

COLUMBIA COUNTY
WATER AND
WASTEWATER
SYSTEMS HANDBOOK



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COLUMBIA COUNTY WATER AND WASTEWATER SYSTEMS HANDBOOK

Prepared By: Columbia County
Board of County Commissioners
Revision Date: August 18, 2011



APPENDIX A
MATERIALS LIST
AND
APPROVED MANUFACTURERS

WATER & WASTEWATER SYSTEMS
HANDBOOK

PREPARED BY:
COLUMBIA COUNTY
BOARD OF COUNTY COMMISSIONERS

APPROVAL DATE: AUGUST 18, 2011



APPENDIX B
BACKFLOW PREVENTERS
AND
CONTROL PLAN

WATER & WASTEWATER SYSTEMS
HANDBOOK

PREPARED BY:
COLUMBIA COUNTY
BOARD OF COUNTY COMMISSIONERS

APPROVAL DATE: AUGUST 18, 2011



APPENDIX C
OIL AND GREASE MANAGEMENT
AND
SURCHARGE PROGRAMS

WATER & WASTEWATER SYSTEMS
HANDBOOK

PREPARED BY:
COLUMBIA COUNTY
BOARD OF COUNTY COMMISSIONERS

APPROVAL DATE: AUGUST 18, 2011



APPENDIX D

DRAWINGS

**WATER & WASTEWATER SYSTEMS
HANDBOOK**

**PREPARED BY:
COLUMBIA COUNTY
BOARD OF COUNTY COMMISSIONERS**

APPROVAL DATE: AUGUST 18, 2011



APPENDIX E

ORDINANCES & MAPS

WATER & WASTEWATER SYSTEMS HANDBOOK

PREPARED BY:
COLUMBIA COUNTY
BOARD OF COUNTY COMMISSIONERS

APPROVAL DATE: AUGUST 18, 2011



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Prepared By: Columbia County
Board of County Commissioners
Approval Date: August 18, 2011

COLUMBIA COUNTY BOARD
OF COUNTY COMMISSIONERS
[Signature]
CHAIRMAN
BCC APPROVED
8/18/11
DATE

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SECTION 1

WATER AND WASTEWATER SYSTEMS

1.01 PURPOSE

The COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS (hereinafter referred to as the County) was formed to plan for and establish management of water and wastewater treatment facilities, transmission, collection, and distribution systems within the Utility Service Area in order to accomplish the following goals:

- A. To plan for and better accommodate water and wastewater users.
- B. To delineate user procedures.
- C. To provide a mechanism allowing service commitment for major capacity requests.
- D. To establish a reserve capacity fee for unused services.
- E. To delineate user service policies.
- F. To establish minimum technical specifications and standards for approval of water and wastewater facilities, transmission, collection, and distribution systems to be constructed within the Utility Service Area.

1.02 DUTIES OF THE COUNTY

The County is authorized and empowered:

- A. To adopt such rules and regulations as the County may deem necessary in transacting its business.
- B. To construct, acquire, improve, maintain and operate water or wastewater systems within the Utility Service Area and the environs thereof, and to acquire by gift, purchase, grant-in-aid of planning, construction, reconstruction or financing, franchises, water or wastewater systems or portions thereof, land, rights or interests of any nature whatsoever in land or water rights connected therewith, and any of the property, real, personal, and tangible or intangible, necessary for such water or wastewater systems.
- C. To operate and maintain such water or wastewater system or systems for its own use and for the use and benefit of the inhabitants and of persons, firms,



corporations, political subdivisions or other public agencies or parties located within the Utility Service Area or the environs thereto, who shall use the facilities and services of such system or systems and to enter into contracts for the supply and distribution or receiving of water with any such persons, firms, corporation, municipalities, special districts, political subdivisions or other public agencies or parties.

- D. To employ and to enter into agreements or contracts with consultants, advisors, engineers, attorneys or fiscal, financial, or other experts for the planning, preparation, supervision, operation and financing of such water or wastewater system or systems, or any part thereof, upon such terms and conditions as to compensation and otherwise as the County shall deem desirable and proper.
- E. To fix and collect fees, rentals or other charges (hereinafter sometimes referred to as "revenues") determined on an equitable basis for the use of the County water and/or wastewater facilities and services.

1.03 DEFINITIONS

Except where specific definitions are used within a specific section, the following terms, phrases, words, and their derivation shall have the meaning given herein when consistent with the context. Words used in the present tense include the future tense, words in the plural number include the singular number and words in the singular number include the plural number. The word "shall" is mandatory, and the word "may" is permissive.

AASHTO	American Association of State Highway and Transportation Officials. Any reference to AASHTO standards shall be taken to mean the most recently published revision unless otherwise specified.
AFBMA	Anti Friction Bearing Manufacturers Association
ANSI	American National Standards Institute. Any reference to ANSI standards shall be taken to mean the most recently published revision unless otherwise specified.
APPLICANT/BUILDER	The person, firm or corporation engaged in developing or improving real estate for use or occupancy.



ASTM	American Society for Testing Materials. Any reference to ASTM standards shall be taken to mean the most recently published revision unless otherwise specified.
AWS	American Welding Society standard specifications. Any reference to AWS standard specifications shall be taken to mean the most recently published revision unless otherwise specified
AWWA	American Water Works Association. Any reference to AWWA Standards shall be taken to mean the most recently published revision unless otherwise specified.
AVB	Atmospheric Vacuum Breaker
BOD ₅	Biochemical Oxygen Demand - means the quantity of oxygen, expressed in parts per million by weight, utilized in the biochemical oxidation of organic matter under standard laboratory conditions for five days at a temperature of 20 degrees Celsius. The laboratory determinations shall be made in accordance with procedures set forth in Standard Methods.
BFV	Butterfly Valve
BUILDER	Used interchangeably with the word Developer, means the person, firm, or corporation engaged in developing or improving real estate for use or occupancy.
BUILDER	Used interchangeably with the word Developer, means the person, firm, or corporation engaged in developing or improving real estate for use or occupancy.



BUILDER'S ENGINEER BUILDER	An engineer or engineering firm registered with the State of Florida Department of Professional Regulation, retained by the Builder to provide professional engineering services for a project. used interchangeably with the word Developer, means the person, firm, or corporation engaged in developing or improving real estate for use or occupancy.
COD	Chemical oxygen demand means the quantity of oxygen, expressed in parts per million by weight, utilized in the oxidation of inorganic matter satisfied to 97.5 percent during 24 hours at a temperature of 20° Celsius, in accordance with procedures set forth in Standard Methods.
COUNTY BUILDER'S ENGINEER	The Columbia County Board of County Commissioners and/or its designated representative(s). an engineer or engineering firm registered with the State of Florida Department of Professional Regulation, retained by the Builder to provide professional engineering services for a project.
CONTRACTOR COUNTY	The person, firm, or corporation with whom the contract for work has been made by the Owner, the Builder or the Columbia County Board of County Commissioners and/or its designated representative(s).
CHLORINE REQUIREMENT	The amount of chlorine, in parts per million by weight, which must be added to sewage and/or industrial waste to produce a specified residual chlorine content, or to meet the requirements of some other objective, in accordance with procedures set forth in Standard Methods.



CONTROL EFFLUENT STRUCTURE	A permanent structure installed in the building sewer for the purpose of screening, measuring and sampling industrial waste.
COOLING WATER	Means the clean wastewater from air conditioning, industrial cooling, condensing and similar apparatus and from hydraulically powered equipment. In general, cooling water will include only water which is sufficiently clean and unpolluted to admit of being discharged, without treatment or purification, into any natural open stream or watercourse without offense.
CONTRACTOR	The person, firm, or corporation with whom the contract for work has been made by the Owner, the Builder or the County.
DI	Ductile Iron Pipes
DR	Dimensional Ratio
DIPRA	Ductile Iron Pipe Research Association.
DRAWINGS	Engineering drawings prepared by an Engineer to show the proposed construction.
DWELLING	A living unit, house, mobile home, apartment or building used primarily for human habitation. The word "dwelling" shall not include hotels, motels, tourist courts or other accommodations for transients, nor shall it include dormitories, fraternities, sororities, rooming houses, business or industrial facilities.



ERUs	Equivalent Residential Units The average estimated daily water demand for a residential dwelling unit, as set out in the Florida Administrative Code 64E-6.008, Table II, for estimated domestic sewage flows, as may, from time to time, be amended. Presently, one (1) ERU equals two hundred fifty (250) gallons per day.
ENGINEER	An engineer or engineering firm registered with the State of Florida Department of Professional Regulation
FDOT	The State of Florida, Department of Transportation
FDEP	Florida Department of Environmental Protection.
FDHRS	State of Florida Department of Health and Rehabilitative Services
FPS	Feet Per Second
FIXED SOLIDS	Residue remaining after burning off volatile solids at 1,200 degrees Fahrenheit.
FORCE MAIN	A pipeline on the discharge of a pump carrying sewage flow under pressure.
GPD	Gallons Per Day
GV	Gate Valve
GROUND GARBAGE	The residue from the preparation, cooling and dispensing of food for commercial or industrial purposes.
GEOTECHNICAL/SOILS ENGINEER	A Registered Florida Engineer who provides services related to terrain evaluation and site selection, subsurface exploration and sampling, determination of soil and rock properties, foundation engineering, settlement and seepage analysis, design of earth and earth retaining



	structures, the design of subsurface drainage systems and the improvement of soil properties and foundation conditions, and testing and evaluation of construction materials.
HDPE / PE	Polyethylene, cylindrical, rigid piping for the transport of fluids and solids used in industrial and residential applications.
HP	Horsepower
HANDBOOK	This Columbia County Water and Wastewater Systems Document.
IEEE	Institute of Electrical and Electronic Engineers
ID	Inside Diameter
IMPACT FEES	Fees imposed and collected to provide for expansion of the utility system necessary to provide service to additional utility consumers.
INDUSTRIAL WASTES	The liquid or water carried wastes of any business or commercial operation or industrial process not clearly included within the definitions of sanitary sewage, stormwater, cooling water or subsoil drainage.
KW	Kilowatt
LOT	A part of a subdivision or any other parcel of land intended as a unit for building, development or transfer of ownership or both. Parcels of land less than one (1) acre for commercial projects or multifamily dwellings and parcels of land for each single-family dwelling shall be considered lots.
MG/L	Milligram Per Liter
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	“The United States Department of Transportation Manual on Traffic Control Devices”, latest edition
METER (WATER)	The measuring device owned and installed by the



	county on a service line for the purpose of accurately measuring water use by a consumer.
MULTIFAMILY DWELLING	A building which contains two (2) or more living units.
NEMA	National Electrical Manufacturers Association. Any reference to NEMA Standards will be taken to mean the most recently published revision unless otherwise specified
NPSHR	Net Positive Suction Head Requirements
NSF	National Sanitation Foundation. Any reference to NSF Standards shall be taken to mean the most recently published revision unless otherwise specified.
OD	Outside Diameter
OSHA	The Federal Occupational Safety and Health Administration.
OS&Y	Outside Screw and Yoke
OWNER	The person, firm, corporation or governmental unit holding right of possession of the real estate upon which construction is to take place.
pH	Means the logarithm (base 10) of the reciprocal of the hydrogen ion concentration expressed in moles per liter. It shall be determined by one of the procedures outlined in Standard Methods.
PPM	Parts per million means a weight-to-weight ratio. The parts per million value multiplied by the factor 8.345 shall be equivalent to pounds per million gallons of water.
PSI	Pounds Per Square Inch



PVB	Pressure Type Vacuum Breaker
PLANS	Drawings as defined herein above.
PUMPING STATIONS	A structure housing pumps and appurtenances to lift sewage from a low level to a higher level sewer and/or waste treatment facilities.
RTU	Remote Telemetry Units used for monitoring water and wastewater systems.
REGULATOR FACILITY	A structure, and related appurtenances whose function is to limit the flow and/or slugs to a sewer and/or waste treatment facilities to a predetermined waste strength.
SDR	Standard Dimension Ratio
SS	Suspended solids that either float on the surface of or are in suspension in water, sewage or industrial waste and which are removable by a laboratory filtration device. Quantitative determination of suspended solids shall be made in accordance with procedures set forth in the "standard methods.
SERVICE	The readiness and ability on the part of the county to furnish water or sewer service to the consumer on demand. Thus, the maintenance of water pressure at the point of delivery or presence of a wastewater service lateral shall constitute the rendering of service irrespective of whether the consumer makes any use of it.
SEWAGE (NORMAL)	A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, having the following limiting chemical characteristics: (1) BOD five-day 20 degrees Celsius: 200 ppm (maximum 450 ppm). (2) Suspended solids: 200 ppm (maximum 350 ppm).



	<p>(3) Hydrogen ion concentration: pH 5.0 to 9.5.</p> <p>(4) Chlorine demand: (30 minutes room temperature) 25 ppm.</p> <p>(5) Grease: 100 ppm.</p>
SEWAGE (SANITARY)	Sewage, which is derived principally from dwellings, business buildings, and institutions, excluding stormwater and surface water and industrial wastes.
SEWER	A pipe or conduit for conveying sewage or any other waste liquids, including stormwater, surface water and groundwater drainage to the systems designed to carry this waste.



SEWER COMBINED	A sewer receiving a mixture of stormwater and sanitary sewage with or without industrial wastes.
SEWER CONNECTION	Connecting sewer pipe installed by the County from the sanitary sewer in the street, alley, or right-of-way to the point of connection with the building sewer.
SEWER MAIN	That part of the sewer system intended to serve more than one sewer connection and located within public space, public right-of-way or public easement.
SEWER (PRIVATE)	A sewer, either in private property or in a public street, which has not been constructed by a public agency.
SEWER (PUBLIC)	Means a sewer provided by or subject to the jurisdiction of the county. It shall also include sewers within or outside the boundaries that serve one or more persons and ultimately discharge into the city sanitary or combined sewer system, even though these sewers may not have been constructed with county funds.
SEWER SYSTEM	All facilities owned by the county for collecting, pumping, treating, and disposing of sewage and industrial wastes.
SINGLE FAMILY DWELLING	A building containing not more than one (1) living unit. A single lot or living unit of a multiple-family dwelling where each living unit is constructed on a separate lot. Mobile homes containing one (1) living unit not in approved mobile home parks are considered single-family dwellings.
STANDARD DRAWINGS	Detailed drawings in this Handbook related to water and wastewater main materials and installation.



STANDARD SPECIFICATIONS	“State of Florida, Department of Transportation, Standard Specification for Road and Bridge Construction”, latest edition.
THW / THWN	Is the designation for Thermoplastic High Water resistant Nylon coated insulation material, temperature rating and condition of use (wet location) for electrical wire and cable. Used in alternating current (AC) electrical distribution systems of buildings of all types and sizes throughout North America. Typically used at voltage levels ranging from 110-600 volts.
TRAFFIC CONTROL AND SAFE PRACTICES “	State of Florida, Department of Transportation Manual on “Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operation”, latest edition.
UL	Underwriters Laboratories
UAG	Utility Accommodation Guide – The “State of Florida Department of Transportation Utility Accommodation Guide”, latest edition.
UTILITIES	Utilities Department of Columbia County
UTILITY SERVICE AREA	Water and wastewater service area defined by the County.
WATER MAINS	Water transmission mains, distribution mains, pipes, fittings, valves, hydrants, services, meters and miscellaneous related appurtenances.
WATER MANAGEMENT DISTRICT	Suwannee River Water Management District



WATERCOURSE	A channel, ditch, drainage canal, canal or waterway in which a flow of water occurs, either continuously or intermittently.
WASTEWATER MAINS	Wastewater gravity sewers, force mains, pump stations, fittings, valves, service laterals, and miscellaneous related appurtenances, water transmission mains, distribution mains, pipes, fittings, valves, hydrants, services, meters and miscellaneous related appurtenances.
WORK	The labor, materials, equipment, supplies, services and other items necessary for the execution, completion and fulfillment of the contract.



1.04 CRITERIA OF REVIEW

No water or wastewater facility or associated transmission and distribution lines may be constructed in the Utility Service Area without obtaining prior County approval. The County evaluates applications for approval to construct facilities or associated lines based upon the following criteria:

- A. Compliance to the procedures and technical specifications of County, as contained within this Handbook.
- B. Compliance with County zoning regulations where applicable.
- C. Compliance with the Comprehensive Plan as amended.
- D. Compliance and securing of County, Water Management District, FDOT and FDEP permits are required for each project.
- E. No application for approval shall be granted which fails to comply with the above criteria.

1.05 GENERAL INFORMATION

- A. The information set forth in this document is intended to provide minimum standards for approving design and construction of water and wastewater facilities, transmission, collection and distribution systems.
- B. It shall be the responsibility of the Applicant to secure proper existing utility information, and prepare drawings (including plan and profile sheets) in accordance with these minimum standards. It remains the right of the Applicant to exceed these standards.
- C. Construction drawings shall contain County approved plan and profile sheets showing all utilities and storm drains. No changes shall be made on approved drawings without approval of the County and construction shall not begin prior to plan approval by County.
- D. Construction drawings submitted to the County to be the latest revision. Contractor must have a County approved set of Drawings and Specifications on the project site. This set will be the only official reference set for construction.
- E. Contractor shall use accurately marked piping and covers (manholes, valves, etc.) for any piping projects.



- F. Applicant shall furnish three (3) copies of shop drawings plus any copies required by Applicant to the County for approval prior to construction on all materials incorporated in a project.

1.06 PLANS AND SPECIFICATIONS

- A. All submitted plans shall be standard size sheet (30-inches by 42-inches, 24-inches by 36-inches or 11-inches by 17-inches) with title block. Graphic scale(s) shall be provided on each sheet and all lettering shall be 1/8-inch or larger to permit photographic reproduction. Submittal of specifications will only be required when special facilities outside the scope of this Handbook are proposed. All plans sheets and the title page of submitted specifications must be signed, sealed and dated by the Builder's Engineer.
- B. Whenever possible, the entire water and wastewater systems shall be shown on a single Master Plan. The Master Plan shall indicate the general locations of all mains, manholes, valves, hydrants, services and service laterals with respect to the proposed development improvements and the existing water and wastewater systems. Main sizes shall be indicated on the Master Plan.
- C. All gravity sewers, all wastewater force mains, and off-site water mains shall be drawn in plan and profile. On-site water mains may be shown in plan view only.

Whenever possible, on-site water and wastewater systems shall be shown on the same plans sheet. As a minimum, the plan and profile drawings shall include the following information:

1. General information such as north arrow, names of designer and engineer, revision block with dates, graphic scale(s) and sheet number.
2. Profile with elevations at 100-foot interval, or more frequently if required by good design practice.
3. Development layout with horizontal and vertical controls.
4. All conflicts with other utility and drainage systems.
5. All manhole locations and rim elevations for manholes outside of paved areas.



6. Pipe data including size, lengths, material, and slopes.
 7. Size, type, and locations of fittings, valves, hydrants, air release/vacuum relief, and other related appurtenances.
 8. Limits of pipe deflection.
 9. Limits of special exterior coatings.
 10. Limits of special bedding requirements.
 11. Pipe restraint requirements.
 12. Details of connection to existing systems.
 13. Location(s) and general layout of wastewater pumping stations.
 14. Construction notes regarding cover, horizontal and vertical control, special construction requirements, and references to standard and special details.
- D. The plans shall include all applicable Standard Drawings as shown in this Handbook. Special details shall be prepared by the Builder's Engineer for aerial and underwater crossings of rivers, streams, canals and ditches. Other special details shall be prepared by the Builder's Engineer as required.
- E. The master plan shall be prepared at a scale not to exceed 1-inch to 200-feet. Plan and profile sheets shall not exceed a scale of 1-inch to 50-feet. Special details shall be of sufficiently large scale to show pertinent construction information.

1.07 ADMINISTRATIVE PROCEDURES

- A. This section covers all water and wastewater improvements that are to be dedicated to the County. Such water and wastewater improvements shall be designed, reviewed, constructed and accepted in accordance with the criteria established herein.



- B. Design of water and wastewater improvements shall be in compliance with the design standards and the specifications outlined in this Handbook. Plans will be reviewed and approved by the County as part of the site plan review process. The review process consists of the following steps:
1. Site plan review application/plans/fee submittal.
 2. Application/plans review by County.
 3. Comments returned to Builder.
 4. Final plan submittal and payment of County fees.
- C. The Builder shall provide daily inspection of the project work as needed for FDEP Certification of Completion by the Builder's Engineer. The County shall make periodic inspections of the construction for general conformance to these standards and specifications.
- D. The County may require that the Builder post a performance bond for the project. If a bond is required it shall be executed by a company authorized to do business in the State of Florida that is satisfactory to the County, payable to the County in the amount of 100 per cent of the estimated construction cost of all required water and wastewater improvements to be owned and maintained by the County. Such bond shall guarantee maintenance of all improvements intended to be owned and maintained by the County for a one (1) year period, and the materials, workmanship and structural integrity of water and wastewater systems, and miscellaneous related facilities, excluding mechanical equipment for a one (1) year period, commencing after Notice of Clearance by the FDEP. The manufacturer's warranty will be acceptable for mechanical equipment. As an alternative to the provision of a surety bond, the Builder may provide for the deposit of cash in an escrow account or a letter of credit acceptable to the County.
- E. The Builder shall be responsible for completing all documentation to certify completion of the project and clearance for use from the regulatory agencies. Copies of all documents shall be provided to the County. Service will be actuated only upon receipt by the County of the completion documents.



1.08 LIST OF MATERIALS AND APPROVED MANUFACTURERS

A list of Materials and Approved Manufacturers for the various products specified in this Handbook is included in Appendix A. It is the intent of the County to review and update Appendix A as appropriate to ensure efficient operation of the services and facilities under the jurisdiction of this Handbook. For this purpose, the County shall evaluate technical submittals from interested manufacturers or suppliers at least once every three (3) years.

1.09 PERSON TO CONTACT

Key persons to contact concerning this Handbook are as follows:

Dale Williams, County Manager
COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
PO Box 1529
Lake City, FL 32056-1529
(386) 755-4100

1.10 PROCEDURE FOR OBTAINING CAPACITY

Applications for wastewater or water capacity shall be submitted to the County. Applications shall consist of appropriate forms and documentation as delineated in Section 2 and shall be available from the County. Applications will be given a preliminary screening when submitted and any incomplete or incorrect applications will be returned to the applicant for necessary revisions. Accepted applications shall be entered on a categorical Pending Wastewater or Water Capacity List. Applications will be classified by the following categories:

- A. Subdivision Single Family: Applicants desiring to build multiple single family residences.
- B. Large Multi-Family: Applicants desiring to build multiple multi-family residential units.
- C. Large Commercial/Industrial/Institutional: Applicants for commercial development whose requested capacity allocation is in excess of 3,375 GPD.
- D. Agricultural: Applicants requiring irrigation water for agricultural purposes.

Placement on a list will serve to confirm receipt of a valid application and insure an equitable "First Come - First Served" processing of applications. Applicants will be notified by certified



mail that capacity is available for allocation for their specific project and advised as to any additional information or documentation required to facilitate review of their application.

Applicants will be required to provide such information or otherwise perfect a pending application within thirty (30) calendar days from notification by the County. Failure to provide requested information within this time will result in removal of the application from the appropriate Pending Wastewater Capacity or Pending Water Capacity List.

Following review, processing, and approval of the application and Standard Developer's Agreement by the County, the Wastewater and/or Water Fees will be calculated for the project. Payment of the Wastewater and/or Water Fees shall constitute a reservation of capacity and will remain as such, subject to complete compliance with other provisions of the policy.

To obtain wastewater and/or water capacity allocations, the property for which capacity application is made must be appropriately zoned and platted to support the proposed development.

In cases of applications for capacity allocations for non-residential developments, the applicant shall provide sufficient information to facilitate a reasonable estimate of capacity needs and determination of the Wastewater and/or Water Fees. Capacity will be reserved based on this estimate and payment of the prescribed Fees; however, upon completion of final building plans, the plans shall be submitted for re-evaluation of capacity needs and re-computation of the Fees.

1.11 PAYMENT OF FEES

Fees as adopted by the County shall be applied in conjunction with each application. Fees shall consist of all applicable connection and impact fees and contributions-in-aid-of-construction for the system connection. Payment of the Fees will be as follows:

- A. At the time of application for capacity, and following Fee determination, the applicant will be required to pay 100-percent of the Fees as a condition of capacity reservation. Failure to make payment within the specified time frame will result in removal of the application from the appropriate Pending Capacity List.

1.12 REGULATORY PERMITS

All permits required from any federal, state and local government entity having jurisdiction over the facilities proposed to be installed shall be obtained by the applicant. Any application which fails to meet the requirements of all federal, state and local governing bodies will be deemed incomplete by the County.



1.13 ALLOCATION FACTORS AND LIMITATIONS

Evaluations of the County's Utility System have resulted in Equivalent Residential Unit (ERU) flows of 350 GPD for water and 250 GPD for wastewater. In reserving and allocating capacity for applications submitted to the County the ERU factor method or one of the methods outlined in Section 2 shall be used. The method selected shall be approved by the County.

ERU's may be amended from time to time based on evaluations of the County's Utility System.

1.14 CAPACITY RESERVATION OR ALLOCATION RECAPTURE

Having obtained a wastewater and/or water capacity reservation or allocation, the reservation or allocation shall be used and applied only with respect to the property for which the application for wastewater and/or water capacity has been made and approved. The reservation or allocation shall inure to the property, subject to the provisions of this policy. The applicant is not otherwise permitted to sell, lease, sublet, assign, lend or transfer a capacity reservation or allocation without the prior notification and approval of County. To insure maximum beneficial utilization of the available wastewater and/or water capacity, County reserves the right to recapture capacity reservations or allocations, or parts thereof, for failure of the applicant to meet the condition of authorization, or to responsibly and timely prosecute the development of the project for which capacity was obtained. County's sole responsibility in recapturing previously reserved or allocated capacity, or parts thereof, will be to refund the Wastewater and/or Water Fees, or portions thereof, paid by the applicant for said capacity without interest.

County may institute the recapture of reserved or allocated wastewater or water capacity under the following circumstances:

- A. Violation of the prohibition against transfer of a capacity reservation or allocation, or failure to provide requisite notification to the County of any change in ownership of the property for which a reservation or allocation has been obtained.
- B. Failure of those applicants who have previously obtained capacity allocations in the existing system to pay outstanding Wastewater or Water Fees and complete actions leading to utilization of such capacity allocation.
- C. Failure to comply with the requirements of the County, as from time to time amended.

County shall give the applicant, or successor in interest according to County records, thirty (30) calendar day's written notice of its intent to recapture reserved or allocated wastewater or water capacity as provided above. The notice shall contain the basis for the intended recapture and



state what corrective action is required to preserve the capacity reservation or allocation. During the thirty (30) day period, the applicant may take corrective action to come into compliance with the requirements of the policy. Any recapture of capacity, as provided in this policy is subject to review by the County.

1.15 FEES SUBJECT TO CHANGE

Fees may be changed at any time, subject to approval by the County. Applicants who have secured capacity reservations or allocations under this policy will not be subject to such changes provided that they are in compliance with the provisions of this policy. Applications made subsequent to changes in the Wastewater or Water Fees will be subject to such changes.

1.16 SEPTIC TANK POLICY

In addressing the wastewater treatment capacity needs of the County, it is recognized that properly designed, constructed and maintained septic tank systems can be of significant benefit. Accordingly, applicants for service will be advised that, should they desire, County may permit septic tank construction within County, in lieu of connection to public wastewater systems, subject to an appropriately documented request certified by a Professional Engineer registered in the State of Florida and the approval of local and state regulatory agencies.

1.17 SYSTEM EXTENSION POLICY

For water service, if a request is made beyond the limits of the present distribution system, County may install a main to the property line, in accordance with applicable County Rules and Regulations. Where the length of the extension is longer than the maximum allowed under applicable Rules and Regulations, the water department shall make determination as to whether or not to provide service based on economic, public health and system integrity consideration. In the event the application is determined to be economically unfeasible, service may still be provided if the persons requesting such service will pay all costs in connection therewith.

1.18 BACKFLOW PREVENTION POLICY

Applications for water/wastewater service shall comply with the County's Backflow Prevention Policy as presented in Appendix B of this Handbook.

1.19 OIL & GREASE POLICY

Applications for water/wastewater service shall comply with the County's Oil & Grease Policy as presented in Appendix C of this Handbook.



SECTION 2.

CAPACITY ALLOCATION

2.01 GENERAL

This Section summarizes the basis for calculating the number of ERUs for proposed new developments. As summarized in Section 1.13, an ERU is equivalent to 350 GPD for water and 250 GPD for wastewater. Capacity allocations are defined for the following: (a) potable water, (b) irrigation, and (c) wastewater.

2.02 POTABLE WATER CAPACITY ALLOCATION

- A. General: Potable water capacity allocations will be calculated from the number of equivalent ERU's as shown in Table 2-1 times the proposed number of Units for the development. Proposed new residential developments will be based on the ERU's as shown in the Table. Proposed new commercial developments will be based on metered water demands for similar facilities presently being served by the County's water system. Basis will be for twelve (12)-months of averaged metered billings. Industrial basis will be from Engineering Reports for the project.

TABLE 2-1

ERU DETERMINATION SCHEDULE

<u>Establishment</u>	<u>Unit</u>	<u>ERU Factor</u>
Residential		
Single Family Home	Per Unit	1.0
Duplex (1 or 2 bedrooms)	Per Unit	0.8
Duplex (3 or more bedrooms)	Per Unit	1.0
Multi-Family (1 or 2 bedrooms)	Per Unit	0.8
Multi-Family (3 or more bedrooms)	Per Unit	1.0
Mobile Home (1 or 2 bedrooms)	Per Unit	0.8
Mobile Home (3 or more bedrooms)	Per Unit	1.0



Commercial

Metered Flows for Comparable Establishment

Industrial

Determined Based on Engineering Report

- B. Meter Sizing: Potable water meters will be sized by the instantaneous demand flow as provided by the Builder. Meter sizes are shown for the following instantaneous demands.

<u>Instantaneous Demand</u>	<u>Meter Size</u>
0-15 GPM	5/8 inch
16-25 GPM	3/4 inch
26-37 GPM	1 inch
38-75 GPM	1 1/2 inch
76-120 GPM	2 inch
121-225 GPM	3 inch
226-350 GPM	4 inch
351-750 GPM	6 inch

2.03 IRRIGATION WATER CAPACITY ALLOCATION

- A. Irrigation demands will be estimated by the Builder. The Builder will submit to the County a complete plan of the proposed irrigation system with an accompanying engineering report calculating the irrigation demands.

Meter Sizing: The following meters will be used for the projected demands.

Demand	Meter Size
80-400 GPM	4 inch
130-900 GPM	6 inch
300-1500 GPM	8 inch



2.04 WASTEWATER CAPACITY ALLOCATIONS

- A. General: Wastewater Capacity allocations will be based on the unit equivalencies as shown in Table 2-1 times 250 GPD/ERU.

2.05 CONNECTION PROCEDURES AND APPLICATION FORMS

A. Stepwise Connection Procedure

1. Applicant shall obtain a copy of this Handbook for his\her use.
2. Applicant reviews and becomes familiar with the information contained-herein.
3. Applicant submits Capacity Application Forms as provided by the County.
4. Applications and Capacity submittal reviewed by the County.
5. The County notifies applicant concerning connection fees and Capacity allocation requirements.
6. All required estimated connection fees and the administrative fee due to the County will be paid by the applicant upon execution of the Developer Agreement at the time of closing.
7. Applicant completes final plans and specifications for improvements.
8. Applicant submits final plans and specifications to the County and regulatory agencies as described elsewhere in this Handbook for review and approval.
9. Final plans and specifications reviewed by the County and, if required, adjustments made to required connection fees and Capacity allocation.
10. All required adjustments to connection fees due to the County will be paid prior to construction.
11. Applicant provides the County with construction schedule.



12. After receipt of regulatory permits and copies delivered to the County, construction forces may begin work.
13. County construction forces will make required connections, tie-ins, set required meters and notify Applicant immediately upon completion.



SECTION 3

GENERAL CONSTRUCTION REQUIREMENTS

3.01 GENERAL

- A. This Section sets forth the general requirements for construction and installation of water and wastewater utility facilities.

3.02 GRADES, SURVEY LINES, AND PROTECTION OF MONUMENTS

- A. Grades: All Work shall be constructed in accordance with the lines and grades shown on the Plans. The full responsibility for keeping alignment and grade shall rest upon the Builder.

Bench marks and base line controlling points shall be established prior to beginning Work. Reference marks for lines and grades as the Work progresses will be located to cause as little inconvenience to the prosecution of the Work as possible. The Builder shall so place excavation and other materials as to cause no inconvenience in the use of the reference marks provided. Builder shall remove any obstructions placed contrary to this provision.

- B. Surveys: The Builder shall furnish and maintain, at his own expense, stakes and other such materials, and give such assistance, including qualified helpers, for setting reference marks to the satisfaction of the the County and the Engineer. The Builder shall check such reference marks by such means as he may deem necessary and, before using this, shall call the County's attention to any inaccuracies. The Builder shall, at his/her own expense, establish all Working or construction lines and grades as required from the reference marks, and shall be solely responsible for the accuracy thereof. The Builder shall, however, be subject to the check and review of the County.
- C. Monument Preservation: Property corners and survey monuments shall be preserved using care not to disturb or destroy them. If a property corner or survey monument is disturbed or destroyed during construction, whether by accident, careless Work, or required to be disturbed or destroyed by the construction Work, said property corner or survey monument shall be restored by a land surveyor registered in the State of Florida. All costs for this Work shall be paid for by the Builder.



3.03 UTILITY COORDINATION

- A. Location of Utilities: Prior to proceeding with trench excavation the Builder shall contact all utility companies in the area to aid in locating their underground services. It shall be the Builder's responsibility to contact utility companies at least three (3) normal working days before starting construction. The Builder shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground utilities may be determined.

The Builder shall take all reasonable precautions against damage to existing utilities. However, in the event of a break in an existing water main, gas main, sewer or underground cable, the Builder shall immediately notify the responsible official of the organization operating the interrupted utility. The Builder shall lend all possible assistance in restoring services and shall assume all cost, charges, or claims connected with the interruption and repair of such services.

- B. Deviations Occasioned by Structures or Utilities: Wherever obstructions are encountered during the progress of the Work and interfere to such an extent that an alteration in the Plans is required, the Builder shall effect a resolution of the conflict with their Engineer. The resolution will be reviewed and approved by the County prior to proceeding with the Work.
- C. Test Pits: Test pits for the purpose of locating underground pipeline, utilities, or structures in advance of the construction shall be excavated and backfilled by the Builder. Test pits shall be backfilled immediately after their purpose has been satisfied and maintained in a manner satisfactory to the County. The costs for such test pits shall be borne by the Builder.

3.04 MAINTENANCE OR TRAFFIC AND CLOSING OF STREETS

- A. The Builder shall carry on the Work in a manner which will cause a minimum of interruption to traffic. Where traffic must cross open trenches, the Builder shall provide suitable bridges at street intersections and driveways. The Builder shall post suitable signs indicating that a street is closed and necessary detour signs for the proper maintenance of traffic. Prior to closing of any streets the Builder shall notify and obtain the approval of responsible authorities and the County.

Unless permission to close a street is received in writing from the proper authority (County, FDOT, etc.), all excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Builder's operations cause traffic hazards, he shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety satisfactory to the County.



Detours around construction will be subject to the approval of the authority having jurisdiction and the County. Where detours are permitted, the Builder shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured the Builder shall expedite construction operations. Ancillary costs associated with the detour will be the responsibility of the Builder.

It shall be the sole responsibility of the Builder to take precautions to prevent injury to the public due to open trenches. Night watchmen may be required or police protection provided while Work is in progress. The Builder shall be fully responsible for damage or injuries whether or not police protection has been provided.

3.05 PROTECTION OF PUBLIC AND PROPERTY

- A. **Barricades, Guards and Safety Provisions:** The Builder shall be solely responsible for adhering to the rules and regulations of OSHA and appropriate authorities regarding safety provisions. To protect persons from injury and to avoid property damage, adequate barricades, construction signs, lights and guards as required shall be placed and maintained by the Builder at his/her expense during the progress of the Work and until it is safe for traffic to use the roads and streets. All material piles, equipment and pipe which 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 signage and barricades shall be in accordance with FDOT's manual on "UNIFORM TRAFFIC CONTROL DEVICES AND THE TRAFFIC CONTROL AND SAFE PRACTICES MANUAL".
- B. **Protection of Utility Structures:** Temporary support, adequate protection and maintenance of all underground and surface utility structures including drains, sewers, manholes, hydrants, valves, valve covers, power poles and miscellaneous other utility structures encountered in the progress of the Work shall be furnished by the Builder at his/her expense. Any such structures which may have been disturbed shall be restored upon completion of the Work.
- C. **Open Excavation:** All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Builder shall, at his/her own expense, provide suitable and safe bridges with hand railings and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. The length of open trench will be controlled by the particular surrounding conditions, but shall be limited to 300-feet unless otherwise approved by the County. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the County may require special construction procedures such



as limiting the length of open trench, fencing, prohibiting excavated material in the street and requiring that the trench shall not remain open overnight. The Builder shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment or other obstacles which could be dangerous to the public shall be well lighted at night.

- D. Protection of Trees and Shrubs: All trees and shrubs not shown to be removed on the Plans shall be protected by the Builder at his/her expense. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Builder or his employees shall be replaced by him with new stock of similar size and age at the sole expense of the Builder.
- E. Protection of Lawn Areas: Lawn areas shall be left in as good or better condition as before starting of the Work. Where sod is to be removed it shall be carefully restored with new sod of the same type.
- F. Restoration of Fences: Any fence, or part thereof, that is damaged or removed during the course of the Work shall be replaced or repaired by the Builder and shall be left in as good a condition as before the start of the Work. The manner in which the fence is repaired or replaced and the materials used shall be subject to the approval of the County.
- G. Protection Against Siltation and Bank Erosion: The Builder shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage ditches. The Builder, at his own expense, shall remove any siltation deposits and restore to original grade.

3.06 ACCESS TO THE PUBLIC SERVICES

- A. Neither the materials excavated nor the materials or equipment used in the construction of the Work shall be so placed as to prevent free access to public services. All excavated material shall be piled in a manner that will not endanger the Work and that will avoid obstructing streets, sidewalks and driveways. Excavated material suitable for backfilling shall be stockpiled separately on the site. No material shall be placed closer than 2-feet from the edge of an excavation. Fire hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, or other utility controls shall be left unobstructed and accessible until the Work is completed. Gutters shall be kept clear or other satisfactory provisions made for street drainage. Natural water courses shall not be obstructed or polluted. Surplus material and excavated material unsuitable for backfilling shall be transported and disposed of off the site in disposal areas obtained by the Builder.



3.07 PUBLIC NUISANCE

- A. The Builder shall not create a public nuisance including but not limited to encroachment on adjacent lands, flooding of adjacent lands, or excessive noise or dust. The Builder shall eliminate noise to as great an extent as practicable at all times.

3.08 CONSTRUCTION HOURS

- A. No Work shall be done between the hours of 7:00 p.m. and 7:00 a.m., or on Saturdays and Sundays unless the proper and efficient prosecution of the Work requires operations during the night or weekend. Written notification for doing the Work shall be provided to the County a minimum twenty four (24) hours before starting such items of the Work.

3.09 CONSTRUCTION IN EASEMENTS AND RIGHTS-OF-WAY

- A. Construction Easements: In easements across private property, the Builder shall confine all operations within the easement area and shall be responsible and liable for all damage outside of the easement area. Trees, fences, shrubbery or other type of surface improvements located in easements will require protection during construction. Precautions shall be taken by adequate sheeting or other approved method to prevent any cave-in or subsidence beyond the easement limits or damage to improvements within the easement. In general, the easement area is intended to provide reasonable access and working area for efficient operation by the Builder. Where easement space for efficient operation is not provided, the Builder shall be responsible for organizing operations to perform within the restrictions shown on the Plans.
- B. Construction in an FDOT Right-of-Way: The Builder shall strictly adhere to the requirements of the FDOT where construction Work is in a right-of-way under the jurisdiction of the State of Florida, and shall take care to avoid any unreasonable traffic conflicts due to the Work in road right-of-way.
- C. Construction in the County Right-of-Way: Work shall be governed by the County Regulations as amended.

3.10 SUSPENSION OF WORK DUE TO WEATHER

- A. During inclement weather, all Work which might be damaged or rendered inferior by such weather conditions shall be suspended. During suspension of the Work from any cause, the Work shall be suitably covered and protected so as to preserve it from injury by the weather or otherwise.



3.11 USE OF CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either United States Environmental Protection Agency (USEPA) or United States Department of Agriculture (USDA). Use of all such chemicals and disposal of residues shall be in strict conformance with label instructions.

3.12 COOPERATION WITH OTHER BUILDERS AND FORCES

- A. During construction progress, in the unlikely event that it becomes necessary for other contractors and persons employed by the County to Work in or about the site, such Work will be coordinated between the County and the Builder prior to proceeding with the Work.

3.13 SUBSURFACE EXPLORATION

- A. The Builder shall make such subsurface explorations as necessary to perform the Work.

