease trap. Such units shall be plumbed through a properly sized grease interceptor or directly into the building sewer and waste system.

3) All fixtures not equipped with a garbage disposal (garbage grinder) which are connected to a grease interceptor shall be equipped with a fixed or removable mesh or screen which shall catch garbage and food debris and prevent it from entering the grease interceptor.

4) Wastes in excess of 140 degrees F shall not be discharged into a grease interceptor or grease trap, and liquid discharge from a grease interceptor or grease trap shall not exceed 70 degrees F.

1.05 Maintenance

a. Maintenance of grease interceptors and grease traps shall be done only by a business/professional normally engaged in the servicing of such plumbing fixtures. An individual property owner will not be permitted to accomplish maintenance specified by this Regulation.

b. The District shall provide a customer and/or a maintenance business with a form for recording grease interceptor/grease trap maintenance. The maintenance business and customer shall provide one copy of the completed form to the District within 14 calendar days of maintenance of any grease interceptor or grease trap within the District.

c. As a minimum, any grease interceptor in service in the District shall be serviced at a maximum interval of 90 days.

   1) A variance from this requirement may be obtained when the owner can confirm that there is no normal use during any given 90-calendar day period. With written authorization from the Board, the maximum time variance between services is 365 calendar days.

   2) The District may inspect the interceptor and outlet and if it is deemed necessary by the District, more frequent servicing and maintenance will be required.

d. As a minimum, any grease trap in service in the District shall be serviced at a maximum interval of 30 days.

   1) A variance from this requirement may be obtained when the owner can confirm that there is no normal use during any given 30-calendar day period.

   2) The District may inspect the trap and outlet and if it is deemed necessary by the District, more frequent servicing and maintenance will be required.

e. Biological treatment shall not be a substitute for the pumping of grease interceptors and grease traps at the frequency determined by the District. Emulsification of oil and grease with enzyme treatments only delays physical separation; therefore, biological treatment shall not be allowed.

f. The District may inspect grease interceptors and grease traps monthly to determine the load on the fixture and the effectiveness of maintenance activities. The District will inventory all grease interceptors and grease traps in their service area and document the inspections of these interceptors and traps.

   1) These inspections may determine that more frequent maintenance than previously specified is required.

g. Existing sources not connected to a grease interceptor or grease trap and contribute oil and grease to the District's waste stream and collection system will be identified through the District's inspection program. Once these sources are identified, they will be required to install a grease interceptor or grease trap and maintain it according to these guidelines. In the time before a grease interceptor or grease trap can be installed the District will require these businesses to implement Best Management Practices (BMPs) to keep oil and grease out of the sanitary sewer system.

1) Scrape food from plates into garbage cans.

2) Pre-wash plates by spraying them off with cold water over a small mesh catch basin positioned over a drain. This catch basin should be cleaned into a garbage can as needed.

3) Pour all liquid oil and grease from pots into waste grease bucket stored at the pot washing sink. Heavy solid buildup of oil and grease on pots and pans should be scraped off into a waste grease bucket.

4) Other kitchen practices identified by the District and/or facility which will decrease the point source discharge of oil and grease.

1.06 Responsibility, Fines, and Retribution

a. Property owners and lessees shall be jointly and severally responsible for cleaning grease interceptors and grease traps for maintaining the grease interceptors and grease traps in efficient operating condition at all times, and for otherwise complying with the provisions of these rules and regulations. Grease interceptors and grease traps shall be maintained by regularly scheduled removal of the accumulated grease and solids so that they will properly operate as intended to intercept the grease and solids from the customer's waste water and prevent the discharge of grease and solids to the District's waste water treatment plant. This maintenance shall be performed in a workmanlike manner before the retention capacity of the interceptor or trap is exceeded. Detailed and accurate records of maintenance shall be maintained on site and shall be provided to and available to the District upon request. Such maintenance records shall be in the form of Exhibit A attached hereto, or such other form as reasonably required from time to time by the manager of the District. The records shall include detailed information relating to the amount of grease removed compared to the size of the grease interceptor/trap.

b. A copy of the invoice and a manifest of disposal from the business/professional reporting the date the interceptor or trap was cleaned, the amount of grease, oil and/or sand removed, the time, date and location the grease, oil and/or sand was disposed, and a recommendation of how frequently the interceptor/trap should be cleaned must be sent to the District office within 14 days after each cleaning. A copy of all interceptor/trap cleaning invoices is to be on file at the business being served and available to the District upon request. Failure to comply with the above could result in fines, penalties, or disconnection of service. The invoice for removal of interceptor and trap contents, together with

the waste disposal manifest, shall be attached to and made a part of the maintenance records required by these regulations.

c. The District reserves the right to levy any fines to such facilities that do not conform to the District's grease regulations. Retribution shall be paid to any surrounding businesses and/or homeowners for damage resulting from any non-compliance of the District's regulations. Any extraordinary cost incurred by the District due to interference, damage or special processing necessary in the treatment and/or collection system shall be paid by the business. The direct cost of all labor, equipment and materials incurred in rectifying the interference or damage shall be billed directly to the business by the District.

1.07 Sewer Use Regulations

a. This regulation forms a part of the Sewer Use Regulations of the Monument Sanitation District. Enforcement of this regulation is governed by the express terms hereof and the enforcement provisions of "Article 7. Enforcement" of the Rules and Regulations of the Monument Sanitation District, which is incorporated by reference, including, without limitation, those provisions for administrative violations, violation of discharge limitations, enforcement procedures, penalties, field observations, and extra monitoring charges. Any violation of this regulation for grease interceptors and grease traps shall be considered a discharge violation under the enforcement provisions of "Article 7. Enforcement" of the Rules and Regulations of the Monument Sanitation District. Compliance with this regulation, as well as the other provisions of the Rules and Regulations, shall be the joint and several obligation of the owner of the property served and any party in possession of the property using the wastewater services of the District. Any monies due or penalties to the District under the provisions of the regulation, or other provisions of the Rules and Regulations, shall constitute a lien upon the property served.

b. The Monument Sanitation District has the right to reject any waste which may be harmful to, or cause obstruction of the publicly owned wastewater collection system, or interfere with the operation of the publicly owned treatment works.

1.08 Application

a. This regulation applies to all existing and future uses within the scope of Section 1.01 above. The District has determined that the enactment of this regulation is in the best interest of the District and its customers and is necessary for this efficient and proper operation and protection of the District's operations and facilities, and that this regulation is necessary and in furtherance of the health, benefit, and welfare of the District's customers.

GREASE INTERCEPTOR/GREASE TRAP AND SAND/OIL INTERCEPTOR REGULATIONS

Chapter 2 – Sand/Oil Interceptor Regulation

2.01 General

a. A sand/oil interceptor or grease trap shall be provided when, in the judgment of the District, they are necessary for the proper handling of sand and grit and petroleum-based liquid waste which may be harmful to, or cause obstruction of the publicly owned wastewater collection system, or interfere with the operation of the publicly owned treatment works. The District will substantiate whether a sand/oil interceptor is suitable for installation. On a general basis, sand/oil interceptors will be recommended.

b. An adequate sand/oil interceptor shall be installed as specified on the wastewater drainage system from any non-residential customer participating in automotive service and repair, machine shops, and/or mechanics providing service to the general public, including but not limited to service stations, truck stop, gasoline stations, automotive/car care centers, auto body shops, automotive dealerships, car washes, motorcycle shops, machine shops, welding shops, tractor/farm implement dealerships, truck/bus dealerships, bus barns, or any other facility that generates sand and grit or petroleum by-product waste that would discharge into the wastewater collection system. The adequacy of the sand/oil interceptor shall be determined by compliance with the design, sizing, and other requirements of this regulation.

   1) All drains from shop areas, washing areas and/or spill areas shall be connected to a sand/oil interceptor. Fixtures to be connected include, but are not limited to, floor drains, engine/parts cleaning sinks and wash areas located in areas where sand and petroleum-based liquid waste containing materials may exist.

   2) Toilets, urinals and similar fixtures shall not waste through a sand/oil interceptor. Such fixtures shall be plumbed directly into the building sewer and waste system.

c. A variance as to the requirement for a sand/oil interceptor on any non-residential structure may be granted after due consideration by the District for good cause shown including, without limitation, the particular hardship and unique circumstances of the customer which are not brought about as a result of the customers acts or omissions. The granting of any variance shall be at the sole discretion of the District based upon the facts and circumstances of each request.

2.02 Definitions

a. For the purpose of this Regulation, the term "sand/oil interceptor" shall be defined as follows:

1) Sand/Oil Interceptor: A unit of at least 500 gallons capacity designed to retain sand/oil from one or more fixtures and which shall be located remote from the fixtures being served, typically outside the building being served. This is the preferred unit of choice by the District.

2) Fixture Unit Equivalent (FUE): A value which permits the comparison of different sized fixtures based on the drainage load produced.

a) One (1) FUE = Discharge flow rate of 7.5 gpm.

2.03 Design and Sizing

a. The design and sizing of sand/oil interceptors shall be in accordance with the International Plumbing Code (IPC) and this Regulation, and shall be designed, sized, installed, maintained and operated so as to accomplish their intended purpose of intercepting the sand/oil from the customer's waste water and preventing the discharge of such sand and oil to the District's waste water treatment plant.