3.14 CLEANING

- A. During Construction: During construction the Builder shall, at all times, keep the construction site and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the County, such material, debris, or rubbish constitutes a nuisance or is objectionable.
- B. Final Cleaning: At the conclusion of the Work, all tools, temporary structures and materials belonging to the Builder shall be promptly taken away. The Builder shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

3.15 SALVAGE

- A. Any existing County owned equipment or material including but not limited to valves, pipes, fittings, couplings, etc., which is removed or replaced as a result of construction may be designated as salvage by the County, and if so, shall be carefully excavated if necessary and delivered to the County at a location within the County.



3.16 SHOP DRAWINGS AND SAMPLES

- A. If requested by the County, prior to construction the Builder shall submit three (3) copies of the shop drawings, signed by the Builder's Engineer, to the County. The data shown on the shop drawings shall be complete with respect to dimensions, design criteria, materials of construction and the like to enable review of the information as required. The Builder shall, if requested by the County, furnish certificates, affidavits of compliance, test reports, or samples for check analysis for any of the materials specified in this Handbook.

3.17 CLEARING AND GRUBBING

- A. The Builder shall clear and grub all of the area within the limits of construction as shown on the Plans and approved by the County prior to beginning any Work. All site Work shall conform to the applicable site clearing ordinance and landscaping and tree ordinances of the County.
- B. Clearing: The surface of the ground for the area to be cleared and grubbed shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, rubbish and all other objectionable obstructions resting on or protruding through the surface of the ground. However, trees and shrubs shall be preserved as specified in Section 3.05D. Clearing operations shall be conducted so as to prevent, damage to existing structures and installations and to those under construction, and so as to provide for the safety of employees and others.
- C. Grubbing: Grubbing shall consist of the complete removal of all stumps, roots larger than 1 1/2-inches in diameter, matted roots, brush, timber, logs and any other organic or metallic debris not suitable for foundation purposes, resting on, under or protruding through the surface of the ground to a depth of 18 inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects shall be refilled with suitable materials and compacted to a density conforming to the surrounding ground surface.
- D. Stripping: In areas so designated, top soil shall be stripped and stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. Any topsoil remaining after all Work is in place shall be properly disposed of by the Builder.

3.18 EXCAVATION, BACKFILL, COMPACTION AND GRADING

- A. The Builder shall furnish all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, fill, compaction, grading and slope protection required to complete the Work shown on the Plans and specified herein. The Work shall include, but not necessarily be limited to: pump stations, manholes,



vaults, conduit, pipe, roadways and paving; all backfilling, fill and required borrow; grading; disposal of surplus and unsuitable materials; and all related Work such as sheeting, bracing and water handling.

- B. The Builder shall examine the site and undertake subsurface investigations including soil borings before commencing the Work. The County will not be responsible for presumed or existing soil conditions in the Work area.
- C. Builder shall locate existing utilities in the areas of Work. If utilities are to remain in place, the Builder shall provide adequate means of protection during earthwork operations. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, the Builder shall consult the owner of such piping or utility immediately for directions. Payment for damage and repair to such piping or utilities is the Builder's responsibility. Refer to Section 3.03 for utility coordination requirements. The County shall not be responsible for uncharted or incorrectly charted water and wastewater mains or other utilities. It is the Builder's responsibility to ensure that such facilities exist at the presumed point prior to commencing construction.
- D. Materials for use as bedding and backfill, whether insitu or borrow, shall be as described under this section. The Builder shall upon request by the County, make an appropriate sample of this material available for testing by the County or its designated representative.
 - 1. Materials for structural fill shall be bedding rock or select common fill as specified herein or other suitable material as approved by the County.
 - 2. Common fill shall consist of mineral soil, substantially free of clay, organic material, loam, wood, trash and other objectionable material which may be compressible or which cannot be compacted properly. Common fill shall not contain stones larger than one inch in any dimension, asphalt, broken concrete, masonry, rubble, or other similar materials. It shall have physical properties such that it can be readily spread and compacted during filling. Additionally common fill shall be no more than ten (10) percent by weight finer than the No. 200 mesh sieve unless finer material is approved for use in a specific location by the County.

Material falling within the above specifications, encountered during the excavation may be stored in segregated stockpiles for reuse. All material which, in the opinion of the County, is not suitable for reuse, shall be spoiled as specified herein for disposal of unsuitable materials.



3. Select common fill shall be as specified above from common fill, except that the material shall contain no stones larger than 1/2-inches in largest dimension, and shall be no more than five (5) percent by weight finer than the No. 200 mesh sieve.
 4. Bedding rock shall be 3/16-inch to 3/4-inch washed and graded stone (FDOT #57). This stone shall be graded so that ninety to one hundred (90-100) percent will pass a 3/4-inch screen and 95-100 percent will be retained on a No. 8 screen. No stones larger than one inch in any dimension shall be accepted.
- E. Sheeting and Bracing in Excavations: If required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction and to protect adjacent structures, existing piping and/or foundation material from disturbance, undermining or other damage, the Builder shall construct, brace and maintain cofferdams consisting of sheeting and bracing. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.

For trench sheeting for pipes, no sheeting is to be withdrawn if driven below mid-diameter of any pipe and no wood sheeting shall be cut off at a level lower than one foot above the top of any pipe unless otherwise directed by the County. If during the progress of the Work, the County decides that additional wood sheeting should be left in place, it may direct the Builder to do so. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given by the County for an alternate method of removal. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction of other structures, utilities, existing piping or property. Unless otherwise approved or indicated on the Drawings or in the Specifications, all sheeting and bracing shall be removed after completion of the substructure. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools specially adapted to that purpose, by watering or otherwise as may be directed.

The right of the County to order sheeting and bracing left in place shall not be construed as creating any obligation on its part to issue such orders and its failure to exercise its right to do so shall not relieve the Builder from liability for damages to persons or property occurring from or upon the Work occasioned by negligence or otherwise, growing out of a failure on the part of the Builder to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.

The Builder shall construct the cofferdams and sheeting outside the neat lines of the foundation unless indicated otherwise to the extent he deems it desirable for



his method of operation. Sheet piling shall be plumb and securely braced and tied in position. Sheet piling, bracing and cofferdams shall be adequate to withstand all pressures to which the structure will be subjected. Pumping, bracing and other Work within the cofferdam shall be done in a manner to avoid disturbing any construction already performed. Any movement or bulging which may occur shall be corrected by the Builder at his/her own expense so as to provide the necessary clearances and dimensions.

- F. Dewatering, Drainage and Flotation: The Builder shall excavate, construct and place all pipelines, concrete work, fill, and bedding rock, in-the-dry. In addition, the Builder shall not make the final 24-inches of excavation until the water level is a minimum of one foot below proposed bottom of excavation. For purposes of these specifications, "in-the-dry" is defined to be within 2-percent of the optimum moisture content of the soil.

Discharge from dewatering shall be in accordance with Chapter 62-621.300(2) F.A.C. and disposed of in such a manner that it will not interfere with the normal drainage of the area, create a public nuisance, or form ponding. The operations shall not cause injury to any portion of the Work completed, or in progress, or to the surface of streets, or to private property. Additionally, where private property will be involved, advance permission shall be obtained by the Builder.

The Builder shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavations and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.

Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.

It is expected that wellpoints will be required for predrainage of the soils prior to final excavation for some of the deeper in-ground structures, or piping and for maintaining the lowered groundwater level until construction has been completed to such an extent that the structure, pipeline or fill will not be floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and negligible fines shall be removed by pumping.

The Builder shall furnish all materials and equipment and perform all Work required to install and maintain the drainage systems for handling groundwater and surface water encountered during construction of structures, pipelines and compacted fills.



- G. **Excavation:** Excavation consists of removal, storage and disposal of material encountered when establishing required grade elevations and in accordance with the notes shown in the Plans. Authorized earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation. Unauthorized excavation consists of removal of material beyond the limits needed to establish required grade and subgrade elevations.

Sloped sides of excavations shall comply with local codes and ordinances and with OSHA requirements. Builder shall shore and brace where sloping is not possible due to space restrictions or stability of the material excavated. Sides and slopes shall be maintained in a safe condition until completion of backfilling.

Builder shall stockpile satisfactory excavated materials at a location approved by the County until required for backfill or fill. When needed in the Work, material shall be located and graded at the direction of a Geotechnical/Soils Engineer.

Stockpiles shall be placed and graded for proper drainage. All soil materials shall be located away from the edge of excavations. All surplus and/or unsuitable excavated material shall be legally disposed of by the Builder. Any permits required for the hauling and disposing of this material shall be obtained by the Builder prior to commencing hauling operations.

1. **Excavation for Structures:** All such excavations shall conform to the elevations and dimensions shown on drawing within a tolerance of plus or minus 0.10-feet and extending a sufficient distance from footings and foundations to permit placing and removing formwork, installation of services and other construction, inspection or as shown on the Drawings. In excavating for footings and foundations, care shall be exercised not to disturb the bottom of the excavation. Bottoms shall be trimmed to required lines and grades to leave a solid base to receive concrete.

Trench Excavation: Excavation for all trenches required for the installation of utility pipes shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe within the trenches, for bracing and supporting and for pumping and drainage facilities. The bottom of the excavations shall be firm and dry in all respects.

- H. **Bedding and Backfill:** Material placed in fill areas under and around structures and pipelines shall be deposited within the lines and to the grades shown on the Plans making due allowance for settlement of the material. Fill shall be placed



only on properly prepared surfaces. If sufficient select common or common fill material is not available from excavation on site, the Builder shall provide fill as may be required.

Fill shall be brought up in substantially level lifts starting in the deepest portion of the fill. The entire surface of the Work shall be maintained free from ruts and in such condition that construction equipment can readily travel over any section.

Fill shall be placed and spread in layers by a backhoe or other approved method, unless otherwise specified. Prior to the process of placing and spreading, all materials not meeting those specified under Section 3.17D shall be removed from the fill areas. The Builder shall assign a sufficient number of men to this Work to ensure satisfactory compliance with these requirements.

All fill materials shall be placed and compacted "in-the-dry". The Builder shall dewater excavated areas as required to perform the Work and in such manner as to preserve the undisturbed state of the natural inorganic soils.

Prior to filling, the ground surface shall be prepared by removing vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials. Builder shall plow strip or break up sloped surfaces steeper than one (1) vertical to four (4) horizontal so that fill material will bond with the existing surface. When existing ground surface has a density less than that specified under Section 3.17I for the particular area classification, Builder shall break up the ground surface, pulverize moisture-condition to the optimum moisture content and compact to required depth and percentage of maximum density.

Before compaction, material shall be moistened or aerated as necessary to provide the optimum moisture content. Material which is too wet shall be spread on the fill area and permitted to dry, assisted by harrowing if necessary, until the moisture content is reduced to allowable limits. If added moisture is required, water shall be applied by sprinkler tanks or other sprinkler systems, which will insure uniform distribution of the water over the area to be treated and give complete and accurate control of the amount of water to be used. If too much water is added, the area shall be permitted to dry before compaction is continued. The Builder shall supply all hose, piping, valves, sprinklers, pumps, sprinkler tanks, hauling equipment and all other materials and equipment necessary to place water in the fill in the manner specified.



Builder shall compact each layer to required percentage of maximum dry density or relative dry density in accordance with Section 3.17I. Backfill or fill material shall not be placed on surfaces that are muddy, frozen or contain frost or ice.

1. Bedding and Backfill for Structures: Bedding rock shall be used for bedding under all structures as indicated on the Standard Drawings. The Builder shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing, erosion or loosening of this bed. Structural fill shall be used as backfill against the exterior walls of the structures.

Backfilling shall be carried up evenly on all walls of an individual structure. No backfill shall be allowed against walls until the walls and their supporting slabs, if applicable, have attained sufficient strength.

In locations where pipes pass through building walls, the Builder shall take precautions to consolidate the fill up to an elevation of at least 1-foot above the bottom of the pipes. Structural fill in such areas shall be placed for a distance of not less than 3-feet either side of the center line of the pipe in level layers not exceeding 8-inches in depth.

2. Bedding and Backfill for Pipes: Bedding for pipe shall be as shown on the Plans and detailed on the Standard Drawings. The Builder shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing, erosion or loosening of this bed.

Backfilling over and around pipes shall begin as soon as practicable after the pipe has been laid, jointed and inspected. All backfilling shall be prosecuted expeditiously and as detailed on the Standard Drawings.

Any space remaining between the pipe and sides of the trench shall be carefully backfilled and spread by hand or approved mechanical device and thoroughly compacted with a tamper as fast as placed, up to a level of 1-foot above the top of the pipe. The filling shall be carried up evenly on both sides.

- I. Compaction: The Builder shall control soil compaction during construction to provide the percentage of maximum density specified. The Builder shall provide the County copies of all soils testing reports, prepared by a Geotechnical/Soils Engineer, demonstrating compliance with these Specifications.



1. Percentage of Maximum Density Requirements
 - a. Fill or undisturbed soil from the bottom of the pipe trench to 1-foot above the pipe shall be densified to a minimum density of 95-percent of the maximum dry density as determined by AASHTO T-180.
 - b. Backfill from 1-foot above utility pipes to grade shall be densified to a minimum density of 95-percent of the maximum dry density as determined by AASHTO T-180.

Fill under and around structures, and to the extent of the excavation shall be densified to a minimum density of 95-percent of the maximum dry density as determined by AASHTO T-180.

2. Compaction Tests: Compaction tests may be necessary as reasonable to confirm density requirements as set forth above. The cost of these tests will be at the Builders expense.
 3. If based on Geotechnical/Soils Engineer testing reports and inspection, fill which has been placed is below specified density, Builder shall provide additional compaction and testing prior to commencing further construction.
- J. Grading: All areas within the limits of construction, including transition areas, shall be uniformly graded to produce a smooth uniform surface. Areas adjacent to structures or paved surfaces shall be graded to drain away from structures and pavement. Ponding shall be prevented. After grading, the area shall be compacted to the specified depth and percentage of maximum density. No grading shall be done in areas where there are existing pipelines that may be uncovered or damaged until such lines have been relocated.
- K. Maintenance: Builder shall protect newly graded areas from traffic and erosion and keep them free of trash and debris. Builder shall repair and reestablish grades in settled, eroded and rutted areas. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, Builder shall scarify surface, and reshape and compact to required density prior to further construction.
- L. Inspection and Quality Assurance: Builder shall examine the areas and conditions under which excavating, filling, and grading are to be performed and not proceed with the Work until unsatisfactory conditions have been corrected. Builder shall examine existing grade prior to commencement of Work and report to the County if elevations of existing grade vary from elevations shown on Plans.



SECTION 4

MATERIALS

4.01 GENERAL

This Section includes the material and installation standards for pipe, fittings, valves and appurtenances, as applicable to wastewater, water and effluent reuse installations. The data included herein are to be used as the standards for approved materials indicated under specific facility installations as set forth in other Sections.

Materials referred to by brand name in this Section and Appendix A of this Handbook represent specific requirements of the County. If desired, requests for substitutions of specified materials shall be made in writing to the County prior to construction. Determination of the equality of substitute materials will be at the sole discretion of the County. All equipment to be installed shall be new and unused.

When a standard is specified by reference (i.e., AWWA, ANSI, ASTM, etc.), it refers to the latest edition thereof.

Required specialty items not included under this Section shall be high quality and consistent with approved standards of the industry for the approved materials indicated under specific facility installations, as set forth in other Sections.

4.02 PIPE AND FITTINGS

- A. General: All pipe and fittings for water and wastewater service shall be clearly marked with the name or trademark of the manufacturer, the batch number, the location of the plant and the strength designation, as applicable.



B. Ductile Iron (DI):

1. Ductile Iron: Pipe shall be in accordance with ANSI Standards A21.50 and A21.51, minimum thickness Class 50, unless heavier class is required for design conditions.
2. Fittings: Ductile iron pipe fittings shall conform to ANSI Standard A21.10 or A21.53 and a 250 PSI minimum pressure rating.
3. Joints:
 - a. "Push-On" and mechanical type joints shall be in accordance with ANSI Standard A21.11.
 - b. Restrained joint assemblies (with mechanical joint pipe) shall be ductile iron mechanical joint retainer glands. Bolts and nuts for restrained joints shall be Corten, low alloy, high strength steel.
 - c. Flexible type joints shall be of the boltless type, with a joint deflection of up to 15 degrees, and shall be specifically designed for flexible joint use.
 - d. Flanged connections shall be in accordance with ANSI Standard B16.1, 125 lb. standard and shall have full faced type rubber gaskets 1/8-inch thick. Bolts and nuts shall be Grade B conforming to the ASTM Designation A307, for Steel Machine Bolts and Nuts and Tap Bolts.
4. Coating and Linings:
 - a. Ductile iron pipe and fittings for underground wastewater service shall receive an exterior bituminous coating of coal tar varnish or asphalt base paint, 1.0-mil film thickness in accordance with ANSI/AWWA A21.51/C-151.
 - b. Exposed ductile iron pipe and fittings for wastewater service shall receive a factory applied exterior coating of a universal rust-inhibitive primer, 2.0-mils dry film thickness. This coating shall be followed by field painting of an intermediate and final field coats of Alkyd applied in accordance with the paint manufacturer's recommendations.



Exposed ductile iron pipe and fittings for wastewater service final color shall be:

1. blue for potable water,
2. brown for treated wastewater,
3. green for raw water,
4. gray for raw wastewater and
5. purple for reclaimed reuse water

unless otherwise approved by the County.

- c. Ductile iron pipe and fittings for wastewater service shall receive a factory applied interior coal tar epoxy coating with a minimum dry thickness of 30-mils in accordance with ANSI A21.4.
- d. Ductile iron pipe and fittings for water and reuse service shall receive an exterior coating as specified above under paragraphs 4.02B.4.A. or 4.02B.4.B and shall be cement mortar lined and bituminous sealed in accordance with ANSI A21.4.
- e. Machined surfaces shall be cleaned and coated with a suitable rust preventive coating at the shop immediately after being machined.
- f. Special Protective Interior Linings:
 - (1) General - The pipe lining material shall be either a coal tar epoxy or virgin polyethylene. Pipe coating shall be factory applied at the rate and in the manner specified by the coating manufacturer. The lining shall extend from the plain end of the pipe to the gasket set of the bell socket. Not less than 5-percent of the pipe shall be checked for dry mil thickness, with compliance certification submitted to the County.
 - (2) Coal tar epoxy shall be applied with total thickness of the dry coating, a minimum of 20-mils.
 - (3) Polyethylene lining material shall comply with ASTM Designation D1248. The polyethylene shall be fused to the interior of the pipe by heat forming a tightly bonded lining, with minimum 30-mils dry thickness.



C. Polyvinyl Chloride (PVC):

1. Potable water and effluent reuse pipe shall be manufactured from clean virgin Type I, Grade I rigid unplasticized polyvinyl chloride resin conforming to ASTM Designation D1784. Potable water and reuse pipe shall have the National Sanitation Foundation (NSF) seal, shall conform to AWWA C-900, and shall have a dimension ratio (DR) of not more than 18. PVC pipe for wastewater force mains shall have a DR of not more than 25, or less if design considerations require. The PVC pipe shall have integral bell push on type joints conforming to ASTM D3139.

Pipe used for reuse mains shall be:

1. purple (pantone 522C) for reuse mains,
 2. blue for water mains and
 3. green for wastewater.
2. Connections for pipe 2-inches in diameter and larger shall be rubber compression ring type. Pipe shall be extruded with integral thickened bell walls without increase in DR. Rubber ring gaskets shall consist of synthetic compounds meeting the requirements of ASTM Designation D1869, and suitable for the designated service. Other connections shall be solvent cemented joints.
 3. Gravity wastewater PVC pipe and fittings shall be manufactured from polyvinyl chloride resin conforming to ASTM Designation D1784. Pipe and fittings of this material shall conform to ASTM Designation D3034 and F679, "Standard Specifications for Type PSM Polyvinyl Chloride Sewer Pipe and Fittings." All pipe and fittings shall have a Standard Dimension Ratio (SDR) of not more than 35.
 4. PVC pipe for gravity sewers shall be supplied in standard lengths not to exceed 20-feet, and be furnished with integrally formed bell joints.
 5. All PVC pipe and accessories less than two (2) inches in diameter shall be Schedule 80 and be of rigid normal impact polyvinyl chloride. The pipe and accessories shall conform to ASTM Specification D1785 and Product Standard PS21-70. All materials to be furnished complete to perform the work, including solvent cement, etc.
 6. Connections: Connection of PVC gravity sewer lines to manholes shall be made by using a PVC manhole coupling adapter connecting piece manufactured from a two (2) foot piece of PVC



pipe with a water stop or rubber boot. The connection shall provide flexibility and a watertight connection at the structure.

D. Service Pipe:

1. Water Service Pipe: All potable water service lines shall be 1-inch, 1 ½-inches or 2-inches polyethylene tubing conforming to AWWA C-800 and C-901.
2. Wastewater Service Lateral: All wastewater service laterals shall be PVC and have a minimum diameter of 6-inches and shall conform to ASTM D3034, SDR 35.

E. Bore and Jack:

1. Pipe Material:
 - a. Steel casings shall conform to the requirements of ASTM Designation A139 (straight seam pipe only) Grade "B" with a minimum yield strength of 35,000 PSI. The casing pipes shall have the minimum nominal diameter and wall thickness as shown on the following table unless otherwise reviewed and approved by the County:

Carrier Pipe Nominal Diameter	Casing Outside Diameter	Minimum Casing Wall Thickness
4"	16"	0.250"
6"	18"	0.250"
8"	20"	0.250"
10"	24"	0.250"
12"	30"	0.312"
16"	30"	0.312"
20"	36"	0.375"
24"	42"	0.500"
30"	48"	0.500"
36"	54"	0.500"
42"	60"	0.500"

- b. Field and shop welds of the casing pipes shall conform to the American Welding Society (AWS) standard specifications. Field welds shall be complete penetration, single-bevel groove type joints. Welds shall be airtight and continuous over the entire circumference of the pipe and shall not increase the outside pipe diameter by more than 3/4-inch.



- c. The carrier pipe shall be ductile iron, PVC, or HDPE as reviewed and approved by the County.
- d. The carrier pipes shall be supported within the casing pipes so that the pipe bells do not rest directly on the casing. The load of the carrier pipes shall be distributed along the casing by casing spacers. Casing spacers shall be stainless steel or PVC as reviewed and approved by the County.

F. Pressure Pipe Restraints:

1. Pressure pipe fittings shall be restrained with restraint glands and devices as approved by the County. Concrete thrust blocks are not acceptable for pipe restraint unless prior approval has been given by the County for limited applications.
2. The minimum number of restrained joints required for resisting forces at fittings and changes in direction of pipe shall be determined from the length of restrained pipe on each side of fittings and changes in direction necessary to develop adequate resisting friction with the soil. The required lengths of restrained joint ductile iron pipe shall be determined by the Engineer.

G. Special Items:

1. Expansion Joints: Pipe expansion joints shall be suitable for the applicable service with a minimum 150 PSI working pressure.
2. Flanged Coupling Adapters: Units shall be compatible with ANSI Standard B16.1, 125 lb. flanges.
3. Cast Iron Sleeves and Wall Pipes: Units shall have integral annular ring water-stops, and also conform to other requirements for cast iron fittings specified in this Section. Sleeves and wall pipes are to have laying length and ends required for proper installation.
4. Tapping Saddles: Units shall be fabricated of ductile iron and suitable for either wet or dry installation. The sealing gasket shall be the "O-Ring type suitable for the applicable service. Outlet flange shall be ANSI B16.1, 125 lb. standard. Tie straps and bolts shall be a corrosion resistant alloy steel.
5. Tapping Sleeves: Units shall be of the mechanical joint type or fabricated steel type sleeves for pressure connections 4-inches and larger. All pressure connections to asbestos cement pipe and all "size on size" tap shall utilized mechanical joint sleeves.



- a. **Mechanical Joint Sleeves:** Sleeves shall be cast of gray-iron or ductile iron and have an outlet flange with the dimensions of the Class 125 flanges as shown in ANSI B16.1 properly recessed for tapping valve. Glands shall be gray-iron or ductile iron. Gaskets shall be vulcanized natural or synthetic rubber. Bolts and nuts shall comply with ANSI/AWWA C-111/A.21.11. Sleeves shall be capable of withstanding a 200 PSI working pressure.
 - b. **Steel Tapping Sleeve:** Sleeves shall be fabricated of minimum 3/8-inch carbon steel meeting ASTM A285, Grade C. Outlet flange shall meet AWWA C-207, Class D, ANSI 150 lb. drilling and be properly recessed for the tapping valve. Bolts and nuts shall be high strength low alloy steel to ANSI/AWWA A21.11/C-111. Gasket shall be vulcanized natural or synthetic rubber. Sleeve shall have manufacturer applied fusion bonded epoxy coating, minimum 12-mil thickness.
6. **Service Saddles:** Saddles for ductile iron pipe shall be double strap, anchored by a minimum four (4) bolt pattern on a ductile iron saddle body. Service saddles for PVC pipe shall have a double strap sized exactly to the pipe outside diameter. Sealing gaskets shall be suitable for the applicable service and straps shall be corrosion resistant alloy steel. The County may require a stainless steel strap and fusion epoxy or nylon coated ductile iron body with stainless steel hardware in areas designated as corrosive.
 7. **Polyethylene Encasement:** Encasement shall have a minimum thickness of 8- mils and comply with the applicable provisions of ANSI/AWWA C-105/A21.5, "Polyethylene Encasement for Gray and Ductile Iron Piping for Water and Other Liquids."

4.03 VALVES

- A. **General:** The valve type, size, rating, flow direction arrow, if applicable, and manufacturer shall be clearly marked on each unit. Valves shall open left (counterclockwise); with an arrow cast-in the metal of operating handwheels and nuts indicating the direction of opening.
- B. **Gate Valves (GV):**
 1. **General:** All gate valves shall be resilient seat gate valves and shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C-509. The valve body, bonnet, and bonnet cover shall be cast iron and comply with ASTM A126, Class B Standards. The valves shall be non-rising stem with the stem made of cast, forged, or rolled bronze as specified in AWWA

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C-509. Two (2) stem seals shall be provided and shall be O-Ring type. The stem must be independent of the gate. The resilient sealing mechanism shall provide zero leakage at the system working pressure when installed with the line flow in either direction. All ferrous surface inside and outside shall have a fusion-bonded epoxy coating. All nuts, bolts, washers and springs shall be made of 316 stainless steel. The valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.

2. Underground Service: Valves shall be iron body, bronze mounted, conforming to AWWA C-509, resilient seat, non-rising stem type, bolted bonnet, mechanical joint, and shall be equipped with 2-inch square cast iron wrench nuts.
3. Aboveground Service: Valves shall be iron body, bronze mounted gate valves, bolted bonnet, flanged, conforming to C-509, resilient seat, with the exception that valves shall be outside screw and yoke (OS&Y), rising stem type. Valves shall have cast iron handwheels or chain operators with galvanized steel chains, as required.
4. Tapping Valves: Valves shall conform to the specifications set forth under paragraphs 4.03B.1 and 2, for the applicable service conditions. Additionally, units shall be compatible with the connecting sleeve or saddle and specially designed for wet tapping installation operations.
5. Valves 2-inches and Smaller: Valves shall be bronze, wedge disc, 150 PSI minimum working pressure, equipped with wrought steel or cast iron operating handwheels.
6. Actuators: Valves sixteen (16) inches and larger shall be equipped with approved gearing actuators, with sealed enclosures for buried or submerged service, and shall be furnished by the valve manufacturer. Position indicators shall be furnished as required.



7. Horizontal Installation: Valves 16-inches in diameter or larger, to be installed horizontally, shall be additionally equipped as specified under the applicable Section of AWWA C-500 and as follows:
 - a. Installed in vertical pipe with horizontal stem shall be fitted with approved slides, tracks and shoes to assist the travel of the gate assembly.
 - b. Installed in horizontal pipe with horizontal stem shall be equipped with approved rollers, tracks and scrapers to assist the travel of the gate assembly and to clear the track of obstructions.

C. Check Valves (CV):

1. General Service: Valves shall be iron body, bronze mounted, stainless steel hinge pin, outside lever and spring operated, single disc swing non-slam type, and equipped with removable inspection covers and shall meet the requirements of AWWA C-500. Ends shall be 125 lb ANSI B16.1 flanges. Units shall be rated for 175 PSI minimum working pressure and shall permit full flow area equal to that of the connecting pipe. Valves shall be constructed to allow disc and body seat to be easily removed and replaced without removing valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and weight. If pump shutoff exceeds 77-feet, then an air cushioned assembly shall be installed. All exposed nuts, bolts, washers and springs on buried and on above ground outdoor service valves shall be 316 stainless steel.
2. Valves two (2) inches and Smaller: Valves shall be bronze body and disc, swing check type, with removable inspection covers, and rated 150 PSI minimum working pressure.

D. Plug Valves (PV):

1. Eccentric plug valves 4-inches and larger shall be of the non-lubricated type and comply with AWWA C-504 and C-507. Minimum pressure rating of valves 4-inches through 12-inches shall be 175 PSI, valves 14-inches through 72-inches shall be 150 PSI. Valve bodies shall be cast iron ASTM A 126, Class B, in compliance with AWWA C 504 and C-507. Unless otherwise noted, port areas for all valves shall be 100 percent of full pipe area. Resilient plug facings shall be of Hycar, Nitrile Butadiene Rubber or Neoprene.



Valve ends shall be flanged (or grooved end couplings) or mechanical joint for above ground and underground installation, respectively. Valve body seats shall have a welded-in overlay of not less than 90-percent nickel for all parts which comes in contact with the plug face. Packing shall be safely adjustable and replaceable without removing the valve from service, with the body pressurized to its full rated pressure. Bearings shall be permanently lubricated 316 stainless steel in both upper and lower journals in accordance with AWWA Standard C-507. The valve supplied shall have drip tight shut off with flow in either direction at the full pressure rating of the valves. All exposed nuts, bolts, springs and washers on buried and on above ground outdoor service valves shall be 316 stainless steel.

2. All body, bonnet and flange thickness shall be designed and rated in accordance with the specified valve pressure rating and ANSI B16.1, per AWWA Standards C-504 and C-507. Mechanical joint ends shall be to the AWWA Standard C-111, Class B. Screwed ends shall be to the NPT standard.
 3. Valves shall be furnished with permanently lubricated stainless steel or oil-impregnated bronze upper and lower plug stem bushings. These bearings shall comply with AWWA C-504 and C-507. Valve shaft seals shall be adjustable and comply with AWWA Standard C-507.
 4. Operation of all valves 10-inches or larger; and smaller sizes in exposed locations, which require handwheels or chainwheels, shall be by approved gear actuators, equipped with position indicator and stop, and shall be furnished by the valve manufacturer. Gear actuators for buried or submerged installations shall be furnished with sealed enclosures. Valves shall be equipped with actuating nuts, cast iron handwheels or chain operators, with galvanized steel chains, as appropriate for the installation and type of operator.
- E. Butterfly Valves (BFV): Valves shall be cast or ductile iron body that conforms to ASTM A26, Class B. All retaining segments and adjusting devices shall be of corrosion resistant material. The valves shall have bonded or mechanically restrained seats as outlined in AWWA C-504. Valve seats shall be a natural rubber or synthetic rubber compound. The valve shaft shall be turned, ground and polished constructed 18-8 stainless steel, and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque. The shaft shall be a one (1) piece unit extending full size through the valve disc. The valves shall be of either a short or long body type, with the valve class, shaft size and other special requirements selected in accordance with the specific design, and shall comply with the provisions of AWWA C-504, "Rubber Seated Butterfly Valves". Valve operation shall be by approved gear actuators, with sealed enclosures for buried or submerged service. Position indicators shall



be furnished, as required. Units shall be equipped with actuating nuts, cast iron handwheels or chain operators, with galvanized steel chains, as appropriate for the installation. All exposed nuts, bolts, springs and washers on buried and on above ground outdoor service valves shall be 316 stainless steel. Appurtenances shall be furnished by the valve manufacturer.

- F. PVC Ball Valves: PVC ball valves shall be provided, as required, for chemical service installations and shall be full port area.
- G. Corporation Stops and Curb Stops: Units shall be 1-inch, 1 1/2-inch, or 2-inches brass, equipped with connections compatible with the connecting service pipe type, threaded in accordance with AWWA Standard C-800 and C-901. Curb stop shall be sized to match the meter size and conform to AWWA C-800 and C-901. Fittings shall be brass, cast and machined in accordance with AWWA C-800 and C-901, with compatible polyethylene tubing connections.
- H. Backflow Preventers: The assembly shall be of the type approved by the County based on the type of service and shall comply with the applicable provisions of AWWA Standards and County regulations. Reference is made to Appendix B of this Handbook for further discussion on Backflow Preventers and Control Plan.
- I. Air and Vacuum Release Valves:
 - 1. Wastewater Service Air/Vacuum Release Valve: Valves shall be specially adapted for raw wastewater service. Valves shall be of the long body design and be constructed of cast iron ASTM A126-B, Class 35 with stainless steel Type 304 stem, float guide and float and Buna-N seat. Valves shall have an upper and lower float separated by a hexagonal float guide to prevent fouling and shall have a pressure rating of 150 PSI. Valves shall have standard 2-inch NPT inlets and outlets, and be equipped with accessories for backwashing.
 - 2. Wastewater Service Air Release Value: The valve body and cover shall be cast iron construction, ASTM A126-B, and all internal parts shall be of stainless steel Type 304. The vertical orifice shall be 3/8-inch in diameter and the seating material shall be of Viton.
 - 3. Water Service: The valve shall be a heavy-duty combination air release and vacuum type for 150 PSI working pressure, tested to 300 PSI. Body, cover and baffle shall be cast iron. All internal parts shall be stainless steel and inside of valve shall be coated with a rust inhibitor. The valves shall be provided with a vacuum check to prevent air from reentering the line. All valves shall comply with AWWA C-512.



J. Special Items:

1. Water Meters: 5/8-inch through 1 1/2-inch meters shall be AWWA approved Sealed Register Displacement Type Meters. The water meters that have 2-inches and larger meters shall be AWWA Approved Turbo-Meters. Meters 6-inches and larger are to be equipped with strainers.
2. Floor Stands: Units shall be cast iron, equipped with convenient grease fittings for all lubrication points, and suitable for the applicable operation. Stem guides shall be cast iron, adjustable, with bronze bushings.
3. Valve Boxes: Units shall be adjustable, cast iron, minimum interior diameter of 5-inches with covers cast with the applicable inscription in legible lettering on the top: "SEWER", "EFF WATER" or "WATER".

Boxes shall be suitable for the applicable surface loading, valve size and be painted the following colors:

1. SEWER COVERS shall be painted green,
 2. EFF WATER shall be painted purple (Pantone 522C) and
 3. WATER shall be painted blue.
4. Meter Boxes: Meter boxes shall be prestressed concrete, ductile iron or FDOT approved plastic units of a size comparable with the meter.
 5. Service Boxes: Service boxes for reuse connections shall be plastic with a jam lock cover. Boxes shall be purple (Pantone 522C) in color.

4.04 INSTALLATION

A. Potable Water, Wastewater Force Main and Effluent Reuse Pipe:

1. Piping, fittings, valves and appurtenances shall be installed in accordance with these Standards, including the attached "Standard Details" all applicable AWWA standards, and with the manufacturer's recommendations for the applicable service.
2. All types of pipe shall be handled in such a manner as will prevent damage to the pipe or coating. Accidental damage to the pipe or coating shall be repaired to the satisfaction of the County or be removed from the job site. When not being handled, the pipe shall be supported on timber cradles or on properly prepared ground, graded to eliminate all rock points and to provide uniform support



along the full length. When being transported, the pipe shall be supported at all times in a manner which will not permit distortion or damage to the lining or coating. Any unit of pipe that, in the opinion of the County, is damaged beyond repair by the Contractor shall be removed from the site of the work and replaced with another unit. Joint gaskets shall be stored in a clean, dark, dry location until immediately before use.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned and re-laid. At all times when the pipe laying is in progress, the open ends of the pipe shall be closed by a water-tight plug or by other means approved by the County to ensure absolute cleanliness inside the pipe.

3. Water mains that are laid in the vicinity of pipe lines designated to carry raw wastewater, reclaimed reuse or wastewater effluent shall meet the requirements outlined in Section 6.03.G.
4. Piping shall be installed along straight line and grade between fittings, manholes, or other defined points, unless definite lines of alignment deflection or, grade change have been established. Modification to approved alignment or grade during construction shall receive prior approval from the County, and all resulting design considerations shall be resolved by the Builder.
5. Materials shall be cleaned and maintained clean, with all coatings protected from damage. The interior of the pipe shall be free of dirt and debris, and when work is not in progress; all open ends shall be plugged. Also, materials for potable water systems including tops, repairs, etc., shall be disinfected in compliance with AWWA C-651.
6. Pipe, valves, fittings, or other items shall be inspected prior to installation, and any items showing a fracture or other defect shall be rejected. Additionally, any pipe or fitting which has received a severe blow that may have caused an incipient fracture, even though not visible, shall also be rejected. However, ductile iron pipe showing an end crack, with no fracture indicated beyond that visible, may be salvaged by cutting off the damaged section 12-inches past, providing the remaining pipe is sound.
7. The Contractor shall prevent water from entering the trench during excavation and pipe laying operations to the extent required to properly grade the bottom of the trench and allow for proper compaction of the backfill. Pipe shall not be laid in water and Specifications outlined in Section 3.17 shall apply.



8. Pipe shall be laid to the lines and grades shown on the Plans. The Contractor shall provide line and grade stakes at 100-foot maximum spacing and at all line and/or grade change locations. The Contractor shall provide temporary bench marks at maximum 1,000-foot intervals. The minimum pipe depth shall be 3-feet below finished grade surface of 3-feet below the edge of pavement of road surface whichever is greater.
9. Long radius curves, either horizontal or vertical, may be laid with standard pipe deflections at the joints. The maximum deflections at pipe joints and laying radius for the various pipe lengths shall be as recommended by the pipe manufacturer.
10. Underground piping shall not be driven to grade by striking it with an unyielding object. When the pipe has been properly bedded, enough compacted backfill shall be placed to hold the utility in correct alignment. If necessary, precaution shall be taken to prevent flotation.
11. The installation of casing pipe underneath existing roadways shall be by the method of boring and jacking and shall meet the requirements outlined in Section 4.04D.
12. Jointing shall be by an approved method and shall not require undue force to accomplish full satisfactory seating and assembly. Connections at structures shall be cut accurately and worked into place without forcing and shall align with the connecting point. Flanged joints shall be made up tight, but with care taken to prevent undue strain upon equipment or other items. Suitable flange filler rings shall be installed where required to provide suitable joints. The installation shall be permanently watertight, with no visible leakage at joints or connections with structures. Any joint that does not remain completely seated and/or watertight shall be rejected.
13. Requirements for bedding and backfill for the pipes are outlined in Section 3.17.
14. Exposed systems shall be supported as necessary to hold the piping and appurtenances in a firm, substantial manner to the required lines and grades indicated, with no undue piping stresses transmitted to equipment or other items. Piping within buildings shall be adequately supported from floors, walls, ceilings or beams. Supports from the floor shall be by suitable saddle stands or piers. Piping along walls shall be supported by satisfactory wall brackets, or saddles, or by wall brackets with adjustable hanger rods. For piping supported from the ceiling, approved rod hangers of a type



capable of screw adjustment after erection of the piping shall be used. Pipe above ground outside of buildings shall be supported on concrete supports.

15. Proper provision for pipe expansion or contraction shall be provided by installation of expansion joints or other suitable methods. Additionally, flexible connections shall be provided to expedite equipment or piping system removal.
16. Ductile Iron Pipe: Installation shall be performed in accordance with the applicable provisions of AWWA Standard C-600. The opening cut in the pipe wall for installation of tapping saddles and sleeves shall be made by a special tapping machine designed for this specific service; however, for dry installations on ductile iron (only), the opening may be made with a cutting torch, as prior approved by the County, with edges ground smooth. All pipe cutting shall be accomplished by power operated abrasive wheel or saw cutters, or other methods approved by the pipe manufacturer. Where required, polyethylene encasement shall be installed as set forth previously in this section.
17. Polyvinyl Chloride Pipe: All PVC pipe shall be installed in accordance with the Standards set forth in the UNI-BELL "Handbook of PVC Pipe Design and Construction", unless such standards conflict with this Handbook in which case this Handbook shall apply. Lubrication and/or solvent used for pipe and fitting joints shall be non-toxic (NSF Approved for potable water). Following making, solvent type joints shall not be disturbed for five (5) minutes and shall not have internal pressure applied for twenty four (24) hours, or as recommended by the pipe manufacturer.
18. Testing of piping systems shall be performed by the Builder in accordance with the specifications set forth under the Standard for the applicable service, said prior testing procedures shall be in accordance with AWWA standards. Prior to testing procedures, all piping shall be thoroughly cleaned and flushed with clean water to clear the lines of all foreign matter. This work shall be done with care to avoid damage to any inside coating.
19. Disinfecting of all potable water and reuse pipes shall be accomplished by the Builder, following approved pressure testing. Unless alternate procedures are set forth under the applicable service Standard, said disinfecting procedures shall be in accordance with AWWA Standard C-651 and as required by the appropriate local approval agency.



20. All connections to existing pressure pipes shall be made by the Contractor only after the connection, procedure and work schedule has been reviewed and approved by the County a minimum of 5-working days prior to scheduling the connection(s). The Contractor shall outline the following:
- a. Points of connection, fittings to be used, and method of flushing and disinfection, if applicable, such as a temporary jumper connection (detail in Figure D-501A in Appendix D of this handbook).
 - b. Estimated construction time for the connection(s).