1) The edition of the IPC currently utilized by the local building permitting authority shall be applicable.

b. The size, type and location of each sand/oil interceptor shall be approved by the District, in accordance with this Regulation. Except where otherwise specifically permitted, no wastes other than those requiring separation shall be discharged into any sand/oil interceptor. One set of plans, including complete mechanical and plumbing sections shall be submitted to the District for approval prior to construction. Such plans shall include the size, type and location of each interceptor. Such approval shall not exempt the user from compliance with any applicable code, ordinance, rule, regulation or order of any governmental authority. Such approval shall not be construed as or act as a guarantee or assurance that any discharge is or will be in compliance with any applicable code, ordinance, rule, regulation, or order or any governmental authority. Any subsequent alterations or additions to such facilities shall not be made without due notice to and prior approval of the District.

c. Design

1) All waste shall enter the sand/oil interceptor through the inlet pipe only.

2) Sand/oil interceptors shall be so designed and located as to be readily accessible for cleaning.

3) Sand/oil interceptors shall be constructed in accordance with the design specifications contained herein, shall be approved by the District and shall have a minimum of two (2) compartments with fittings designed for sand/oil retention. There shall be a minimum of two (2) manholes to provide access for cleaning and inspection of all fixtures and compartments of the interceptor, a minimum of one (1) per ten (10) feet

of interceptor length. In the case of smaller or circular interceptors, where it is not practical to install two manholes, a single manhole shall be located so as to permit entrance to the first compartment, and inspection of the second. All areas of the second compartment shall be accessible for cleaning. Manhole covers shall be gastight in construction having a minimum opening dimension of twenty (20) inches. In areas where traffic may exist, the interceptor shall be designed to have adequate reinforcement and cover, meeting HS-20 load specifications.

4) Sand/oil interceptors shall be so designed that they will not become air bound if closed covers are used. The tank and the discharge line shall each be vented, and the vents shall not tie together less than 42 inches above the tank lid elevation.

5) An effluent sampling box shall be provided on the discharge of each sand/oil interceptor or grease trap where so required by the District.

d. Sizing Criteria

1) Sand/Oil Interceptors: When determining the minimum size of sand/oil interceptor, the following shall be considered:

a) The minimum acceptable volume shall be not less than five hundred (500) gallons.

b) An appropriate volume may be determined by multiplying the total rate of flow in gallons per minute from each fixture required to be connected to the interceptor times a minimum retention time of not less than fifteen (15) minutes, the resulting volume expressed in gallons.

2.04 Installation

a. The installation of sand/oil interceptors shall be in accordance with the International Plumbing Code (IPC) and this Regulation, and shall be accomplished in a workmanlike manner in compliance with the design and sizing requirements hereunder.

1) The edition of the IPC currently utilized by the local building permitting authority shall be applicable.

b. The installation of sand/oil interceptors shall be accomplished by licensed plumbers with documented experience in the installation of such devices.

c. Each sand/oil interceptor shall be readily accessible for inspection, servicing, and maintaining in proper working condition. The use of ladders or the removal of bulky equipment in order to inspect or service interceptors shall constitute a violation of accessibility. Where feasible, all interceptors shall be located

outside of the facility served. Location of all interceptors shall be approved by the District, and shall be shown on the approved building plan.

2.05 Maintenance

a. Maintenance of sand/oil interceptors shall be done only by a business/professional normally engaged in the servicing of such plumbing fixtures. An individual property owner will not be permitted to accomplish maintenance specified by this Regulation.

b. The District shall provide a customer and/or a maintenance business with a form for recording sand/oil interceptor maintenance. The maintenance business and customer shall provide one copy of the completed form to the District within 14 calendar days of maintenance of any sand/oil interceptor within the District.

c. As a minimum, any sand/oil interceptor in service in the District shall be serviced at a maximum interval of 90 days.

1) A variance from this requirement may be obtained when the owner can confirm that there is no normal use during any given 90-calendar day period. With written authorization from the Board, the maximum time variance between services is 365 calendar days.

2) The District may inspect the interceptor and outlet and if it is deemed necessary by the District, more frequent servicing and maintenance will be required.

d. Biological treatment shall not be a substitute for the plumbing of sand/oil interceptors at the frequency determined by the District.

e. The District may inspect the sand/oil interceptor monthly to determine the load on the fixture and the effectiveness of maintenance activities. The District will inventory all sand/oil interceptors in their service area and document the inspections of these interceptors.

1) These inspections may determine that more frequent maintenance than previously specified is required.

f. Existing sources not connected to a sand/oil interceptor and contribute sand and oil to the District's waste stream and collection system will be identified through the District's inspection program. Once these sources are identified, they will be required to install a sand/oil interceptor and maintain it according to these guidelines. In the time before a sand/oil interceptor can be installed the District will require these businesses to implement Best Management Practices (BMPs) to keep sand and oil out of the sanitary sewer system.

1) Avoid dumping petroleum-based waste products into the waste collection system.

2) Discontinue the use of wash facilities until such time a suitable system is in place to intercept sand, grit, and petroleum-based products.

3) Other practices identified by the District and/or facility which will decrease the point source discharge of sand and oil.

2.06 Responsibility, Fines, and Retribution

a. Property owners and lessees shall be jointly and severally responsible for cleaning sand and oil interceptors for maintaining the sand and oil interceptor in an efficient operating condition at all times, and for otherwise complying with the provisions of these rules and regulations. Sand/oil interceptors shall be maintained by regularly scheduled removal of the accumulated sand and oil so that they will properly operate as intended to intercept the sand and oil from the customer's waste water and prevent the discharge of sand and oil to the District's waste water treatment plant. This maintenance shall be performed in a workmanlike manner before the retention capacity of the interceptor is exceeded. Detailed and accurate records of maintenance shall be maintained on-site and shall be provided to and available to the District upon request. Such maintenance records shall be in the form of Exhibit A attached hereto, or such other form as reasonably required from time to time by the manager of the District. The records shall include detailed information relating to the amount of sand and oil removed compared to the size of the sand/oil interceptor.

b. A copy of the invoice from the business/professional reporting the date the interceptor was cleaned, the amount of oil and/or sand removed and a recommendation of how frequently the interceptor should be cleaned must be sent to the District office after each cleaning. A copy of all interceptor-cleaning invoices is to be on file at the business being served and available to the District upon request. Failure to comply with the above could result in fines, penalties, or disconnection of service.

c. The District reserves the right to levy any fines to such facilities that do not conform to the District's sand/oil regulations. Retribution shall be paid to any surrounding businesses and/or homeowners for damage resulting from any non-compliance of the District's regulations. Any extraordinary cost incurred by the District due to interference, damage or special processing necessary in the treatment and/or collection system shall be paid by the business. The direct cost of all labor, equipment and materials incurred in rectifying the interference or damage shall be billed directly to the business by the District.

2.07 Sewer Use Regulations

a. This regulation forms a part of the Sewer Use Regulations of the Monument Sanitation District. Enforcement of this regulation is governed by the express terms hereof and the enforcement provisions of "Article 7. Enforcement" of the Rules and Regulations of the Monument Sanitation District, which is incorporated by reference, including, without limitation, those provisions for administrative violations, violation of discharge limitations, enforcement procedures, penalties, field observations, and extra monitoring charges. Any

violation of this regulation for grease interceptors and grease traps shall be considered a discharge violation under the enforcement provisions of "Article 7. Enforcement" of the Rules and Regulations of the Monument Sanitation District. Compliance with this regulation, as well as the other provisions of the Rules and Regulations, shall be the joint and several obligation of the owner of the property served and any party in possession of the property using the wastewater services of the District. Any monies due or penalties to the District under the provisions of the regulation, or other provisions of the Rules and Regulations, shall constitute a lien upon the property served.

b. The Monument Sanitation District has the right to reject any waste which may be harmful to, or cause obstruction of the publicly owned wastewater collection system, or interfere with the operation of the publicly owned treatment works.

2.08 Application

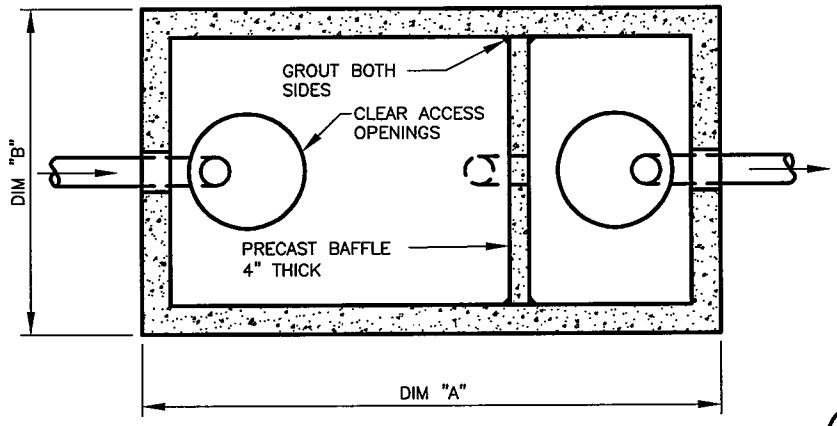
a. This regulation applies to all existing and future uses within the scope of Section 2.01 above. The District has determined that the enactment of this regulation is in the best interest of the District and its customers and is necessary for this efficient and proper operation and protection of the District's operations and facilities, and that this regulation is necessary and in furtherance of the health, benefit, and welfare of the District's customers.

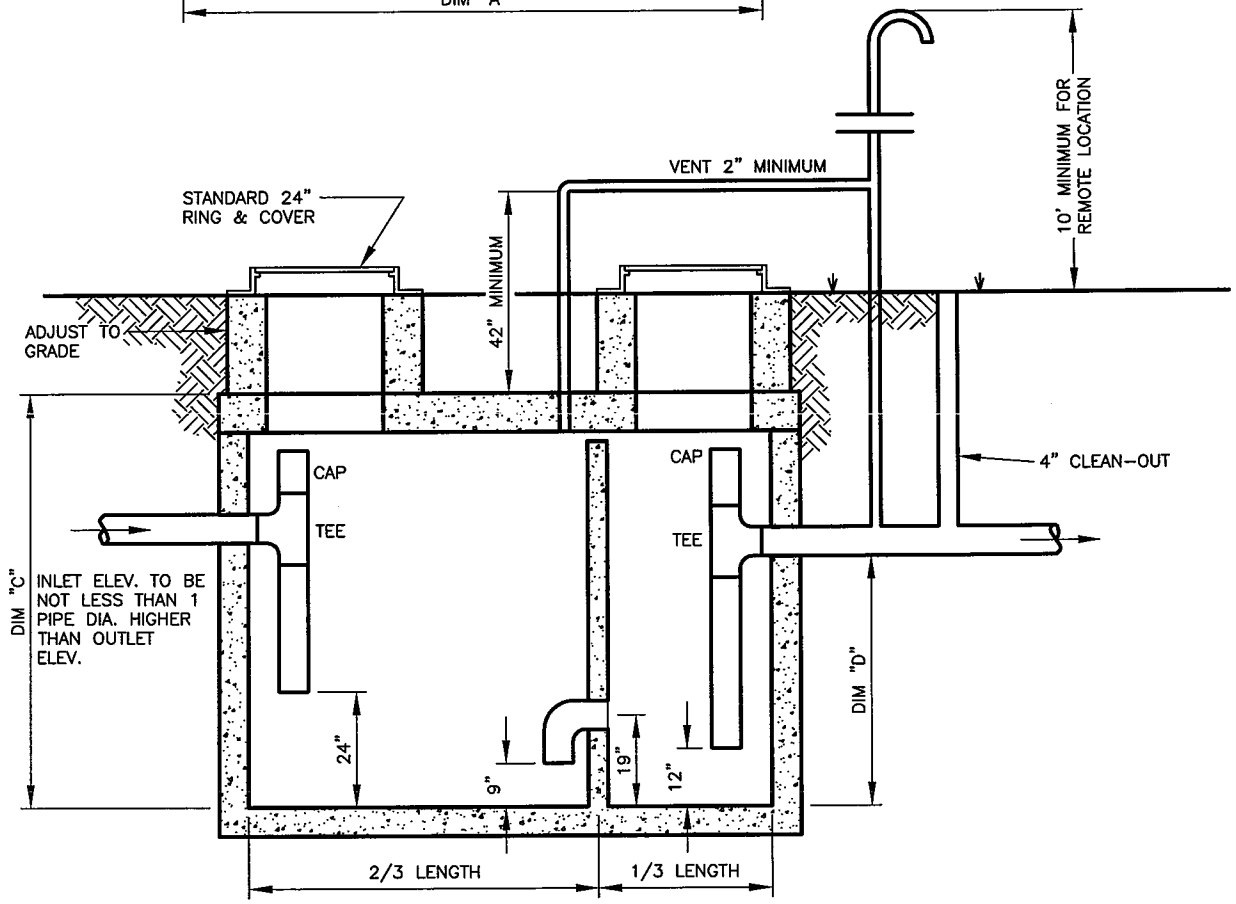
NOTES :

1. MINIMUM SIZE = 1500 GALLON
2. CONCRETE = 28 DAY COMPRESSIVE STRENGTH = 4500 psi
3. DESIGN: ASTM C857-87 & C858-83 MINIMUM
4. LOADING: AASHTO HS-20
5. FILL w/ CLEAN WATER PRIOR TO START-UP OF SYSTEM

SIZING CHART

GALLON CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"
1500	9'-0"	5'-8"	7'-2"	4'-4"
1750	11'-2"	5'-8"	7'-2"	4'-11"
2000	11'-2"	6'-8"	8'-0"	4'-7"
2500	12'-8"	6'-8"	8'-0"	5'-6"
2750	12'-8"	6'-8"	8'-0"	6'-0"
3000	15'-7"	9'-7"	8'-6.5"	6'-3"
4000	15'-7"	9'-7"	8'-6.5"	6'-3"
5000	19'-11"	9'-11"	8'-11"	6'-2"
6000	19'-11"	9'-11"	10'-5"	7'-2"





MONUMENT SANITATION DISTRICT

GREASE INTERCEPTOR

DRAWN: GSM	REVISED:
DATE: JAN. 2000	REVISED:
SCALE: NONE	REVISED:

DWG-18

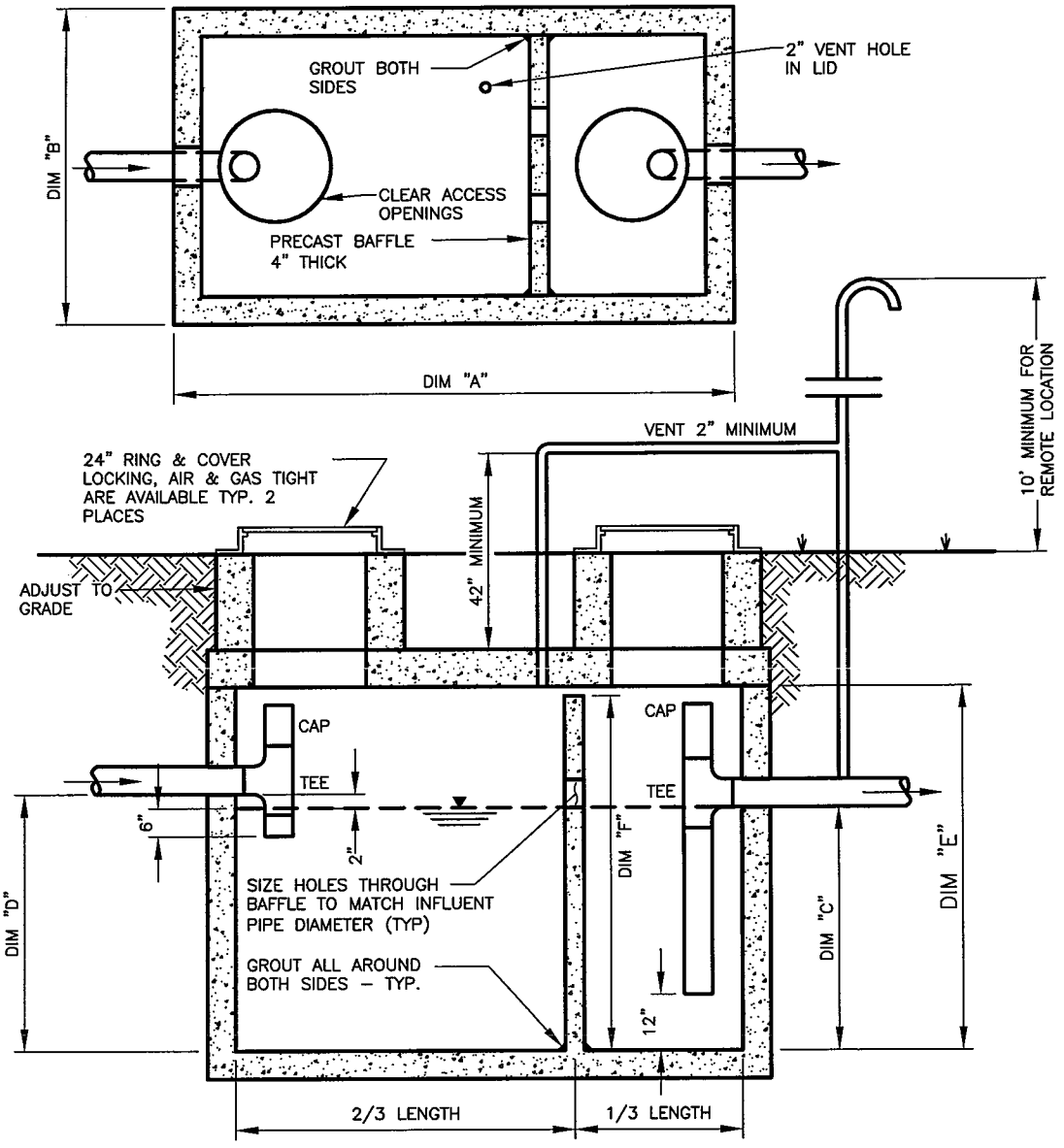
G:\MONUMENT\94076\120\045\94076045.DWG

NOTES :

1. MINIMUM SIZE = 500 GALLON
2. CONCRETE = 28 DAY COMPRESSIVE STRENGTH = 4500 psi
3. DESIGN: ASTM C857-87 & C858-83 MINIMUM
4. LOADING: AASHTO HS-20
5. FILL w/ CLEAN WATER PRIOR TO START-UP OF SYSTEM

SIZING CHART

GALLON CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"
500	6'-0"	4'-0"	3'-0"	3'-2"	4'-0"	2'-6"
750	6'-0"	4'-0"	5'-0"	5'-2"	6'-0"	4'-0"
1000	6'-0"	4'-0"	6'-0"	6'-2"	7'-0"	5'-0"
1250	8'-0"	4'-0"	5'-3"	5'-5"	6'-6"	4'-3"
1500	8'-0"	4'-0"	6'-2"	6'-4"	7'-0"	5'-2"
1800	11'-0"	4'-0"	5'-6"	5'-8"	7'-0"	4'-6"
2000	12'-6"	6'-0"	4'-0"	4'-2"	5'-0"	3'-0"
2500	12'-6"	6'-0"	5'-0"	5'-2"	6'-0"	4'-0"
3000	12'-6"	6'-0"	6'-0"	6'-2"	7'-0"	5'-0"
3500	16'-0"	8'-0"	4'-0"	4'-2"	6'-0"	3'-0"
5000	16'-0"	8'-0"	5'-6"	5'-8"	7'-0"	4'-6"
5500	16'-0"	8'-0"	6'-0"	6'-2"	7'-0"	5'-0"