The County shall review the submittal within three (3) working days after receiving it and inform the Contractor regarding approval or denial of the request. If the request is rejected by the County, the Contractor shall resubmit the request by modifying it in a manner acceptable to the County.

All connections shall only be made on the agreed upon date and time. If the Contractor does not initiate and complete the connection work in the agreed upon manner, the Contractor shall be required to reschedule the said connection by following the procedure outlined above. The Contractor shall not have operated any valves in the system.

During the construction sufficient length of main shall be exposed to allow for the installation of the tapping sleeve and valve and the operation of the tapping machinery. The main shall be supported on concrete pedestals or bedding rock at sufficient intervals to properly carry its own weight, plus the weight of the tapping sleeve and machinery. Any damage to the pipe due to improper or insufficient supports shall be repaired at the Contractor's expense.

The inside of the tapping sleeve and valve, the outside of the main, and the tapping machine shall be cleaned and swabbed, or sprayed with 10-percent liquid chlorine prior to beginning installation for water system pressure connections.

After the tapping sleeve has been mounted on the pipe, the tapping valve shall be bolted to the outlet flange, making a pressure tight connection. Prior to beginning the tapping operation, the sleeve and valve shall be pressure tested at 150 PSI to ensure that no leakage will occur.



For pressure connections 12-inches in diameter or less the minimum diameter cut shall be 1/2-inch less than the nominal diameter of the pipe to be attached. For pipes 14-inches through 20-inches in diameter, the minimum diameter shall be 1-1/2-inches less; for larger taps the allowable minimum diameter shall be 2 to 3-inches less than the nominal diameter of the pipe being attached. After the tapping procedure is complete the Contractor shall submit the coupon to the County.

For pressure connections to wastewater force mains, the tapping valve shall be placed horizontally. After the tapping procedure is complete a plug valve shall be attached to the tapping valve. The tapping valve shall be left in the open position prior to backfilling.

Adequate poured concrete thrust blocks or restrained joint fittings shall be provided to prevent movement of the installation when test pressure is applied. The pipe restraints shall meet the requirements of Section 4.02F.

B. Gravity Sewers

1. The Contractor shall set temporary bench marks at a maximum of 500-foot intervals. The Contractor shall constantly check line and grade of the pipe by laser beam method. In the event line and grade do not meet specified limits described hereinafter, the Work shall be immediately stopped, the County notified, and the cause remedied before proceeding with the Work.
2. All pipe shall be inspected and handled as specified under Sections 4.04A.2 and 4.04A.5.
3. Laying of gravity sewer pipe shall be accomplished to line and grade in the trench only after it had been dewatered and the trench has been prepared in accordance with Sections 3.17. Mud, silt, gravel and other foreign material shall be kept out of the pipe and off the jointing surface. All pipe laid shall be retained in position so as to maintain alignment and joint closure until sufficient backfill has been completed to adequately hold the pipe in place. All pipes shall be laid to conform to the line and grade shown on the Plans.



Variance from the established line and grade, at any point along the length of the pipe, shall not be greater than 1/32-inch per inch of pipe diameter and not to exceed 1/2-inch, provided that any such variation does not result in a level or reverse sloping invert.

The gravity sewer pipe, unless otherwise approved by the County, shall be laid up grade from point of connection on the existing gravity sewer or from a designated starting point. The gravity sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress the open end of the pipe shall be kept tightly closed with an approved temporary plug.

4. All PVC pipe shall be installed in accordance with the Standards set forth in the UNI-BELL "Handbook of PVC Pipe Design and Construction".
5. Laying of ductile iron pipe shall conform to the specifications outlined in Section 4.04A.18.
6. All applicable provisions of Section 3.17 shall apply with regards to trench excavation, dewatering, bedding material, backfill, compaction, fill and grading.
7. The Contractor shall hand-grade bedding to proper grade ahead of pipe laying operation. Bedding shall provide a firm, unyielding support along the entire pipe length. If without direction from the County, the trench has been excavated below the required depth for pipe bedding material placement, the Contractor shall fill the excess depth with pipe bedding material to the proper grade. The Contractor shall excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.
8. The Contractor shall provide bedding material in accordance with the Standard Drawings.
9. Gravity sewers that are laid in the vicinity of pipe lines designated to carry potable water shall meet the requirements set forth in Sections 4.04A.3 and 6.03G.
10. Plugs for pipe branches, stubs or other open ends which are not to be immediately connected shall be made of an approved material and shall be secured in place with a joint comparable to the main line joint.
11. The type of joint shall conform to the requirements outlined in Section 4.02B.3.A and 4.02.C.3 of this handbook.



C. Manholes and Precast Structures

1. Base sections shall be placed on bedding rock conforming to the requirements outlined in Section 3.17H.1. The bedding rock shall be firmly tamped and made smooth and level to assure uniform contact and support of the pre-cast element in accordance with Section 3.17I.
2. The cast-in-place bases shall be utilized only when specifically approved by the County. Unless otherwise specified, cast-in-place bases shall be at least 8-inches in thickness and shall extend at least 6-inches radially outside of the outside dimension of the structure. Reinforcement and connection to the riser sections shall be designed by the Builders Engineer and submitted to the County for approval.
3. A pre-cast base section shall be carefully placed on the prepared bedding so as to be fully and uniformly supported in true alignment and making sure that all entering pipes can be inserted on proper grade. Pre-cast manhole and lift station sections shall be handled by lift rings or non-penetrating lift holes. Such holes shall be filled with non-shrink grout after installation of the structure. The first pre-cast section shall be place and carefully adjusted to true grade and alignment. All inlet pipes shall be properly installed so as to form an integral watertight unit. The sections shall be uniformly supported by the base structure, and shall not bear directly on any of the pipes. Pre-cast sections shall be placed and aligned to provide vertical alignment with a 1/4-inch maximum tolerance per 5-feet of depth. The completed manhole shall be rigid, true to dimensions, and watertight.
4. The excavation and backfilling shall conform to the requirements outlined in Section 3.17.
5. Castings for manholes shall be fully bedded in mortar with adjustment brick courses placed between the frame and manhole. Bricks shall be minimum two (2) and four (4) courses. Mortar shall conform to ASTM C-270, type M, and the bricks shall be clay and conform to ASTM C-216, grade SW, and have the following dimensions of 3 1/2 inches wide by 8 inches long and 2 1/4 inches high.

The top of the manhole castings that are located in pavement, shouldered areas, and sidewalks shall be flush with the finished grade. The top of manhole castings that are located outside of these areas shall be placed 2-inches above the finished grade.



6. Manhole flow channels shall be as shown on the Standard Drawings, with smooth and carefully shaped bottoms, built up sides and benching constructed using cement and brick with no voids. Channels shall conform to the dimension of the adjacent pipe and provide changes in size, grade and alignment evenly. Cement shall be Portland Cement Type II only.
7. Special care shall be taken to see that the openings through which pipes enter the structure are provided with watertight connections. For ductile iron and PVC pipe, connections shall conform with ASTM C-923. Drop manhole connections shall conform in all respects to details shown on the Standard Drawings.
8. All newly constructed manhole and lift stations shall be cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final inspection.

D. Bore and Jack:

1. General: Applicable provisions of Sections 6, 8, and 10 shall apply concurrently with these specifications. Boring and jacking operations shall be performed within the right-of-way and/or easements shown on the Plans.
 - a. All casing pipe to be installed may be inspected at the site of manufacture for compliance with these Specifications by an independent laboratory selected and paid for by the County. The manufacturer's cooperation shall be required in these inspections. All casing pipe shall be subjected to a careful inspection prior to being installed. If the pipe fails to meet the specifications it shall be removed and replaced with a satisfactory replacement at no additional expense to the County.
 - b. Pipe Handling: Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe shall not be dropped. All pipe shall be examined before laying, and no piece shall be installed which is found to be defective. Any damage to the pipe or coatings shall be repaired to the satisfaction of the County.
 - c. Work Coordination: It shall be the Builder's responsibility to perform the boring and jacking work in strict conformance with the requirements of the agency in whose right of way or easement the work is being performed. Any special requirements of the agency such as insurance, flagmen, etc., shall be strictly adhered to during the



performance of Work. The special requirements shall be performed by the Builder at no additional cost to the County.

- d. Dewatering through the casing during construction shall not be permitted. All dewatering methods shall be approved by the County before construction work begins.
- e. Excavation adjacent to the roads shall be performed in a manner to adequately support the roads. Bracing, shoring, sheeting or other supports shall be installed as needed. Builder shall install suitable reaction blocks for the jacks as required. Jacking operations shall be continuous and precautions shall be taken to avoid interruptions which might cause the casing to "freeze" in place. Upon completion of jacking operations, the reaction blocks, braces, and all other associated construction materials shall be completely removed from the site.
- f. Correct line and grade shall be carefully maintained. Earth within the casing shall not be removed too close to the cutting edge in order to prevent the formation of voids outside the casing. If voids are formed, they shall be satisfactorily filled with grout by pumping.
- g. The sections of steel casing shall be field welded in accordance with the applicable portions of AWWA C-206 and ASTM D7.0 for field welded pipe joints. Builder shall wire brush the welded joints and paint with Inertol Quick-Drying Primer 626 by Koppers Company or approved equal. After completion of jacking, Builder shall clean the interior of the casing of all excess material.

E. Valves:

- 1. General: Valves shall be carefully inspected, opened wide, and then tightly closed, and all the various nuts and bolts thereon shall be tested for tightness. Special care shall be taken to prevent joint materials, stones or other substances from becoming lodged in the valve seat. Valves, unless otherwise required, shall be set with their stems vertically above the center line of the pipe. Any valve that does not operate correctly shall be adjusted to operate properly or removed and replaced.
- 2. Buried valves shall be installed vertically where depth of cover permits. Where depth of cover does not permit, the valves shall be mounted horizontally. Extension stems shall be provided on all buried valves when the operating nut is deeper than 4-feet below



the final grade, with sufficient stem extension to place the nut not more than 4-feet below grade. Where extension stems are required within valve boxes, approved insert stem guides shall be provided.

3. Valve boxes shall be carefully centered over the operating nuts of underground valves to permit a valve wrench to be easily fitted to the nut. The tops of valve boxes shall be set to the required grade. The valve box shall not transmit surface loads directly to either the pipe or valve. Care shall be taken to prevent earth and other material from entering the valve boxes. A concrete support collar shall be provided for the valve box.
4. Where floor stands and/or extension stems are required, for exposed valves, adjustable wall brackets and extension stems shall be furnished. Generally, brackets shall not be more than 6-feet apart, with floor stands and guides set so that the stems shall run smoothly and in true alignment. Stands and guides shall be firmly anchored to the concrete.
5. After installation, all valves shall be subjected to the field test for piping as outlined in Sections 6, 8 and 10 of this Handbook. Should any defects in materials or workmanship appear during these tests, the Contractor shall correct such defects to the satisfaction of the County.
6. All flanged and mechanical joints shall be made with stainless steel nuts, bolts and washers.



SECTION 5

WATER DISTRIBUTION SYSTEMS

5.01 GENERAL

- A. This Section sets forth the general requirements for design and installation of water distribution systems for potable water and irrigation service. Pipe used in water distribution or irrigation systems shall be either PVC or DI pipe as specified in Section 4 of this Handbook.

The Contractor shall be responsible for all materials furnished and storage of same, until the date of substantial completion. The Contractor shall replace at the Contractors expense all material found to be damaged or defective in handling or storage. The Contractor shall, if requested by the County, furnish certificates, affidavits of compliance, test reports, or samples for check analysis for any of the materials specified in this Handbook as it relates to water and irrigation systems. All pipe delivered to the project site for installation is subject to random testing for compliance with the designated specifications.

5.02 DESIGN STANDARDS

- A. Required Reference: The Builder shall comply with the design and installation requirements as established by the FDEP and additional specific requirements stated in this handbook. The criteria set forth in the most recent edition of "RECOMMENDED STANDARDS FOR WATER WORKS (TEN STATES STANDARDS) AND INSURANCE SERVICES OFFICE" should be used as a design guide, if not in conflict with State, County or other regulatory agency requirements.
- B. Water mains shall be located in dedicated rights-of-way or utility easements. When installed in rights-of-way, water mains shall, in general, maintain a consistent alignment with respect to the centerline of the road. All water mains located outside of dedicated rights-of-way shall require a 20-foot easement or as required by the County. Water mains shall not be located beneath permanent structures. Placement of a water main along side or rear lot line may be allowed on a case by case basis if such a water main configuration results in efficient placement and utilization of the water distribution system. Easement widths shall be on a case by case basis and shall provide sufficient width to provide for access by heavy equipment for repair and maintenance of lines.



C. System Design:

1. Off-site water mains necessary to extend water service to a development shall be sized in accordance with the current edition of the COUNTY'S DRINKING WATER FACILITIES PLAN. On-site mains shall be minimum 6-inch diameter where on-site fire protection (fire hydrants, sprinklers, etc.) is provided.
2. Fire Hydrant Location: Spacing for hydrants shall in no case exceed 600-feet (measured along the roadway). Exact locations of fire hydrants will be in complete conformance with local and state fire code regulations. Hydrants on off-site water mains in rural areas shall be at general 2,000-foot spacing or as directed by the County.
3. System Size Computation: System design shall be based on FDEP minimum conditions of 20 PSI in the mains during fire demands and 35 PSI during peak domestic demands.
4. Isolation Valve Locations: Isolation valve locations shall be coordinated with fire hydrants and in general shall be located at distances not greater than 600-feet along the water main. Isolation valves in off-site water mains in rural areas shall be generally 2,000 foot spacing or at the discretion of the County.

5.03 STANDARD REQUIREMENTS

- A. Approved Pipe, Fittings and Valves: All PVC pipe shall be manufactured in accordance with AWWA Standard C-900 and shall meet the requirements of Section 4.02C of this Handbook. The PVC pipe shall have a minimum working pressure rating of 150 PSI and shall have a dimension ratio (DR) of 18. The pipe shall be the same outside diameter as DI pipe. The DI pipe shall conform to ANSI/AWWA A21.51/C-151. A minimum of Class 50 shall be supplied for all sizes of pipe. The types tabulated below, within the size range indicated and for the applicable service, are approved for water distribution system construction:

Pipe and Fittings	Size Range (Inches)
DI Pipe & Fittings - Cement Mortar Lined	No Limit
Polyvinyl Chloride	20 inch or Less
Polyethylene Plastic Pipe and Brass Fittings	Service Connections Only
Gate Valves (GV)	No Limit
Butterfly Valves (BFV)	No Limit
Corporation Stops and Curb Stops (Brass)	Service Connections Only



1. Joints: PVC pipe shall have integral bell push on type joints conforming to ASTM D3139. Joints for DI pipe and fitting joints shall be push-on or mechanical joints conforming to ANSI/AWWA A21.11/C-111. Restrained joints shall meet the requirements of Section 4.02F of this Handbook. Flanged joints shall conform to ANSI Standard B16.1, 125 lb.
2. Fittings: All fittings shall be mechanical joint DI or gray iron conforming to ANSI/AWWA A21.10/C-110, 250 PSI minimum pressure rating.
3. Coatings and Linings: Interior and exterior coatings for DI pipe shall conform to the requirements outlined in Section 4.02B.4 of this Handbook.

B. Fire Hydrants:

1. Hydrants shall comply with AWWA Standard C-502, "Dry Barrel Fire Hydrants" and shall be equipped with a minimum of one (1) pumper outlet nozzle 4 1/2-inches in diameter and two (2) hose nozzles 2 1/2-inches in diameter, all having National Standard hose threads. Units shall be traffic type with breakable safety clips, or flange, and stem, with safety coupling located below barrel break line to preclude valve opening. Fire hydrant shall be of ample length for 3 1/2-foot depth of bury. Outlet nozzles shall be on the same plane, with minimum distance of 18-inches from center of nozzles to ground line. Valve shall be compression type with 5 1/4-inches minimum valve opening and shoe inlet connection to be 6-inches minimum. Fire hydrants shall be equipped with "O-Ring" packing.

All iron parts of the hydrant both inside and outside shall be painted, in accordance with AWWA C-502. All inside surfaces and the outside surfaces below the ground line shall be coated with asphalt varnish. They shall be covered with two (2) coats. The outside of the hydrant above the furnished ground shall be painted with two (2) coats of chrome yellow paint compliant with NFPA Standard 5.2.1.1.

2. Hydrants shall be installed plumb and in true alignment with the connection pipes to the water main. They shall be secured with restraining assemblies. The gravel or crushed stone for the drain sump, followed by backfilling, shall be carefully placed and compacted. Installation shall be as shown on "Fire Hydrant Assembly Detail". Final field location of all hydrants shall be approved by the County Public Works of the County Engineer. All hydrants shall be located no less than 5-feet and no more than 10-



feet from the edge of pavement of the adjacent roadway and no less than 5-feet from any physical feature which may obstruct access or view of any hydrant unless otherwise approved by the County.

- C. **Dead Ends:** In order to provide increased reliability of service and reduce head loss and flushing demands, dead ends shall be minimized by making appropriate tie-ins and loops. Where dead end mains occur, they shall be provided with a fire hydrant or blow-off for flushing purposes. Flushing devices shall be sized to provide flows which will provide a velocity of at least 2.5-feet per second in the water main being flushed. No flushing device shall be connected to any sewer. Where dead mains occur, the development shall include easements to provide for future looped connections to adjacent properties.
- D. **Pipe Depth and Protection:** The standard minimum cover for water distribution systems shall be 3-feet from the top of the pipe to finish grade. Should this design not be feasible, alternatives shall be reviewed for acceptance.
- E. **Separation of Water Mains and Sewers:** Water mains that are installed in the vicinity of pipe lines designated to carry raw wastewater, reclaimed reuse or wastewater effluent shall meet the horizontal and vertical separations as required by FDEP standards. In general, the following shall apply.
 - 1. **Horizontal Separation:** Under normal conditions water mains shall be located at least 6-feet horizontally from pipes carrying raw wastewater, and 3-feet horizontally from pipes carrying reclaimed reuse or wastewater effluent, whenever possible; the distance shall be measured from the inside edge of pipe to inside edge of pipe. When local conditions prevent a horizontal separation of 10-feet, a water main may be laid closer to a pipe carrying raw wastewater provided that the bottom of the water main is at least 18-inches above the top of the sewer pipe and the water main is laid in a separate trench or on an undisturbed earth shelf.
 - 2. **Vertical Separation:** Under normal conditions water mains shall be laid to provide a separation of at least 18-inches between the bottom of the water main and the top of the sewer. When construction conditions prevent a vertical separation of 18-inches as described herein above, the sewer pipe shall be constructed of DI pipe with mechanical joints.
 - 3. **Crossing of Water Mains and Sewers:** Water mains shall be installed above sewers whenever they cross. A vertical separation of at least 18-inches shall be maintained between the top of the sewer and the bottom of the water main as noted above. Adequate structural support for both the water main and sewers shall be provided to prevent excessive deflection of joints and settling. Sewers shall be constructed of DI pipe with mechanical joints and the length shall be a minimum of 18-feet. The sewer shall be



centered at the point of crossing so that the joints will be equidistant and as far as possible from the water main.

F. Surface Water Crossings

1. Aerial Crossings: Structural supports shall be provided for all joints in pipes utilized for aerial crossings and shall be designed to prevent overturning and settlement. Expansion joints shall be provided between the aerial and buried sections of pipe. The impact of flood waters and debris shall be considered and the bottom of the pipe shall be placed no lower than 1-foot above the 100 year flood elevation.

Flanged DI pipe, minimum Class 53 shall be used for all aerial crossings. The above ground pipe shall be painted as specified in Section 4.02B.4.B for above ground water mains. Underground pipe shall be provided at both ends of the crossing so that the section can be isolated for testing or repair. The valves shall be easily accessible and not subject to flooding. An air release/vacuum relief valve shall be installed at the high point of the crossing. Appropriate guards shall be installed at both ends of the crossing to prevent pipe access to the public.

It shall be the responsibility of the Developer to obtain all applicable regulatory permits. When the aerial crossing is accomplished by attachment to a bridge or drainage structure, the Developer shall meet all requirements of the Agencies who own or have jurisdiction over such structures.

2. Underwater Crossings: A minimum of 3-feet 6-inches concrete slab shall be provided over the pipe. The pipe material shall meet appropriate AWWA Standards for use in submerged conditions. Valves shall be provided at both ends of the water crossings so that the section can be easily isolated for testing or repair. The valves shall be easily accessible, and not subject to flooding. Both valves shall be provided in a manhole or valve vault. It shall be the responsibility of the Developer to obtain all applicable regulatory permits, including dredge and fill permits.

G. Pipe Bedding: Reference Section 3.

H. Connections at Structures: Where pipes are to extend into or through structures, flexible joints shall be provided at the wall face.

I. Special Exterior Protection for Corrosion: Extra protection shall be provided for underground DI pipe and fittings within areas of severe corrosive conditions. This shall be accomplished by the installation of polyethylene encasement, as specified in AWWA C-105, through the area of concern. The soil-test evaluation to



determine the necessity for extra protection in suspect areas shall be as set forth in ANSI Standard A21.5. Additionally, where other existing utilities are known to be cathodically protected, DI pipe crossing said utility shall be protected for a distance of 20-feet to each side, and when installed parallel to and within 10-feet of, protection shall also be provided.

J. Air Venting and Blow-Offs: Where the water main profile is such that air pockets or entrapment could occur, resulting in flow blockage, methods for air release shall be provided. Air venting capabilities shall be provided for distribution mains by appropriately placing fire hydrants, blow-offs or other manual devices. At critical points on major mains, automatic air release assemblies shall be installed. All dead-end water mains, temporary or permanent, shall be equipped with a manually operated blow-off at the terminus.

K. Service Connections:

1. All service lines shall be 3/4-inch, 1-inch, 1 1/2-inch or 2-inch polyethylene tubing conforming to the specifications in AWWA C-800 and C-901.
2. Connections to existing water mains shall be accomplished by the County.
3. No water service lateral shall parallel adjoining lots, run between neighboring property lines or come through the rear of the property's lot line in order to provide utility service, unless otherwise approved by the County.
4. Corporation stops shall be 1-inch, 1 1/2-inch or 2-inch brass, equipped with connections compatible with the polyethylene tubing and threaded in accordance with specifications in AWWA C-901. Curb stops shall be sized to match the meter size and conform to AWWA C-800 and AWWA C-901.
5. Fittings shall be brass, cast and machined in accordance with specifications in AWWA C-800 and AWWA C-901, with compatible polyethylene tubing connections.
6. Service saddles shall be for service line taps and conform to the requirements outlined in Section 4.0 of this

L. Water Metering: All water service connections shall be metered. In general, the method of metering will follow the guidelines listed below. However, the Builder's Engineer must obtain approval before finalizing the design of the metering system.

1. Single Family, Duplex, and Multi-Family Subdivisions with Public Rights-of-Way: Each unit shall be individually metered. Single



and double services shall be installed at the property lines as indicated by the Standard Drawings.

2. Single Family and Duplex Subdivisions with Private Streets: Individual meters may be permitted in accordance with Section L (1) if the private streets are designed to County standards and easements are dedicated over the entire private street common areas. In addition, sufficient area must be available to locate water mains, services, and meters. If the above criteria cannot be met, the subdivision shall be metered pursuant to Section L (4).
 3. Commercial, Industrial, and Institutional Projects without Private Fire Lines: In general, each building shall be individually metered. Meter(s) shall be located in the public rights-of-way at the property line.
 4. Commercial, Industrial, Institutional, Multi-Family with Private Streets, Apartments, and Condominium Projects with Private Fire Lines: In general, all such projects shall require installation of a backflow preventer with a flow monitoring meter.
 5. Meter Installation: All meters will be installed by the County after payment of applicable fees and charges. All meters less than 2-inches in size will be installed underground in an approved meter box. Meters 2-inches and larger shall be placed in a buried vault.
 6. Meter Sizing: The size of all meters shall be determined by the County. The Builder's Engineer shall provide sufficient information on estimated peak flows and low flows so that a meter size can be determined.
- M. Backflow Prevention: Reference Appendix B of this Handbook
- N. Identification Wire and Tape: Locating wire shall be installed directly on top of the pipe. Locating tape shall be installed 1-foot below final grade over the centerline of the pipe. The tape installed 1-foot below final grade shall be the detectable type; the tape installed directly on top of the pipe may be detectable or non-detectable. The tape shall be laid continuously without gaps between ends over all installed piping. The tape shall have the words "Caution, Water Line Buried Below" printed continuously along its length.

5.04 INSTALLATION

- A. All water mains, valves and appurtenances shall be installed in accordance with Sections 3 and 4 of this Handbook.



5.05 TESTING

- A. The Builder shall perform hydrostatic testing of all water distribution systems, as set forth in the following, and shall conduct said tests in the presence of representatives from the County with two (2) days advance notice provided. Hydrostatic tests shall be conducted on all newly laid pressure pipes, joints and valves including all service lines to the curb stops. Air testing of pressure pipe will not be permitted under any circumstance. The Contractor shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required.
1. Piping and appurtenances to be tested shall be within sections between valves, unless alternate methods have received prior approval. Testing shall not proceed until restraint is in place. All piping shall be thoroughly cleaned and flushed prior to testing to clear the lines of all foreign matter. While the piping is being filled with water, care shall be exercised to permit the escape of air from extremities of the test section, with additional release cocks provided if required. Flushing shall be at full flow conditions and at least 2.5-feet per second flow rate.
 2. Hydrostatic testing shall be performed at 150 PSI pressure for a period of not less than 2 hours. A successful test will be completed if the pressure drop is less than 5 PSI during this 2 hour test. If during the test the integrity of the tested line is in question, the County may require a 6 hour pressure test. Testing shall be in accordance with the applicable provisions as set forth in Section 4 of AWWA Standard C-600. The Contractor may conduct hydrostatic tests after the trench has been partially backfilled with the joints left exposed for inspection for the Contractors informational purposes only. The hydrostatic tests for acceptance shall only be conducted after the trenches have been completely backfilled and compacted as specified.

If the County requires additional leakage requirements, the leakage test will be conducted as follows. The procedure for conducting the test will be that each section of pipe to be tested will be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this taps shall be made, and appropriate valves installed to ensure bleeding of all air from the main.



If defective pipes, fittings, valves, or hydrants are discovered in consequence of this pressure test, all such items shall be removed and replaced by the Contractor with sound material and the test repeated until satisfactory results are obtained. The allowable rate of leakage for DI piping shall be less than the number of gallons per hour determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

- L = allowable leakage in gallons per hour
- S = length of pipe tested, in feet
- D = nominal diameter of the pipe in inches
- P = average test pressure maintained during the leakage test in pounds per square inch gauge, (minimum 150 PSI)

The allowable leakage for PVC piping shall be 90-percent of the value calculated above.

3. The testing procedure shall include the continued application of the specified pressure to the test system, for the two (2) hour period, by way of a pump taking supply from a container suitable for measuring water loss. The amount of loss shall be determined by measuring the volume displaced from said container. Should the test fail, necessary repairs shall be accomplished by the Builder and the test repeated until within the established limits. The Builder shall furnish the necessary labor, water, pumps, gauges and all other items required to conduct the required water distribution system testing and perform necessary repairs.

5.06 DISINFECTION

- A. Following pressure testing, the Builder shall disinfect all sections of the water distribution system, and receive approval thereof from the appropriate agencies, prior to placing in service. In addition, any part of the County's water system which has direct contact with finished water and has been out of service for repair, alteration, or replacement shall be disinfected. Two (2) days advance notice shall be provided to the County before disinfecting procedures start. The disinfection shall be accomplished in accordance with the applicable provisions of AWWA Standard C-651, "Disinfecting Water Mains", and all appropriate approval agencies.



- B. Sections of pipe to be disinfected shall first be flushed (full diameter) at the minimum rate of 2.5 feet per second (FPS) to remove any solids or contaminated material that may have become lodged in the pipe. All taps required for chlorination or flushing purposes or for the temporary or permanent release of air shall be provided for by the Contractor as a part of the construction of water mains, all such taps shall be sealed to the satisfaction of the County.

Before being placed into service, all new mains and repaired portions of, or extensions to existing mains shall be chlorinated so that the initial chlorine residual is not less than 50 mg/l and that a chlorine residual of not less than 25 mg/l remains in the water after 24 hours in the pipe. Chlorine may be applied as a liquid chlorine (gas-water mixture), or a mixture of water and high-test calcium hypochlorite. The Contractor shall assume the responsibility for safe handling of chlorine and shall meet the requirements of OSHA and other regulatory agencies for safe handling of chlorine.

The preferred point of application of the chlorinating agent shall be at the beginning of the pipe line extension or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of applications may be used when approved by the County.

Following initial chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its lengths shows upon test, a free chlorine residual not in excess of that normally carried in the system. After flushing, two (2) water samples shall be collected six (6) hours apart on two (2) successive days from the treated piping systems, as directed by State Law and shall show acceptable bacteriological results. All bacteriological testing shall be performed by the Developer or Contractor, and must be performed by a laboratory certified by the State of Florida. In addition, proper chain of custody procedures must be followed and samples shall only be collected by certified personnel in the presence of County personnel. Copies of testing results and all related correspondence with the FDHRS, Columbia County Public Health Unit and FDEP shall be submitted to the County.

- C. Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained.



SECTION 6

SANITARY GRAVITY SEWERS

6.01 GENERAL

This Section includes general technical criteria for the design and installation of sanitary gravity wastewater systems.

6.02 DESIGN STANDARDS

- A. Required Reference: The Builder shall comply with the applicable requirements as established by the FDEP. Additionally, the criteria set forth in the most recent edition of "Recommended Standards for Wastewater Facilities (Ten States Standards)", may generally be used as a design guide, if not in conflict with State, County or other regulatory agency requirements.
- B. Gravity sewers shall be located in dedicated rights-of-way or utility easements. Whenever possible, sewers shall be located under pavement in dedicated rights-of-way. All sewers located outside of dedicated rights-of-way shall require a minimum 20-foot easement with a 30-foot easement preferred. If a gravity sewer is located adjacent to a road right-of-way, a minimum 10-foot easement shall be provided. Additional easement widths shall be provided when the pipe size or depth of cover so dictates in both cases. No gravity sewers shall be placed under retention ponds or drainage ditches, tennis courts, or other structures. In general, gravity sewers shall not be located along side or rear lot lines. Placement of a gravity sewer along side or rear lot line may be allowed on a case by case basis if such a sewer configuration results in efficient placement and utilization of the sewer system, and must be approved by the County. In addition, no manholes shall be placed along side or rear lot lines.



C. System Design:

1. Diameter: On-site gravity sewers shall be 8-inch diameter on minimum slope per FDEP standards (0.4% based on $n=0.013$ for $v=2$ fps). Larger diameter gravity mains shall be considered regional mains and sized by the County based on area-wide wastewater flow projections.
2. Design Considerations:
 - a. Sewers shall be installed with straight alignment and grade between manholes, with manhole spacing not to exceed 350-feet for all sewers; however, special provisions may be considered for sizes 30-inches and larger.
 - b. All sanitary sewers shall initiate and terminate at manholes (4-ft in diameter).
 - c. Sewers of diverse sizes shall always join at manholes, with no size conversions between manholes. Where different sizes join, the pipes shall be placed at elevations where the 0.8 depth points are equal. If the entrance pipe elevation exceeds 2.0-feet above the effluent sewer, drop manhole connections shall be provided.
 - d. Flow direction changes in excess of 90° shall not be included in sewer alignments without special consideration.
 - e. Where design velocities greater than 10-feet per second are attained, due to topography or other reasons, special provisions shall be provided for sewer protection.
 - f. The minimum cover over gravity sewers shall be no less than 3-feet calculated from the finished grade.
 - g. All sewer extensions for future connections shall terminate at a manhole.
 - h. Main drain and backwash systems for pools and spas, and storm drain systems shall not connect to the gravity system.
 - i. The Engineer shall submit signed, sealed and dated design calculations in accordance with FDEP (10 State) requirements.



6.03 STANDARD REQUIREMENTS

- A. Approved pipe and fittings: All gravity sewer pipes shall be PVC pipe unless otherwise approved by the County. Pipe 15-inches in diameter and less shall meet the requirements for ASTM D3034, SDR 35. Pipe 18-inches and larger shall meet ASTM F679, SDR 35. The joints shall be integral bell elastometric gasket joints manufactured in accordance with ASTM D3212 and ASTM F477. Pipe wall thickness shall be based on minimum safe loads for depths of installation. Unless otherwise specified, wye branches shall be provided in the gravity sewer main for service lateral connections. Wyes shall be 6-inches inside diameter, unless otherwise approved by County. All fittings shall be the same material as the pipe. Plugs for stub outs shall be of the same material as the pipe, and gasketed with the same gasket material as the pipe joint.
- B. Sanitary Sewer Manholes:
1. Manholes shall be precast concrete, as detailed herein. Alternate manhole materials and designs shall receive prior approval. The minimum inside diameter of manholes shall be 48-inches for sewer sizes to 24-inches in diameter or less. For sewers between 24-inches and 36-inches the minimum inside diameter shall be 60-inches. A minimum access cover diameter of 24-inches shall be provided. Installation of manholes shall be as shown on "Gravity Sewer Detail". All pipe openings shall be supplied with rubber boots for pipe connections.
 2. Precast reinforced manholes shall be in accordance with ASTM Designation C478, with performed flexible plastic joint sealer conforming to Federal Specification SS-S-0021 (GSA-FSS).
 3. The minimum wall thickness shall be 5-inches. Precast manholes shall be constructed with a precast monolithic base structure as shown on the Standard Drawings. The minimum thickness shall be 8-inches.
 4. Manhole frames and covers shall be gray cast iron conforming to ASTM Designation A48, Class 30. Castings shall be true to pattern in form and dimensions and free from pouring faults and other defects which would impair their strength, or otherwise make them unfit for service intended. The seating surfaces between frames and covers



shall be machined to fit true. No plugging or filling will be allowed. Lifting or pick holes shall be provided.

5. Casting patterns shall conform to those shown or indicated on the Standard Drawings. Covers shall have no perforations and shall be marked with the word "SANITARY". Frames and covers shall be fully bedded in mortar to the correct finish grade elevation, with adjustment brick courses placed below, for precast manholes. Frames shall be suitable for the future addition of cast iron rings for upward adjustment of top elevation. All manhole frames and covers shall be traffic bearing to meet AASHTO H-20 loadings.
6. Manhole flow channels shall be smooth with carefully shaped bottoms, built up sides and benching constructed from concrete (minimum 2500 PSI). Channels shall conform to the dimension of the adjacent pipe and provide changes in size, grade and alignment evenly. Flow directional changes of greater than 90° shall not be included in sewer alignments without special consideration.
7. The interior surfaces of all manholes shall be protected by the application of two (2) coats of epoxy coal tar coating with a minimum dry film thickness of 16-mils. Exterior surfaces shall receive two (2) coats of epoxy coal tar coating with a minimum dry film thickness of 9-mils. Surface preparation and paint application shall comply with the manufacturer's recommendations.
8. Where additional pipe connections or modification of existing factory made openings are required on new or existing precast concrete manholes, all cutting relative thereto shall be performed only by a power driven abrasive wheel or saw. It is specifically noted that such connections to existing manholes shall be caulked watertight with non-shrinking grout.
9. An outside drop pipe shall be provided for a sewer entering a manhole where its invert elevation is 24-inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24-inches, the manhole invert shall be filleted to prevent solids deposition.



10. Concrete for manholes shall be Type II, 4,000 PSI at 28 days. Barrel, top and base sections shall have tongue and groove joints. All jointing material shall be cold adhesive performed gaskets, conforming to FDOT Article 942-2.
 11. Manhole sections shall be cured by an approved method for at least twenty eight (28) days prior to painting and shall not be shipped until at least two (2) days after having been painted.
 12. Lift rings or non-penetrating lift holes shall be provided for handling precast manhole sections. Non-penetrating lift holes shall be filled with non-shrink grout after installation of the manhole sections.
- C. Pipe Depth and Protection: The minimum allowable cover for gravity sewers shall be 3-feet from the top of the pipe to finish grade. Where mains cross beneath ditches and waterways, the mains shall be encased in concrete to a distance of 10-feet each side of the bottom. Additionally, approved utility crossing signs shall be placed on the pipe alignment at each side of any waterway crossed.
- D. Pipe Bedding: Special care shall be exercised in design and installation to provide adequate bedding for the type of pipe used, taking into consideration trench width and depth, superimposed loadings above grade and the material below trench grade. Pipe loading capabilities shall be computed in accordance with established design criteria and special supporting bedding or facilities shall be provided as required.
- E. Connections at Structures: Where sanitary sewers connect to structures, pipe joints shall be provided at the wall face. Alignment of gravity sewers through storm sewers and other conflict structures shall be avoided. When it is necessary to extend sewers through conflict structures, the design and pipe material shall be evaluated on a case by case basis.
- F. Transition Connections: Where pipes of alternate materials (PVC to DI, etc.) are to be connected between manholes, suitable approved transition couplings shall be installed. Couplings shall be "C-T Adapters". Special designed units may be submitted for approval; however, concrete collars are not acceptable.
- G. Service Connections: Installation shall be as shown on "Service Lateral Details"; including the wye branches installed in the sewer main at the point of connection, and the service pipe and required fittings extended to the property line, perpendicular to said line, terminating with stoppered ends or fittings, as indicated. The minimum service pipe size shall be 6-inches in diameter and not more than 50-feet in length for single or double connections. Service laterals shall



have a minimum slope of 1/8-inch per foot. Locations shall be marked with locator balls or other methods approved by County.

No wastewater service lateral shall parallel adjoining lots, run between neighboring property lines or come through the rear of the property's lot line in order to provide utility service, unless otherwise approved by County.

- H. Protection of Water Systems: The horizontal separation between sanitary sewers and existing or proposed water mains shall not be less than 10-feet. However, should the stipulated horizontal separation not be possible, the sewer pipe shall be completely encased (6-inches minimum) in concrete or protected by other methods as approved. Unless sewer pipes cross below water mains with a vertical separation of 18-inches between the bottom of the water pipe and the top of the sewer, special protection shall be provided. Said protection shall consist of completely encasing (6-inches minimum) the sewer pipe in concrete for a minimum distance of 10-feet each side of the water main, or installation of pressure-tight joint of ductile iron pipe for the same dimension.
- I. Grease Traps and Interceptors: All Food Preparation/Service Establishments shall have outside grease traps sized as discussed herein. All wastewater flow from the kitchen areas of these establishments must flow through approved grease traps prior to entering the wastewater collection. All grease traps and interceptors must be sized and constructed in accordance with the latest version of the Florida Building Code.

6.04 INSTALLATION

- A. All gravity sewer pipe, manholes and appurtenances shall be installed in accordance with Section 4 of this Handbook.

6.05 TESTING

- A. The Builder shall perform testing of all sanitary gravity sewers, as set forth in the following, and shall conduct said tests in the presence of representatives from the County with two (2) days advance notice provided.
- B. The installed sewers shall be "lamped" between manholes, or other structures in order to ascertain that they are clear and to correct alignment. The concentricity of the lamp image received shall be such that the diameter of said image shall have no vertical reduction from that of the pipe inside diameter and not more than 20 percent horizontal reduction.



- C. Sanitary sewers to be tested shall be within sections as previously approved. Testing shall not proceed until all facilities are complete, in place and concrete cured. All piping shall be thoroughly cleaned prior to testing to clear the lines of all foreign matter.
- D. Leakage testing shall be conducted in accordance with FDEP (Ten State) Standards.
- E. Should the test fail, necessary repairs shall be accomplished by the Builder and the test repeated until the results are within the established limits. The Builder shall furnish the necessary labor, water and all other items required to conduct the required testing and shall perform the necessary system repairs required to comply with the specified test.
- F. Maximum ring deflection of PVC pipe under load shall be limited to 5 percent of the vertical internal pipe diameter. The County may require the builder to demonstrate acceptance to minimal deflection requirements by passing of a mandrel (pig).
- G. The results of all testing shall be provided to the County in legible form by the Builder.



SECTION 7

WASTEWATER FORCE MAINS

7.01 GENERAL

This Section includes the general requirements for design and installation of force main systems servicing wastewater pumping stations.

7.02 DESIGN STANDARDS

- A. Required Reference: The Builder shall comply with the applicable design and installation requirements as established by the FDEP and the most recent edition of "Recommended Standards for Wastewater Facilities (Ten States Standards)."
- B. System Design: Force main systems shall be of adequate size to efficiently transmit the total ultimate peak operational flows, applied by the connected sewage pumping station(s), to the effluent point. Consideration should be given to possible future connecting pumping stations and this probability shall be reviewed by the County representatives. Capacity computations shall be coordinated with the proposed pumping system(s) along with any future flow requirements, if applicable. Force main flow velocity shall not be less than 2-feet per second.

The force main and fittings, including all restrained joint fittings and thrust blocking, shall be designed to withstand pump operating pressures and pressure surges, but not less than 100 PSI.

Force mains shall not terminate directly into a gravity sewer line. Force mains should enter the manhole at a point not more than 1-foot above the flow line of the receiving manhole.

Design Calculations: The Builder's Engineer shall submit signed, sealed and dated design calculations for all wastewater force main projects. The calculations shall show that the force main will have sufficient hydraulic capacity to transport all design flows.



Location: Force mains shall be located in dedicated rights-of-way or utility easements. When installed in rights-of-way, force mains shall maintain a consistent alignment with respect to the centerline of the road. All force mains located outside of dedicated rights-of-way shall require a minimum 20-foot easement.

7.03 STANDARD REQUIREMENTS

- A. **Approved Pipe, Fittings and Valves:** Pipe used for force main systems shall be PVC unless otherwise approved by the County. PVC pipe shall be green pipe manufactured in accordance with AWWA standard C-900. The PVC pipe shall have a minimum working pressure of 100 PSI and a DR of 25. All DI pipe shall conform to ANSI/AWWA A21.51/C-151. Force main shall be a minimum of 4-inches in diameter.
- B. **Joints:** All PVC pipe shall have integral bell push on type joints conforming to ASTM D3139. Joints for DI pipe and fittings shall be push on or mechanical type joints conforming to ANSI/AWWA A21.11/C-111, unless otherwise required by County. Flanged joints, if required, shall conform to ANSI B16.1-125 lb.
- C. **Joint Restraining:** Pressure piping fittings and other items requiring restraint, shall be braced with restraining assemblies. Said restraining devices shall conform to Section 4.02F of this Handbook.
- D. **Pipe Depth and Protection:** The standard minimum cover for wastewater force main systems shall be 3-feet from the top of the pipe to finished grade. Where waterways, canals, ditches or other cuts are crossed, protective concrete slabs shall also be installed across and to 10-feet each side of the bottom. Additionally, approved utility crossing signs shall be placed on the pipe alignment at each side of the canal, etc.
- E. **Separation of Water Mains and Sewers:** Wastewater force mains that are installed in the vicinity of pipe lines designated to carry potable water shall meet the horizontal and vertical separations specified herein.
 - 1. **Horizontal Separation:** Under normal conditions wastewater force mains shall be located at least 10-feet horizontally from pipes carrying potable water, whenever possible; the distance shall be measured from the inside edge of pipe to inside edge of pipe. When local conditions prevent a horizontal separation of 10-feet, a wastewater force main may be laid closer to a pipe carrying potable water provided that the bottom of the water main is at least 18-



inches above the top of the wastewater force main, and the water main is laid in a separate trench or on an undisturbed earth shelf.

2. Vertical Separation: Under normal conditions wastewater force mains shall be laid to provide a separation of at least 18-inches between the top of the wastewater main and the bottom of the water main. When construction conditions prevent a vertical separation of 18-inches or above the water line, the wastewater force main pipe shall be encased in steel pipe and extended 10-feet on both sides of water line.
- F. Connections at Structures: Where pipes are to extend into or through structures, flexible joints shall be provided at the wall face.
- G. Air and Vacuum Venting: Where the force main profile is such that air pockets or entrapment could occur, resulting in flow blockage, provisions for air release shall be provided. The air and vacuum release valves shall conform to the requirements outlined in Section 4.03I of this Handbook. Manually operated vent valves shall be provided along minor force mains where continual problems are not anticipated. Automatic air release assemblies shall be installed, where venting is required, on all major force mains and at critical points on lesser mains. At profile break points on major force mains, such as tops of hills, etc., where free flow will occur during operation or after pumping stops, combined air release and vacuum valve assemblies shall be provided. Air and vacuum valves shall be suitably housed in a properly vented underground chamber. Installation shall be as shown on "air or combination air/vacuum release valve detail", or offset air or combination air/vacuum release valve."
- I. Valves: Force main valves shall be either epoxy coated gate valves or eccentric type plug valves.
- J. Valve Locations: Valves shall be installed on all subsidiary force mains at the point of connection to the major main, in order to isolate said pipeline for maintenance. Where force mains are to be extended, valves shall be placed at the future connection point, to preclude line shut-down at the time of extension. At future connection branches or ends, the valves shall be restrained in order to facilitate said connection without system shut-down. On straight runs of force mains, valve spacing shall not exceed 2,500 feet.
- K. Branch Connections: Branch connections shall be made with tee fitting connections or tapping saddles.
- M. Clean-Out Connections: Clean-outs shall be installed in a dedicated easement at 90° bends and at areas susceptible to sedimentation clogging, as created by depressed crossings or extended low flow (velocity) periods.



- N. Terminal Discharge: Force mains shall enter the terminal facility (gravity sewer manhole, pumping station wet well or other) at a point equal to or above the operational water level of said receiving unit. In the case of manholes, the termination point shall not be more than 1-foot above the flow line of the receiving manhole.
- O. Identification Wire and Tape: Insulated locating wire shall be installed directly on top of the pipe and locating tape 1-foot below final grade over the centerline of the pipe. The tape shall have the words "Caution: Sewer Line Buried Below" painted continuously along its length.

7.04 INSTALLATION

- A. All water mains, valves and appurtenances shall be installed in accordance with Sections 3 and 4 of this Handbook.

7.05 TESTING

- A. The Builder shall perform hydrostatic testing of all wastewater force mains, as set forth in the following, and shall conduct said tests in the presence of representatives from the County and/or other authorized agencies, with two (2) days advance notice provided.
- B. Piping and appurtenances to be tested shall be within sections between valves or adequate plugs, with prior approval. Testing shall not proceed until restraining devices are installed. All piping shall be thoroughly cleaned and flushed prior to testing to clear the lines of all foreign matter. While the piping is being filled with water, care shall be exercised to permit the escape of air from extremities of the test section, with additional release cocks provided if required.
- C. Hydrostatic testing shall be performed at 100 PSI in accordance with the procedures set forth in Section 5.05.
- D. Should the test fail, necessary repairs shall be accomplished by the Builder and the test repeated until results are within the established limits. The Builder shall furnish the necessary labor, water, pumps, gauges and all other items required to conduct the required sanitary sewage force main testing and shall perform the necessary system repairs required to comply with the specified hydrostatic test.



E. Surface Water Crossings

1. Aerial Crossings: Aerial crossings shall be avoided. Any location for which an aerial crossing is proposed shall be subject to special design considerations as approved by the County.
2. Underwater Crossings: A minimum of 3-feet 6-inches concrete slab shall be provided over the pipe. The pipe material shall meet appropriate AWWA Standards for use in submerged conditions. Valves shall be provided at both ends of the water crossings so that the section can be easily isolated for testing or repair. The valves shall be easily accessible, and not subject to flooding. It shall be the responsibility of the Developer to obtain all applicable regulatory permits, including dredge and fill permits.



SECTION 8

WASTEWATER PUMPING STATIONS

8.01 GENERAL

This Section includes the general requirements for the design criteria and installation of wastewater pumping stations. Unless otherwise approved by the County, all pump stations shall be duplex submersible type pump stations. All design calculations and plans for wastewater pumping stations shall be signed, sealed and dated by professional engineer registered in the State of Florida. Only approved pumps and equipment listed in Appendix A shall be allowed.

8.02 DESIGN STANDARDS

- A. Required Reference: The Builder shall comply with the applicable requirements established by the FDEP. Additionally, the criteria provided in the most recent edition of "Recommended Standards for Wastewater Facilities (Ten States Standards)", may generally be utilized as design guidelines, if not in conflict with State, County or other regulatory agency requirements.
- B. Design Flows: Wastewater Pumping Stations shall be designed to pump the peak hourly flow of the proposed development with one pump operating. Unless otherwise allowed by the County, the minimum size station shall be a 180 GPM, 5-hp, 3-phase station with an 8-foot diameter concrete wet well. Larger capacity pumps may be required by the County to coordinate with regional planning objectives. In that case the County will provide design criteria for the larger station. Minimum lot size shall be 50-feet by 50 feet with chain link securing fence.
- C. Pump Selection:
 - 1. Head-Capacity curves shall be prepared for the proposed pumping system in order to determine the various operational conditions. Hydraulic computations shall be in accordance with good engineering practice, with pipe friction loss calculated by the "Hazen-Williams Formula", using standard friction factors based on the material utilized; however, not greater than "C=120", unless the justification for higher values are approved. Pump curves for the proposed pump shall be included with head-capacity curves for



County review. The system head-capacity analysis shall provide the following and be subject to review.

- a. System operation under peak flow conditions, with one (1) pump or multiple parallel pumping, as designed. Should the receiving force main system be interconnected to additional pumping stations, hydraulic design conditions shall also include said pumping systems operating at rated capacity.
 - b. Pumping capability with one (1) pump running, all units operating in parallel and other combinations, if applicable.
 - c. For multiple pumping station force main systems, the one pump maximum capacity under minimum flow contribution conditions from the other connected facilities shall be calculated.
- D. Design Calculations: The Builder's Engineer shall submit signed, sealed and dated design calculations for all wastewater pump stations. Calculations shall include head capacity curves with copies of manufacturers pump curves, hydraulic analysis of the force main system, operating cycle calculations with wet well sizing, and buoyancy calculations.
- E. Wet Well Design: The wet well structure shall provide a capacity, between operational water levels, sufficient to allow a minimum of 10-minutes between successive starts of the pumps, under the following condition: Influent rate of one-half the maximum one (1) pump capacity and one (1) pump running at said maximum. The wet well bottom shall be a minimum of 5.0-feet below the lowest invert. Low water levels shall provide adequate submergence to preclude pump inlet vortexing, air-binding or other design considerations. Operational maximum water levels shall not exceed the invert elevation of the influent pipe.

In general, the normal operational water level shall provide a positive suction head for the sewage pumps. Operational maximum or high water levels shall not exceed the invert elevation of the lower influent pipe, with high water alarm no higher than 0.8 inches above the invert of said pipe. No interior ladders shall be permitted in the wet well. Only one (1) inlet connection shall be permitted to a wet well, unless approved by the County.

Buoyancy calculations verifying that adequate provisions have been made to prevent wet well floatation shall be submitted to the County. These calculations shall assume that the wet well is empty.

- F. Ventilation: Wet wells for submersible installations or others, without free access, shall be ventilated with not less than one (1) 4-inch diameter open vent pipe.



- G. **Water System:** The wastewater pump stations shall be provided with a water system with adequate capacity and pressure for station wash down and other requirements. The station water system shall be completely separated from the potable water supply by means of a reduced pressure backflow preventer or other County approved system.
- H. **Emergency Operation:** All pump stations shall be provided with emergency power receptacles as specified herein.
- I. **Site:** Pumping stations shall be installed on off-the-right-of-way, readily accessible sites, and shall be a minimum dimension of 50-feet by 50-feet. The site shall be readily accessible by maintenance vehicles during all weather conditions. The wastewater pumping station structures and electrical and mechanical equipment shall be protected from physical damage by the 100 year flood. The wastewater pumping stations should remain fully operational and accessible during 100 year flood events. Regulations of the County, State and Federal agencies regarding flood plain obstructions shall be considered.

The pump station sites shall be sized and dedicated easements shall also be required around the site as delineated on the "Pump Station Site Plan" in the Standard Drawings. The Builder shall dedicate the pump station site by warranty deed or plat to the County. All pump station sites shall be fenced unless otherwise approved by County.

- J. **General:** A site plan must be provided indicating the following:
 - 1. The station must be referenced to the nearest street.
 - 2. Adequate access.
 - 3. Drainage provisions.
 - 4.. Auxiliary power plug or the generator location and automatic power transfer switch.
 - 5. The power pole location.
 - 6. The water meter with backflow prevention and hose bib location.
 - 7. The pumping station site plan must indicate what landscaping the developer will provide.



8. Pump and pump station specifications and performance data must be provided. This should include:
 - a. An operator's manual.
 - b. Attached to the control panel a layout block diagram showing location of different components.
 - c. The performance curves for the pump submitted must show that it will operate generally in the center part of the curve and not approach either upper or lower extreme.
 - d. An electrical schematic and wiring diagram including a parts schedule containing information on type, model and rating of components.
 - e. Motor controls should include backspin motor protection.
9. Emergency alarm system circuitry must be installed.
10. All wiring must be copper.
11. All outside enclosures must be NEMA 3R (stainless steel).
12. The electric meter should face the fence so that it can be easily read from the outside fence.

8.03 GENERAL REQUIREMENTS

A. Piping Systems:

1. Approved Pipe, Fittings and Valves: The following material or item shall be suitable for the indicated operational service:
 - a. Gravity Sewer and Force Main Influent Pipe, and Fittings: All influent piping to the wet well shall meet the requirements of Sections 4, 7 and 8 of this Handbook.
 - b. Wastewater Pressure Pipe and Fittings: Discharge piping from the pump station through the valve vault shall be bituminous coated DI pipe meeting the requirements of Section 7 and 8.
 - c. Wastewater Service Valves: Plug valves with operators for underground or exposed service and check valves shall



meet the requirements outlined in Sections 4.03C and 4.03D of this Handbook.

d. Potable or Non-Potable Water: PVC pipe and fittings, with appropriate gate valves.

2. Wall Pipes, Boots or Sleeves: For pipes passing through structural walls, wall pipes or boots shall be installed where the location is below the surface of the ground or at any point where water levels will exceed the installed pipe elevation. Sleeves with watertight caulking shall be suitable at other locations.

B. Valves:

1. Check Valves: Check valves for DI pipelines shall be swing type and shall meet the requirements of AWWA C-500 and Section 4.03C of this Handbook.

2. Plug Valves: Plug valves for DI pipelines shall be swing type and shall meet the requirements of AWWA C-504 and C-507, and Section 4.03D of this Handbook.

C. Pressure Gauges: Gauges shall be provided on each wastewater pump discharge pipe, as well as other locations where pressure sensing is desirable.

D. Emergency Valving Connections: Emergency valving connections shall be provided for within the valve box as shown on the drawing details (Figure 301) in Appendix D of this handbook.

E. Surge Control: Surge control valves, or other approved systems shall be provided for all wastewater pumping stations where hydraulic conditions indicate the necessity.

F. Wastewater Pumps and Motors:

1. General: The wastewater pumping units shall be capable of handling raw, unscreened wastewater and shall be capable of passing a sphere of at least 3-inches in diameter. Pumps shall be electric motor driven and of a proven design that has been in sewage service under similar conditions for at least five (5) years. Pumps shall provide the required peak design performance requirements and be suitable for operation within the total hydraulic range of operation.

2. Submersible Pumps: The pump design shall provide easy removal and replacement for inspection or maintenance purposes, without



bolts or other fastenings to be removed. The units shall be non-clog, mechanical seal, and submersible sewage pumps.

3. Shaft: The pump shaft shall be of Series 300 or 400 stainless steel or carbon steel. When a carbon steel shaft is provided, the manufacturer shall demonstrate that any part of the shaft which will normally come in contact with the wastewater has proven to be corrosion resistant in this application. The shaft and bearings shall be adequately designed to meet the maximum torque required for start-up or operating condition and to minimize vibration and shaft deflection. As a minimum, the pump shaft shall rotate on two (2) permanently lubricated bearings. The upper bearing shall be a single row ball bearing. The lower ball bearing shall be a two (2) row angular contact ball bearing, if required to minimize vibration and provide maximum bearing life.
4. Impeller: The impeller shall be constructed of gray cast iron, ASTM A48, Class 30. Each pump shall be provided with a replaceable metallic wear ring system to maintain pump efficiency. As a minimum one (1) stationary wear ring provided in the pump volute or one (1) rotating wear ring provide on the pump impeller shall be required. In addition, a two (2) part system is acceptable.
5. Mechanical Seal: Each pump shall be provided with a tandem double mechanical seal running in an oil reservoir, composed of two (2) separate lapped face seals, each consisting of one (1) stationary and one (1) tungsten carbide ring with each pair held in contact by a separate spring, so that the outside pressure assists spring compression in preventing the seal faces from opening. The compression spring shall be protected against exposure to the wastewater. Silicone carbide may be used in place of tungsten carbide for the lower seal. The pumped liquid shall be sealed from the oil reservoir by one (1) face seal and the oil reservoir from the air-filled motor chamber by the other. The seals shall require neither maintenance nor adjustment, and shall be easily replaced. Conventional double mechanical seals with a single spring between the rotating faces, requiring constant differential pressure to effect sealing and subject to openings and penetration by pumping forces shall not be considered equal to tandem seal specified and required.
6. Guides: A sliding bracket shall be an integral part of the pump casing and shall have a machined connecting flange to connect with the cast iron discharge connection, which shall be bolted to the floor of the wet well with stainless steel anchor bolts and so designed as to receive the pump discharge flange without the need of any bolts or nuts. Sealing of the pumps to the discharge



connection shall be accomplished by a simple linear downward motion of the pump with the entire weight of the pumping unit guided by no less than two (2) Type 316 seamless tubular stainless steel guides which will press it tightly against the discharge connection. No portion of the pump shall bear directly on the floor of the wet well and no rotary motion of the pump shall be required for sealing. Sealing at the discharge connection by means of a diaphragm or similar method of sealing shall not be accepted as an equal to a metal to metal contact of the pump discharge and mating discharge connection specified and required. Approved pump manufacturers, if necessary to meet the above specification, shall provide a sliding guide bracket adapter. The design shall be such that the pumps shall be automatically connected to the discharge piping when lowered into place on the discharge connection. The pumps shall be easily removable for inspection or service, requiring no bolts, nuts, or fastenings to be removed for this purpose, and no need for personnel to enter the wet well. Each pump shall be fitted with a Type 304 stainless steel, wire rope of adequate strength. A stainless steel cable, air craft rating, shall be provided between the cable holder and the lifting chain.

7. Pump Motors: All motors shall be built in accordance with the latest NEMA, ANSI, IEEE and AFBMA standards where applicable. Pump motors shall be housed in an air-filled, water tight casing and shall have Class F insulated windings which shall be moisture resistant. Motors shall be NEMA Design B, rated 155° Celsius maximum. Pump motors shall have cooling characteristics suitable to permit continuous operation, in a totally, partially or non-submerged conditions. The pump shall be capable of running continuously in a non-submerged condition under full load without damage, for extended periods. The motor shall be capable of a minimum of 10 starts per hour. If required by the County, before final acceptance, a field running test demonstrating this ability, with 24 hours of continuous operation under the above conditions, shall be performed for all pumps being supplied. Motors less than 30 horsepower shall be 230/460 volt, 3-phase. Motors 30 horsepower and greater shall be 460 volt, 3-phase. All pump motors shall be designed with a 1.15 service factor and shall not be less than 5-horsepower (hp) unless approved. Pumps shall be capable of meeting all pump curve conditions without exceeding the motor's rated horsepower.

Two (2) or more normally closed heat sensing miniature switches connected in series and embedded within the motor windings shall be provided. In addition, the motor shall incorporate one (1) motor sensing device. These protective devices shall be wired into the



pump controls in such a way that if excessive temperature or moisture is detected the pump will shut down. These devices shall be self-resetting.

Cables shall be designed specifically for submersible pump applications and shall be properly sealed. A type CGB water-tight connector with a neoprene gland shall be furnished with each pump to seal the cable entry at the control panel. The pump cable entry seal design shall preclude specific torque requirements to insure a water-tight and submersible seal. The cable entry shall be comprised of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the entry body containing a strain relief function, separate from the function of sealing the cable. The assembly shall bear against a shoulder in the pump top. The cable entry junction chamber and motor shall be separated by a stator lead sealing gland or terminal board, which shall isolate the motor interior from foreign material gaining access through the pump top. Secondary sealing systems utilizing epoxy potting compounds may be used. When this type of sealing systems is used the manufacturers shall supply a cable cap as part of the spare parts for each pump. All cables shall be continuous, without splices from the motor to the control panel. The junction chamber, containing the terminal board, shall be perfectly leak proof.



G. Pump Control Panel:

1. The control panel shall respond to liquid level float switches to automatically start and stop pumps, as well as sound an alarm upon high or low wet well levels. The control panel shall operate two (2) electrical submersible pumps at the power characteristics stipulated. The control function shall provide for the operation of the lead pump under normal conditions. If the incoming flow exceeds the pumping capacity of the lead pump, the lag pump shall automatically start to handle this increased flow. As the flow decreases, the pumps shall be cutoff at the specified elevation. The pumps shall alternate positions as lead pump at the end of each cycle. A failure of the alternator shall not disable the pumping system. The alternator shall include a safe, convenient method of manual alternation and also have provisions to prevent automatic alternation without disturbing any wiring. Should the "pump off" regulator fail, the system shall keep the station in operation and provide a visual indication of the regulator failure.

The control panel shall consist of main circuit breakers and generator breaker with mechanical interlock, an emergency power receptacle, a circuit breaker and magnetic starter for each pump motor, and 15 ampere, 120 volt circuit breakers as required. All pump control operations shall be accomplished by a float type liquid level control system with all control components mounted in one (1) common enclosure. Control switches shall provide means to operate each pump manually or automatically. When operated in the automatic mode, the control assembly shall provide means to manually select or automatically alternate the position of the "lead" and "lag" pumps after each pumping cycle. A float type liquid level control system shall continuously monitor wet well liquid level and control operation of the low-level cutoff for the pumps and shall operate off a 24 volt circuit.

2. Panel Construction: The panel shall be housed in a NEMA 3R, Type 304, 14 gauge stainless steel enclosure with 30 percent extra mounting space for additional equipment. The enclosure shall use a three point door latch and have provisions for padlocking the door and a dead front inner door unit for mounting controls. All exterior hardware and hinges shall be stainless steel. In addition, there shall be permanently affixed to the interior side of the exterior door both a nameplate and a 10-inch by 12-inch pocket for log sheet storage. The nameplate shall contain the following information, voltage, phase, rated horsepower, speed, date manufactured, and pump and control panel manufacturer's name,



address and telephone number, pump data, including impeller data, operating point and head, KW input, and amps at the operating point and at least two (2) other points on the pump curve.

3. **Power Supply and Main Disconnect:** The power supply to the control panel shall be 240 volt, 3-phase, 4 wire or 480 volt, 3-phase, 4 wire. Minimum service shall be 200 amps. Single phase power shall not be accepted. Nonfusible safety service main disconnects shall be installed at all stations. In all 240 or 480 volt systems, disconnects should be installed between the meter and the panel. LED power available indicators shall be supplied on all legs.
4. **Circuit Breakers:**
 - a. **Main Breakers:** The panel shall have an inter-lock system between the normal power main breaker and the emergency breaker to ensure only one (1) breaker in the "on" position at a time. Both breakers shall be equal in size.
 - b. **Circuit Breakers:** All circuit breakers shall be heavy duty molded case breakers. The handle on the circuit breakers shall be operational through the inner door.
5. **Motor Circuit Protectors:** Each pump shall be protected by a 3-pole motor circuit protector. The motor circuit protector shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free from the handle so that the contacts cannot be held closed against a short circuit and abnormal currents which cause the motor circuit breaker to trip. Tripping shall be clearly indicated by the handle automatically assuming a position midway between the normal "on" and "off" positions. All latch surfaces shall be ground and polished. All poles shall be so constructed so that they open, close, and trip simultaneously. Motor circuit protector must be completely enclosed in a high-strength glass polyester molded case. Ampere ratings shall be clearly visible. Contacts shall be of non-welding silver alloy. Arc extinction must be accomplished by means of arc chutes. A manual push-to-trip button shall be provided for manual exercising of the trip mechanism. Each pole of these motor circuit protector's shall provide instantaneous short circuit protection by means of an adjustable magnetic-only element.
6. **Motor Starter and Selector Switches:** The panel shall contain two (2) motor starters. The motor starter shall be across the line magnetic starter with individual overload protection on each lower



leg with reset installed through the inner door unit. Selector switches shall be installed on the face of the inner door unit. Selector switch shall be a heavy duty oil tight "Hand-Off-Automatic" three (3) position switch to control the operation mode of each pump motor starter.

7. Pump Alternator: An eight (8) pin plug-in solid state alternator shall be provided to change the pump starting sequence on each pumping cycle. A three (3) position alternator test switch shall be provided to control the alternation operation. Switch positions to include the "Auto" to provide normal automatic sequence, "Off" position to disable alternator, and "Test" position with a spring return to allow the alternating of the pump sequence to check alternator operation.
8. Lights and Alarms:
 - a. Indicator Lights: There shall be installed on the face of the inner door unit, heavy duty oil tight indicator lights as shown on the Standard Drawings.
 - b. High Level Alarm: A vapor proof red light and horn shall be mounted on the top of the panel for high level alarm. In addition, there shall be an alarm silence push-button on the exterior right hand side of the panel and a silence relay which will silence the horn and automatically reset when these signals are restored to normal. The push-button shall be heavy duty oil tight. The red globe shall be the screw-on type.
9. Emergency Power Receptacle: The control panel shall have an external mounted generator receptacle of the required size and type as indicated in Appendix A.
10. Additional Requirements:
 - a. All power wires shall be THW or THWN 75° Celsius insulated stranded copper conductors and shall be appropriately sized for the given load application. All control circuit wire shall be type THW, Size 14, stranded wire type. All wiring within the enclosure shall be neatly routed by the use of slotted wiring duct with snap on type covers. Wiring on the rear of the inner door shall be neatly bundled with nylon ties and include sufficient loop across the hinges to prevent wire damage, with each end of the conductor marked as indicated below:



- (1) 24 volt: red.
 - (2) Neutral: white.
 - (3) 120 volt: black.
-
- b. Terminal points of all terminal strips shall be permanently identified. All terminal numbers and identifying nomenclature shall correspond to and be shown on the electrical diagrams. All wiring shall be permanently shown on the electrical drawings.
 - c. All circuit breakers, control switches, indicator pilot lights and other control devices shall be identified with permanently affixed legend plates and lamicoïd-type engraved nameplates.
 - d. A surge protector shall be included and wired to protect motors and control equipment from lightning induced line surges. All surge protectors shall be Underwriter's Laboratories (UL) approved and installed per the respective power company requirements and manufacturer's specifications, surge protectors shall be attached to the main disconnects.
 - e. Elapsed time meters shall be 115 volt not-reset type and shall totalize pump running time in hours and tenths of hours to 99999.9 hours.
 - f. On the face of the inner door unit, there shall be installed a 15 amp, 120 volt, duplex convenience receptacle. It shall be provided with it's own single pole, 15 amp circuit breaker for protection. Ground fault interrupt type shall be required.
 - g. Control terminal blocks shall be of the clamp screw type, rated for 600 volts. Amperage rating shall accommodate the control circuit amperage. An additional 30 space terminal strip shall be installed in the cabinet for future use, with Remote Telemetry Unit (RTU) equipment.
 - h. There shall be a control power transformer with a minimum size of 500VA to provide 120VA power for: coils for starters, 15A duplex receptacle, indicator pilot lights, alarm horn, alarm light, pump alternator, elapsed time meters, etc. The secondary side shall have one (1) leg fused and the other grounded. This control power transformer is required



only on 480 volt control panels. The signal required by the float switches and relays shall be 24VAC. This shall be provided by a 24VAC control power transformer properly sized with a fused secondary.

H. Fencing:

1. The builder shall furnish and erect the chain link fence and gate around the pump station site as shown on the pump station site plan. The fabric, posts, fastenings, fittings, and other accessories for chain link fence shall meet the requirements of AASHTO M 181 with the following revisions:
 - a. The weight of coating of wire fabric shall be 1.2 ounces of zinc per square foot (Class B).
 - b. The galvanizing of steel materials shall be hot-dipped galvanized.
 - c. The weight of the coating on posts and braces shall be 1.8 ounces of zinc per square foot, both inside and outside to meet the requirements of AASHTO M 111.
2. The base metal of the fabric shall be a good commercial quality 9 Gage Steel wire. The fabric shall be of uniform quality, and shall be 6-feet high with a 2-inch mesh size.
3. All posts and rails shall be in accordance with the following schedule:
 - a. End, corner and pull posts: 2-3/8-inches outside diameter (OD), Schedule 40.
 - b. Line posts and gate frames: 2-inches OD, Schedule 40.
 - c. Gate posts: 3-inches OD, Schedule 40.
 - d. Post braces and top rail: 1-5/8-inches OD, Schedule 20.
4. Tension wire shall be 0.177-inch coiled spring wire tensioned along the bottom of the fabric and shall be coated similarly to the wire fabric.
5. Miscellaneous fittings and hardware shall be zinc coated commercial quality or better steel or zinc coated cast or malleable iron as appropriate.



6. Post caps, designed to provide a drive fit over the top of the tubular post to exclude moisture, shall be provided.
7. Barb wire along top of fence (3 strands @ 45° angled out).

8.05 REQUIRED SUBMITTALS

- A. The Builder shall provide to the County in triplicate in the English language the following information regarding the wastewater pumping equipment:
 1. Shop and erection drawings showing all important details of construction, dimensions and anchor bolt locations.
 2. Descriptive literature, bulletins, and/or catalogs of the equipment.
 3. Data on the characteristics and performance of each pump. Data shall include guaranteed performance curves, based on actual shop tests of similar units, which show that they meet the specified requirements for head, capacity, efficiency, NPSHR, submergence and horsepower. Curves shall be submitted on 8 1/2-inch by 11-inch sheets, at as large a scale as is practical. Curves shall be plotted from no flow at shut off head to maximum manufacturer recommended pump capacity. Catalog sheets showing a family of curves will not be acceptable.
 4. Complete layouts, wiring diagrams, elementary or control schematics, including coordination with other electrical control devices operating in conjunction with the pump control system. Suitable outline drawings shall be furnished for approval before proceeding with the manufacture of any equipment. Standard preprinted sheets or drawings simply marked to indicate applicability will not be accepted.
 5. A drawing showing the layout of the pump control panel shall be furnished. The layout shall indicate all devices mounted on the door and in the panel shall be completely identified.
 6. The weight of each pump.
 7. Complete motor data shall be submitted including:
 - a. Nameplate identification.
 - b. No-load current.



- c. Full load current.
- d. Full load efficiency.
- e. Locked rotor current.
- f. High potential test data.
- g. Bearing inspection report.

8.06 TOOLS AND SPARE PARTS

- A. One (1) set of all special tools required for normal operation and maintenance shall be provided. All such tools shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.
- B. Spare parts shall be properly packaged and labeled for easy identification without opening the packaging and suitably protected for long term storage under humid conditions.

The manufacturer shall furnish the following spare parts for each pump supplied:

- 1. One (1) upper bearing.
- 2. One (1) lower bearing.
- 3. One (1) set of upper and lower shaft seals.
- 4. One (1) set of "O-Rings" or gaskets required for replacement of bearings and seals.
- 5. One (1) impeller wear ring.
- 6. One (1) shaft sleeve, if applicable.
- 7. One (1) cable cap, if applicable.

8.07 DETAILS

Pump station details shall be as set forth in this Handbook.



8.08 *INSTALLATION AND TESTING*

- A. The pump station, pumps, controls, electrical, piping, valves and associated appurtenances shall be installed in accordance with Sections 3 and 4 of this Handbook.

- B. A factory representative knowledgeable in pump operation and maintenance shall inspect and supervise a test run at the pumping station. A minimum of one working day shall be provided for the inspections. Additional time made necessary by faulty or incomplete work or equipment malfunctions shall be provided as necessary to meet the requirements in this Handbook at no additional cost to the County. Upon satisfactory completion of the test run, the factory representative shall issue the required manufacturer's certificate.

The test run shall demonstrate that all items of this Handbook have been met by the equipment as installed and shall include, but not limited to, the following tests:

- 1. That all units have been properly installed.
 - 2. That the units operate without overheating or overloading any parts and without objectionable vibration.
 - 3. That there are no mechanical defects in any of the parts.
 - 4. That the pumps can deliver the specified pressure and quantity.
 - 5. That the pumps are capable of pumping the specified material.
 - 6. That the pump controls perform satisfactorily.
- C. **Warranty and Service:**
- 1. **Warranty:** The products shall be guaranteed to be free from defects in material and workmanship under normal use and service for a period of one year after start-up.
 - 2. **Service:** Service shall be available for insitu repair of the products. Manufacturer's repair personnel shall be based in Florida to insure a reasonable response time of not more than two (2) working days.



SECTION 9

REUSE DISTRIBUTION SYSTEMS

9.01 GENERAL

- A. This Section sets forth the general requirements for design and installation of public access reuse irrigation systems. Pipe used in reclaimed water irrigation systems shall be PVC pipe as specified in Section 4 of this Handbook.

The Contractor shall be responsible for all materials furnished and storage of same, until the date of substantial completion. The Contractor shall replace at the Contractors expense all material found to be damaged or defective in handling or storage. The Contractor shall, if requested by the County, furnish certificates, affidavits of compliance, test reports, or samples for check analysis for any of the materials specified in this Handbook as it relates to reclaimed water irrigation systems. All pipe delivered to the project site for installation is subject to random testing for compliance with the designated specifications.

9.02 DESIGN STANDARDS

- A. Required Reference: The Builder shall comply with the design and installation requirements as established by the FDEP and additional specific requirements stated in this Handbook.
- B. System Design:
1. Normal Flow Demands: Irrigation demands shall be determined using the method described previously in this Handbook.
 2. System Size Computation: The allowable minimum service pressure under said design condition shall not be less than 30 PSI. Design computation shall be by the "Hardy Cross" procedure, or other applicable methods, as dictated by the system configuration. Design flows and method of computation shall be subject to review and approval. These calculations shall be signed, sealed and dated by a professional engineer registered in the State of Florida.
 3. Valve Locations: Valves shall be provided for all branch connections, main ends, fire hydrant stubs or other locations, as



required to provide an operable, easily maintained and repaired distribution system. Valves are to be placed so that the maximum allowable length of reuse main required to be shut-down for repair work shall be 500-feet in commercial, industrial or high density residential districts, or 1000-feet in other areas.

- C. Location: Reclaimed water reuse mains shall be located in dedicated rights-of-way or utility easements. When installed in rights-of-way, reuse mains shall maintain a consistent alignment with respect to the centerline of the road. All reuse mains located outside of dedicated rights-of-way shall require a minimum 20-foot wide easement. Water mains shall be located in dedicated rights-of-way or utility easements. When installed in rights-of-way, water mains shall, in general, maintain a consistent alignment with respect to the centerline of the road. If a potable water main is located adjacent to road rights-of-way, a minimum 10-foot easement shall be provided. Additional easement widths shall be provided when the pipe size or depth of cover so dictates. No reclaimed water reuse mains shall be placed under retention ponds or drainage ditches, tennis courts, or other structures. In general, water mains shall not be located along side or rear lot lines. Placement of a reclaimed water reuse main along side or rear lot line may be allowed on a case by case basis if such a reclaimed reuse water main configuration results in efficient placement and utilization of the water distribution system.
- D. The Builder's Engineer shall submit signed, sealed and dated design calculations with the Drawings for all reclaimed water reuse irrigation projects. The calculations shall show that the reclaimed water reuse distribution mains will have sufficient hydraulic capacity to transport peak hourly flows and the combination of maximum daily flows while meeting a minimum pressure of not less than 30 PSI. Head losses through meters and backflow devices shall also be included in the calculations. Design computations shall be by the "Hardy-Cross" procedure, or other applicable methods, as dictated by the system configuration.

9.03 STANDARD REQUIREMENTS

- A. Approved Pipe, Fittings and Valves: All PVC pipe of nominal diameter of 4-inches through 16-inches shall be manufactured in accordance with AWWA Standard C-900 and shall meet the requirements of Section 4.02C of this Handbook. The PVC pipe shall be purple in color (per FDEP standard) and have a minimum working pressure rating of 150 PSI. Pipe shall have a dimension ratio of 18. The pipe shall be the same outside diameter as DI pipe.
 - 1. Joints: PVC pipe shall have integral bell push on type joints conforming to ASTM D3139. Joints for DI pipe and fitting joints shall be push-on or mechanical joints conforming to ANSI/AWWA A21.11/C-111. Where called for by County restrained or flanged joints will be required. Restrained joints shall



meet the requirements of Section 4.02F of this Handbook. Flanged joints shall conform to ANSI Standard B16.1, 125 lb.

2. Fittings: All fittings shall be mechanical joint DI or gray iron conforming to ANSI/AWWA A21.10/C-110, 250 PSI minimum pressure rating.
- B. Joint Restraining: Pressure piping fittings and other items requiring restraint, shall be braced with restraining assemblies, as specified under Section 4. Said restraining devices shall be designed for the maximum pressure condition (testing).
 - C. Pipe Depth and Protection: The standard minimum cover for reclaimed water reuse distribution systems shall be 3-feet from the top of the pipe to finish grade. Should this design not be feasible, alternatives shall be reviewed for acceptance.
 - D. Pipe Bedding: Special care shall be exercised in design and installation to provide adequate bedding for the type of pipe used, taking into consideration trench width and depth, superimposed loadings above grade and the material below trench grade. Pipe loading capabilities shall be computed in accordance with established design criteria and special supporting bedding or facilities shall be provided as required.
 - E. Air Venting and Blow-Offs: Where the reuse main profile is such that air pockets or entrapment could occur, resulting in flow blockage, methods for air release shall be provided. Air venting capabilities shall be provided for distribution mains by appropriately placing fire hydrants, blow-offs or other manual devices. At critical points on major mains, automatic air release assemblies shall be installed. All dead-end reuse mains, temporary or permanent, shall be equipped with a manually operated blow-off at the terminus.
 - F. Service Connections: All service lines shall be 1-inch, 1 1/2-inch or 2-inch polyethylene tubing conforming to the specifications in AWWA C-800 and C-901. Connections to reclaimed water reuse mains (other than DI), of 4-inches and larger, shall be made by the drilling of the appropriate size hole and the installation of service saddles. Services to smaller size mains shall be accomplished by in-line fittings. A corporation stop shall be placed at the saddle or fitting, with the service line extended perpendicular to said line. Services shall consist of hose bibs. Hose bibs shall be located in below grade jam-lock services boxes which shall be clearly labeled as not of potable water quality. No water service lateral shall parallel adjoining lots, run between neighboring property lines or come through the rear of the property's lot line in order to provide utility service, unless otherwise approved by the County.
 - G. Identification Tape: Locating tape shall be installed at two depths; directly on top of the pipe and one foot below final grade over the centerline of the pipe. The



tape installed one foot below final grade shall be the detectable type; the tape installed directly on top of the pipe may be detectable or nondetectable. The tape shall be laid continuously without gaps between ends over all installed piping. The tape shall have the words "Caution, Reclaimed Water Line Buried Below" printed continuously along its length.

H. Separation of Reclaimed Water Mains from Water Mains and Sewers: Reclaimed reuse water mains that are installed in the vicinity of pipe lines designated to carry potable water and raw wastewater shall meet the horizontal and vertical separations specified herein.

1. Horizontal Separation: Under normal conditions reclaimed reuse water mains shall be located at least 5-feet horizontally from pipes carrying potable water and raw wastewater; the distance shall be measured from the inside edge of pipe to inside edge of pipe. When local conditions prevent a horizontal separation of 5-feet, a water main may be laid closer to a pipe carrying reclaimed water provided that the bottom of the water main is at least 18-inches above the top of the reclaimed water reuse pipe and the water main is laid in a separate trench or on an undisturbed earth shelf.
2. Vertical Separation: Under normal conditions reclaimed water reuse mains shall be laid to provide a separation of at least 18-inches between the bottom of the water main and the top of the reclaimed water reuse main. When construction conditions prevent a vertical separation of 18-inches as described herein above, the reclaimed water pipe shall be constructed of DI pipe with mechanical joints.
3. Crossing of Water Mains and Sewers: Reclaimed water reuse mains shall be installed above sewers whenever they cross. A vertical separation of at least 18-inches shall be maintained between the top of the sewer and the bottom of the reclaimed water reuse main. Adequate structural support for both the reclaimed water reuse main and sewers shall be provided to prevent excessive deflection of joints and settling. Sewers shall be constructed of DI pipe with mechanical joints and the length shall be a minimum of 18-feet. The sewer shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the reclaimed water reuse main.



I. Surface Water Crossings

1. Aerial Crossings: Aerial Crossings shall be avoided. If an aerial crossing is proposed it shall be approved in concept by the County prior to design.
2. Underwater Crossings: A minimum of 3-feet 6-inches concrete slab shall be provided over the pipe. The pipe material shall meet appropriate AWWA Standards for use in submerged conditions. Valves shall be provided at both ends of the water crossings so that the section can be easily isolated for testing or repair. The valves shall be easily accessible, and not subject to flooding. Both valves shall be provided in a manhole or valve vault. It shall be the responsibility of the Developer to obtain all applicable regulatory permits, including dredge and fill permits.

9.04 *INSTALLATION*

- A. All reclaimed water reuse mains, valves and appurtenances shall be installed in accordance with Sections 3 and 4 of this Handbook.

9.05 *TESTING*

- A. The Builder shall perform hydrostatic testing of all reclaimed water reuse distribution systems, as set forth in the following, and shall conduct said tests in the presence of representatives from County or other authorized agencies, with two (2) days advance notice provided. Hydrostatic tests shall be conducted on all newly laid pressure pipes, joints and valves including all service lines to the curb stops. Air testing of pressure pipe will not be permitted under any circumstance. The Contractor shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required.
 1. Piping and appurtenances to be tested shall be within sections between valves, unless alternate methods have received prior approval. Testing shall not proceed until concrete thrust blocks are in place and cured, or other restraining devices installed. All piping shall be thoroughly cleaned and flushed prior to testing to clear the lines of all foreign matter. While the piping is being filled with water, care shall be exercised to permit the escape of air from extremities of the test section, with additional release cocks provided if required. Flushing shall be at full flow conditions and at least 2.5-foot per second flow rate.



2. Hydrostatic testing shall be performed at 150 PSI pressure as described for the testing of potable water mains (Section 5).