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MONUMENT SANITATION DISTRICT	SAND/OIL INTERCEPTOR		
	DRAWN: GSM	REVISED: 02/25/04 REVISED DIM. ARROW FOR "F"	DWG-19
	DATE: JAN. 2000	REVISED: 01/12/12 UPDATED	
	SCALE: NONE	REVISED:	

EXHIBIT A

Monument Sanitation District
Grease Interceptor/Trap Inspection Form

Date of Inspection: _____

Business: _____

Address: _____

_____

Contact Person
and Title: _____ Phone: _____

Grease Interceptor Location: _____

_____

Interceptor Capacity (gallons) _____ Number of Pits _____

Is the capacity sufficient: ☐ **YES** ☐ **NO**

Use of enzymes? ☐ **YES** ☐ **NO**

Number of Customers/Day: _____

General Condition of Interceptor/Trap: ☐ **Excellent** ☐ **Good** ☐ **Poor** ☐ **Replace**

Pumping Company: _____

Address: _____

_____

Contact Person
and Title: _____ Phone: _____

Interceptor Pump Schedule: _____

Date of Last Pumping: _____

Comments: _____

_____

_____

_____

Recommended Cleaning &
Inspection Schedule: ☐ **3-month** ☐ **6-month** ☐ **Yearly**

PART V

PRETREATMENT/INDUSTRIAL WASTE CONTROL REGULATIONS

TABLE OF CONTENTS

PART V

PRETREATMENT/INDUSTRIAL WASTE CONTROL REGULATIONS

1.01 Purpose

a. It is necessary for the health, safety, and welfare of the residents of the District to regulate the collection of wastewater and treatment thereof to provide for maximum public benefit. This regulation sets forth uniform requirements for users of the District's Publicly Owned Treatment Works (POTW) and facilitates the District's compliance with applicable State and Federal laws and regulations. The objectives of these regulations are:

1) To prevent the introduction of pollutants into the POTW which interfere with the operation of the system or contaminate the resulting sludge;

2) To prevent the introduction of pollutants into the POTW wastewater system which will pass through the system, inadequately treated, into receiving waters or the atmosphere or otherwise be incompatible with the system;

3) To improve the opportunity to recycle and reclaim wastewater and sludge from the system;

4) To provide for the equitable distribution among users of the cost of the POTW, and

5) To provide for and promote the general health, safety, and welfare of the citizens residing within the Districts.

b. This regulation provides for the regulation of users of the POTW through the issuance of permits to certain non-domestic users and through enforcement of general requirements for other users, authorizes monitoring and enforcement activities, requires user reporting, and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein.

c. This regulation shall apply to persons in the District and to persons outside the District who are, by contract or agreement with the District, users of the District POTW. Except as otherwise provided herein, the Manager of the District shall administer, implement, and enforce the provisions of the regulation.

1.02 Definitions and Abbreviations

a. Words and phrases used in these regulations shall be defined in this section, unless the context clearly indicates otherwise.

1) "Act" or "the Act" shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. Section 1251, et. seq.

2) "Approval Authority" shall mean the Director of the Colorado Department of Public Health and Environment at such time as Colorado has an approved State Pretreatment Program and the Regional Administrator of the EPA until such time.

3) "Authorized representative of industrial user" shall mean:

   a) A principal executive officer of at least the level of vice president, if the industrial user is a corporation; or

   b) A general partner of proprietor if the industrial user is a partnership or proprietorship, respectively; or

   c) A duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which any direct or indirect discharge originates.

4) "Biochemical Oxygen Demand (BOD)" shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures (five days at 28° centigrade) expressed in terms of weight and concentration (mg/l).

5) "Building sewer" shall mean a sewer conveying wastewater from the premises of a user to the POTW.

6) "Chemical Oxygen Demand" shall mean the oxygen equivalent of the portion of organic matter in a wastewater sample that is susceptible to oxidation by a strong chemical oxidant, expressed in terms of weight and concentration (mg/l).

7) "Categorical industry" shall mean one of the industries for which the EPA has established or is in the process of establishing categorical pretreatment standards.

8) "Colorado Discharge Permit System (CDPS)" shall mean the program for issuing; conditioning, and denying for discharges of pollutants from point sources into navigable waters of the contiguous zone and the oceans pursuant to Section 24-4-104 CRS 1973.

9) "Composite sample" shall mean a representative flow-proportioned or time-proportioned sample collected within a twenty-four hour period composed of a minimum of four individual samples collected at equally spaced intervals and combined according to flow or time.

10) "Critical industry" shall mean a user which is a categorical industry or which is required to report the storage of hazardous materials pursuant to the requirements of regulation. This includes both significant and potential contributors.

11) "Direct discharge" shall mean the discharge of treated or untreated wastewater directly to the waters of the State of Colorado.

12) "District". The Monument Sanitation District or the Board of Directors of the Monument Sanitation District, or if so designated and acting as an authorized agent of the Manager of the Monument Sanitation District.

13) "Domestic or sanitary waters" shall mean liquid wastes (a) from the non-commercial preparation, cooking, and handling of food, or (b) containing only human excrement and similar matter from the sanitary conveniences of dwellings, commercial buildings, industrial facilities, and institutions.

14) "Environmental Protection Agency" or "EPA" shall mean the U.S. Environmental Protection Agency, or where appropriate, the term may also be used as a designation for the Administrator or other duly authorized official of said agency.

15) "Existing user" shall mean an industrial user which is in operation at the time of promulgation of categorical pretreatment standards.

16) "Fats, oil, or grease (FOG)" shall mean any hydrocarbons, fatty acids, soaps, fats, waxes, oils, and any other material that is extracted by freon solvent, as specified in Standard Methods.

17) "Garbage" shall mean solid wastes from domestic and commercial preparation, cooking, and dispensing of food and from handling, storage, and sale of produce. "Properly ground garbage" shall mean the wastes from the preparation, cooking, and dispensing of foods that have been ground to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particles greater than one-half inch in any dimension.

18) "Grab sample" shall mean a sample which is taken from a waste stream on a one-time basis with no regard to the flow or time.

19) "Harmful wastes" shall mean any solid, liquid, or gaseous substances which would violate the prohibitions contained in Section 1.3 of these regulations.

20) "Indirect discharge" shall mean the discharge or the introduction of non-domestic pollutants from any source regulated under Section 387 (b) or (c) of the Act, (33 U.S.C. Section 1317 (b) of (c)), into the POTW.

21) "Industrial" shall mean of or pertaining to industry, manufacturing, commerce, trade, or business, as distinguished from domestic or residential.

22) "Industrial users" shall mean a source of indirect discharge.

23) "Industrial wastes" shall mean the liquid wastes from industrial manufacturing processes, trade, or business as distinct from domestic or sanitary wastes.

24) "Interference." The inhibition of disruption of the treatment process or operations, including such inhibitions or disruptions which contribute to a violation of any requirement of the District POTW CDPS permit. The term includes prevention of sewage sludge use or disposal by the POTW in accordance with Section 405 of the Act, (33 U.S.C. 1345) or any criteria, guidelines, or regulations developed pursuant to the Solid Waste Disposal Act (SWDA), the Clean Air Act, the Toxic Substances Control Act, or more stringent State criteria (including those contained in any State sludge management plan prepared pursuant to Title IV of SWDA) applicable to the method of disposal of use employed by the POTW.

25) "National Categorical Pretreatment Standards" or "categorical pretreatment standards" shall mean any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307 (b) and (c) of the Act (33 U.S.C. Section 1317 (b) of (c)) which applies to a specific category of industrial user.

26) "North American Industry Classification System (NAICS)" is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. NAICS was developed under the auspices of the Office of Management and Budget (OMB), and adopted in 1997 to replaced the Standard Industrial Classification (SIC) system. It was developed jointly by the U.S. Economic Classification Policy Committee (ECPC), Statistics Canada, and Mexico's Instituto Nacional de Estadistica y Geografia, to allow for a high level of comparability in business statistics among the North American countries.

27) "National Prohibitive Discharge Standards" or "Prohibitive Discharge Standards" shall mean any regulation developed under the authority of 307 (b) of the Act (33 U.S.C. Section 1317 (b)).

28) "pH" shall mean the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in moles per liter of solution.

29) "Pollutant" shall mean any dredged spoil, solids, incinerator residue, sewage, garbage, sewage, sludge, explosives, chemical wastes, corrosive substances, biological material, biological nutrient, toxic substance, radioactive material, heat, malodorous substance, wrecked or discharged equipment, rock, sand, slurry, cellar dirt, untreatable waste or industrial, domestic, or agricultural waste discharged into or with water.

30) "Potential contributor" shall mean industries which may be classified as categorical industries and the nature of their processes are such that

priority pollutants are not discharged under normal operations. This includes anyone storing hazardous materials.

31) "Pretreatment" or "treatment" shall mean the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into the POTW. The reduction or alteration can be obtained by physical, chemical, or biological processes, or other means, except that dilution shall not constitute treatment or pretreatment.

32) "Pretreatment requirements" shall mean any substantive or procedural requirement related to pretreatment, other than a categorical pretreatment standard imposed on an industrial user, and shall include conditions of a wastewater discharge permit.

33) "Pretreatment standards" shall mean all applicable Federal rules and regulations implementing Section 307 of the Act (33 U.S.C. Section 1317), as well as any non-conflicting State or local standards. In cases of differing standards or regulations, the more stringent shall apply.