9.06 DISINFECTION

- A. Following pressure testing, the Builder shall disinfect all sections of the reclaimed water reuse distribution system, and receive approval thereof from the appropriate agencies, prior to placing in service. In addition, any part of the County's reclaimed water reuse system which has direct contact with reclaimed water reuse and has been out of service for repair, alteration, or replacement shall be disinfected. Two (2) days advance notice shall be provided to County before disinfecting procedures start. The disinfection shall be accomplished in accordance with the applicable provisions of AWWA Standard C-651, "Disinfecting Water Mains", and all appropriate approval agencies.
- B. Sections of pipe to be disinfected shall first be flushed (full diameter) to remove any solids or contaminated material that may have become lodged in the pipe. All taps required for chlorination or flushing purposes, or for the temporary or permanent release of air shall be provided for by the Contractor as a part of the construction of water mains, all such taps shall be sealed to the satisfaction of the County.

Before being placed into service, all new mains and repaired portions of, or extensions to existing mains shall be chlorinated so that the initial chlorine residual is not less than 50 mg/l and that a chlorine residual of not less than 25 mg/l remains in the water after 24 hours in the pipe. Chlorine may be applied as a liquid chlorine (gas-water mixture), or a mixture of water and high-test calcium hypochlorite. The Contractor shall assume the responsibility for safe handling of chlorine and shall meet the requirements of OSHA and other regulatory agencies for safe handling of chlorine.

The preferred point of application of the chlorinating agent shall be at the beginning of the pipe line extension or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of applications may be used when approved by the County.

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its lengths shows upon test, a free chlorine residual not in excess of that normally carried in the system. After flushing, water samples shall be collected on two (2) successive days from the treated piping systems, as directed by the County, shall show acceptable bacteriological results. All bacteriological testing shall be performed by the Developer or Contractor, and must be performed by a laboratory certified by the State of Florida. In addition, proper chain of custody procedures must be



followed and samples shall only be collected by certified personnel in the presence of County personnel. Copies of testing results and all related correspondence with the FDSHRS and FDEP shall be submitted to the County.

- C. Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained.



APPENDIX A

LIST OF MATERIALS AND APPROVED MANUFACTURERS

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LIST OF MATERIALS AND APPROVED MANUFACTURERS

I. WASTEWATER MAIN MATERIALS

EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
AIR RELEASE VALVES	<ol style="list-style-type: none"> 1. GA Industries 2. Apco 3. Val-matic 	2" inlet and outlet minimum
AIR RELEASE/VACUUM RELIEF VALVES	<ol style="list-style-type: none"> 1. GA Industries 2. Apco 3. Val-matic 	2" inlet and outlet minimum
CASING SPACERS	<ol style="list-style-type: none"> 1. Cascade 2. PSI 	<ol style="list-style-type: none"> 1. CCS-12" Width Min. 2. C12G-2
CAST COUPLINGS	<ol style="list-style-type: none"> 1. Dresser Manufacturing 2. Kennedy 3. Smith Blair. 	Not Applicable
CHECK VALVES (4" & LARGER)	<ol style="list-style-type: none"> 1. Mueller 2. GA Industries 3. Kennedy 	<ol style="list-style-type: none"> 1. A-2600 2. 220
EXPANSION JOINTS	<ol style="list-style-type: none"> 1. Mercer 2. Metraflex 3. EBAA Iron 	
FITTINGS	<ol style="list-style-type: none"> 1. U.S. Pipe 2. American Cast Iron Pipe 3. Tyler Pipe/Union 	
FLANGED ADAPTOR COUPLINGS	<ol style="list-style-type: none"> 1. Dresser Manufacturing 2. Kennedy 3. Smith Blair. 	
MANHOLE FRAME AND COVER	<ol style="list-style-type: none"> 1. U.S. Pipe and Foundry 2. Vulcan 	<ol style="list-style-type: none"> 1. USF #225-AS 2. V1357
MANHOLE JOINTING MATERIAL	<ol style="list-style-type: none"> 1. K.T. Snyder Co., Inc. 2. Conseal 	<ol style="list-style-type: none"> 1. Ram-Nek 2. CS102
MANHOLE SURFACE COATINGS	<ol style="list-style-type: none"> 1. Koppers 	<ol style="list-style-type: none"> 1. Bitumastic 300M



PAINTING: AERIAL PIPING, FITTINGS & VALVES		
EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
A. FIELD PRIMER	1. Porter/Int'l 2. Koppers 3. Tnemec 4. Glidden	1. 284 U-Primer 2. Pug Primer 3. 37-77 Chem-Prime 4. Alkyd Metal Primer
B. FINISH (EXTERIOR)	1. Porter/Int'l 2. Koppers 3. Tnemec 4. Glidden	1. 2410 Alkyd Gloss 2. Glamortex 501 Enamel 3. Tnemec-Gloss 4. Alkyd Ind. Enamel
PIPE (DI)	1. American 2. McWane 3. U.S. Pipe and Foundry	Pressure Class 150 minimum, w/interior coating as specified
PIPE (PVC) FORCE MAIN	1. Certainteed Corp. 2. J-M Manufacturing 3. North American 4. National Pipe	C900/C905, DR 25 minimum
PIPE (PVC) GRAVITY	1. Certainteed Corp. 2. J-M Manufacturing 3. North American 4. National Pipe	SDR 35 minimum
PIPE (HDPE)	1. Ferguson 2. ISCO 3. Poly Pipe	C906, DR11
PLUG VALVES	1. Val-Matic 2. Dezurik 3. Kennedy	1. 5800, 5900 2. Series 100
RESTRAINED JOINTS	1. EBAA Iron Inc. 2. Ford	1. Megalug 2. Uniflange
TAPPING SLEEVES, FABRICATED STEEL	1. JCM Industries 2. Ford Meter Box Co. 3. Mueller Co. 4. Smith Blair	1. 412 2. FTSC 3. H-624
TAPPING SLEEVE, MJ	1. U.S. Pipe and Foundry 2. Mueller Co. 3. Tyler Pipe 4. American Cast Iron Pipe 5. M&H	1. T-9 2. H-615 3. S-149 4. A-D
TAPPING VALVES	1. American Cast Iron Pipe 2. U.S. Pipe and Foundry 3. Mueller Co. 4. Kennedy 5. M&H	1. No. 865 2. Metroseal 250 3. H-687
VALVE BOXES	1. Tyler Pipe 2. Kennedy 3. U.S. Pipe & Foundry Co.	
VAULT FRAME AND COVER FOR RELEASE/VACUUM RELIEF VALVES	1. U.S. Foundry	1. USF 7665



II. WASTEWATER PUMP STATION MATERIALS

EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
GENERATOR CIRCUIT BREAKER	1. Square D 2. Westinghouse	
GENERATOR SYSTEMS	1. Caterpillar 2. Onan (Cummins)	
MOTOR AUTOMATIC MEGGER	1. Automeg	
PRESSURE GAGES	1. Ashcroft 2. H.O. Trerice Co.	
SUBMERSIBLE PUMPS	1. Flygt 2. Hydromatic 3. ABS 4. EMU	
WETWELL ACCESS FRAMES AND COVERS	1. Halliday Products, Inc. 2. Bilco Co.	
CONTROL PANELS (CP)	1. Unitron 2. Electric Specialties 3. Or as approved by City.	
ALARM HORN (AH)	1. Edwards 2. Wheelock	1. 870-N5 2. 31T-115-R
ALARM LIGHT (AL)	1. American Electric 2. Red Dot	1. F32552 2. 886 B
CONTROL CIRCUIT BREAKER	1. Westinghouse 2. Square D	1. BAB1020 2. QOU120
CONTROL CIRCUIT TRANSFORMER	1. Westinghouse 2. Square D	1. 1F3053 2. EO-18
DUPLEX RECEPTACLE/GFI (DR)	1. Square D 2. Hubbel	1. GFSR-115-IC 2. GF-5262I
ELAPSED TIME METER (ETM)	1. Engler 2. Hecon	1. AC-200-10NG7 2. T0621134
EMERGENCY CIRCUIT BREAKER (ECB)	1. Westinghouse 2. Square D	
ENCLOSURE	1. Hoffman 2. Tanco	
FUSES (F)	1. Bussmann 2. Gould-Shawmut 3. Little Fuse	
FLASHER (FL)	1. Sta-Con, Inc. 2. SSAC	1. 008-24-13SP 2. FS-126
FLOAT REGULATOR (FR)	1. Roto-Float 2. Flygt	
GENERATOR RECEPTACLE (GR) 1. 230V, 100A, 3P, 4W 2. 230/460V, 200A, 3P, 4W	1. Appleton 2. Crouse-Hinds	1. ADR1044 P4RS 2. AR1041 S22 S4
HAND-AUTO-OFF-SELECTOR (HOA)	1. Westinghouse 2. Square D	1. PB1HOA 2. 9001-SKS
HORN SILENCE BUTTON (HSS)	1. Westinghouse 2. Square D	1. PB1AAH 2. 9001-SKR-1U



EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
MAIN CIRCUIT BREAKER (MCB)	1. Westinghouse 2. Square D	
MAIN CIRCUIT TRANSFORMER	1. Westinghouse 2. Square D	1. S10N0451M 2. 500SV43F
MOISTURE AND TEMPERATURE FAILURE LIGHT (MT)	1. Dialco 2. Littelfuse	1. 803-1710 2. 930407X
MOTOR CIRCUIT BREAKER (MB)	1. Westinghouse 2. Square D	
MOTOR STARTER (MS)	1. Westinghouse 2. Square D	1. A-200 2. D-8536
OVERLOAD HEATER (OL)	1. Westinghouse 2. Square D	
PHASE MONITOR (PM)	1. Time Mark	1. 258B 240
PILOT LIGHT (PL)	1. Dialco 2. Littelfuse	1. 803-1710 2. 930407X
PUMP AUTOMATIC ALTERNATOR (PAA)	1. Time Mark	1. 261DXT
RELAY (R)	1. Potter Brumfield 2. Eagle Signal 3. Time Mark	1. KRPA-11AN 2. 22 Series
RESISTOR (RE) 5 watt, 2500 ohm	1. Rockwood	
RUN INDICATOR (RL)	1. Dialco 2. Littelfuse	1. 803-1710 2. 930407X
SURGE PROTECTOR (LA)	1. GE 2. EDCO	
TERMINAL STRIP (TS)	1. Marathon 2. Square D	1. Series 200 2. 9070-GR6



III. WATER MAIN MATERIALS

EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
AIR RELEASE VALVES	1. Apco 2. Valmatic 3. GA Industries	1. 200 2. VM-38
BUTTERFLY VALVES	1. Mueller Co. 2. Kennedy. 3. Henry Pratt Co. 4. American Cast Iron Pipe 5. M&H	1. Lineseal III 2. 3. Groundhog 4. 150
CASING SPACERS	1. Cascade 2. PSI	1. CCS - 12" Width Min. 2. C12G-2
CAST COUPLINGS	1. Dresser Manufacturing 2. Kennedy 3. Smith Blair.	
CORPORATION STOPS	1. Ford Meter Box Co. 2. A.Y. McDonald Mfg. Co. 3. Mueller Co. 4. Hays/Lee Brass Co.	1. F-1000, FB-1000 2. 4701-T 3. H-15008, H-15013 4. 5200DF, 4400DF
CURB STOPS	1. Ford Meter Box Co. 2. A.Y. McDonald Mfg. Co. 3. Mueller Co. 4. Hays/Lee Brass Co.	1. Single Service: B11-233W Double Svc./Branch: Y44-243G 2. Single Service: 6100 MTW Double Svc./Branch: 4604N/3795-T 3. Single Service: H-14350 Double Svc./Branch: H-14265/H-15363 4. Single Service: 4317-1DF Double Svc./Branch: 25013/5591DF
EXPANSION JOINTS	1. Mercer 2. Metraflex 3. EBAA Iron	
FIRE HYDRANTS	1. M&H 2. AVK	1. 129 2. 5280
FITTINGS	1. U.S. Pipe and Foundry 2. American Cast Iron Pipe 3. Tyler Pipe/Union	
FLANGED ADAPTOR COUPLINGS	1. Dresser Manufacturing 2. Kennedy 3. Smith Blair	
GATE VALVES (12" & SMALLER) RESILIENT SEATED ONLY	1. Kennedy 2. Mueller Co. 3. U.S. Pipe and Foundry 4. American Cast Iron Pipe 5. M&H	1. 2. A-2370-20 3. Metroseal 250 4. CRS-80 4"-12" 5. #4067-1



PAINTING: AERIAL PIPING, FITTINGS & VALVES		
EQUIPMENT	MANUFACTURER	MODEL NO./ DESCRIPTION
A. FIELD PRIMER	1. Porter/Int'l 2. Koppers 3. Tnemec 4. Glidden	1. 284 U-Primer 2. Pug Primer 3. 37-77 Chem-Prime 4. Alkyd Metal Primer
B. FINISH (EXTERIOR)	1. Porter/Int'l 2. Koppers 3. Tnemec 4. Glidden	1. 2410 Alkyd Gloss 2. Glamortex 501 Enamel 3. Tnemec-Gloss 4. Alkyd Ind. Enamel
PIPE (DI)	1. American 2. McWane 3. U.S Pipe and Foundry	Pressure Class 150 minimum, cement lined
PIPE (PVC)	1. Certainteed 2. J-M Manufacturing 3. National Pipe 4. North American	C900, DR18
PIPE (HDPE)	1. Ferguson 2. ISCO 3. Poly Pipe	C906, DR11
POLYTHYLENE TUBING	1. Endot Ind. (Yardley) 2. Orangeburg 3. Contube 4. Phillips 5. Driscoe	
RESTRAINED JOINTS	1. EBAA Iron Inc. 2. Ford	1. Megalug 2. Uniflange
SERVICE SADDLES	1. Ford Meter Box Co. 2. JCM Industries 3. Mueller Co. 4. Smith Blair.	1. F-202 2. 402 3. Series 10500 4.
TAPPING SLEEVES, FABRICATED STEEL	1. JCM Industries 2. Ford Meter Box Co. 3. Mueller Co.	1. 412 2. FTSC 3. H-624
TAPPING SLEEVES, M.J.	1. U.S. Pipe and Foundry 2. Mueller Co. 3. Tyler Pipe/Union 4. Kennedy 5. American Cast Iron Pipe 6. M&H	1. T-9 2. H-615 3. S-149 4. 5. A-D
TAPPING VALVES	1. American Cast Iron Pipe 2. U.S. Pipe and Foundry 3. Kennedy 4. Mueller Co. 5. M&H	1. No. 865 2. Metroseal 250 3. 4. H-687 5. 4751-01
VALVE BOXES	1. Tyler Pipe/Union 2. Kennedy 3. U.S. Pipe & Foundry Co.	
VAULT FRAME AND COVER FOR AIR RELEASE VALVES	1. U.S. Foundry	1. USF 7665



APPENDIX B

BACKFLOW PREVENTERS AND CONTROL PLAN

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CHAPTER I - INTRODUCTION

The intent of the Cross-Connection Control Program is to implement a program to protect the County's water quality, and to comply with all applicable state and federal regulations. The procedures described herein ensure the full cooperation of all Cross Connection regulatory departments, the Columbia County Utilities Department and the Columbia County Health Department. Upon discovery of a prohibited cross connection, the Water Treatment Plant Operator or the Water Distribution Operator, shall either eliminate the cross connection by installation of an appropriate backflow device or terminate service until the contaminant source is eliminated. Direct connections between potable and non-potable systems or reclaimed water systems are prohibited.



GENERAL DESCRIPTION OF BACKFLOW AND BACKFLOW PREVENTION

Water distribution systems are designed with the intention of the water flowing in a certain direction from the distribution system to the consumer. However, hydraulic conditions within the system may deviate from the “normal” conditions, causing the water to flow in the opposite direction. Therefore, it is possible (and common) for the water to flow in the opposite direction in an unprotected system. This is called Backflow.

Backflow occurs when the pressure in the distribution system drops, siphoning water from unknown quality sources into the distribution system. This would also siphon any substance which may be in contact with the water system through a cross-connection. This type of backflow is called Backsiphonage and may occur when there is an unusually high use of water or undersized piping in an area.

For example, during fire fighting, or when a main water line breaks, water is “sucked” to the point of high usage, possibly drawing non-potable substances with it, filling the water line with these substances. Backsiphonage may occur through cross-connections such as a hose from a maintenance sink in a mop bucket, or a below-the-rim water inlet to a tank containing a toxic solution and improper plumbing installations.

Some water customers have non-potable materials on the premises under pressure. When an unprotected water line is attached to the container or pipes holding the pressurized material, the material may be “pumped” back into the potable water system. This type of backflow is called Backpressure. Backpressure may occur through a cross-connection such as a make-up water line which is connected to a recirculating system containing soap, acid, antifreeze or any non-potable substance (e.g., a well containing non-treated water).

Because of these potential dangers to the water consumer, it is necessary to control cross-connections. There are several types of mechanical assemblies which serve as Backflow Preventers. Different types of backflow preventers are designed to work under backsiphonage or backpressure conditions. Some are acceptable for high-hazard conditions while others are only acceptable for low-hazard (or non-health hazard) conditions.

This manual provides guidelines for the proper use of Backflow Prevention Devices, within the Columbia County service area.



CHAPTER II -DEFINITIONS

1. Approved: Accepted by the Columbia County Water Treatment Facilities Manager, or Building and Zoning Department Representative.
2. Auxiliary Water Supply: Any water supply on or available to the premises other than the purveyor's approved public potable water supply. These auxiliary waters may include water from another purveyor's public potable water or any natural source(s) such as well, spring, river, stream, harbor, etc., or "used waters" or "individual fluids." These waters may be polluted or contaminated or they may be objectionable and constitute an unacceptable water source over which the water purveyor does not have sanitary control.
3. Backflow: The flow of water or other liquids, mixtures or substances under pressure into the distributing pipes of a potable water supply system from any source or sources other than its intended source.
4. Back-Siphonage: The flow of water or other liquids, mixtures or substances into the distributing pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.
5. Backflow Preventer: A device or means designed to prevent backflow or backsiphonage.
 - a) Air-Gap: The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, reservoir, vessel, plumbing fixture, or other device and the flood level rim of said vessel. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; and, in no case less than one inch. When an air-gap is used at the service connection to prevent the contamination or pollution of the public potable water system, an emergency by-pass shall be installed around the air-gap system and an approved reduced pressure principle device shall be installed on the by-pass system.
 - b) Reduced Pressure Principle Assembly: An assembly of two independently operating approved check valves with an automatically operating differential relief valve between the two check valves, tightly closing shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and approval of a recognized and County approved testing agency for backflow prevention assemblies. The device shall operate to maintain the pressure in the zone between the two check valves at a level less than the pressure on the public water supply side of the device. At cessation of normal flow the pressure between the two check valves shall be less than the pressure on the public water supply side of the device. In case of leakage of either of the check valves the differential relief valve shall operate to maintain



the reduced pressure in the zone between the check valves by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere. To be approved, these devices must be readily accessible for in-line maintenance and testing and be installed in a location where no part of the device will be submerged.

- c) Double Check Valve Assembly: An assembly of two independently operating approved check valves with tightly shut off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve. The entire assembly shall meet the design and performance specifications and approval of a recognized and County approved testing agency for backflow prevention devices. To be approved, these devices must be readily accessible for in-line maintenance and testing.

6. Backflow Tester: Person certified in the testing of backflow prevention devices.

7. Contamination: Means an impairment of the quality of the potable water provided by the Columbia County Distribution System.

8. Cross-Connection: Any physical connection or arrangement of piping or fixtures between the otherwise separate piping systems one of which contains potable water and the other non-potable water or industrial fluids of questionable safety, through which, or because of which, backflow or back-siphonage may occur into the potable water distribution system and a customer's water distribution system which is cross-connected to a contaminated supply of auxiliary water system, constitutes one type of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four way valves, spools, dummy sections of pipe, swivel or change-over devices, sliding multiport tube, solid connections, etc.

9. Cross-Connections-Controlled: A connection between a potable water system and a non-potable water system with an approved backflow prevention device properly installed that will continuously afford the protection commensurate with the degree of hazard.

10. Industrial Fluids System: Any system containing fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health system, pollutional or plumbing hazard if introduced into an approved water supply. This may include, but not be limited to: polluted or contaminated waters; all types of process waters and "used waters" originating from the public potable water system which may have deteriorated in sanitary quality; chemicals in fluid form; plating acids and alkalies, circulated cooling waters connected to an open treated or stabilized with toxic substances; contaminated natural waters such as from wells, springs, streams, rivers, bays, harbors, seas, irrigation canals or systems, etc.; oils, gases, glycerine, paraffins, caustic and acid solutions and other liquids and gaseous fluids used in industrial or other purposes or for fire-fighting purposes.



11. Pollution: Means the presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.
12. Water Potable: Any water which, according to recognized standards is safe for human consumption.
13. Water-Nonpotable: Water which is not safe for human consumption or which is of questionable potability.
14. Water Purveyor: The term water purveyor shall mean the owner or operator of the public potable water system supplying an approved water supply to the public. As used herein, the terms water purveyor and Columbia County Water Treatment Facilities may be used synonymously.
15. Water – Service Connections: The terminal end of a service connection from the public potable water system; i.e., where the Water Purveyor loses jurisdiction and sanitary control over the water at its point of delivery to the customer’s water system. If a meter is installed at the end of the service connection, then the service connection shall mean the downstream end of the meter. There should be no unprotected takeoffs from the service line ahead of any meter or backflow prevention device located at the point of delivery to the customer’s water system. Service connections shall also include water service connections from a fire hydrant and all other temporary or emergency water service connections from the public potable water systems.
16. Water – Used: Any water supplied by a Water Purveyor from a public potable water system to a consumer’s water system after it has passed through the point of delivery and is no longer under the sanitary control of the Water Purveyor.
17. Any person(s) installing and inspecting any backflow system must be certified in the prevention of backflow devices.



CHAPTER III - PROCEDURES

1. *Existing Facilities:*

- a) Premises of the type where cross-connections are required shall be surveyed by representatives or designees from the Columbia County Utilities Department, or Building and Zoning Department, to determine if a cross connection exists.
- b) The owners of the premises shall be notified in writing thirty (30) days in advance to secure an appointment for inspection of the premises. (See Appendix). The owner or his authorized representative may be required to accompany the inspector during the tour of the premises.
- c) An inspection form will be completed by the inspector. (See Appendix). The owner shall be made aware of any corrective measures that may be required.
- d) All official letters of notification shall be sent to the owner indicating what corrective measures must be taken. (See Appendix).
- e) Upon conformance of the requirements in the notification letter, the owner shall immediately notify representatives or designees from the Water Treatment Facilities or Building and Zoning Department, to schedule a date for reinspection.

2. *New Facilities:*

- a) Each applicant desiring water service will be required to complete a cross connection control questionnaire (See Appendix B, Form D on page B-36 of this Handbook).
- b) Should a cross connection control device be required, Building and Zoning Department will notify the new customer in writing and arrange a meeting to discuss the requirements for backflow prevention. Procedures for inspection of the device will be discussed at this meeting. The customer will be required to provide construction drawings of his proposed facilities.



3. *Records and Maintenance:*

- a) The owner of a backflow prevention device shall be required to keep records of maintenance of cross connection control devices.
- b) Attached to the aforementioned notification letter shall be a test and maintenance form which must be completed by the owner or his designated backflow prevention tester. Backflow prevention devices larger than 3/4” in diameter or as specified in writing by Columbia County Utilities Department, shall be tested annually. The testing shall be the responsibility of the customer. Columbia County Water Treatment Facilities shall notify the owner of the maintenance requirement 30 days in advance of the maintenance due date.



CHAPTER IV - CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION

1. *Backflow Prevention and Cross-Connection Control Policy*

Columbia County Utilities Department reserves the right to require backflow prevention devices where, in Columbia County Water Treatment Facilities' judgment, a water service connection presents a reasonable and identifiable risk to potentially contaminate the public water system.

Such policies and procedures shall comply with Columbia County and state guidelines.

2. *Recommended Backflow Practices*

Backflow prevention devices shall be specified by Columbia County Water Treatment Facilities in accordance with the "AWWA Manual of Practices #14, Recommended Management Practices for Cross Connection Control", current version.

3. *Approval of Backflow Prevention Devices*

Columbia County Building Department shall review all new service connections to determine the contamination risk. Based on the risk assessment, the Building Department shall recommend or require the appropriate backflow prevention devices. The devices shall be installed by the person requesting service prior to the County making the water service connection.

4. *Residential Water Services Requiring Backflow Devices*

Residential water services require backflow prevention devices when the following conditions arise:

- a) A residence utilizes an irrigation system.
- b) A residence is provided with reclaimed water for irrigation purposes.
- c) A residence is using a well for irrigation purposes physically separated from the public water service which is used for domestic purposes.
- d) Operations are being conducted at the residence which are similar to the commercial listings of Section 6.
- e) In the judgment of the Water Treatment Facilities Manager, a customer's installation has the potential to contaminate the public water system.



5. *Recommended Backflow Devices for Residential Systems*

Columbia County Water Treatment Facilities shall make recommendations on backflow prevention devices with regard to residential water services not covered in section 4.

6. *Commercial and Industrial Services Requiring Backflow Prevention Devices*

- a) Backflow prevention devices shall be required for the types of facilities and plumbing fixtures listed for water. For facilities not listed, Columbia County Water Treatment Facilities Manager shall have the sole right to require backflow prevention devices where it deems necessary to protect the public water system from contamination.
- b) All required backflow prevention devices shall be tested and maintained in accordance with the provisions herein. Columbia County Water Treatment Facilities shall make recommendations concerning backflow devices for commercial irrigation systems which are not fitted with chemical feed systems.

7. *Testing and Maintenance of Backflow Prevention Devices*

- a) Columbia County Water Treatment Facilities shall require testing and maintenance of backflow devices, which have been specifically required by Columbia County Water Treatment Facilities or Building and Zoning Department.
- b) Maintenance and Testing of backflow devices recommended shall be the responsibility of the customer.
- c) Testing of required and recommended devices shall be performed in accordance with the recommended procedures found in “AWWA Manual of Practice 1”.
- d) Responsibility for the testing and maintenance of required and recommended backflow prevention devices, including the payment of any testing fees, past the point of connection at the water meter, shall be the responsibility of the customer.
- f) Testing and Maintenance requirements shall be performed as specified by Columbia County at no cost to the County.

8. *Certification and Testing of Backflow Prevention Devices*

- a) For required backflow devices, Columbia County Water Treatment Facilities shall provide a Test Maintenance Form to customers to ensure compliance with its tests and maintenance procedures. Upon completion of the test, a completed and signed form shall be furnished to Columbia



County Water Treatment Facilities. Failure on the part of a customer to provide a completed form shall be treated as non-compliance.

- b) Testing and Maintenance on required devices shall be performed by a certified backflow prevention tester or other individual with equivalent training acceptable to Columbia County Water Treatment Facilities and State of Florida as approved in writing.
- c) Information concerning testing and maintenance of recommended backflow prevention devices shall be provided to customers as deemed appropriate by Columbia County Water Treatment Facilities.
- d) A customer may request the services of Columbia County Water Treatment Facilities to perform required testing and maintenance procedures. Columbia County Water Treatment Facilities will inform the requesting party as to its ability to provide services. Columbia County Water Treatment Facilities may provide such services in consideration of its workload or subcontract such work to a qualified contractor. Such services shall be paid for by the customer. Labor, materials, equipment and other typical charges, including Columbia County Water Treatment Facilities usual overhead, shall be charged. In instances of non-payment, Columbia County Water Treatment Facilities may assess appropriate charges against the customer's utility bill.

9. Notification of Non-Compliance

- a) Columbia County Water Treatment Facilities shall maintain records of testing and maintenance on required backflow prevention devices. Customers operating and maintaining such devices shall be notified as to the required testing frequency by Columbia County Water Treatment Facilities. The customer shall have 30 days to complete the required testing.
- b) Should a customer fail to test or maintain a required backflow prevention device within the specified time, Columbia County Water Treatment Facilities shall issue, by certified mail, a non-compliance notice. The customer shall have 10 days to:
 - 1) Provide Columbia County Water Treatment Facilities with a completed test results form which indicates acceptable performance of the backflow prevention unit.
 - 2) Provide Columbia County Water Treatment Facilities with a written convincing reason why the device has not been tested which is acceptable to Columbia County Water Treatment Facilities.
 - 3) Provide Columbia County Water Treatment Facilities with conformation that the customer will attend a Show Cause Hearing on



the date specified in the non-compliance notice. The date of the Show Cause Hearing shall be scheduled to allow Columbia County Water Treatment Facilities compliance with section 11.

10. *Show Cause Hearing for Significant Non-Compliance*

- a) Should a customer in non-compliance fail to take satisfactory corrective measures under sections 9(a) or (b), the customer shall be expected to attend a Show Cause Hearing before the Columbia County Water Treatment Facilities Manager, or his designee, at the date and time specified in the non-compliance notice to show cause why the customer service shall not be disconnected for causing or suffering violation of the policy, or other applicable law or regulation. If Columbia County Water Treatment Facilities seeks to suspend service, Columbia County Water Treatment Facilities shall notify the customer of the nature of the violation for which suspension of service is sought with sufficient specificity as to the character of the violation, and the dates at which such violation occurred to enable the customer to prepare his defense. Such notice shall be sent to the customer by certified mail, return receipt request, or personally delivered at least 10 days prior to the scheduled hearing date.
- b) Following review of the hearing proceedings and evidence submitted, the Columbia County Water Treatment Facilities Manager, or his designee, may issue an order to the customer, indicating a specified time which is dependent on the severity of the violation, when water service may be discontinued unless satisfactory corrective action to permanently remove the offending connection from the public water system is taken by the customer.
- c) Any customer aggrieved by such an order may appeal it to a court of competent jurisdiction within ten (10) days from the date the order is delivered by certified mail unless such connection is in the opinion of Columbia County Water Treatment Facilities a direct threat to public health, welfare or safety. In such case, Columbia County Water Treatment Facilities shall retain the right to immediately discontinue service.

11. *Inspection of Customer's Facilities*

If in the opinion of Columbia County Water Treatment Facilities the customer's facilities constitute a possible risk to contaminate the public water system, Columbia County Water Treatment Facilities shall retain the right to make inspection. Appropriate notice shall be given. Refusal of a customer to provide reasonable access to his premise by Columbia County Water Treatment Facilities shall be treated as non-compliance.



12. *New Facilities*

Building and Zoning Department shall review all new connections and identify backflow prevention requirements and/or make backflow prevention recommendations.

13. *New Non-Residential Accounts at Existing Locations*

Columbia County Utilities Department or Building and Zoning Department, reserves the right to require appropriate backflow prevention devices on new non-residential accounts at existing locations prior to providing water service.



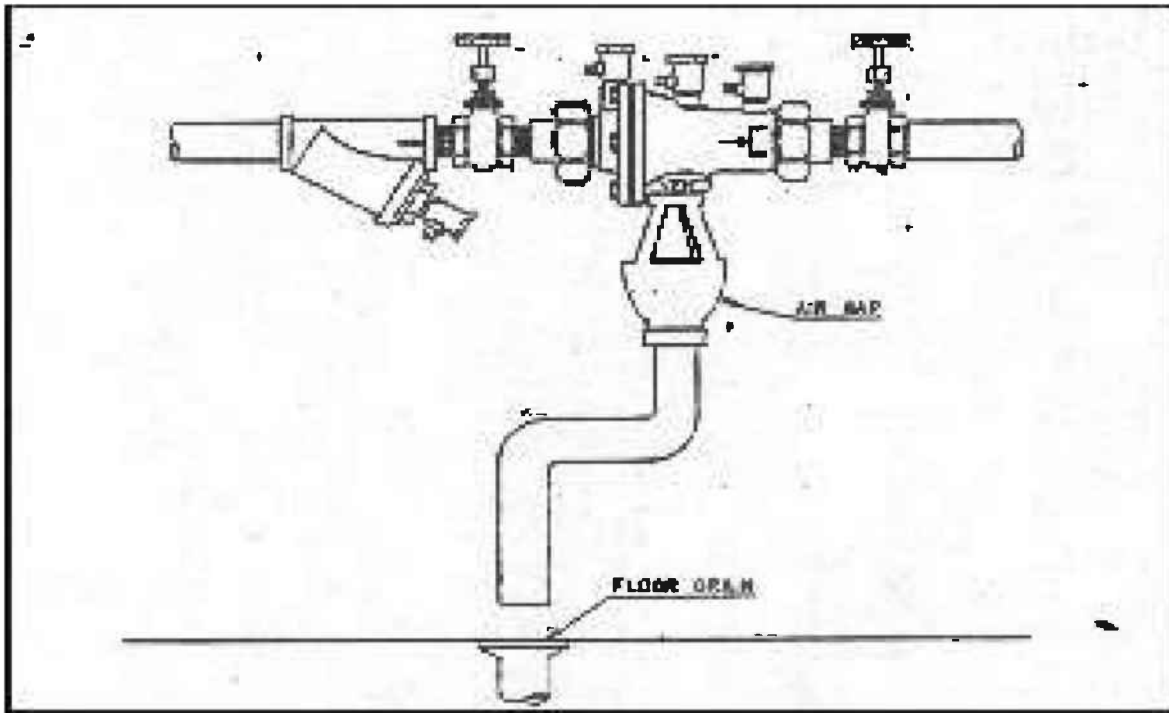
CHAPTER V - CONSTRUCTION STANDARDS

1. *TYPES OF BACKFLOW PREVENTION DEVICES*

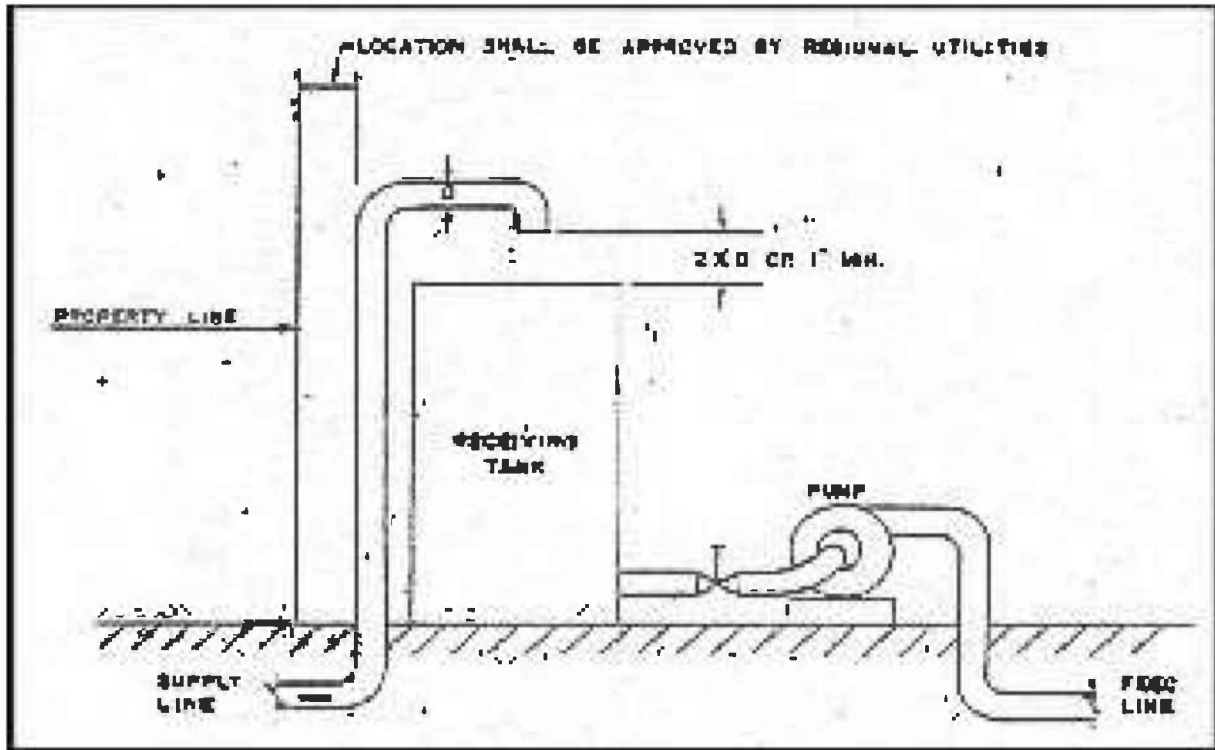
The following pages illustrate the various types of backflow prevention devices and the typical methods of installation (outdoors).

Backflow prevention devices installed indoors will vary in the method of installation based on location and configuration of the existing or proposed piping system.

2. *TYPICAL INDOOR REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION*



3. AIR GAP SEPARATION

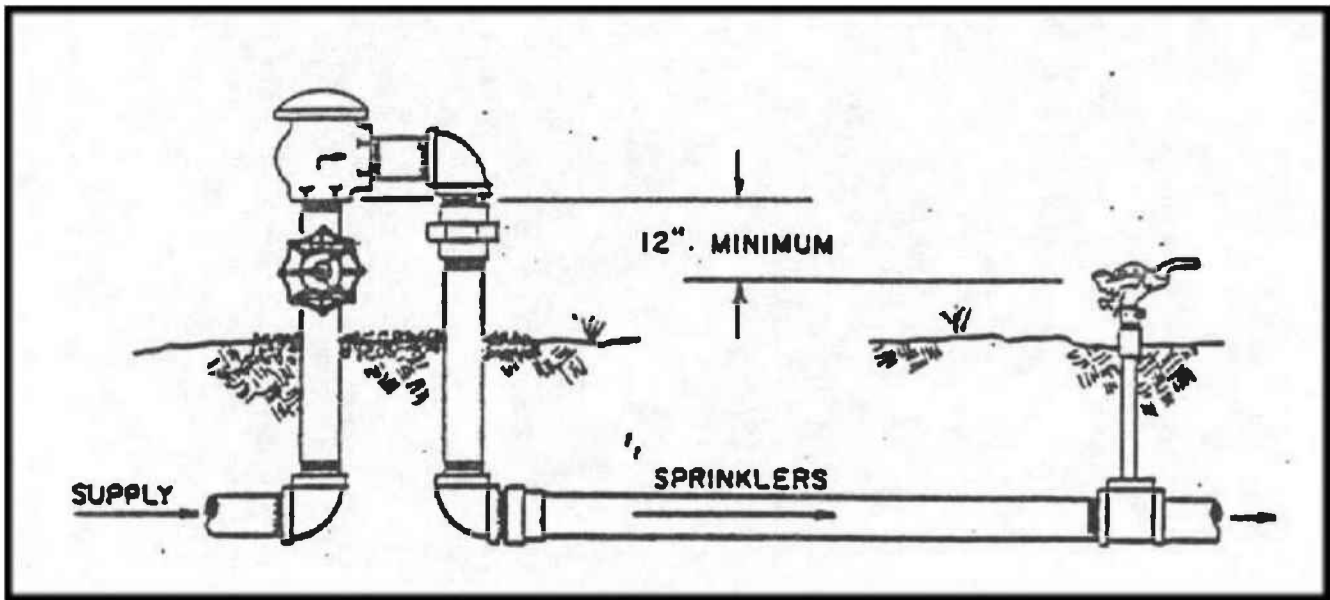


NOTE:

- An Air Gap Separation means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level or overflow rim of the receptacle.
- The "Approved Air Gap Separation" shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel and in no case shall the gap be less than one (1) inch in diameter.



4. ATMOSPHERIC VACUUM BREAKER (A.V.B.)

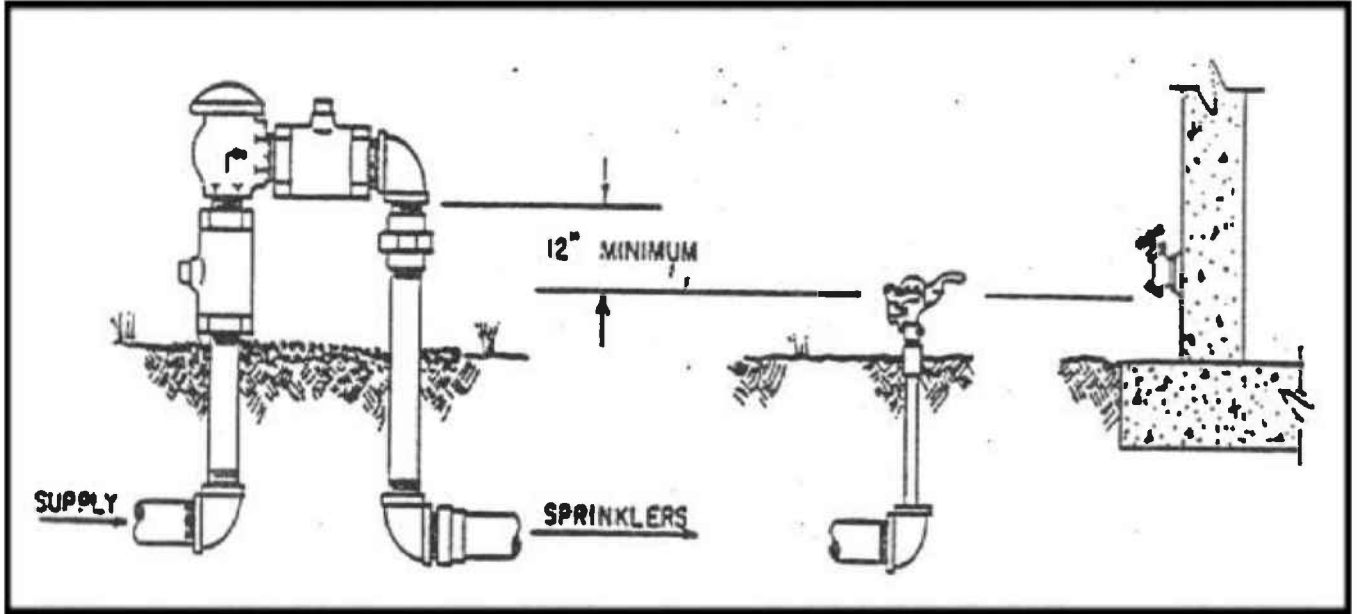


NOTE:

- The atmospheric vacuum breaker (A.V.B.) cannot be installed where it will be subjected to backpressure. It can only provide protection against back-siphonage of non-toxic pollutants.
- Each device shall be installed in an accessible location to facilitate inspection and servicing.
- Each A.V.B. shall be installed downstream of the last shut-off valve and at least 12-inches above the highest sprinkler head or outlet. (No valves may be located downstream of the device).
- Under no circumstances should the A.V.B. be installed where it will be under continuous operating pressure for more than 12 hours in any 24-hour period.



5. **PRESSURE – TYPE VACUUM BREAKER (P.V.B.)**

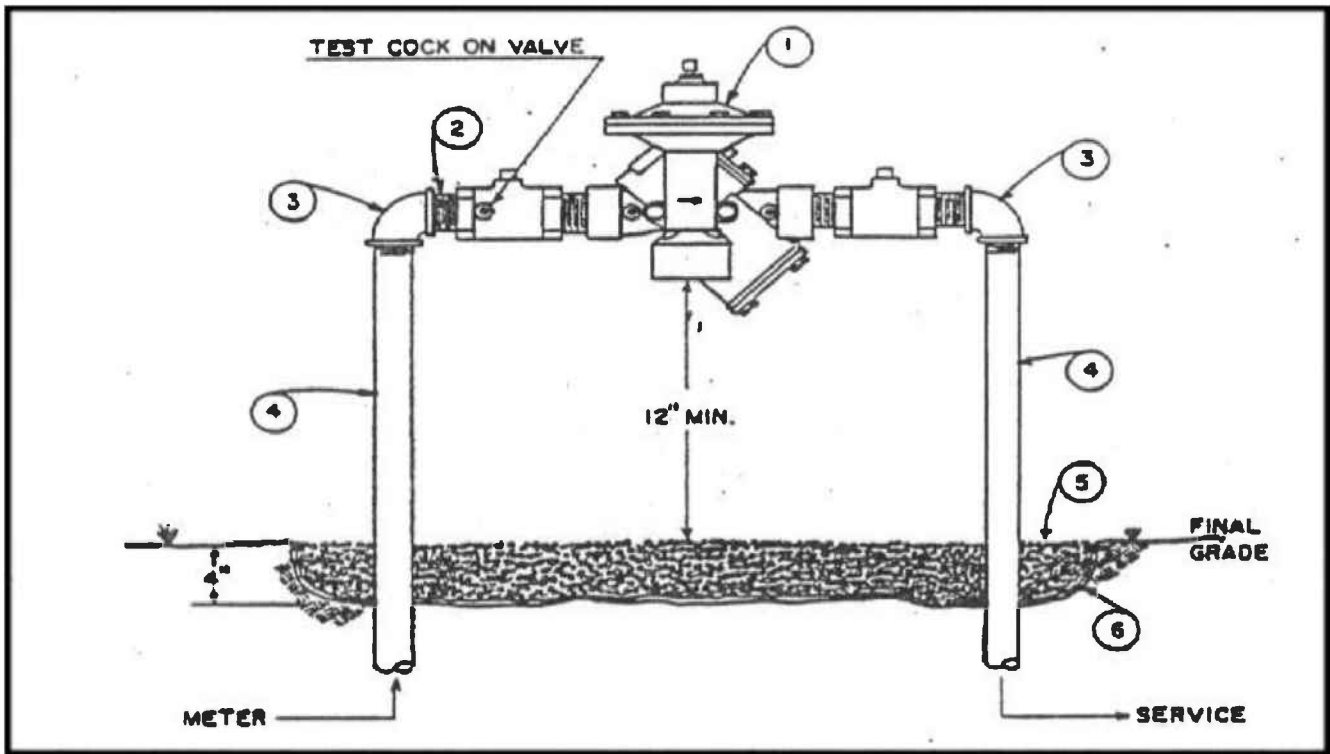


NOTE:

- The pressure vacuum breaker (P.V.B.) shall not be installed where it will be subjected to backpressure. It provides protection against back-siphonage of both pollutants and contaminants.
- Each P.V.B. shall be installed in an accessible location to facilitate inspection and servicing.
- Each P.V.B. shall be installed on the main line to the irrigation system and at least 12-inches above the highest sprinkler head or outlet. (Valves may be located downstream from the device).



6. **DOUBLE CHECK OR REDUCED PRESSURE BACKFLOW PREVENTER**
SINGLE SERVICE: 3/4", 1-1/2", 2"

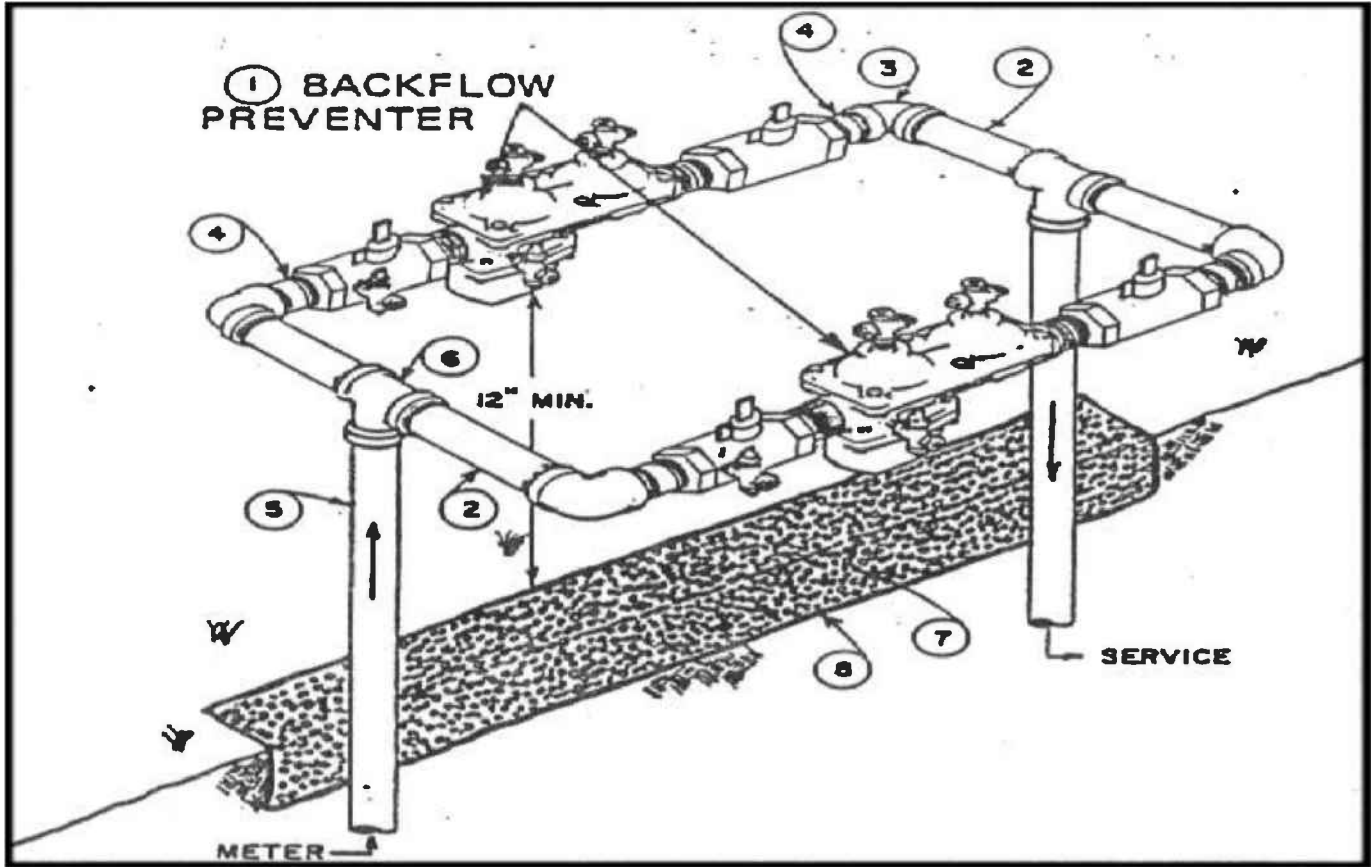


M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	2"	BACKFLOW PREVENTER ASSEMBLY
2	2	2" x NOM.	NIPPLES – BRASS or PVC
3	2	2" x 90 ⁰	ELBOWS – GALVANIZED or PVC
4	2	2" x VARIES	RISER – GALVANIZED or PVC
5	*		PEA GRAVEL
6	*		PLASTIC LINER

NOTE: Installation shown above is for a 2" service. Change piping materials accordingly for service size.



7. **DOUBLE CHECK OR REDUCED PRESSURE BACKFLOW PREVENTER**
DUAL SERVICE: ¾", 1", 1-1/2", 2"

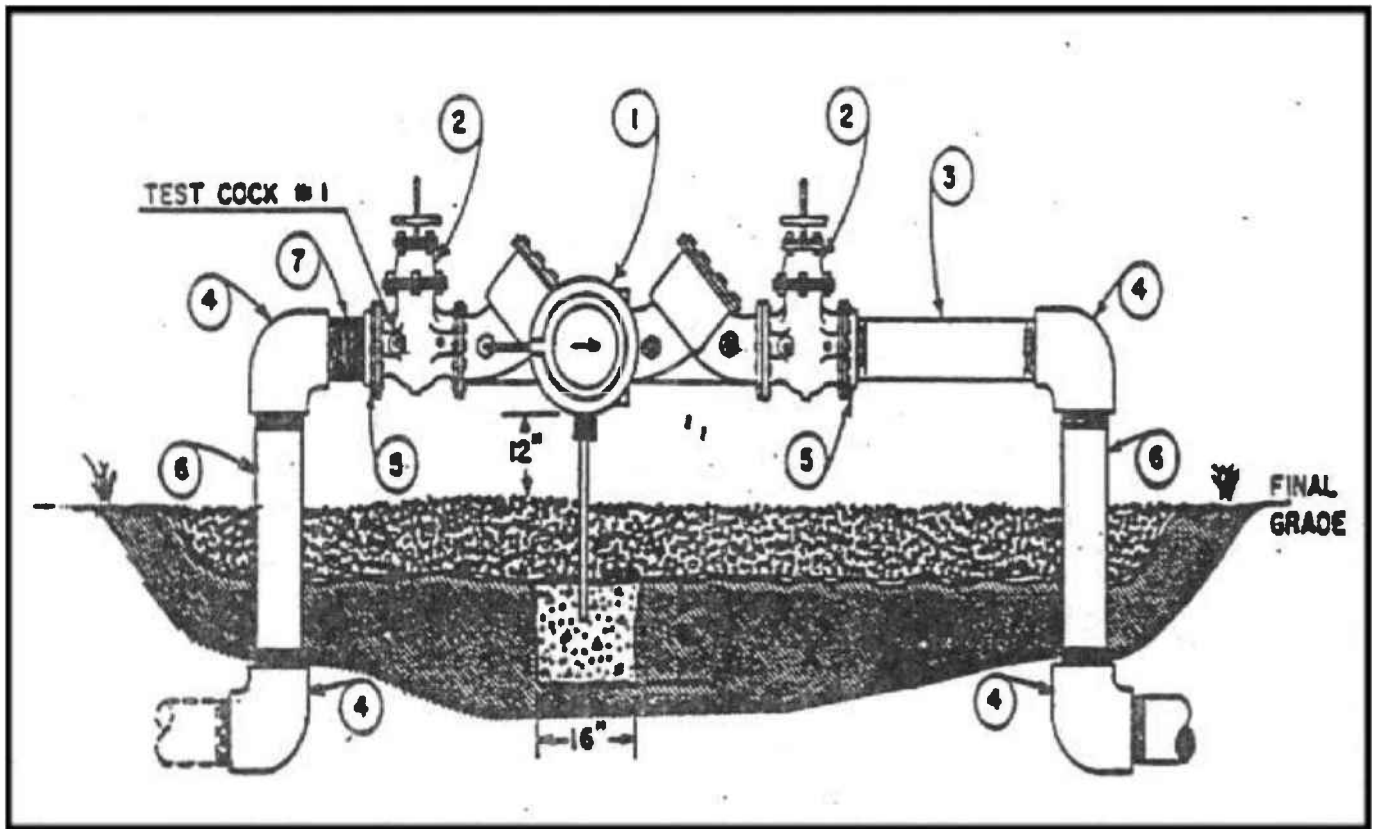


M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	2	2"	BACKFLOW PREVENTER ASSEMBLY
2	4	2" x 6"	NIPPLES – GALVANIZED or PVC
3	4	2" x 90 ⁰	ELBOWS – GALVANIZED or PVC
4	6	2" x 4"	NIPPLES – GALVANIZED or PVC
5	2	2"	RISER – GALVANIZED
6	2	2"	TEES – GALVANIZED
7	*		PEA GRAVEL
8	*		PLASTIC LINER

NOTE: Installation shown above is for a 2" service. Change piping materials accordingly for service size.



8. **REDUCED PRESSURE BACKFLOW PREVENTER**
SINGLE SERVICE: 3", 4"

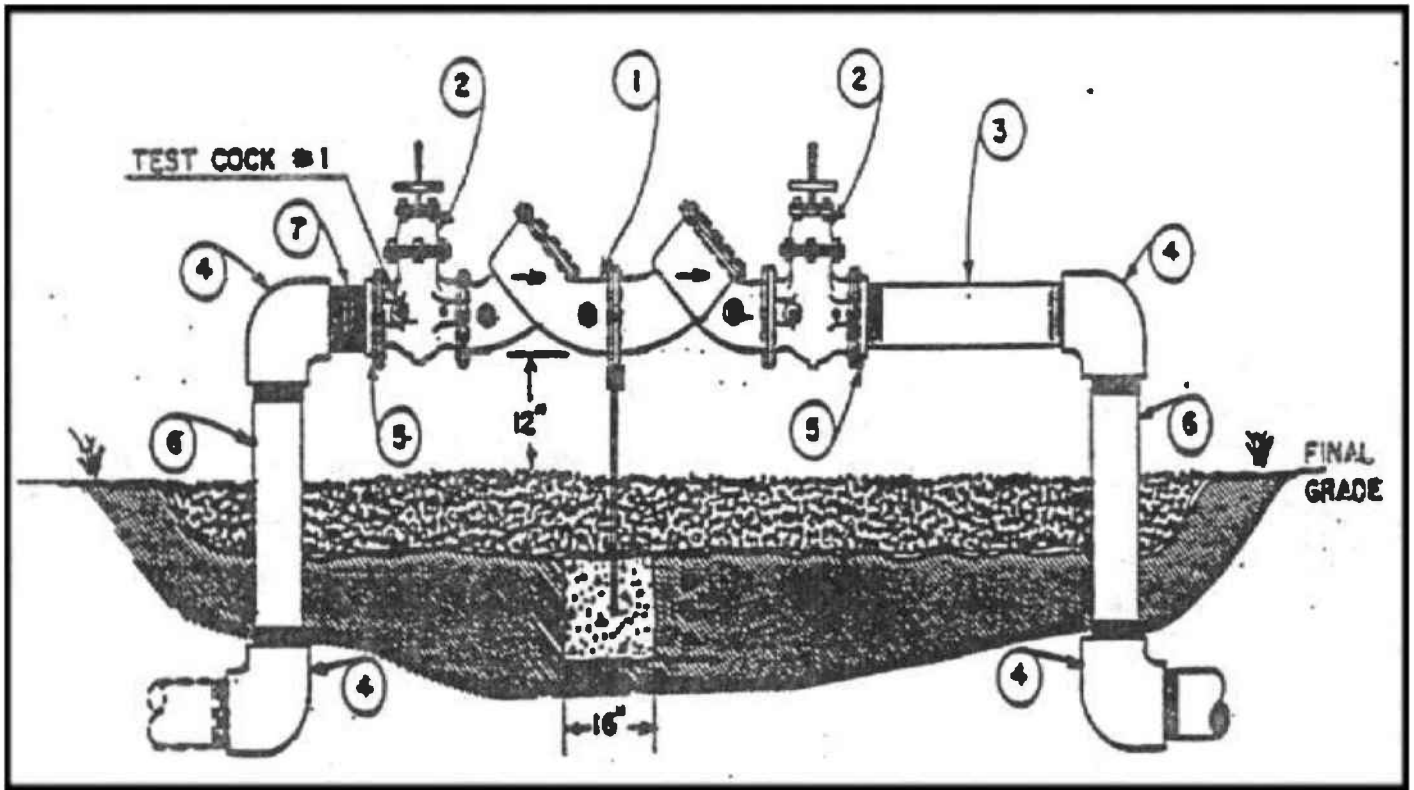


M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	3", 4"	VALVE, REDUCED PRESSURE
2	2	3", 4"	VALVE, GATE, C.I., F-F
3	1	3", 4"	NIPPLE, GALV. (12" LONG) (OPT.)
4	4	3", 4"	ELBOW, GALV. - 90°
5	2	3", 4"	FLANGE, STEEL PIPE, SCREW - TYPE
6	2	3", 4"	PIPE, GALV. (42" LONG)
7	1	3", 4"	NIPPLE, GALV. (6" LONG)

NOTE: Field adjust and cut item 6 to the proper length.



9. **DOUBLE CHECK BACKFLOW PREVENTER**
SINGLE SERVICE: 3", 4"

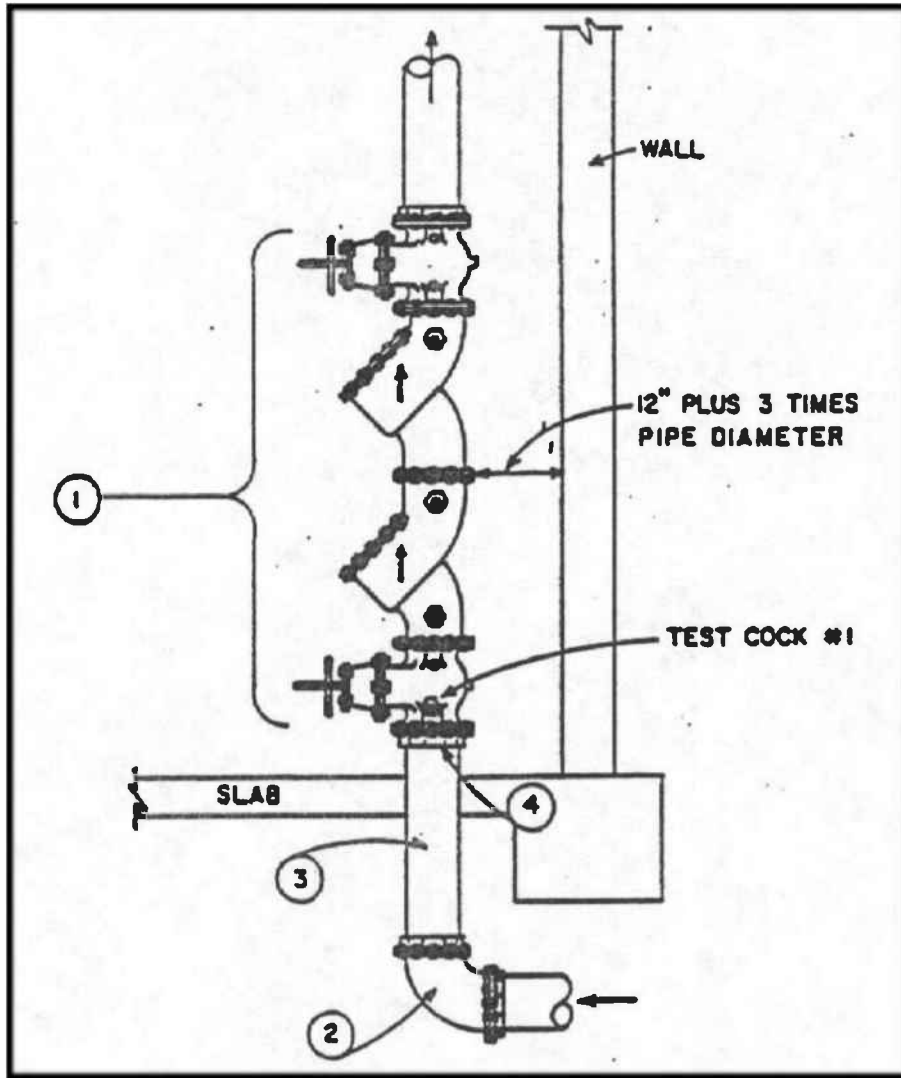


M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	3", 4"	VALVE, DOUBLE CHECK
2	2	3", 4"	VALVE, GATE, C.I., F-F
3	1	3", 4"	NIPPLE, GALV. (12" LONG) (OPT.)
4	4	3", 4"	ELBOW, GALV. - 90 ⁰
5	2	3", 4"	FLANGE, STEEL PIPE, SCREW - TYPE
6	2	3", 4"	PIPE, GALV. (42" LONG)
7	1	3", 4"	NIPPLE, GALV. (6" LONG)

NOTE: Field adjust and cut item 6 to the proper length.



10. DOUBLE CHECK BACKFLOW PREVENTER
SINGLE SERVICE: 4", 6", 8"
VERTICAL INSTALLATION

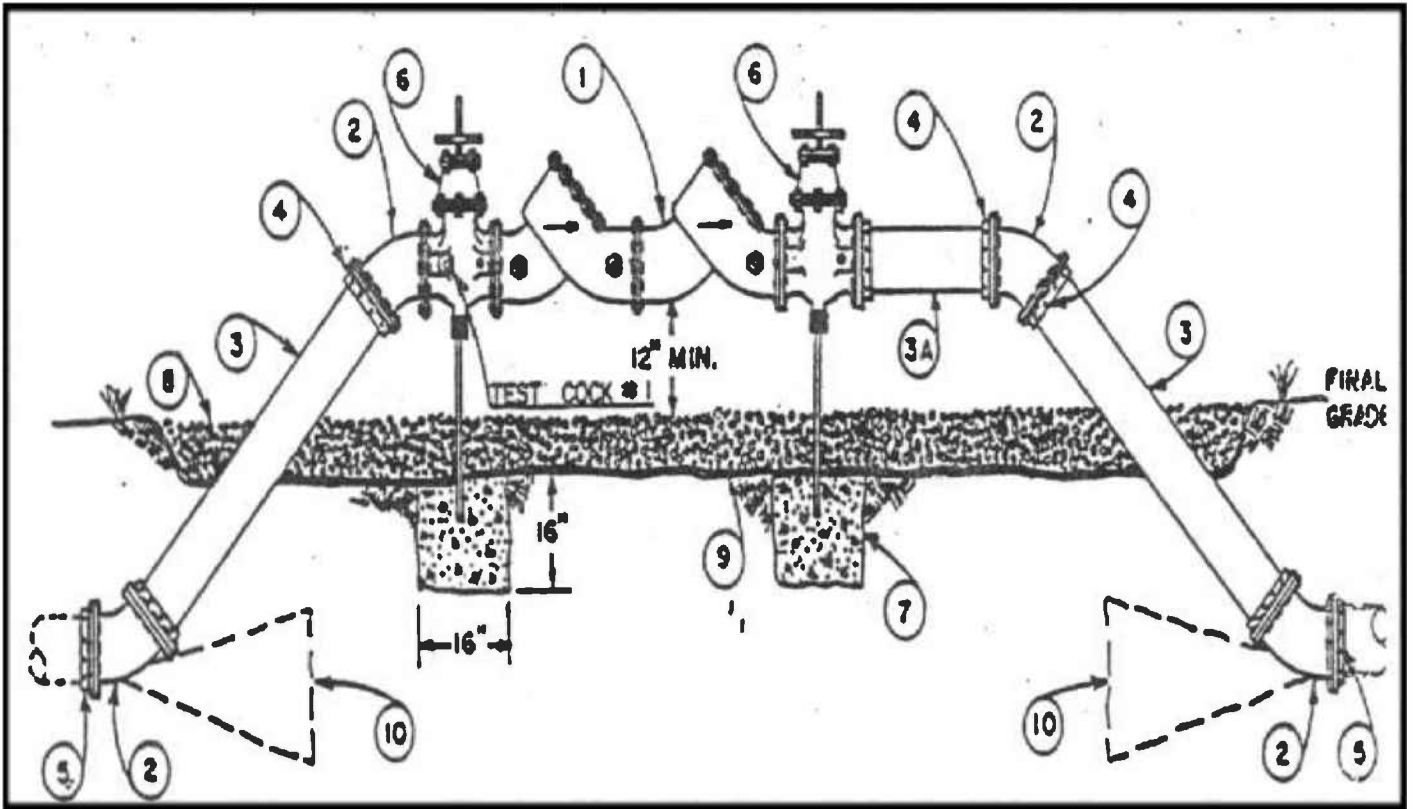


M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	4", 6", 8"	DOUBLE CHECK VALVE ASSEMBLY
2	1	4", 6", 8"	BEND - 90° FLANGE - FLANGE
3	*	4", 6", 8"	PIPE, DUCTILE IRON
4	1	4", 6", 8"	ADAPTER, FLANGE, D.I.P.

NOTE: Min. clearance around device - 12" + 3 times pipe diameter. This type of construction is designed for limited working area. (Fire Sprinkler Systems)



11. DOUBLE CHECK BACKFLOW PREVENTER
SINGLE SERVICE: 6", 8"



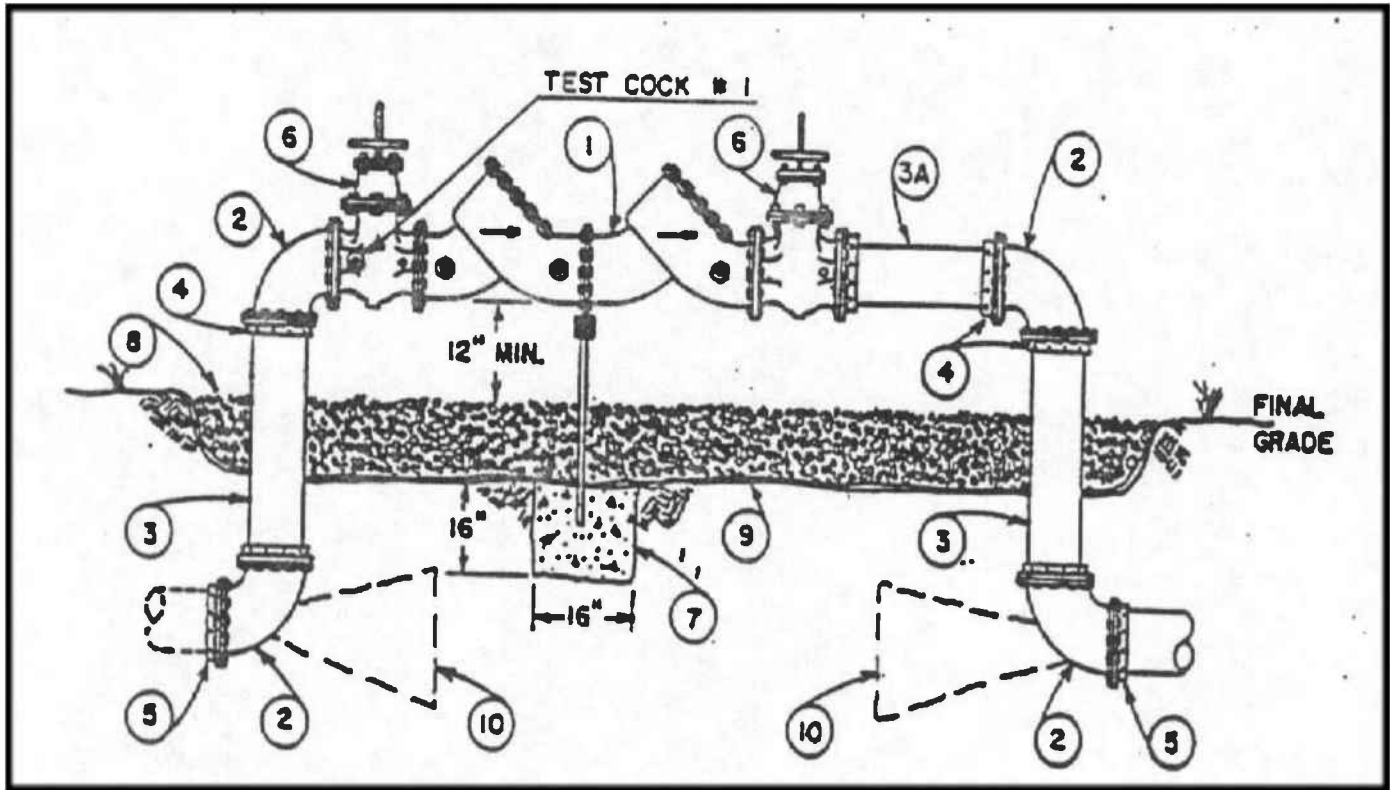
M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	6", 8"	VALVE, DOUBLE CHECK
2	4	6", 8"	BEND - 45° F - F
3	2	6", 8"	ADAPTER, C.I. (72" LONG) F - PE
3A	1	6", 8"	ADAPTER, C.I. (24" LONG) F - PE (OPT.)
4	3	6", 8"	ADAPTER, FLANGE, D.I.P.
5	2	6", 8"	ADAPTER, FLANGE, P.V.C. (DR - 18)
6	2	6", 8"	VALVE, GATE, C.I., F - F
7	1 or 2	2"	IRON PIPE/CONCRETE FOUNDATION
8	*		PEA GRAVEL
9	*		PLASTIC LINER
10	2		REACTION BLOCK

NOTE:

- Field adjust and cut Item 3 to the proper length.
- Do not interchange Items 4 & 5.



12. DOUBLE CHECK BACKFLOW PREVENTER
SINGLE SERVICE: 6", 8"



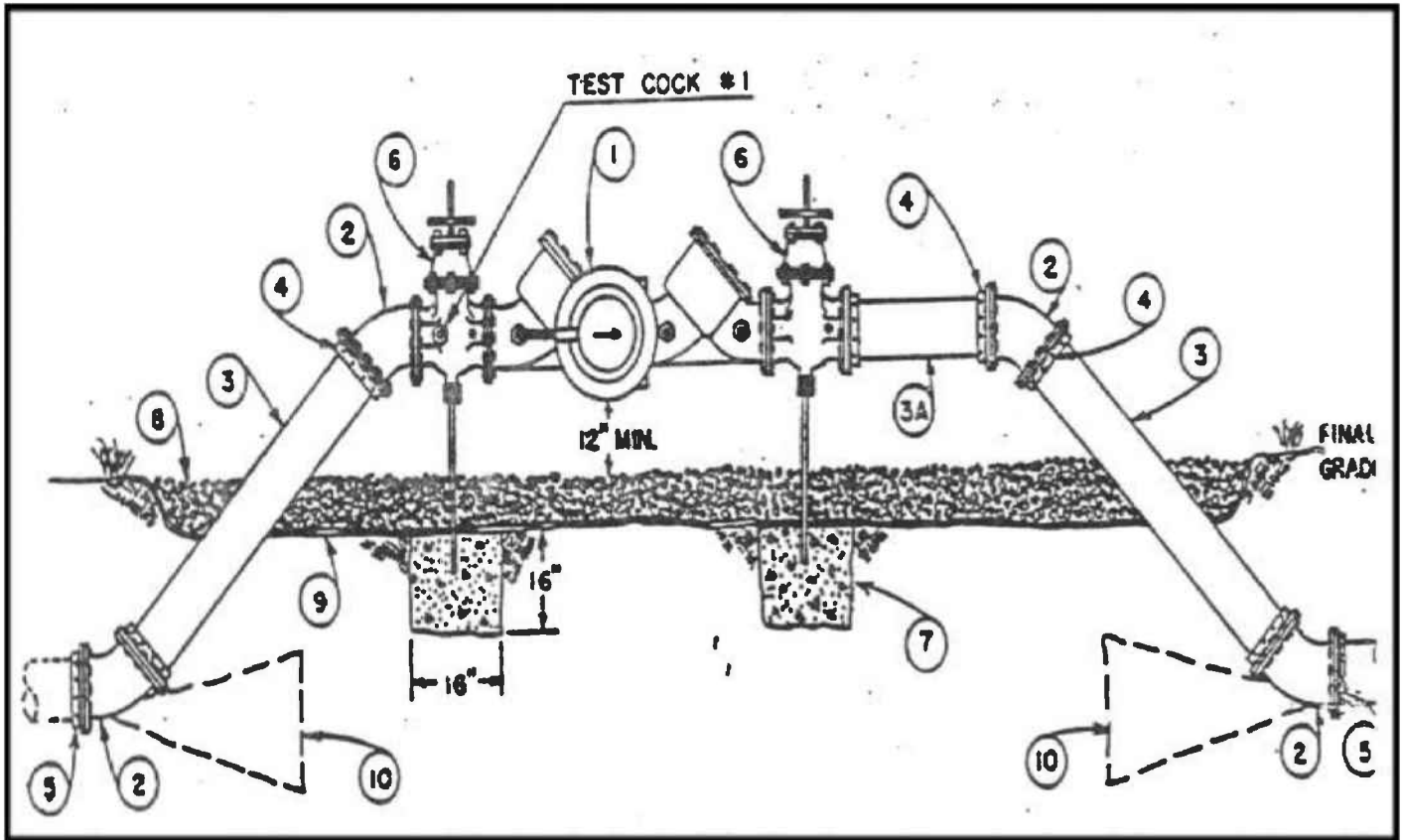
M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	6", 8"	VALVE, DOUBLE CHECK
2	4	6", 8"	BEND - 90° F - F
3	2	6", 8"	ADAPTER, C.I. (48" LONG) F - PE
3A	1	6", 8"	ADAPTER, C.I. (24" LONG) F- PE (OPT.)
4	3	6", 8"	ADAPTER, FLANGE, D.I.P.
5	2	6", 8"	ADAPTER, FLANGE, P.V.C. (DR - 18)
6	2	6", 8"	VALVE, GATE, C.I., F - F
7	1	2"	IRON PIPE / CONCRETE FOUNDATION
8	*		PEA GRAVEL
9	*		PLASTIC LINER
10	2		REACTION BLOCK

NOTE:

- Field adjust and cut Item 3 to the proper length.
- Do not interchange Items 4 & 5.
- This type of construction is designed for limited working area.



**13. REDUCED PRESSURE BACKFLOW PREVENTER
SINGLE SERVICE: 6", 8"**



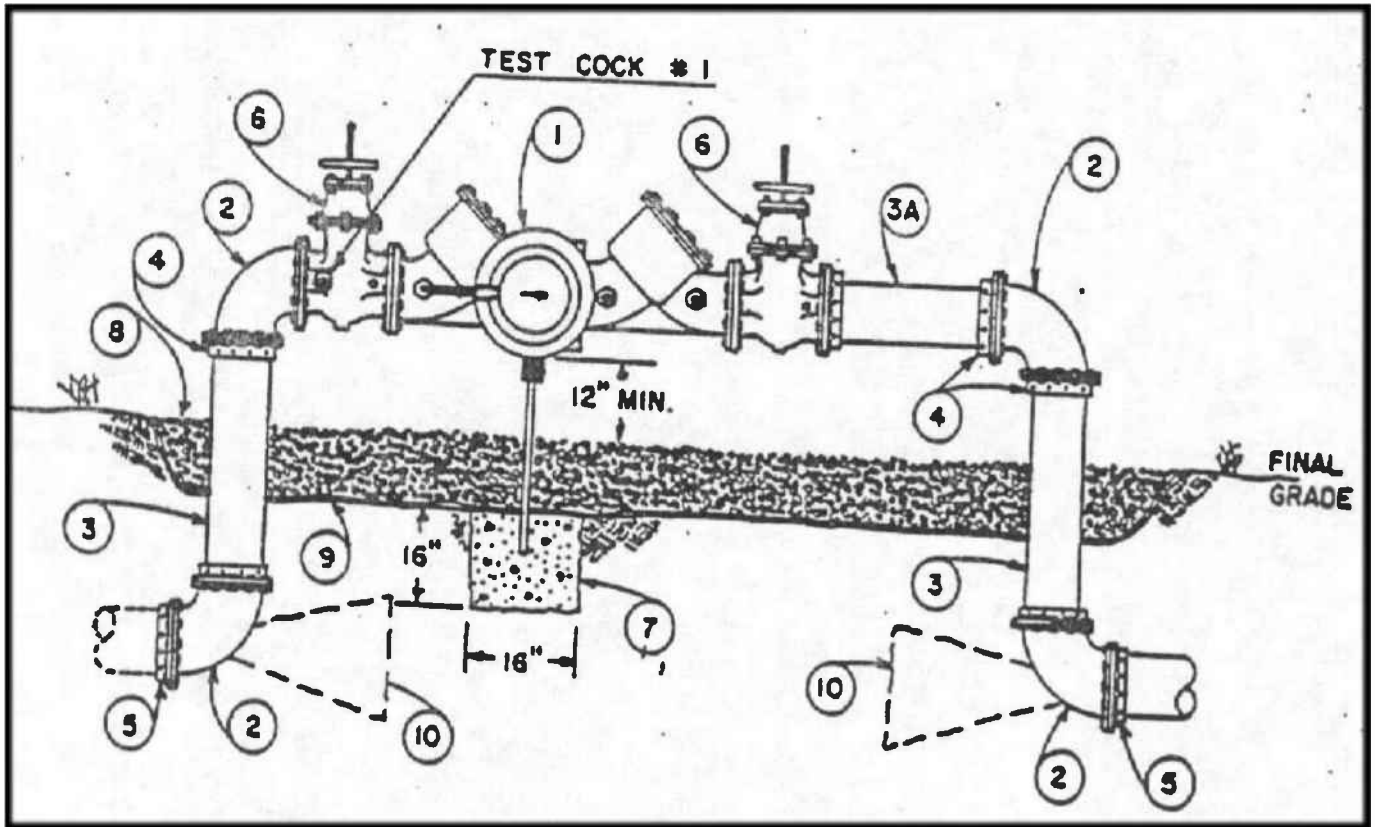
M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	6", 8"	VALVE, REDUCED PRESSURE PRINCIPLE
2	4	6", 8"	BEND - 45 ⁰ F - F
3	2	6", 8"	ADAPTER, C.I. (96" LONG) F - PE
3A	1	6", 8"	ADAPTER, C.I. (24" LONG) F - PE (OPT.)
4	3	6", 8"	ADAPTER, FLANGE, D.I.P.
5	2	6", 8"	ADAPTER, FLANGE, P.V.C. (DR - 18)
6	2	6", 8"	VALVE, GATE, C.I., F - F
7	1 or 2	2"	IRON PIPE / CONCRETE FOUNDATION
8	*		PEA GRAVEL
9	*		PLASTIC LINER
10	2		REACTION BLOCK

NOTE:

- Field adjust and cut Item 3 to the proper length.
- Do not interchange Items 4 & 5.



**14. REDUCED PRESSURE BACKFLOW PREVENTER
SINGLE SERVICE: 6", 8"**



M A T E R I A L S			
ITEM	QUANTITY		DESCRIPTION
1	1	6", 8"	VALVE, REDUCED PRESSURE PRINCIPLE
2	4	6", 8"	BEND - 90 ⁰ F - F
3	2	6", 8"	ADAPTER, C.I. (48" LONG) F - PE
3A	1	6", 8"	ADAPTER, C.I. (24" LONG) F - PE (OPT.)
4	3	6", 8"	ADAPTER, FLANGE, D.I.P.
5	2	6", 8"	ADAPTER, FLANGE, P.V.C. (DR - 18)
6	2	6", 8"	VALVE, GATE, C.I., F - F
7	1	2"	IRON PIPE / CONCRETE FOUNDATION
8	*		PEA GRAVEL
9	*		PLASTIC LINER
10	2		REACTION LINER

NOTE:

- Field adjust and cut Item 3 to the proper length.
- Do not interchange Items 4 & 5.
- This type of construction is designed for limited working area.



CHAPTER VI - TYPICAL FACILITIES REQUIRING PROTECTION AGAINST CROSS-CONNECTIONS

There are varying degrees of hazard, and the degree of protection should commensurate with the degree of hazard. The following list of premises shall be served by an approved backflow prevention device of the type designated.

1. Aircraft and Missile Plants – RP¹
2. Automotive Plants – RP
3. Auxiliary Water Systems (Interconnected) – RP
4. Auxiliary Water Systems (Not Interconnected) – DC²
5. Beverage Bottling Plants – DC
6. Breweries – RP
7. Buildings with house pumps and/or water storage tank – DC
8. Buildings with sewage ejectors (inadequate in-plant protection) – RP
9. Buildings with sewage ejectors (adequate in-plant protection) – DC
10. Canneries, Packing Houses and Reduction Plants – RP
11. Car Wash with hoses and water reclamation systems – RP
12. Centralized Heating and Air Conditioning Plants – RP
13. Chemical Plants – RP
14. Chemically Treated Potable Water Systems – DC
15. Commercial Laundries – RP
16. Dairies and Cold Storage Plants – DC
17. Dye Works – RP
18. Film Processing Laboratories – RP
19. Fire System with pump and/or storage tank – DC

¹ Approved reduced pressure principle backflow preventive device.

² Approved double check valve assembly backflow preventive device.