34) "Priority pollutants" shall mean any of the various toxic compounds that can reasonably be expected in the discharges from industries as determined by the EPA, pursuant to Section 307 (a) of the Act (33 U.S.C. Section 1317 (a)).

35) "Private sewage disposal system" shall mean any sewage disposal system other than public facilities, such as privies, privy vaults, septic tanks, soil absorption systems, cesspools, chemical toilets package treatment plants or similar facilities which receive or are intended to receive wastewater and which are not connected to the POTW; but this term shall not include any treatment plant which has a valid CDPS or NPDES permit.

36) "Publicly owned treatment works (POTW)" shall mean a treatment works as defined by Section 212 of the Act (33 U.S.C. Section 1292) which is owned in this instance under the Joint Use Agreement. This definition includes any sewers that convey wastewater to the POTW treatment plant, but does not include pipes, sewers, or other conveyances not connected to a facility providing treatment. For the purposes of this ordinance, "POTW" shall also include any sewers that convey wastewaters to the POTW from persons outside the District who are, by contract or agreement with the District, users of the District's POTW.

37) "POTW" Treatment Plant" shall mean that portion of the POTW designed to provide treatment to wastewater.

38) "Receiving waters" shall mean lakes, rivers, streams, or other surface or subsurface watercourses which receive treated or untreated wastewater.

39) "Receiving water quality requirements" shall mean requirements for the POWT's treatment plant effluent established by applicable State or Federal statutes or regulations for the protection of receiving water quality. Such requirements shall include effluent limitations, and waste discharge standards, requirements, limitations, or prohibitions which may be established or adopted from time to time.

40) "Sanitary sewer" shall mean a sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted, including the pipe or conduit system and appurtenances, for the collection, transportation, pumping, and treatment of sewage. This definition shall also include the terms "public sewer", "sewer system", "POTW sewer", and "sewer".

41) "Service connection" shall mean a sewer line intended for discharging wastewater into the District's POTW and commencing at a structure or facility and terminating at a sewer main.

42) "Sewer main" shall mean that portion of the District's POTW used for the collection and transportation of wastewater to treatment facilities and which has been installed for the expressed purpose of allowing service connections to be made thereto.

43) "Shall" and "will" are mandatory.

44) "Significant contributor" shall mean a user which is classified as a categorical industry and due to the nature of its wastewater discharge is governed by categorical pretreatment standards.

45) "Slug load" shall mean any discharge of wastewater which, in concentration of any given constituent or in quantity of flow, exceeds for any period longer than fifteen minutes more than five times the average twenty-four hour concentration or flow during normal operation.

46) "Standard Industrial Classification (SIC)" shall mean a classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President-Office of Management and Budget as it may be revised from time to time. Refer to "North American Industry Classification System (NAICS)" which supersedes and replaces the SIC.

47) "Standards Methods" shall mean procedures described in the current edition of Standard Methods for the Examination of Water and wastewater as published by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.

48) "Storm sewer" shall mean a sewer that carries only storm, surface and ground water drainage.

49) "Total Suspended Solids (TSS)" shall mean the total suspended matter that floats on the surface of, or is suspended in, water, wastewater, or

other liquids, and which is removable by laboratory filtration and referred to in Standard Methods for the Examination of Water and Wastewater as Suspended Residue.

50) "Toxic pollutant" shall mean any pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administration of the EPA under the provisions of Section 307 (a) of the Act (33 U.S.C. Section 1317 (a)) and/or Colorado Water Quality Control Commission Pretreatment Regulation 4.3.0.

51) "User" shall mean any person who contributes or causes or permits the contribution of wastewater into the District's POTW.

52) "Wastewater" or "sewage" shall mean the combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions including cooling water.

53) "Wastewater discharge permit" shall mean the permit provided for in these regulations.

54) Terms not otherwise defined herein shall have the meanings adopted in the latest edition of Standard Methods for the Examination of Water and Wastewater published by the American Public Health Association, the American Water Works Association, and/or the Water Environment Federation.

55) Abbreviations: The following abbreviations shall have the designated meanings:

a) BOD shall mean biochemical oxygen demand

b) CFR shall mean the Code of Federal Regulations

c) COD shall mean chemical oxygen demand

d) EPA shall mean the Environmental Protection Agency

e) CDPS shall mean the Colorado Discharge Permit System

f) CRS shall mean the Colorado Revised Statutes

g) FOG shall mean fats, oils, and grease

h) mg/l shall mean milligrams per liter

i) NPDES shall mean the National Pollutant Discharge Elimination System

j) O & M shall mean operations and maintenance

k) POTW shall mean publicly owned treatment works

l) U.S.C. shall mean United States Code

1.03 Prohibited and Accidental Discharges

a. Prohibited Discharges – Specific Categories. No person shall contribute or cause to be contributed directly or indirectly, into the POTW any pollutant of wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all users of a POTW, whether or not the user is subject to categorical pretreatment standards or any other national, State, or local pretreatment standards or requirements. No person shall contribute the following substance to the POTW:

1) Explosives or flammable wastes which shall include any liquids, solids, or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substance to cause fire or explosion or be injurious in any other way to the POTW or to the operation of POTW. At no time shall two successive readings of any explosive hazard meter, at the point of discharge into the system (or at any point in the system) be more than five percent nor any single reading over ten percent of the lower explosive limit of the meter. Prohibited materials included, but are not limited to, gasoline, fuel oil, diesel fuel, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides, and any other substances which the District, the State, or the EPA has notified the user is a fire hazard or an explosive hazard to the POTW.

2) Solids which shall include solid or viscous substances which may by reason of their quantity cause or may cause obstruction to the flow in a sanitary sewer or other interference with the operation of the POTW or service connection such as, but not limited to: grease, garbage with particles greater than one-half inch in any dimension, animal guts or tissues, paunch manure, bones, hair, hides, or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, limestone or marble dust, metal, glass, straw, shavings, grass clippings, rags, fabrics, spent grains, spent hops, waste paper, wood, plastic, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud or glass grinding or polishing wastes, cement, concrete, plaster, gravel, hay, hooves, lime slurry, paint, or chemical residues.

3) Corrosive wastewater which shall include wastewater having a pH less than 6.8 or more than 9.0, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the POTW.

4) Toxic wastewater which shall include any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with any wastewater treatment process, to constitute a hazard to humans or animals, to create a toxic effect in the receiving waters of the POTW; to

contaminate the sludge of any POTW systems or to exceed the limitations set forth in a categorical pretreatment standard.

5) Untreated substances which shall included any substance which may cause the POTW's effluent or any other product of the POTW, such as residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process where the POTW is pursuing a reuse and reclamation program. In no case shall a substance discharge to the POTW cause the POTW to be in noncompliance with sludge use or disposal criteria, guidelines, or regulations developed under Section 503 of the Act (33 U.S.C. §1345) or any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to Federal or State statutes applicable to the sludge management method being used.

6) Other prohibited discharges:

a) Any substances which will cause the POTW to violate its CDPS permit or the receiving water quality requirements; or

b) Any wastewater with color exceeding one hundred and fifty units, as measured by the platinum-cobalt standard method; or

c) Any wastewater with turbidity exceeding two hundred and fifty nephelometric turbidity units (NTUs); or

d) Malodorous substances which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for their maintenance and repair or for sampling or monitoring; or

e) Usage of Copper Sulfate. Allow or cause the entry of any copper sulfate products into any wastewater facility, public or private. Brand names under which the product may be sold and/or manufacturers that may distribute copper sulfate include, but are not limited to, the following: Roebic Laboratories K-77 Root Killer; Copper Sulfate fine granular crystals; Zep Root Kill II; Root Clear; Drain Out Root Clear; Chem One LTD; Triangle Brand. (Adopted by Resolution and Order of the Board of Directors of the Monument Sanitation District, November 15, 2007)

f) Any wastewater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW which exceeds 66°C (150°F) or which causes temperature at the headworks of the POTW treatment plant to exceed 40°C (104°F); or

g) Slug loads; or

h) Wastewater containing radioactive wastes or isotopes of such half life or concentration as may exceed limits established by applicable State or Federal regulations; or

i) Any wastewater which causes a hazard to human life or creates a public nuisance.

7) Pollutants described in 40 CFR 403.5 as general and specific prohibitions. The most stringent condition or the condition which provides the greatest level of protection to the POTW and the environment cited in Paragraphs 1) through 6) or 7) of this section shall govern any discharge to the District's system.

b. Categorical Pretreatment Standards. Upon the promulgation of the categorical pretreatment standards for a particular industrial subcategory, developed pursuant to Federal regulations, the categorical pretreatment standards, if more stringent than limitations imposed herein, shall immediately supersede the limitations imposed herein.

c. Specific Pollutant Limitations. No persons shall discharge wastewater containing in excess of the LIMITATIONS ON DISCHARGES as set forth in Table 1 which is incorporated herein by this reference.

d. Other Requirements. State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those contained herein. The District's limitations or requirements on discharges shall apply in any case where they are more stringent than State or Federal requirements or limitations.

e District Right of Revision. The District reserves the right to establish more stringent limitations or requirements on discharges to the POTW if deemed necessary to comply with the objectives presented in Section 1.01 herein.

f Dilution. No user shall ever increase the use of water, or in any way attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in the Categorical Pretreatment Standards, or in any other specific pollutant limitation developed by the District, State or U.S. EPA and/or other Federal regulation.

g. Accidental Discharge. Each industrial user shall provide protection from accidental discharge of material or substances regulated herein. Facilities to prevent accidental discharge of such materials or substances shall be provided and maintained at the industrial user's cost and expense. Detailed plans showing facilities and operating procedures to provide the protection shall be submitted to the District for review, and shall be approved by the District before construction of the facility. No industrial user who commences contribution to the POTW after the effective date hereof shall introduce wastewater into the system until accidental discharge facilities and procedures have been approved by the District. Review and approval of such plans and operating procedures shall not relieve the industrial user of the responsibility to modify the facility as necessary to meet the requirements herein.

1) In the case of an accidental discharge, it is the responsibility of the industrial user to immediately telephone and notify the District of the incident. The notification shall include location of discharge, type of waste, concentration and volume, and corrective actions taken.

2) Written notice. Within five days following an accidental discharge, the industrial user shall submit to the District a detailed written report describing the cause of the discharge and the measure to be taken by the industrial user to prevent similar future occurrences. Such notification shall not relieve the industrial user of any expenses, loss, damage, or liability which may be incurred as a result of damage to the POTW, fish kills, or any other damage to persons or property, nor shall such notification relieve the industrial user of any files, civil penalties, or other liability which may be imposed by this regulation or other applicable law.

3) Notice to employees. A notice shall be permanently posted on the industrial user's bulletin board or other prominent place advising employees to call in the event of an accidental discharge. Employers shall insure that all employees who may cause or suffer such accidental discharge to occur are advised of the emergency notification procedure.

1.04 Wastewater Discharge Permit

a. Non-Critical Wastewater Discharges. No person shall cause or allow the discharge of wastewater into the POTW without a wastewater discharge permit except as follows:

1) Domestic users who have received a District service connection permit; or

2) Industrial users who are non-critical industrial users, as determined by the District and have received a District service connection permit.

b. Critical Wastewater Discharges. No person shall cause or allow a critical industry to connect to the POTW unless such industry shall have obtained a wastewater discharge permit before connecting to and discharging into the POTW.

c. Permit Application. Users required to obtain a wastewater discharge permit shall complete and file with the District an application in the form prescribed by the District. Proposed new critical industries shall apply at least ninety days prior to the proposed connection to, or contribution to, the POTW. In support of the application, the user shall submit, in units and terms appropriate for evaluation, the following information:

1) Name, address, and location of discharge (if different from the address);

2) Standard industrial classification and NAICS identification;

3) Wastewater quality and quantity. Quality characteristics include, but are not limited to those described in Section 1.03 of these regulations as determined by a reliable analytical laboratory;

4) Time(s) and duration of discharge;

5) Average daily and peak wastewater flow rates, including daily, monthly, and seasonal variations, if any;

6) Site plans, floor plans, mechanical and plumbing plans, and details to show all sewer, sewer connections, and appurtenances by size, location, and elevation. If deemed necessary by the District, such plans shall provide for separate system for handling sanitary wastes and industrial wastes;

7) Description of activities, facilities, and plant processes on the premises, including all materials which are to or could be discharged;

8) Where known, the quantity and specific nature of any pollutants in the discharge which are limited by any District, State, or Federal standards or requirements;

9) If additional pretreatment or O & M will be required to meet the District, State, or Federal standards, the schedule by which the user will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable standards and requirements. The following conditions shall apply to this schedule:

   a) The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to meet the applicable standards and requirements;

   b) No increment referred to in Paragraph "a)" shall exceed nine months;

   c) Not later than fourteen days following each date in the schedule and the final date for compliance, the user shall submit a progress report to the District including, as a minimum, whether or not user complied with the increment of progress to be met on such date, and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and steps taken by the user to return the construction to the schedule established.

10) Any other information as required by the District to evaluate the permit application. After evaluation and acceptance of the data furnished, the District may issue a wastewater discharge permit.

d. Permit Modification. Upon promulgation of categorical pretreatment standard and within the time prescribed thereby, the wastewater discharge permit of users subject to such standards shall be deemed revised to require compliance with any part thereof which is more strict than existing standards or conditions of the permit. Where a user, subject to categorical pretreatment standards, has not previously submitted an application for a wastewater discharge permit, the user shall apply for a wastewater discharge permit within thirty days after promulgation of the applicable categorical pretreatment standard. Any user with an existing wastewater discharge permit shall submit to the District within thirty days after such promulgation the information required by subsection c.8) and c.9) of this section.

e. In addition to the foregoing, the terms and conditions of the permit shall be subject to modification by the District during the terms of the permit as limitations or requirements are modified or other just cause exists. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance, as determined by the District.

f. Permit Conditions. Wastewater discharge permits shall be expressly subject to all provisions of these regulations and all other applicable regulations, user charges, and fees established by the District. Permits may be conditioned upon the following:

1) Limits on the average and maximum wastewater constituents and characteristics;

2) Limits on average and maximum rate and time of discharge or requirements for flow regulation and equalization;

3) Requirements for installation and maintenance of inspection and sampling facilities;

4) Specifications for monitoring programs which may include sampling locations, frequency of sampling, number, types and standards for tests and reporting schedules;

5) Compliance schedules;

6) Requirements for submission of technical reports or discharge reports;

7) Requirements for maintaining and retaining records relating to wastewater discharge as specified by the District and affording District access thereto;

8) Requirements for notification of the District of any new introduction of wastewater constituents or any change in character of the wastewater constituents or average volume being introduced into the wastewater treatment system;

9) Requirements for notification of slug loads;

10) Requirements for separate systems to handle sanitary and industrial wastewater, such that in the event that the user's industrial wastewater is or could cause an interference or a potential interference with the POTW, that the industrial wastewater could be severed, preventing discharge into the POTW and still allowing the user's sanitary wastewater to discharge into the POTW;

11) Other conditions as deemed necessary by the District in order to enforce the provisions of these regulations.

g. Permit Duration. A wastewater discharge permit shall be issued for a period not to exceed three years from the date of issue. The user shall apply for a new permit a minimum of ninety days prior to the expiration of the user's existing permit. Any permit may be suspended or revoked for failure to comply with the requirements of these regulations.

h. Permit Transfer Prohibited. A wastewater discharge permit shall not be sold, traded, assigned, transferred, or sublet. Any new industrial user must obtain a wastewater discharge permit regardless of whether a permit previously existed for the same premises.

1.05 Permit Requirements

a. Compliance Date Report. Within ninety days following the date for final compliance with applicable standards or requirements, any industrial user subject to Federal, State, or District standards and requirements shall submit to the District a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by Federal, State, or District standards and requirements and the average, minimum, and maximum daily flow and times for wastewater limited by such standards and requirements. The report shall state whether the applicable standards or requirements are being met on a consistent basis and, if not, what additional O & M or pretreatment is necessary to bring a user into compliance with the applicable standards or requirements. This statement shall be signed by an authorized representative of the industrial user and certified to by a professional engineer licensed in the State.

b. Periodic Compliance Reports

1) Any industrial user subject to a Federal, State, or District standard or requirement after the compliance date of such standard or requirement shall submit to the District during the months of June and December, unless required more frequently in the permit or by the District, a report indicating the nature and concentration of pollutants in the wastewater which are limited by such standards or requirements. In addition, this report shall include a record of all daily flow which during the reporting period exceeded the average daily flow reported in subsection a of this section.

2) The District may impose mass limitations on industrial users which are using flow equalization to meet applicable Federal, State, or District

standards or requirements, or in other cases where the imposition of mass limitations are appropriate. In such cases, the report required by Paragraph (1) of this subsection shall also indicate the mass of limited pollutants in the wastewater of the user. These reports shall also contain the results of sampling and analysis of the discharge, including production and mass of pollutants contained therein which are limited by the applicable standards and requirements.

c. Monitoring Facilities

1) Where required pursuant to these regulations or pursuant to terms and conditions of the wastewater discharge permit, the user shall provide and operate, at his expense, monitoring equipment and facilities sufficient to allow inspection, sampling, and flow measurement of the building sewer systems. The monitoring equipment and facilities shall be situated on the user's premises or such other location as approved by the District.

2) There shall be ample room in or near such monitoring manhole or facility to allow accurate sampling and preparation of samples for analysis. The facility, sampling, and measuring equipment shall be maintained at all times in a safe and proper operating condition at the expense of the user.

3) Whether constructed on public or private property, the sampling and monitoring equipment and facilities shall be provided in accordance with the District's requirements and all applicable local construction standards and specifications. Construction shall be completed within ninety days following written notification by the District unless another date is specified in the wastewater discharge permit.

d. Inspection. The District may inspect the equipment and facilities of any user at any time during normal business hours to ascertain whether they are in compliance with applicable ordinances, rules, and regulations. Occupants of premises where wastewater is created or discharged shall allow the District or its representative entry for purpose of inspection, sampling, records examination, or the performance of any rights or responsibilities under these regulations. The District, State, and EPA shall have the right to set up on the user's property such devices as are necessary to conduct sampling, inspection, compliance monitoring, or metering operations. Where a user had security measures in force which would require proper identification and clearance before entry into their premises, the user shall make necessary arrangements with their security guards so that upon presentation of suitable identification, personnel from the District, State, and EPA will be permitted to enter, without delay, for the purposes of performing their specified responsibilities.

e. Failure to Permit Inspection. In the event a duly authorized officer or agent of the District is refused admission for any purpose, the District may cause sewer service to the premises in question to be disconnected until a District's officer

or agent has been afforded reasonable access to the premises and sewer system to accomplish the inspection or sampling.