20. Fire System with auxiliary supply – RP
21. Food Processing Plants – DC
22. High Schools and Colleges – RP
23. Hospitals (major complexes) – RP
24. Hospitals, Mortuaries, Medical and Dental Buildings, and Sanitariums (New) – RP
25. Irrigation Systems (premises having separate – such as parks, playgrounds, cemeteries, golf courses, schools, estates, ranches, etc.) – RP, PVB, AVB.
26. Laboratories using chemicals – RP
27. Manufacturing, Processing and Fabricating Plants using toxic materials – RP
28. Manufacturing, Processing and Fabricating Plants using nontoxic materials – DC
29. Mobile Home Parks – DC
30. Motion Picture Studios – RP
31. Oil and Gas Production Facilities – RP
32. Paper and Paper Production Plants – RP
33. Plating Plants – RP
34. Radioactive Materials Processing Facilities – RP
35. Restricted, Classified or other closed facilities – RP
36. Rubber Plants – RP
37. Sand and Gravel Plants – RP
38. Sewage and Storm Drainage Facilities – RP
39. Waterfront Facilities – RP
40. Any Threaded Hose spigots (e.g., mop sinks) – AVB



CHAPTER VII - APPROVED MANUFACTURERS OF BACKFLOW PREVENTION DEVICES

Devices shall be installed as close as possible to the service connection in an accessible location by the Utility. The reduced pressure principle device must be installed above ground.

Approved testing procedures for each type of valve shall be available for certified testers at the Columbia County Water Treatment Facilities Cross-Connection Control Office.

RECOMMENDED MANUFACTURERS

The following is a list of approved manufacturers of backflow prevention devices:

TYPE	MANUFACTURER	MODEL	SIZE
<u>Double Check Valves:</u> (NON-HEALTH HAZARD)	Hersey (BEECO)	FDC #2	$\frac{3}{4}$ " – 2" 3" – 10"
	Watts	709 – QT 709 – RW	$\frac{3}{4}$ " – 2" 2-1/2" – 8"
	Febco	805 – Y – BV 805 – RW	$\frac{3}{4}$ " – 2" 2-1/2" – 10"
<u>Reduced Pressure Principle:</u> (HEALTH HAZARD)	Hersey (BEECO)	FRP II 6 – CM	$\frac{3}{4}$ " – 2" 3" – 10"
	Watts	009 – QT	$\frac{3}{4}$ " – 2"
	Febco	825 – Y – BV 825 – RW	$\frac{3}{4}$ " – 2" 2-1/2" – 10"
<u>Pressure Vacuum Breaker:</u>	Febco	765 – BV	$\frac{3}{4}$ " – 2"
<u>Vacuum Breaker, Hose Bibb:</u>	Watts	8A , 8B	$\frac{3}{4}$ "

NOTE: The assemblies listed here have been approved by the Foundation for Cross Connection Control and Hydraulic Research (FCCC & HR) at U.S.C. and are acceptable.

Other makes/models may be approved by the Columbia County Water Treatment Facilities, or Building and Zoning Department.



CHAPTER VIII - FORMS

1. FORM LETTER A (2 pages): Advance letter notifying existing customer(s) about Inspection and Test & Maintenance Report – Cross Connection Control Devices
2. FORM B: Cross-Connection Survey Form
3. FORM C: Cross-Connection Inspection Checklist
4. FORM D: Cross-Connection Control Questionnaire
5. FORM LETTER E: Cross-Connection Control Results of Survey, Inspection & Questionnaire, listing any corrective measures.
6. FORM LETTER F: Notification letter placing plumber on certified list.



(Date:)

(Customer's Name & Address)

RE: Cross-Connection Control Program

Dear Customer:

The Columbia County is required to take reasonable precautions to protect the public water supply from possible hazards that may degrade the water in the community distribution system.

If a customer has a cross-connection in his plumbing, there exists the possibility that contaminated or polluted water could enter the water distribution system through backpressure or back-siphonage.

We are undertaking a program of on-site inspections of all businesses that handle or use hazardous, toxic or non-toxic substances. These businesses include hospitals, doctors' and dentists' offices, car washes, pest control companies, photo labs, commercial cleaners, funeral homes, veterinary clinics, beauty salons, and many more not mentioned in this letter.

I would like to visit your place of business on _____ at _____, to explain the Cross-Connection Control Program and discuss what this program means to you, the customer. If this date and time is not convenient for you, please contact me at (386) 758-1019.

Your cooperation in this matter will be greatly appreciated.

Sincerely,

Columbia County Utilities/Drainage Superintendent
Cross-Connection Control Program

Attachment: Test & Maintenance Report
Cross-Connection Control Devices



FORM LETTER A (page 2)

**TEST & MAINTENANCE REPORT
CROSS CONNECTION CONTROL DEVICES**

NAME OF PREMISE: _____

STREET ADDRESS: _____

LOCATION OF DEVICE: _____

TYPE OF DEVICE: RP () D.C. () PVB () SIZE: _____

MANUFACTURER: _____

MODEL NUMBER: _____ SERIAL NUMBER: _____

PRESSURE DROP ACROSS FIRST CHECK VALVE _____ PSI

CHECK VALVE #1		CHECK VALVE #2		DIFFERENTIAL PRESSURE RELIEF VALVE		PRESSURE VACUUM BREAKER	
INITIAL TEST							
1. Leaked		1. Leaked		Opened at	lbs.	Air Inlet Opened at	PSI
2. Closed Tight		2. Closed Tight		Did not Open		Did not Open	
REPAIRS							
<i>Cleaned</i>		<i>Cleaned</i>		<i>Cleaned</i>		Check Valve:	
<i>Replaced:</i>		<i>Replaced:</i>		<i>Replaced:</i>		Leaked	
Rubber Parts Kit		Rubber Parts Kit		Rubber Parts Kit		Closed Tight	
C.V. Assembly		C.V. Assembly		C.V. Assembly		<i>Cleaned</i>	
or		or		or		<i>Replaced:</i>	
Disc		Disc		Disc		C.V. Assembly	
O-Rings		O-Rings		O-Rings		Disc Air Inlet	
Seat		Seat		Seat		Disc. C.V.	
Spring		Spring		Spring		Spring	
Stem/Guide		Stem/Guide		Stem/Guide		Retainer	
Retainer		Retainer		Retainer		Guide	
Lock Nuts		Lock Nuts		Lock Nuts		O-Ring	
Other		Other		Other		Other	
FINAL TEST							
				Opened at	lbs.		
Closed Tight		Closed Tight		Reduced Pressure		Satisfactory	

NOTE: ALL REPAIRS/REPLACEMENT SHALL BE COMPLETED WITHIN TEN (10) DAYS.

REMARKS: _____

I HEREBY CERTIFY THAT THIS DATA IS ACCURATE AND REFLECTS THE PROPER OPERATION AND MAINTENANCE OF THE UNIT.

CERTIFIED TESTING COMPANY _____

INITIAL TEST BY _____ CERTIFIED TESTER NO. _____ DATE _____

REPAIRED BY _____ DATE _____

FINAL TEST BY _____ CERTIFIED TESTER NO. _____ DATE _____

WHITE: TO COLUMBIA COUNTY WATER TREATMENT FACILITIES

YELLOW: TO TESTER

BLUE: TO OWNER



FORM B

CROSS-CONNECTION SURVEY FORM

Place: _____ Date: _____

Location: _____ Investigator(s): _____

Building Representative(s) and Title(s):

Water Source(s): _____

Piping System(s): _____

Points of Interconnection: _____

Special Equipment Supplied with Water and Source:

Remarks or Recommendations: _____

Note: Attach sketches of cross-connections found where necessary for clarity of description. Attach additional sheets for room by room survey under headings.

Room Number or Description	Description of Cross-Connection
----------------------------	---------------------------------

Inspected by: _____



FORM C

COLUMBIA COUNTY WATER TREATMENT FACILITIES

Inspection _____

CROSS-CONNECTION INSPECTION CHECK LIST

Name of Firm: _____

Mailing Address: _____

Time: _____ Date: _____ Water Pressure: _____ pH: _____ Chlorine Res. _____

- Air Conditioning _____
- Air Washers _____
- Air Con'd. Condenser Water _____
- Air Con'd. Chillwater _____
- Air Con'd Cooling Towers _____
- Air Compressors _____
- Aspirator, Lab _____
- Aspirator, Medical _____
- Aspirator Weedicide Ect. _____
- Autoclave & Sterilizer _____
- Boiler _____
- Baptismal Fount _____
- Bathtub _____
- Bedpan Washer, Flushing Rim _____
- Brine Tank _____
- Bottle Washer _____
- Chemical Feeder Tanks _____
- Chlorinator _____
- Coffee Urn _____
- Cuspidor (Gym) _____
- Chiller Tanks _____
- Cooking Kettles _____
- Condensate tank _____
- Demineralizer System _____
- Dishwasher _____
- Drinking Fountain _____
- Dye Jiggs _____
- Dye Vats & Tanks _____
- Developing Tanks _____
- Dye Washers _____
- Bathing Tanks _____
- Stills _____
- Starch Tanks _____
- Sitz Bath _____
- Sprinkler System _____
- Shampoo Basin Hose Rinse _____
- Sinks, Wash-up _____
- Serrated Faucets _____
- Sizing Vats & Cones _____
- Solution Tanks _____
- Urinal, Siphon Jet Blow-Out _____
- Urinal, Trough _____
- Fountain, Ornamental _____

- Fountain, Trough _____
- Floor Drains Flushing _____
- Garbage Can Washer _____
- Garbage Disposers _____
- Hydro-Therapy Baths _____
- Humidifier Tanks & Boxes _____
- Hose Faucets _____
- Hot Water Heater & Tanks _____
- Ice Maker _____
- Janitor Closets _____
- Lab Equip. _____
- Laundry Machine _____
- Lavatory _____
- Lawn Sprinkler _____
- Line Color Coded _____
- Make -up Tank _____
- Pump, Prime Lines _____
- Pump, Water Oper. Eject _____
- Photo Lab Sinks _____
- Photostat Equipment _____
- Pump Pneumatic Eject _____
- Pipette Washer _____
- Potato Peeler _____
- Processing Tanks _____
- Re-circulated Water _____
- Sewer, Sanitary _____
- Sewer, Storm _____
- Swimming Pool _____
- Sewer, Flushing Manhole _____
- Steam Cleaner _____
- Steam Table _____
- Urinals _____
- Ultrasonic Baths _____
- Vats _____
- Vegetable Peeler _____
- Water Closets, Tank _____
- Water Closets, Flush _____
- Water for Cooling _____
- Water Oper. Equip. _____
- Water Treatment Tanks _____
- Wash Tanks _____

Remarks: _____



FORM D

CROSS-CONNECTION CONTROL QUESTIONNAIRE

	YES	NO
1. Is there another source of water to your property other than the service connection to Columbia County Water Treatment Facilities, i.e., a private well?		
2. Are there any facilities (such as a booster pump, elevated tank, etc.) to increase water pressure presently provided by Columbia County Water Treatment Facilities?		
3. Are there any chemicals used in your operation?		
4. Are there any ejectors used in your operation?		
5. Is there water recycled during the operation of your air conditioner or other equipment in your plant?		
6. Are there any water supply lines submerged in tanks, vats, etc.?		
7. Are there any backflow prevention devices installed in any of your piping?		

Data furnished by:

_____ Customer _____ Date
 _____ Address _____ Location ID

Reported by: _____ Title

Remarks: _____



**FORM LETTER E CROSS CONNECTION CONTROL RESULTS OF
SURVEY, INSPECTION AND QUESTIONNAIRE**

(Date:)

(Customer's Name & Address)

SUBJECT: Cross-Connection Control
 Results of Survey, Inspection and Questionnaire

Dear (Customer's Name):

On (date of inspection), I met with you and briefly discussed our program of Cross-Connection Control and Backflow Prevention.

Having inspected the plumbing fixtures on your premise, as they apply to cross-connection control, the following is required.

Please contact me at (386) 758-1019 before (date), to make
arrangements to have the (type) backflow preventer inspected.

Sincerely,

Columbia County Utilities/Drainage Superintendent
Cross- Connection Control Program



FORM LETTER F
LIST OF APPROVED BACKFLOW PREVENTION DEVICE TESTERS

(Date:)

(Individual's Name & Address)

SUBJECT: Columbia County Water Treatment Facility
List of Approved Backflow Prevention Device Testers

Dear (Individual's Name):

We are happy (sorry) to inform you that you have been approved (denied) for placement on our list of Certified Backflow Prevention Device Testers. We look forward to working with you and your clients in the future.

Sincerely,

Columbia County Utilities/Drainage Superintendent
Cross- Connection Control Program



APPENDIX C

OIL AND GREASE MANAGEMENT AND SURCHARGE PROGRAMS

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CHAPTER I OIL AND GREASE MANAGEMENT PROGRAM

Purpose and Intent

The purpose of this Article VIII is to provide for an Oil and Grease Management Program and for its implementation and which shall be referred to as the "County Oil and Grease Management Program". The objective of the County Oil and Grease Management Program is to minimize the introduction of fat-soluble wastes to the County wastewater collection and treatment system and to provide enforcement procedures and cost recovery charges from users receiving and treating abnormally high-strength compatible wastes, such as carbonatious biochemical oxygen demand (CBOD) and total suspended solids (TSS).



Definitions.

BACKFLUSH	The act of returning previously removed material to a grease interceptor or trap.
BAFFLES	The interior walls of a grease interceptor or trap that slows the flow of water.
BOD	BIOCHEMICAL OXYGEN DEMAND The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five days at 20 degrees Celsius, expressed in terms of weight and concentration (milligrams per liter).
CBOD	CARBONATIOUS BIOCHEMICAL OXYGEN DEMAND
DECANTING	The act of returning water to a grease interceptor or trap that has been separated from the waste removed from a grease interceptor or trap.
EMULSIONS	A mixture of two immiscible (unblendable) substances. One substance (the dispersed phase) is dispersed in the other (the continuous phase). Examples of emulsions include butter and margarine, milk and cream, espresso, mayonnaise...
OGMP	Oil and Grease Management Program
POTW	PUBLICLY OWNED TREATMENT WORKS The Columbia County Wastewater Treatment Plant.
SLUDGE	Settled material found on the bottom of a grease interceptor or trap.
TSS -	TOTAL SUSPENDEDED SOLIDS All solids that either float on the surface or are in suspension in water, sewage, wastewater or other liquids and which are removable by laboratory filtering.
USER	Any nonresidential establishment that prepares, processes or serves food or food products and any nonresidential establishment that has the potential to discharge wastes containing residual petroleum based oil and grease and shall include owners of multifamily dwellings, such as triplexes, quadraplexes, townhouses, condominiums, apartment buildings and apartment complexes.
WASTEWATER	Any water that has been adversely affected in quality. It comprises liquid waste discharged by domestic residences, commercial properties, industry, and/or agriculture and can encompass a wide range of potential contaminants and concentrations.



CHAPTER 2 OIL AND GREASE PREVENTION PROGRAM

A. *General Criteria*

- (1) The discharge by a user to the publicly owned treatment works (POTW) of certain liquids or wastes may be prohibited or limited by the provisions of this Chapter.
- (2) Wastes, which contain oil and grease, may be discharged to the POTW in accordance with the conditions set forth in this Chapter.
- (3) Wastes containing oil and grease, including materials processed through garbage grinders shall be directed to the grease interceptor or trap.
- (4) Wastes containing residual (trace amounts) petroleum based oil and grease shall be directed to the oil/water separator.
- (5) Sanitary facilities and other similar fixtures shall not be connected or discharged to the oil and grease interceptor or the oil/water separator.
- (6) Liquid wastes shall be discharged to the oil and grease interceptor or oil/water separator through the inlet pipe only and in accordance with the design/operating specifications of the device.
- (7) Oil and grease interceptors and oil/water separators shall be installed in a location that provides easy access at all times for inspections, cleaning and proper maintenance, including pumping. Oil and grease interceptors shall not be located in or near any part of a structure where food handling is done. The County shall approve the location of the oil and grease interceptor or oil/water separator prior to installation.
- (8) Nonresidential establishments (users) that prepare process or serve food or food products shall have an approved oil and grease interceptor. Nonresidential establishments that have the potential to discharge wastes containing residual petroleum based oil and grease, such as commercial laundries, car washes and automotive related facilities, shall have an approved oil/water separator. Other users may be required by the County to install an approved oil and grease interceptor or an oil/water separator, as appropriate, for the proper handling of wastes containing oil and grease exceeding one hundred (100) mg/l by weight.
- (9) Other types of food manufacturing or food preparation enterprises, such as, but not limited to, commissaries, commercial kitchens and caterers shall install an oil and grease interceptor. Oil and grease interceptors shall be sized on an individual case by case basis. A control manhole or

C-4



inspection box for monitoring purposes shall be required and installed at the owner/operator's sole expense, as approved by the County.

- (10) Multifamily dwellings; such as triplexes, quadraplexes, townhouses, condominiums, apartment buildings, apartment complexes or areas of intensified dwelling which are found by the County to be contributing oil and grease in quantities sufficient to cause main line stoppages, lift station malfunctions, or necessitate increase maintenance on the collection system, said user(s) shall be directed to implement an onsite education program for the tenants of said structures. Cease discharging oil and grease to the POTW and/or shall be required to install a grease and oil interceptor. The capacity of the oil and grease interceptor shall be evaluated on a case by case basis. A control manhole or inspection box for monitoring purposes shall be required and installed at the owner/operator's sole expense, as approved by the County.
- (11) Automotive related enterprises, commercial laundries, Laundromats, and other users, which contribute wastes containing petroleum (hydrocarbon) based oils and greases shall install an oil/water separator. Oil/water separators shall be sized on an individual case by case basis using established design guidelines for the proposed facility. A control manhole or inspection box shall be installed downstream.
- (12) Oil and grease interceptors and oil/water separators shall be installed solely at the user's expense. Proper operation, maintenance, and repair shall be done solely at the user's expense.
- (13) Minimum removal efficiency for oil and grease interceptors for animal fats and vegetable oils shall be eighty percent (80%). Minimum removal efficiency for oil/water separators for trace petroleum based wastes shall be ninety percent (90%).
- (14) The County may request that the non-residential user provide documentation on the design and performance of the oil and grease interceptor or oil/water separator. Information to be submitted includes, but may not be limited to, catalog cuts, performance data, materials of construction, installation instructions and operation and maintenance manual.
- (15) The County at his/her discretion may assign a nonresidential user to the Surcharge Program.



B. Design

- A. Oil and grease interceptors and oil/water separators shall be designed and constructed in accordance with this Chapter, the Columbia County Water and Wastewater Systems Handbook latest edition, and other applicable State and local regulations. The County shall approve design and construction
- B. The design of oil/water separators shall be based on peak flow and where applicable, capable of treating and removing emulsions. Oil/water separators shall be sized to allow efficient removal (retention) of the petroleum-based oils and grease from the user's discharge to the POTW.
- C. Alternative oil and grease removal devices or technologies shall be subject to written approval by the County and shall be based on demonstrated (proven) removal efficiencies. Under-the-sink oil and grease interceptors are prohibited for new facilities.
- D. An adequate number of inspection and monitoring points, such as a control manhole or inspection box, shall be provided.

C. Capacity

The capacity of the approved oil and grease interceptor and oil/water separator shall be in accordance with the requirements set forth in the latest edition of the the Columbia County Water and Wastewater Systems Handbook. The County may modify the requirements on a case by case basis.

D. Installation

A. New Facilities

On or after the effective date of this Chapter, facilities having the potential to discharge oil and grease, which are newly proposed or constructed, or existing facilities which shall be expanded or renovated to include a food service facility where such facilities did not previously exist, shall be required to install an approved, properly operated and maintained oil and grease interceptor or oil/water separator. Sizing calculations shall be in accordance to the formulas listed in the Columbia County Water and Wastewater Systems Handbook, latest edition. Oil and grease interceptors or oil/water separators shall be installed prior to the opening or reopening of said facilities.



B. Existing Facilities.

1. On or after the effective date of this Chapter, existing food service or automotive related facilities shall be required to install an approved, properly operated and maintained oil and grease interceptor or oil/water separator when any of the following conditions exist:
 - (a) The facilities are found by the County to be contributing oils and grease in quantities sufficient to cause line stoppages or necessitate increased maintenance on the collection system.
 - (b) Remodeling of the food preparation or kitchen waste plumbing facilities that are subject to a permit that is issued by the Building Department.
 - (c) Remodeling of an automotive related enterprise, commercial laundry or other users that potentially may contribute wastes with petroleum based oils and greases.
2. The County shall determine the compliance date under this Subsection.

E. Extensions

Any requests for extensions to the required installation dates must be made in writing to the County, at least fifteen (15) days in advance of the compliance date. The written request shall include the reasons for the user's failure or inability to comply with the compliance date set forth, the additional time needed to complete the remaining work, and the steps to be taken to avoid future delays.

F. Maintenance

- A. The user shall perform cleaning and maintenance. Cleaning shall include the complete removal of all contents, including floating materials, wastewater, and bottom sludge and solids.
- B. Decanting, backflushing or discharging of removed wastes back into the oil and grease interceptor or oil/water separator from which the waste was removed or any other oil and grease interceptor or oil/water separator, for the purpose of reducing the volume to be hauled and disposed is prohibited.



- C. Oil and grease interceptors and oil/water separators shall be pumped out completely at a minimum frequency of once every ninety (90) days, or more frequently as needed to prevent carry over of oil and grease into the collection system. Under the sink oil and grease traps shall be cleaned at a minimum frequency of once per week, or more often as necessary to prevent pass through of grease and other food solids to the collection system. Cleaning and maintenance shall include removal of materials from the tank walls, baffles, cross pipes, inlets and outlets.
- D. Pumping frequency shall be determined by the County based on flows, quantity of oil and grease in the discharge, volume of business, hours of operations and seasonal variations. In no case shall the pumping frequency exceed ninety (90) days. The user shall be responsible for maintaining the oil and grease interceptor or oil/water separator in such a condition for efficient operation. An interceptor shall be considered to be out of compliance if the grease layer on top exceeds six (6) inches and the solids layer on the bottom exceeds twelve (12) inches or if removal efficiencies as determined through sampling and analysis indicate less than eighty percent (80%) .
- E. Wastes removed from each oil and grease interceptor or oil/water separator shall be disposed at a permitted facility to receive such wastes or a location designated by the County for such purposes, in accordance with the provisions of this Chapter. In no way shall the pumpage be returned to any private or public portion of the collection system or the treatment plants.
- F. Additives placed into the oil and grease interceptor, oil/water separator or building discharge line system on a constant, regular or scheduled basis shall be reported to the County in writing at least five (5) days prior to use. Such additives shall include, but not be limited to, emulsifiers, enzymes, commercially available bacteria, or other additives designed to absorb, purge, consume, treat, or otherwise eliminate grease and oils. The County prior to introduction into the waste stream, interceptor, or separator shall approve any use of additives in writing. The use of additives in no way shall be considered, as a substitution to the maintenance procedures required herein.
- G. Flushing the oil and grease interceptor or oil/water separator with water having a temperature in excess of 140° F shall be strictly prohibited.
- H. All maintenance of oil and grease management devices, including proper disposal, shall be performed by the user at the user's sole expense.



G. User Identification.

- A. It is unlawful for any facility producing oil and grease waste to discharge into the County's collection system without authorization from the County. Authorization shall be given in the form of an oil and grease discharge certificate. Application for a certificate shall be made to the County. If, after examining the information contained in the oil and grease registration certificate application, it is determined by the County that the proposed facility does not conflict with the provisions of the Chapter, ***a certificate shall be issued allowing the discharge of such wastes into the collection system. Each oil and grease registration certificate shall be issued for a time not longer than five years from the date of the certificate.*** The user shall apply for certificate re-issuance a minimum of sixty (60) days prior to the expiration of the user's existing certificate. The terms and conditions of the certificate may be subject to modification by the County during the term of the certificate as limitations or requirements as identified in this Chapter are modified or other just causes exist. The user shall be informed of any proposed changes in the issued certificate at least sixty days prior to the effective date of the change(s). Any changes or new conditions in the certificate shall include a reasonable schedule for compliance.
- B. As a condition precedent to the granting of an oil and grease registration certificate, the recipient under this section shall agree to hold harmless the County and the County's employees from any liabilities arising from the user's operations under this certificate.
- C. The County shall establish a schedule of charges for issuance and renewal of the oil and grease registration certificates. The charges shall be established to insure full cost recovery in the enforcement of this ordinance, and shall include, but shall not be limited to, the cost of field, administrative, engineering and clerical expenses involved. The schedule of charges shall be on file at the Board of County Commissioners Office and shall be available to the public by accessing the County website at www.columbiacountyfla.com/utilities.

H. Administrative Procedures

A manifest that confirms pumping, hauling, and disposal of waste shall track pumpage from oil and grease interceptors and oil/water separators. This manifest shall contain the following information:



Generator information:

- Name
- Contact Person
- Address
- Telephone Number
- Volume Pumped
- Date and Time of pumping
- Name and Signature of generator verifying generator information.

Transporter information:

- Company Name
- Address
- Telephone Number
- Volume Pumped
- Date and Time of pumping
- Driver Name and Signature of transporter verifying transporter information and service
- Destination Information Disposal Site or Facility:
- Company Name / Permit Number(s)
- Contact Person(s)
- Address
- Telephone Number
- Location of Disposal Site/Facility
- Volume Treated
- Date and Time of Delivery
- Driver Name, Signature and Vehicle No.
- Name and Signature of operator verifying disposal site and facility information.

- B. The user shall maintain a log of pumping activities for the previous twelve (12) months. The user shall post the log of pumping activities in a conspicuous location for immediate access. The log shall include the date, time, volume pumped, hauler's name and license number and hauler's signature. The user shall report pumping activities within forty-eight (48) hours to the County on the form so designated by the County for such purposes.
- C. The user shall maintain a file on site of the records and other documents pertaining to the facility's oil and grease interceptor or oil/water separator. The file contents shall include, but is not limited to, the record (as-built) drawings, record of inspections, log of pumping activities and receipts, log of maintenance activities, hauler information, disposal information and monitoring data. The file shall be available at all times for inspection and review by the County. Documents in the file shall be retained and preserved in accordance with applicable State law.



- D. The County may require the user to provide, operate and maintain at the user's expense, appropriate monitoring facilities, such as a control manhole, that are safe and accessible at all times, for observation, inspection, sample collection and flow measurement of the user's discharge to the POTW. The County may impose additional limitations and monitoring requirements for the discharge to the POTW in accordance with the provisions set forth in this Chapter.

I. Enforcement

- A. A Notice of Violation shall be issued to a user for failure to:
 - 1. Report pumping activities;
 - 2. Properly maintain (clean-out or pump) the interceptor or separator in accordance with the provisions of the oil and grease discharge certificate;
 - 3. Maintain and post the log of pumping activities;
 - 4. Maintain a file of records on site at all times;
 - 5. Provide logs, files, records, or access for inspection or monitoring activities;
 - 6. Obtain or renew the oil and grease discharge certificate registration; or
 - 7. Pay program fees.
- B. The County may serve any user a written notice stating the nature of violation. The user shall have seventy-two (72) hours to complete corrective action and submit evidence of compliance to the County.
- C. If a user violates or continues to violate the provisions set forth in this section or fails to initiate/complete corrective action within the specified time period in response to a Notice of Violation, then the County may pursue one or more of the following options:
 - 1. Pump the oil and grease interceptor or oil/water separator and place the appropriate charge on the user's monthly sewer bill;



2. Collect a sample and assess the appropriate surcharge for compatible wastes in accordance with the provisions of this Chapter;
 3. Impose an administrative penalty;
 4. Assess a reasonable fee for additional inspection, sample collection and laboratory analyses;
 5. Revoke the County occupational license;
 6. Terminate water and sewer service; or
 7. Any combination of the above enforcement actions.
- D. Progressive enforcement action shall be pursued against users with multiple violations of the provisions of this section including, ***but not limited to***, termination of water service.
- E. The user shall pay all outstanding fees, penalties, and other utility charges prior to reinstatement of water and sewer service.
- F. Any user in the Oil and Grease Management Program found in violation of the provisions in this section, and any orders, rules, regulations and permits that are issued pursuant to the Chapter, shall be served by the County with written notice by personal delivery by an authorized County employee or by registered or certified mail that states the nature of the violation and providing a reasonable time limit for satisfactory correction of the violation. The affected user shall permanently cease all violations within the time period specified in the notice. The enforcement remedies available to the County to achieve compliance with the requirements of the OGMP shall include those in Ordinance 2010-13.
- G. The County at this discretion may assign a non-residential user to the Surcharge Program for noncompliance with the provisions of this Chapter.

J. Permits

The County shall issue a Certificate of Registration to the users in the OGMP. The County may require users to complete an information questionnaire and facility visit prior to issuance of the registration certificate.



K. Oil and Grease Management Enforcement; Cost Recovery Charges

The County may adopt a schedule of charges as deemed necessary to enforce the requirements and programs in this ordinance. These charges are imposed to recover the costs incurred by the County to implement and enforce the provisions of this ordinance. These fees relate solely to the matters covered by this ordinance and are separate from all other fees, fines, and penalties assessed by the County. Sample collection and laboratory analysis related to enforcement activities shall be at the rates stated in the Schedule of Fees and Charges if adopted by the County.

L. Injunctive Relief

When the County Manager finds that a user has violated, or continues to violate, any provision of this article, a wastewater discharge permit, or order issued hereunder, or any other pretreatment standard of requirement, the County Manager may petition the circuit court through the City's attorney for the issuance of a temporary or permanent injunction, as appropriate, which restrains or compels the specific performance of the wastewater discharge permit, order, or other requirement imposed by this article on activities of the user. The County Manager may also seek such other action as is appropriate for legal and/or equitable relief, including a requirement for the user to conduct environmental remediation. A petition for injunctive relief shall not be a bar against, or a prerequisite for, taking any other action against a user.

M. Civil Penalties

- A. A user who has violated, or continues to violate, any provision of this article, a wastewater discharge permit, or order issued hereunder, or any other pretreatment standard or requirement shall be liable to the County for a maximum civil penalty of \$1,000.00 per violation, per day. In the case of a monthly or other long-term average discharge limit, penalties shall accrue for each day during the period of the violation.
- B. The County shall be entitled to recover reasonable attorneys' fees, court costs, and other expenses associated with enforcement activities, including sampling and monitoring expenses, regulatory fines or penalties, and the cost of any actual damages incurred by the County.
- C. In determining the amount of civil liability, the court shall take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration of the violation, any economic benefit gained through the user's violation, corrective actions by the user, the compliance history of the user, and any other factor as justice requires.



- D. Filing a suit for civil penalties shall not be a bar against, or a prerequisite for, taking any other action against a user.

N. Remedies Nonexclusive

The remedies provided for in this article are not exclusive. The County Manager or his designee may take any, all, or any combination of these actions against a noncompliant user. Enforcement of pretreatment violations will generally be in accordance with the County's enforcement response plan. However, the County Manager or his designee may take other action against any user when the circumstances warrant. Further, the County Manager or his designee is empowered to take more than one enforcement action against any noncompliant user.



APPENDIX D – DRAWINGS

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**ELECTRONIC COPIES OF AUTOCAD DRAWINGS CAN
BE DOWNLOADED FROM THE COUNTY WEBSITE:**

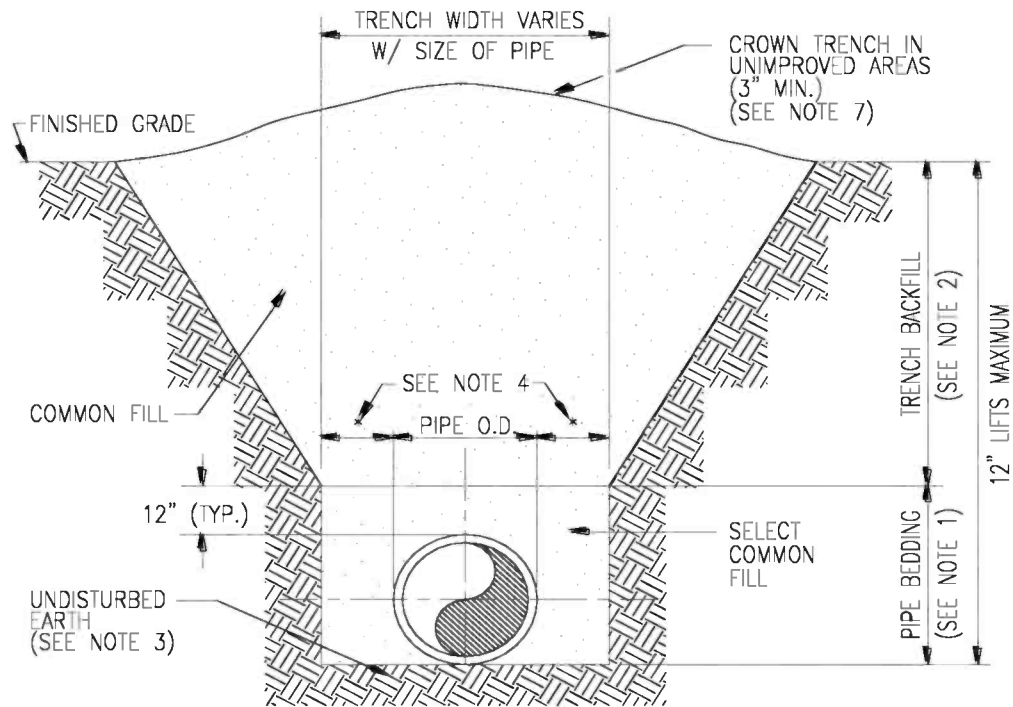
<http://www.columbiacountyfla.com/utilities>

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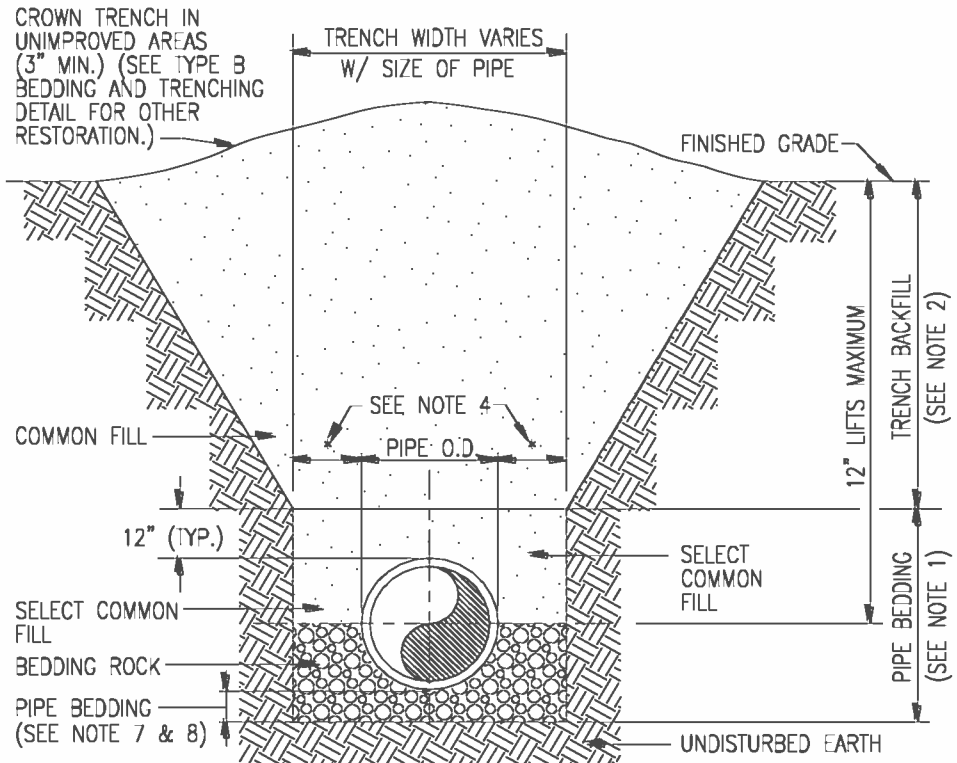


- NOTES:
1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE COUNTY.
 4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
 5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 7. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN THE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH THE APPLICABLE REGULATIONS.

			COLUMBIA COUNTY			
			TYPE B BEDDING AND TRENCHING DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q100	Fig: 100

FIGURE D-100 TYPE B BEDDING AND TRENCHING DETAIL





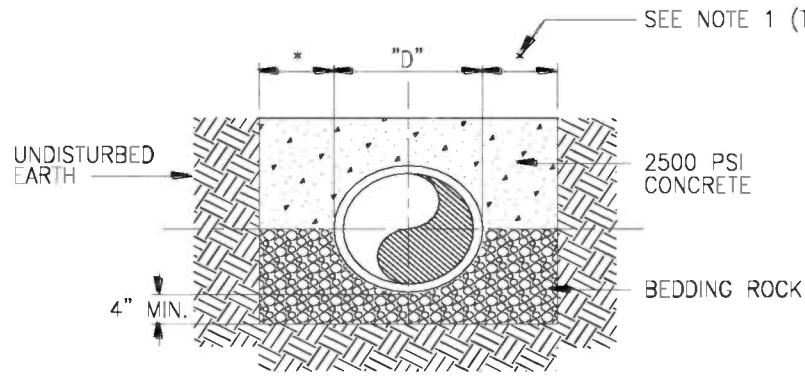
NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. USE TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
7. GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING, IF REQUIRED BY THE COUNTY. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER LESS THAN 15", AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
8. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. APPLICABLE GOVERNING AGENCY SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.

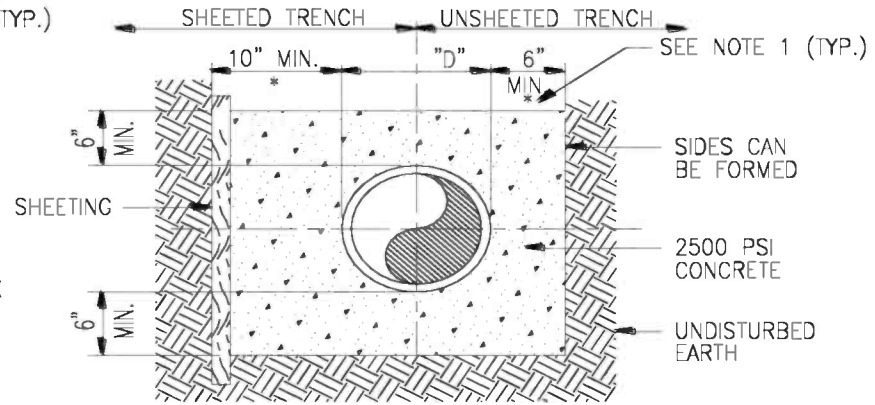
COLUMBIA COUNTY			
TYPE A BEDDING AND TRENCHING DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q10 Fig: 101

FIGURE D-101 TYPE A BEDDING AND TRENCHING DETAIL

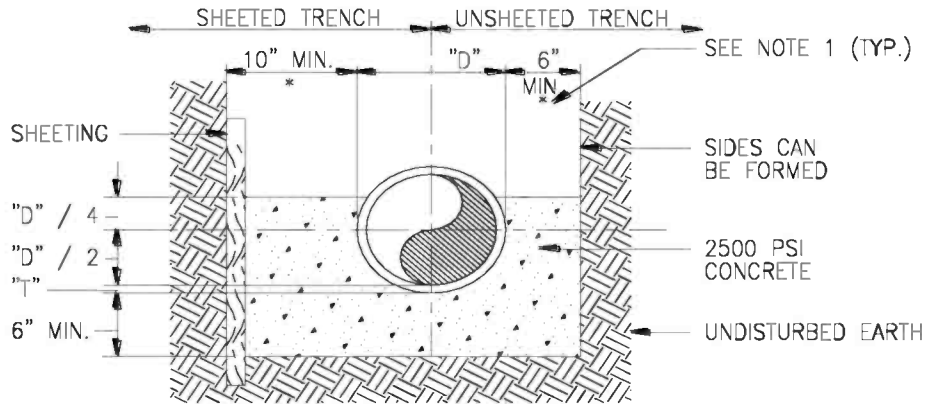




CONCRETE ARCH



FULL ENCASEMENT



CRADLE OR HALF ENCASEMENT

NOTES:

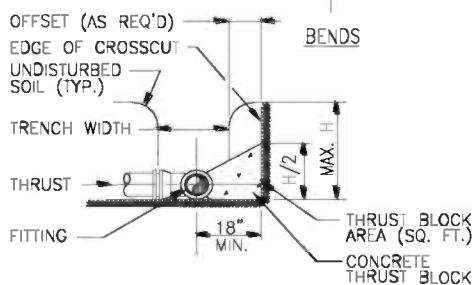
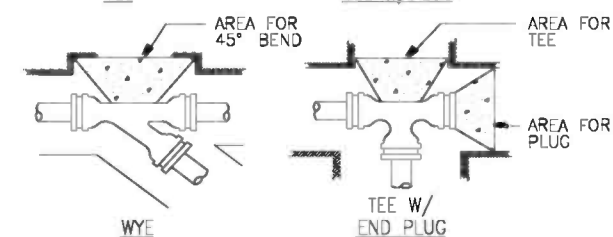
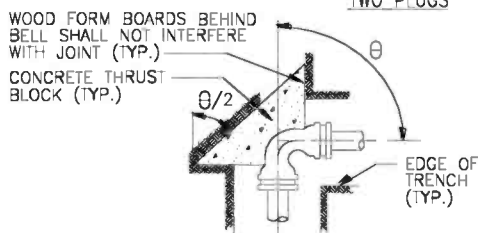
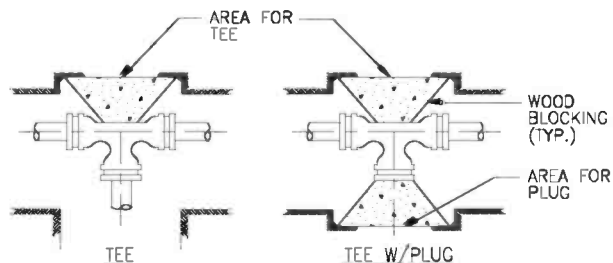
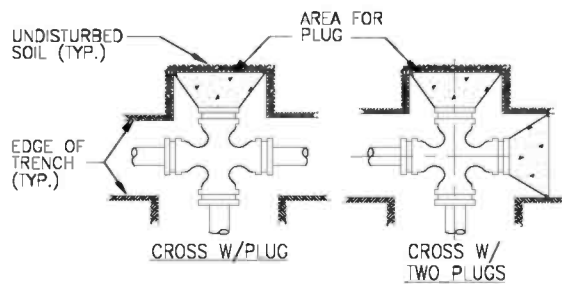
1. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIA. 24" AND OVER.
2. "D" REFERS TO THE DIAMETER OF THE PIPE.
3. "t" REFERS TO THE THICKNESS OF THE PIPE.
4. USE OF CONCRETE ARCH HALF ENCASEMENT OR FULL ENCASEMENT TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY.