f. Sampling. All measurements, tests, and analyses of the characteristics of wastewater to which reference is made herein shall be determined in accordance with Standard Methods or, where not addressed in Standard Methods, in accordance with procedures established by the EPA pursuant to Section (h) of the Act (33 U.S.C. Section 1314 (h)), or with any other test procedures approved by the EPA Administration for the analysis of wastewater. Refer to 40 CFR Part 136 for specific analysis methods. In the event that no special monitoring facility has been required, the point of inspection shall be the downstream manhole in the POTW sewer nearest to the point at which the building sewer is connected to public sewer. All measurements, tests, and analysis, and all sampling shall be at the expense of the user. Sampling shall be done in accordance with schedule in Table 2, which is incorporated herein by this reference.

g. Pretreatment. Users shall provide necessary wastewater treatment as required to comply herewith. Any equipment and facilities required to pretreat wastewater to a level in compliance with these regulations shall be provided, operated, and maintained at the user's expense. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the District for review, and shall be approved in writing by the District before construction of the facility. The review of such plans and operating procedures will in no way relieve the user from the responsibility of modifying the facility as necessary to produce wastewater in compliance with the provision of these regulations. Any subsequent changes in the pretreatment facilities or method of operation shall be reported to the District and must be approved by them prior to the user's initiation of the changes.

h. Publication of List of Non-Complying Users. The District may annually publish in one or more newspapers a list of users that were not in compliance with any applicable requirements or standards at least once during the twelve previous months. Such notification shall also summarize any enforcement actions taken against such during the same twelve months. All records relating to compliance with applicable standards or requirements shall be made available to officials of the EPA or Approval Authority upon request, subject to any limitations contained in State statutes.

i. Confidential Information

1) Information and data on a user obtained from reports, questionnaires, permit application, permit and monitoring programs, and from inspections, shall be available to the public or other governmental agency without restriction unless the user specifically requests and is able to demonstrate to the satisfaction of the District that the release of such information would divulge information, processes, or methods of production entitled to protection as trade secrets of the user.

2) When requested by the user furnishing a report and such report is approved by the District, the portion of a report which might disclose

trade secrets or secret processes shall not be made available for inspection by the public, but shall be made available upon written request to governmental agencies for uses related hereto, the Colorado Discharge Permit System (CDPS), or applicable standards or requirements. Moreover, such portions of the report shall be available for use by the District, State, or any State agency in judicial review or enforcement proceedings involved the user furnishing the report.

3) Information accepted by the District as confidential, shall not be transmitted to any government agency by the District until and unless a ten-day written notification is given to the user by certified mail or personal service.

4) Information submitted to the District shall be subject to the provisions of 40 CFR Part 403.14 and the Colorado Open Records Act (CORA).

1.06 Fees and Charges

a. In addition to the sewer use, fees, and charges provided for in the District Regulations, additional fees and charges may be made as set forth in this section.

1) Damage to facilities. When a user's wastewater causes obstruction or damage, or, because of the nature of wastewater, increases the costs for managing the influent or the sludge of the POTW, the user shall pay for such increased cost.

2) Wastewater discharge permit fees. All non-domestic users shall be subject to wastewater discharge permit fees adopted by the District. A schedule of applicable fees is available at the District office.

3) Review of each user's wastewater permit charge. The District may periodically review the total cost of operation and maintenance of the POTW as well as each user's discharge and will revise fees as necessary to assure equity and sufficient funds to adequately operate and maintain the POTW. If an industrial user has complete in-plant modifications which change that user's discharge, the user can present to the District such factual information, and the District shall determine if the user's fees are to change.

4) Classification of critical industries. Critical industries may be divided into various classifications, including but not limited to, significant contributors and potential contributors, and fees within such classifications may reflect the differing costs to the District.

5) Wastewater analysis fees. Critical industries shall be subject to wastewater analysis fees adopted by the District. A schedule of applicable fees is available at the District office.

1.07 Industrial, Commercial/Institutional Sewer Service Charges

a. Categorization of Users. Each critical, non-critical industrial, commercial, or institutional waste producer operating under these regulations shall be categorized by the District into one of the four categories described hereinafter. The District may utilize general knowledge of the user, inspections, and periodic sampling procedures as they deem necessary to reasonably classify each user. A user may request the District to re-categorize the user to the next higher category. Categorizations may only be reduced by District action.

1) Category 1 – Small waste producers. This category user is defined as one having a probable monthly industrial water discharge of less than fifteen thousand gallons, and BOD and TSS concentrations in the industrial wastewater less than 220 mg/l. In addition, to qualify under this categorization, the customer must meter all water, whether purchased or from a well, through a water flow meter acceptable to the District and accessible during normal business hours to District personnel.

2) Category 2 – Medium size waste producers. This category is defined as one having a probable monthly industrial water discharge of more than fifteen thousand gallons, and BOD and TSS concentrations in the industrial wastewater less than 220 mg/l. In addition the same requirements for a water meter, as in (1), apply.

3) Category 3 – Medium size waste producers with heavy loading. This category user is defined as one having a probable monthly industrial water discharge of less than fifteen thousand gallons, and BOD and TSS concentrations in the industrial wastewater greater than 220mg/l. In addition, the same requirements for water meter, as in (1), apply.

4) Category 4 – Large waste producers. This category user is defined as one having a probable monthly industrial water discharge greater than fifteen thousand gallons, and BOD and TSS concentrations in the industrial wastewater greater than 220mg/l. In addition, the same requirements for a water meter, as in (1), apply.

b. Metering and Sampling Requirements. All design details must be approved by the District.

1) Category 1 users are required only to have a water flow meter(s); and a manhole or suitable sampling point shall be available for sampling the waste.

2) Category 2 users shall install, at the user's expense, a waste flow meter with indicator and totalizer. If a particular industry disposes of all water to waste, and if all water is passed through a flow meter(s), then with District approval, the waste flow meter may be omitted and the water flow meter used to determine volume. A suitable sampling point shall be

provided where District personnel will have access for periodic sampling.

3) Category 3 and 4 users shall install, at the user's expense, a waste flow meter with continuous totalizer indicator and recorder. In addition, an easily accessible sampling point shall be provided which is protected from the weather and suitable for continuous periodic sampling procedures. Adjacent to the sampling point shall be provided an operating refrigerator with a suitable locking device.

4) All sampling and testing shall be accomplished by District personnel or authorized agent at District expense. Sampling points shall be downstream of all waste sources so that the sample represents a composite mixture of the wastes. Flow meters, recorders, and refrigerators shall be of design and manufacture as approved by the District. The installation, including layout and construction, shall be subject to District approval. All flow measuring equipment and refrigerator shall be maintained in constant operating condition by the user. Sampling and testing of Category 3 users shall be on a random basis only for the purpose of checking the general strength of the waste (the user rate shall not be changed based on individual sample results). Should the customer fail to maintain the metering and monitoring equipment, the customer shall be in violation of these Rules and Regulations.

5) Category 4 users shall be sampled at least twice per month on random, representative days, as selected by the District. Samples shall be of the proportional composite type, and the monthly rate shall be based on the recorded flow and sample test results.

c. Rate Schedule and Code Designation

1) Category users shall pay at the rate established by the District. A schedule of applicable rates and fees is available at the District office.

2) The definitions of BOD and Total Suspended Solids and the methods of testing of samples shall be in general conformance with definitions in "Standard Methods" or 40 CFR Part 136.

1.08 Enforcement

a. Administrative Remedies. If any person violates any of the provisions of these regulations or any of the terms and conditions of any wastewater discharge permit, the District, acting through an enforcement committee, is authorized to take one or more of the following actions as the District deems necessary and appropriate in the circumstances:

1) Suspension. The enforcement committee may order wastewater treatment service, service connection permits, and wastewater discharge permits suspended if actual or proposed discharge endangers, or may reasonably endanger, individual health, safety, or

welfare, or the environment, or may cause interference in or to the POTW; or may cause the District to violate any condition or terms of its CDPS Permit. Any such suspension order shall become effective the day after the next regularly scheduled meeting of the District, which is at least five days after the date the suspension order is mailed, unless the District, or appeal by the affected person, shall reverse the suspension order or stay its effect.

2) Emergency suspension. The District may, without prior notice or hearing, order wastewater treatment service, service connection permits, and wastewater discharge permits immediately suspended if actual or proposed discharge immediately and substantially endangers individual health, safety, or welfare, or the environment, or may cause imminent and substantial interference in or to the POTW; or may cause the POTW to violate any condition of its CDPS permit. Any such emergency suspension order shall become effective immediately, and any person notified of such suspension shall immediately stop or eliminate all discharge of industrial waste. The District is also authorized, in such circumstances, to take steps as deemed necessary, including severance of the sewer connection, to prevent or minimize danger or property damage.

3) Reinstatement. Any suspended service or permit shall be reinstated upon proof of elimination of the violation, payment of all costs, and expenses incurred by the District in collection with the suspension and approval by the District of a satisfactory plan to prevent future such violations.

4) Revocation. The District may order wastewater treatment service permanently terminated and wastewater discharge permit revoked, if it is necessary to make a suspension order or emergency suspension order more than three times in any twelve month period. Any such revocation shall become effective the day after the next regularly scheduled meeting of the Board of Directors which is at least five days after the date the revocation order is mailed, unless the Board of Directors, or appeal by the affected person, shall reverse the revocation order or stay its effect.

5) Other. If deemed necessary to prevent danger, property damage, or interference with the POTW, the District may order a user to provide treatment; flow rate control; suitable access facilities, such as a manhole or vault; and periodic sampling, testing, and reporting of the quality and quantity of wastewater being discharged. Any such order shall become effective at the time specified therein, unless the District, on appeal by the effected person, shall reverse the order or stay its effect.

6) Falsifying information and tampering. No person shall knowingly make any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to the terms of these regulations or wastewater discharge

permit, or shall falsify, tamper with or knowingly render inaccurate any monitoring device or method required hereunder.

b. Notification. Any notice or order issued under this section shall be served personally or by registered or certified mail, return receipt requested to the billing, or street address of the user.

c. Appeal

1) Any person desiring to appeal any order or determination of the enforcement committee shall file a written notice of appeal with the Manager of the District within fifteen days of such order or determination. Such notice or appeal shall set forth the nature or the order or determination being appealed, the date of such order or determination, the reason for the appeal, and shall request a hearing before the District.

2) Date of hearing. On receipt of a notice of appeal, the Manager of the District shall set it for hearing at the next regularly scheduled District meeting, is such meeting is at least five days following receipt of the notice of appeal, otherwise for the next meeting thereafter. Notice of the time, date, and place for the hearing shall be mailed to the party filing the notice of appeal. The District may continue the hearing from time to time thereafter, as it deems necessary, without further notice.

3) Conduct of hearing. The District shall act as a quasi-judicial body in the conduct of the hearing. The party appealing and a member of the enforcement committee shall each have the opportunity to present evidence and arguments in support of their positions, and shall have the right to be represented by an attorney, if they so desire. The District shall make findings of fact and may affirm, reverse, or modify the order or determination of the enforcement committee. The findings and decisions of the District shall be mailed to the appealing party, in the matter provided in subsection b of this Section.

1.09 Penalties and Remedies

a. Civil Liability for Expenses. Any person violating the provisions of these regulations or any applicable State or Federal regulations or any terms and conditions of his wastewater discharge permit, shall be liable for any expense, loss, or damage caused the POTW by reason of such violation, including the increased costs, if any, for managing effluent or sludge when such increases are the results of the user's discharge of toxic pollutants.

b. Penalties. Any person violating any of the provisions of these Rules and Regulations shall be subject to a penalty charge imposed by the District for each day for each violation. A schedule of penalty charges established by the District is available at the District office. Additionally, any person who shall be in violation of this provision may be subject to disconnection of sewer service, penalty charges under the Rules and Regulations of the District, and criminal prosecution under the appropriate laws of the State of Colorado or the United

States, or any combination thereof. Any person determined to be in violation of the provision of these Rules and Regulations shall be sent a notice stating the nature of the violation, describing the satisfactory correction, and setting forth a time within which the correction must be completed but in no event to exceed 30 days of the date of mailing or service of said notice. Notice shall be mailed to the last known address of the property owner as shown in the records of the District. Service of notice is complete upon mailing.

c. Liquidated Damages. Any critical discharger who is found to have violated the Rules and Regulations of the District or willfully or negligently failed to comply with the provisions of the District Rules and Regulations, permit or order issued thereunder shall be subject to an assessment of liquidated damages in addition to any penalties, expenses, or pass through fines for each breach, as determined by the District. Each day on which a breach will occur or continue shall be deemed a separate and distinct breach of violation. A schedule of liquidated damage assessments established by the District is available at the District office.

d. Injunctive Relief. The District may petition the district court for injunctive relief restraining any person from the continued violation of these regulations.

e. Civil Fine for Pass Through or Interference (40 CFR Part 403.5 General Prohibitions). In the event that a user discharges such pollutants which cause the POTW to violate any condition of its CDPS Permit and the District is fined by the EPA or the State for such violation, such user shall be fully liable for the total amount of the fine assessed against the District by the EPA or the State.

f. Additional Liabilities. In addition to the penalties and damage provided herein, the District may recover reasonable attorney's fees, engineer's and other consultant's fees, court costs and other expenses of responding to any related instance of non-compliance or litigation from any person found to have violated any provisions of these regulations, or of any permit.

1.10 Severability

a. If any section, subsection, paragraph, or other provision of these Rules and Regulations shall for any reason be held to be invalid or unenforceable, the validity or unenforceability of such section, subsection, paragraph, clause, or other provision shall not affect any of the remaining provisions.

Table 1

LIMITATIONS ON DISCHARGE
SPECIFIC POLLUTANT LIMITATIONS

Pollutant/Pollutant Property	Maximum Concentration in mg/l* Grab Sample	Composite Sample
Ammonia-Nitrogen (as N)	30.0	30.0
Arsenic	0.65	0.25
Boron	2.50	1.00
Cadmium	0.25	0.10
Calcium	20,000	8,000
Chlorinated organic compounds	2.50	1.00
Chlorine demand	30	30
Chromium (hexavalent)	15.0	5.00
Chromium (trivalent)	10.0	4.00
Copper	9.00	3.00
Cyanide (amenable to chlorination)	0.65	0.25
Iron	45.0	15.0
Lead	1.50	0.50
Magnesium	5,000	2,000
Manganese	0.65	0.25
Mercury	0.06	0.025
Nickel	2.50	1.00
Oil and Grease	100	100
Phenols	12.50	5.00
Selenium	0.025	0.01
Silver	0.25	0.10
Sodium	10,000	4,000
Sodium Chloride	12,500	5,000
Sulfates (as S)	1,250	500
Sulfides (as S)	65.0	25.0
Zinc	6.00	2.00

* All concentrations are total for the listed pollutant or pollutant property, except where otherwise indicated

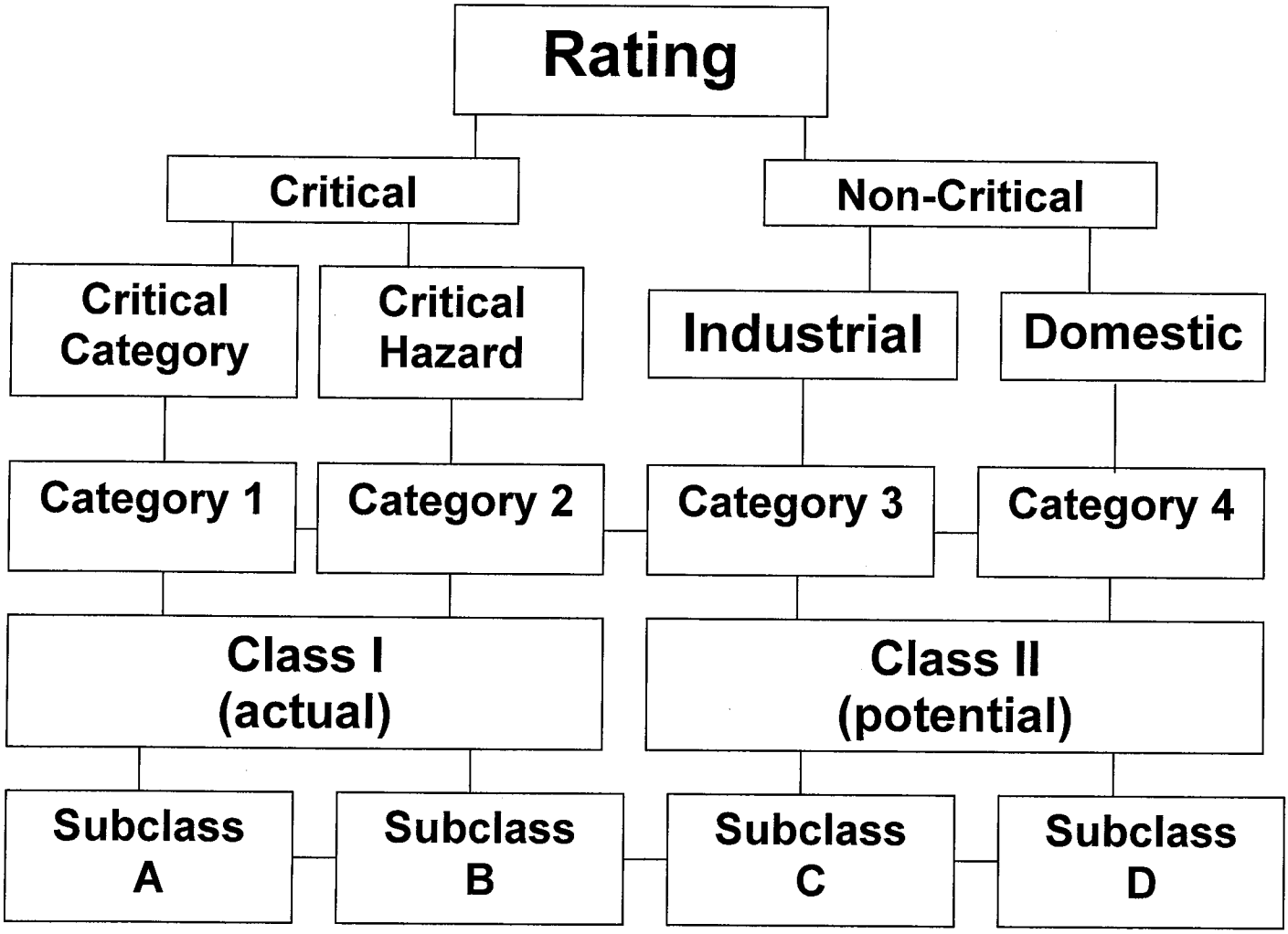
Table 2

SAMPLING SCHEDULE

MONITORING SCHEDULE FOR NON-DOMESTIC DISCHARGES

Category	Self-Monitoring Sampling Frequency	District Sampling Frequency
#1	N/A	Once per year
#2	N/A	Once per year
#3	Once per month	Once every 3 months
#4	Twice per month	Once per month

Once per year, the District shall make a complete analysis. Subsequent sampling may be for only specific pollutants as determined by the District.


Rating
Critical
Non-Critical
Critical Category
Critical Hazard
Industrial
Domestic
Category 1
Category 2
Category 3
Category 4
Class I (actual)
Class II (potential)
Subclass A
Subclass B
Subclass C
Subclass D