Date	Revisions	Appr. by

COLUMBIA COUNTY		
CONCRETE ARCH and ENCASEMENT DETAILS		
Date: Jan. 2001	Dwg: Q102	Fig: 102

FIGURE D-102 CONCRETE ARCH AND ENCASEMENT DETAILS





SPECIAL NOTE:

ALL PRESSURE PIPE FITTINGS SHALL BE RESTRAINED WITH GLANDS AND DEVICES AS APPROVED BY THE COUNTY. CONCRETE THRUST BLOCKS ARE NOT ACCEPTABLE FOR PIPE RESTRAINT UNLESS APPROVED BY THE COUNTY FOR LIMITED APPLICATIONS.

SCHEDULE FOR THRUST BLOCK AREAS *						
PIPE SIZE (INCHES)	90 BEND (SQ FT)	45 BEND (SQ FT)	22-1/2 BEND (SQ FT)	11-1/4 BEND (SQ FT)	TEE & PLUG (SQ FT)	DESIGN PRESS (PS)
4						
6						
8						
10						
12						

NOTE:
THRUST BLOCK AREAS TO BE COMPUTED ON BASIS OF LBS. PER SQ. FT. SOIL RESTRAINT BEARING. (1,500 MIN) SEE NOTE 5

* TO BE COMPLETED BY ENGINEER.

- NOTES:
- THRUST BLOCK BEARING AREAS SHALL BE POURED AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE ALL LOOSE MATERIAL AND EXTEND TO UNDISTURBED MATERIAL.
 - EXTEND THRUST BLOCK FULL LENGTH OF FITTINGS. JOINTS SHALL NOT BE COVERED BY THRUST BLOCKS. FITTINGS SHALL BE PROTECTED BY POLYETHYLENE FILM (8 MIL.) PRIOR TO PLACING CONCRETE THRUST BLOCK.
 - ROUGH BLOCKING FORMS SHALL BE USED ALONG SIDES OF THRUST BLOCKS, AS REQUIRED.
 - THRUST BLOCKS SHALL BE USED IN COMBINATION, AS REQUIRED, TO SUIT THE SPECIFIC FITTING ARRANGEMENT.
 - ALTERNATE DESIGNED RESTRAINING SYSTEMS SHALL BE PROVIDED WHERE STANDARD THRUST BLOCKING IS NOT SUITABLE AND/OR SOIL RESISTANCE BEARING IS LESS THAN 1500 PSF.
 - ALL WOOD BLOCKING SHALL BE PRESSURE TREATED WITH PRESERVATIVE.

COLUMBIA COUNTY					
THRUST BLOCK DETAIL					
Date	Revisions	Appr. by	Date: FEB. 2010	Scale: N.T.S.	Dwg: Q103 Fig: 103

FIGURE D-103 THRUST BLOCK DETAIL



MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S). *									
	PIPE SIZE								
	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND									
45° BEND									
22-1/2° BEND									
11-1/4° BEND									
PLUG OR BRANCH OF TEE									

NOTES:

1. FITTINGS SHALL BE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
2. INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN SHOWN IN THE TABLE.
3. WHERE TWO OR MORE FITTINGS ARE TOGETHER, USE FITTING WHICH YIELDS GREATEST LENGTH OF RESTRAINED PIPE.
4. IN LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF RESTRAINED JOINTS FROM OTHER FITTINGS NEED NOT BE RESTRAINED UNLESS OTHERWISE INDICATED.
5. LENGTHS SHOWN IN THE TABLE HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" AS PUBLISHED BY DIPRA, WITH THE FOLLOWING ASSUMPTIONS:

WORKING PRESSURE: _____ P.S.I.*
 SOIL DESIGNATION: _____ *
 LAYING CONDITIONS: _____ *

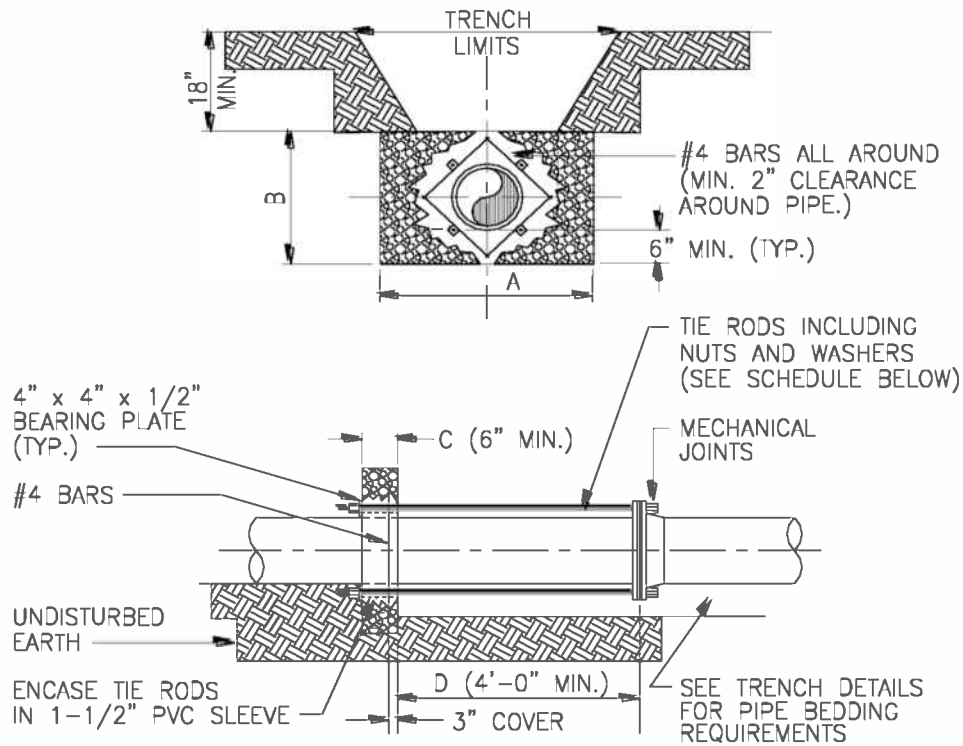
6. FOR PIPE ENCASED IN POLYETHYLENE, USE VALUES GIVEN IN PARENTHESES OR INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.

* TO BE COMPLETED BY THE ENGINEER.

				COLUMBIA COUNTY			
				RESTRAINED PIPE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q104	Fig: 104	

FIGURE D-104 RESTRAINED PIPE DETAIL





SCHEDULE OF DIMENSIONS AND MATERIALS *

PIPE SIZE (INCHES)	DIMENSIONS				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.

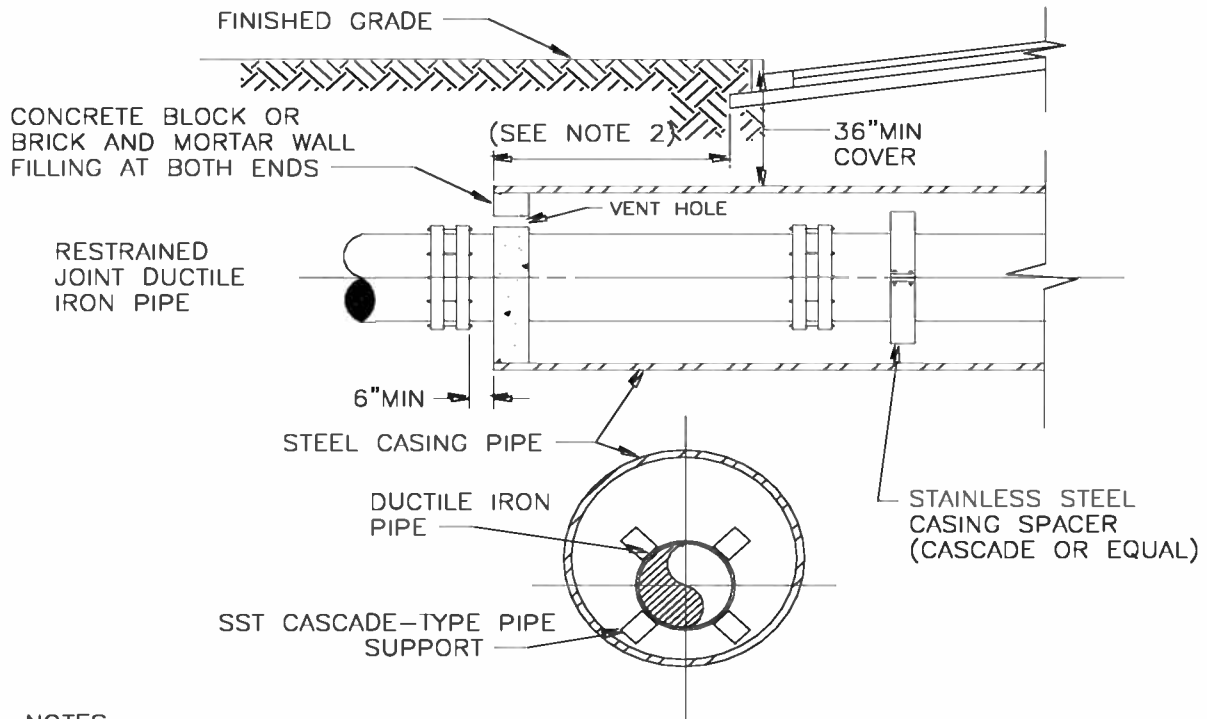
NOTE: THRUST BLOCK AREAS TO BE COMPUTED ON BASIS OF _____ LBS. PER SQ. FT. SOIL RESTRAINT BEARING. (1,500 MIN) SEE NOTE 5
 * TO BE COMPLETED BY ENGINEER.

- NOTES:
1. ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
 2. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 2500 PSI.
 3. BEDDING, BACKFILL, AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
 4. ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
 5. NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
 6. DESIGN PRESSURE: _____ P.S.I.*

COLUMBIA COUNTY			
WATER MAIN THRUST COLLAR DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996
			Scale: N.T.S. Dwg: Q105 Fig: 105

FIGURE D-105 WATER MAIN THRUST COLLAR DETAIL



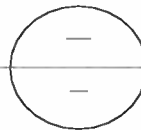


NOTES:

1. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE UTILITY ACCOMODATION MANUAL SHALL BE MET.
2. CASING SHALL BE OF SUFFICIENT LENGTH TO EXTEND UNDER ALL PAVEMENTS AND IN NO CASE SHALL THE END OF THE CASING BE CLOSER THAN EIGHT (8) FEET FROM THE PAVEMENT EDGE INCLUDING PAVED SHOULDERS PLUS ADDITIONAL LENGTH AS NECESSARY TO EXTEND TO THE EXCAVATED SLOPES OF THE JACKING AND RECEIVING PITS.
3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF A 2:1 SLOPE (ANY STEEPER AND PIT MUST BE SHEETED AND SHORED) BEGINNING EIGHT (8) FEET FROM EDGE OF PAVEMENT.
4. THE CONTRACTOR SHALL PROVIDE A 4-INCH DIP CASING VENT AS SHOWN ON THE DRAWINGS FOR RAILWAY CROSSINGS, IN LIEU OF VENT HOLE AS SHOWN ABOVE.

UTILITY CROSSING, BORE AND JACK

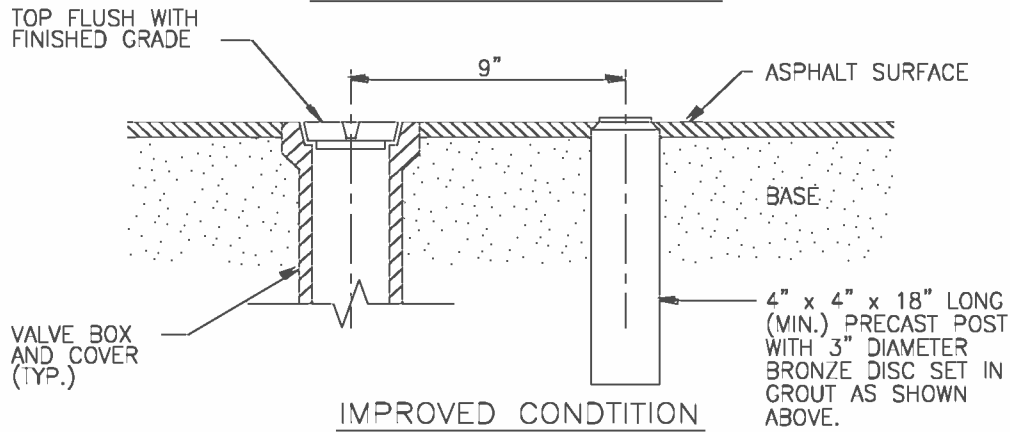
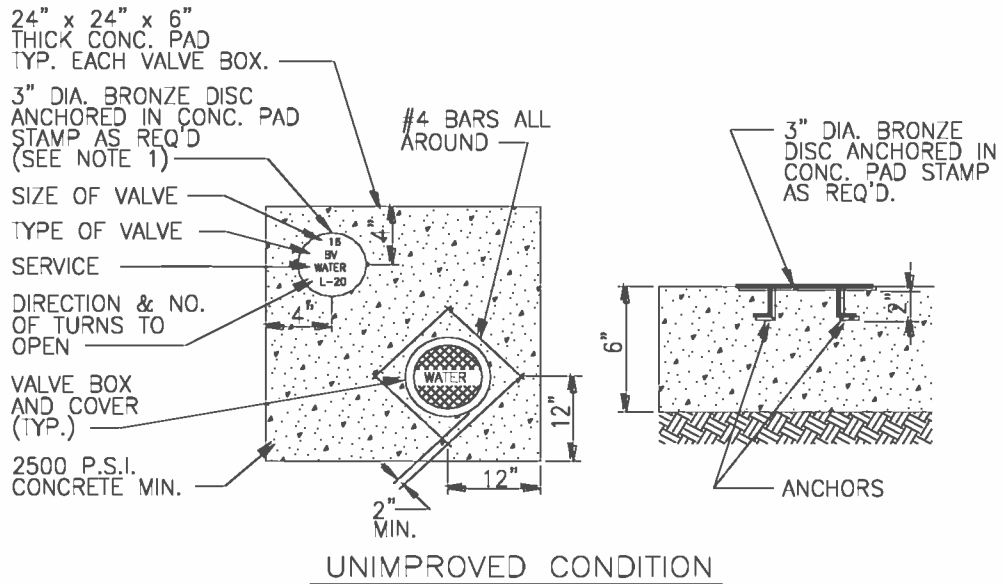
DETAIL
NTS



			COLUMBIA COUNTY			
			BORING AND JACKING DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q106	Fig: 106

FIGURE D-106 BORING AND JACKING DETAIL



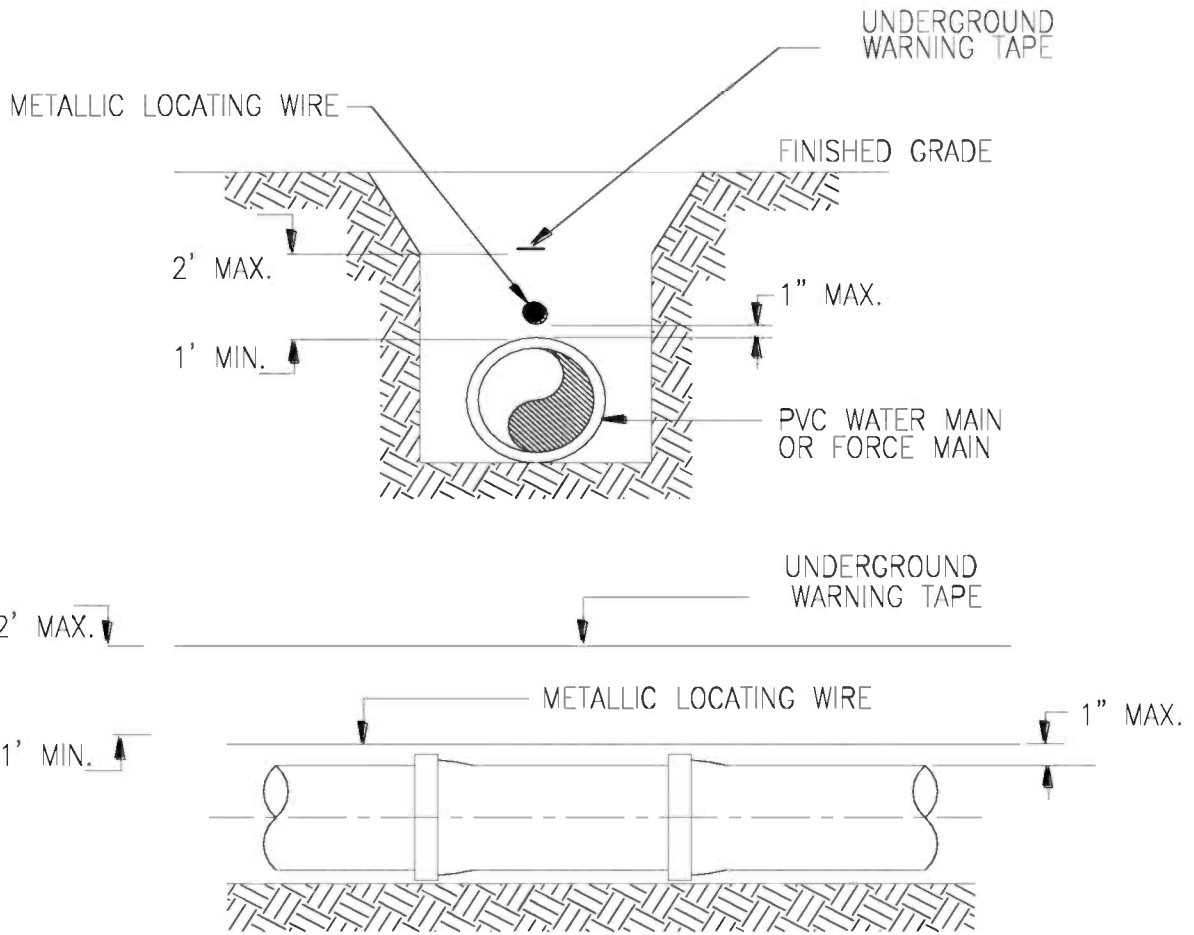


- NOTES:
 1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.

COLUMBIA COUNTY			
VALVE COLLAR DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q107 Fig: 107

FIGURE D-107 VALVE COLLAR DETAIL





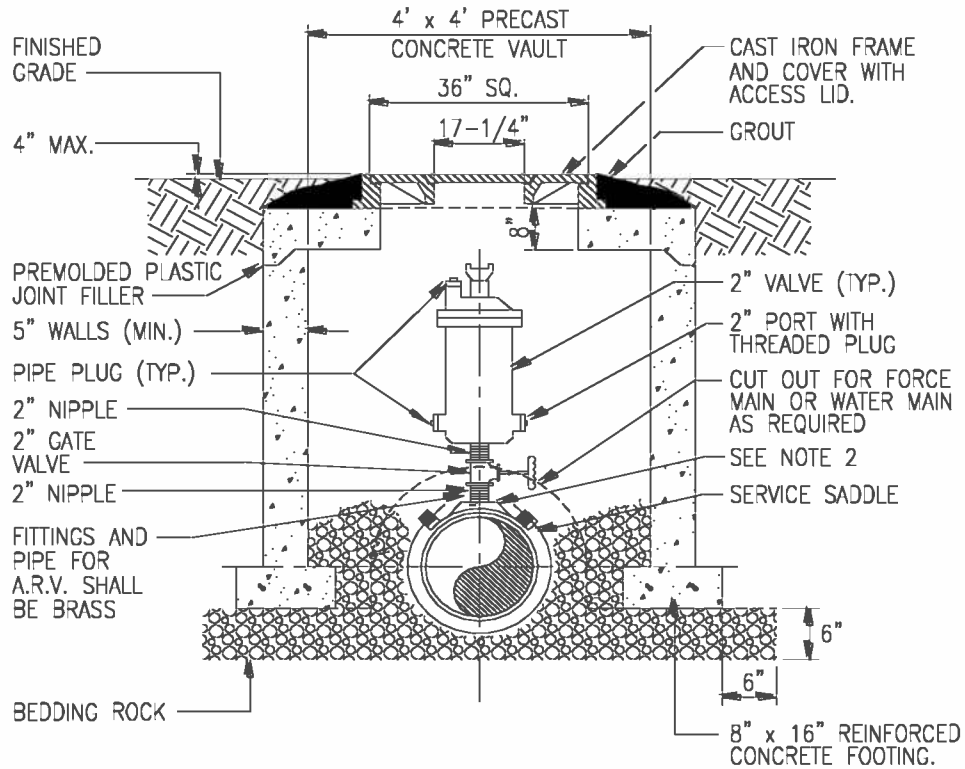
NOTES:

1. PVC PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (14 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE.
2. PROPERLY COLOR CODED UNDERGROUND WARNING TAPE SHALL BE PLACED AT A MINIMUM OF 1 FOOT ABOVE THE PIPE AND NO GREATER THAN 2 FEET ABOVE THE PIPE, FOR THE PURPOSE OF IDENTIFYING THE LOCATION OF UNDERGROUND UTILITY LINES.

COLUMBIA COUNTY			
PVC PIPE LOCATING WIRE DETAIL			
Date	Revisions	Appr. by	Date: FEB. 2010
			Scale: N.T.S.
			Dwg: Q108
			Fig: 108

FIGURE D-108 PVC PIPE LOCATING WIRE DETAIL





NOTES:

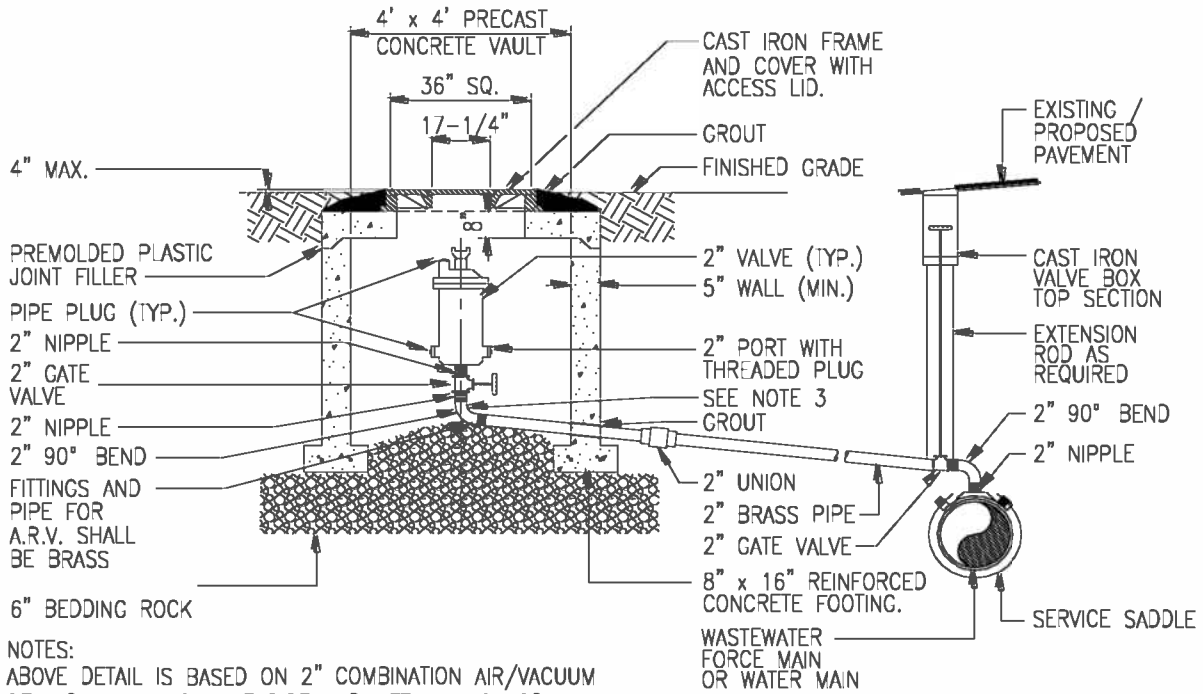
1. ABOVE DETAIL IS BASED ON 2" COMBINATION AIR/VACUUM RELEASE VALVE. CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY PRIOR TO INSTALLATION.
2. THE MINIMUM DIMENSION FROM TOP OF PIPE TO FINISHED GRADE SHALL BE 4.0 FEET.

COLUMBIA COUNTY		
AIR OR COMBINATION AIR/VACUUM RELEASE VALVE DETAIL		
Date	Revisions	Appr. by
		Date: Sept. 1996
		Scale: N.T.S.
		Dwg: Q109
		Fig: 109

FIGURE D-109

AIR OR COMBINATION AIR/VACUUM RELEASE VALVE DETAIL



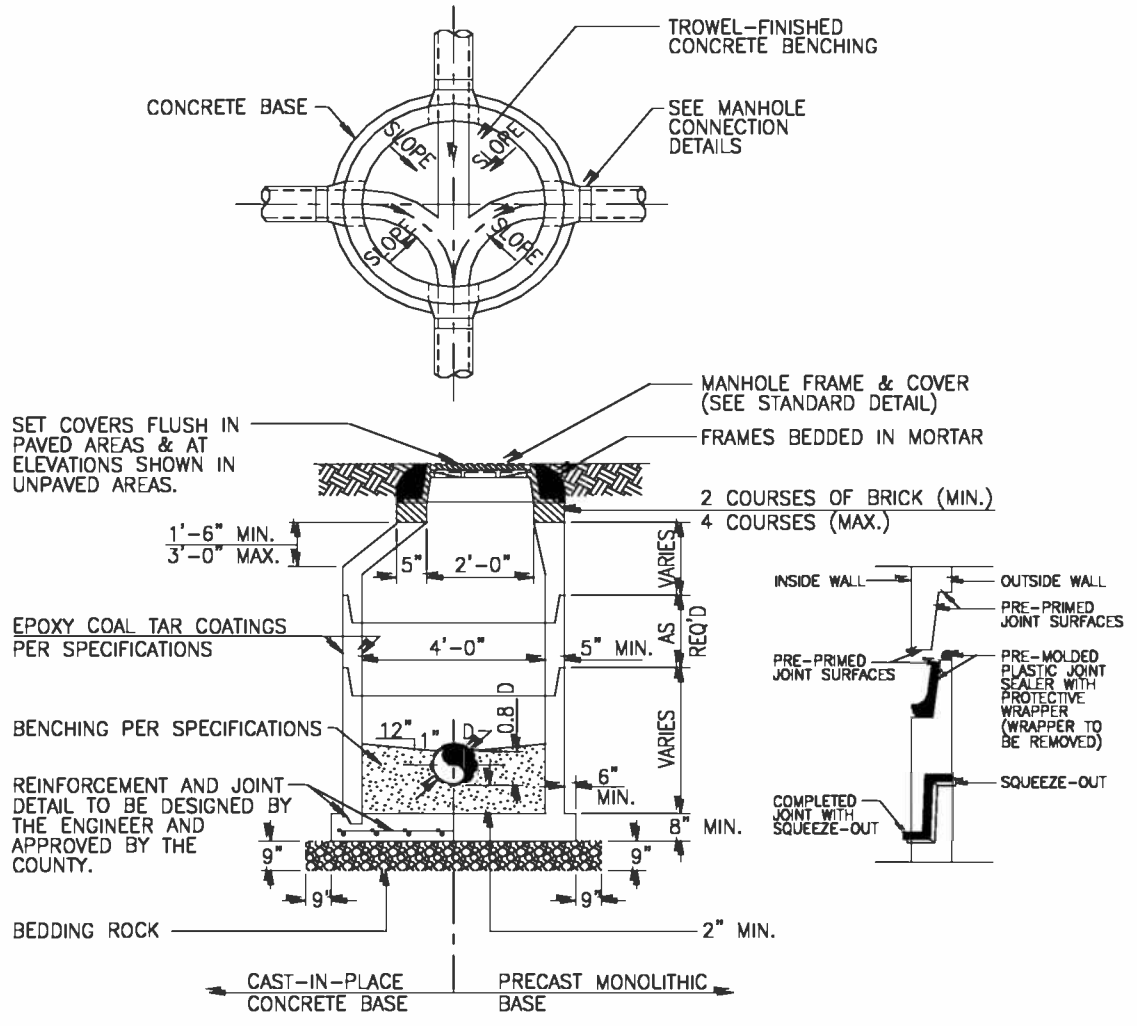


- NOTES:
1. ABOVE DETAIL IS BASED ON 2" COMBINATION AIR/VACUUM RELEASE VALVE. CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE COUNTY PRIOR TO INSTALLATION.
 2. VALVE SHALL BE SUPPORTED TO VAULT WALL.
 3. THE MINIMUM DIMENSION FROM ELBOW INVERT TO FINISHED GRADE SHALL BE 4.0 FEET.

COLUMBIA COUNTY			
OFFSET AIR OR COMBINATION AIR/VACUUM VACUUM RELEASE VALVE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q110 Fig: 110

**FIGURE D-110 OFFSET AIR OR COMBINATION AIR/VACUUM
VACUUM RELEASE VALVE DETAIL**



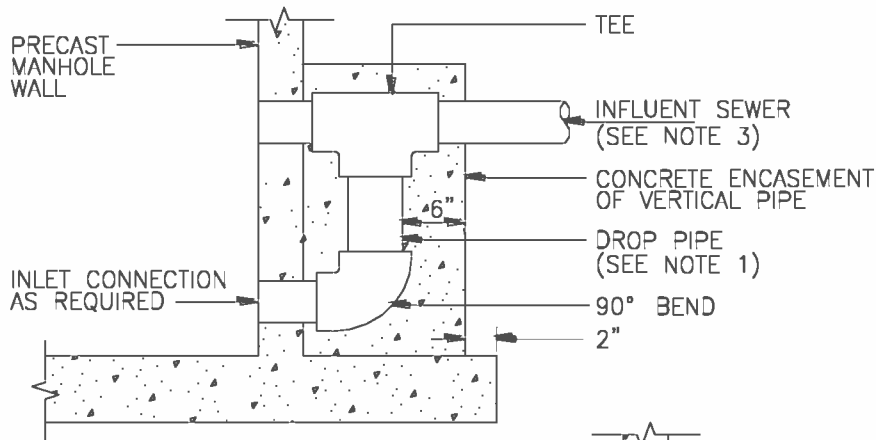


- NOTES:
1. MANHOLE SHOWN IS FOR SEWER SIZE 8" THRU 24", SEE UTILITIES STANDARDS HANDBOOK FOR MANHOLE DIAMETER FOR SEWERS LARGER THAN 24".
 2. DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. SEE MANHOLE CONNECTION DETAILS.
 3. APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

			COLUMBIA COUNTY			
			PRECAST MANHOLE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q200	Fig: 200

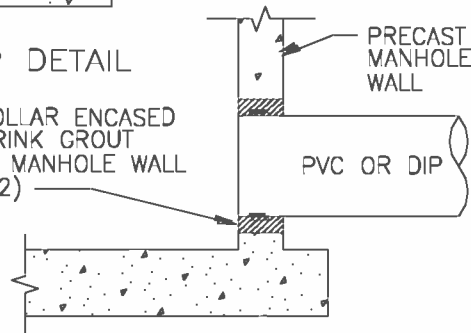
FIGURE D-200 PRECAST MANHOLE DETAIL



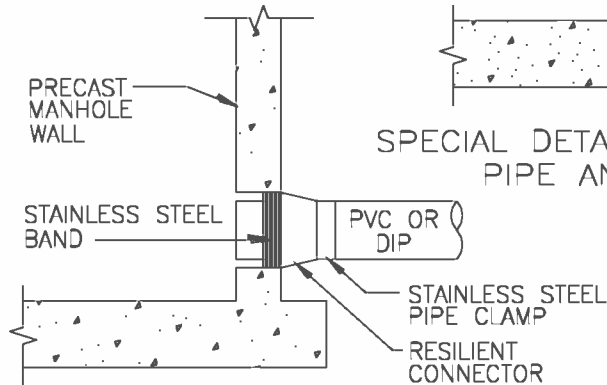


STANDARD DROP DETAIL

TRANSITE COLLAR ENCASED IN NON-SHRINK GROUT FLUSH WITH MANHOLE WALL (SEE NOTE 2)



SPECIAL DETAIL FOR 24" DIAMETER PIPE AND LARGER



STANDARD PRECAST MANHOLE PIPE CONNECTION

NOTES:

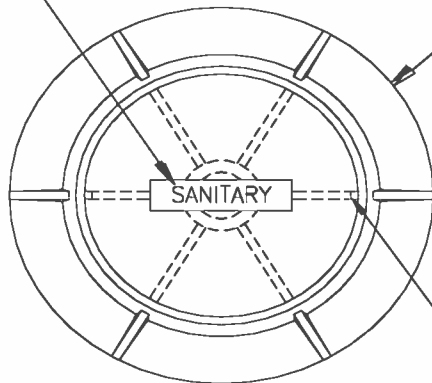
1. DROP PIPE AND FITTINGS SHALL BE OF EQUAL SIZE AND MATERIAL AS THE INFLUENT SEWER.
2. THE COUNTY MAY APPROVE ALTERNATE WATER TIGHT CONNECTION DETAILS FOR CONNECTION OF 24" DIAMETER PIPES AND LARGER.
3. AN OUTSIDE DROP CONNECTION SHALL BE REQUIRED FOR ALL INFLUENT WHICH HAVE AN INVERT 2' OR MORE ABOVE THE MANHOLE INVERT.

COLUMBIA COUNTY			
MANHOLE CONNECTION DETAILS			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q201 Fig: 201

FIGURE D-201 MANHOLE CONNECTION DETAILS



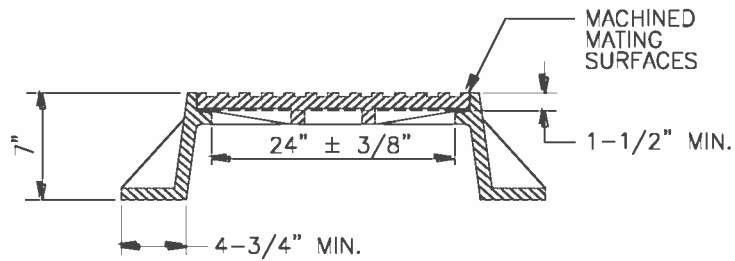
RAISED 1-1/2" LETTERS
FLUSH WITH TOP OF COVER



TYPE USF #225-AS
OR EQUAL

2 - NON PENETRATING
PICK HOLES

PLAN

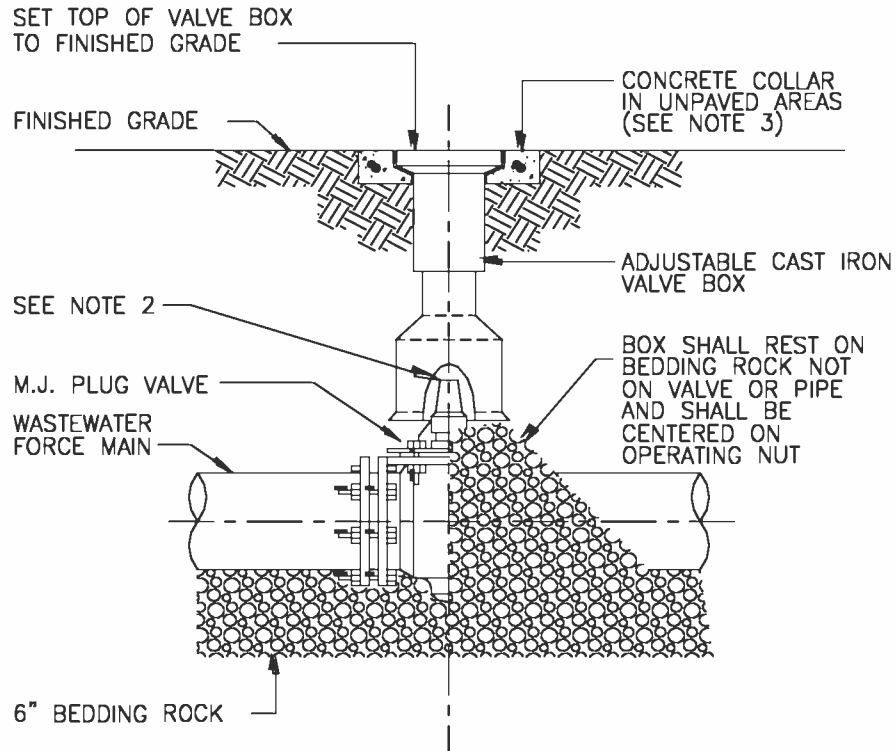


ELEVATION

			COLUMBIA COUNTY			
			SANITARY MANHOLE COVER			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q202	Fig: 202

FIGURE D-202 SANITARY MANHOLE COVER





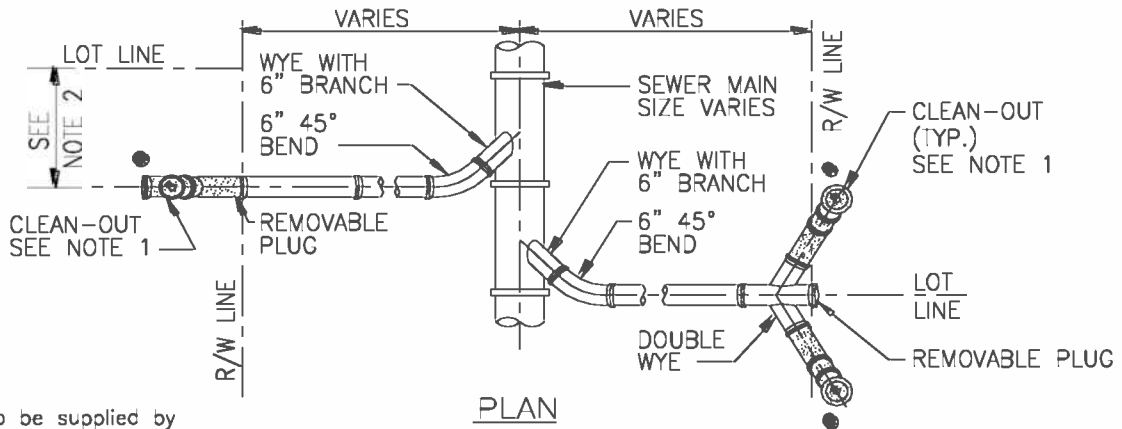
NOTES:

1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS.

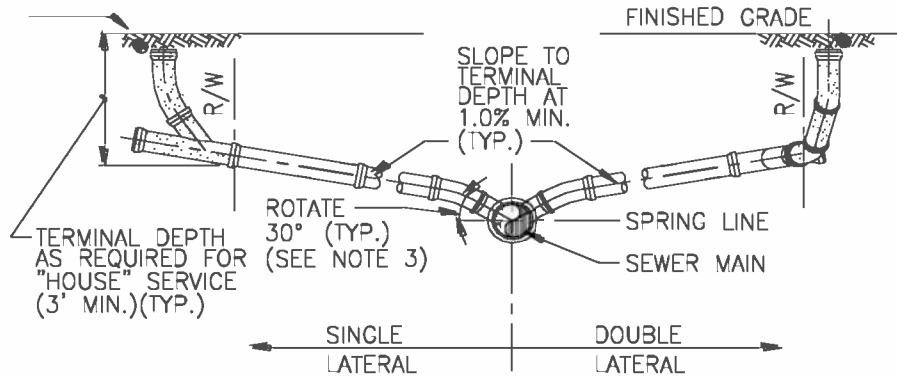
			COLUMBIA COUNTY			
			PLUG VALVE AND BOX DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q203	Fig: 203

FIGURE D-203 PLUG VALVE AND BOX DETAIL





Locator Balls to be supplied by the County



NOTES:

1. CLEAN-OUT (SHOWN SHADED) SHALL BE INSTALLED BY THE BUILDER IN ACCORDANCE WITH STANDARD PLUMBING CODE.
2. LOCATE SINGLE LATERAL AS CLOSE TO LOT LINE AS POSSIBLE, 25' MAXIMUM.
3. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
4. SERVICE LATERALS SHALL HAVE A MINIMUM 18" OF COVER BETWEEN R/W TIE-IN AND BUILDING.
5. INDENT CURB WITH 'S' AT EACH SEWER SERVICE LOCATION.

COLUMBIA COUNTY			
SANITARY SERVICE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996
			Scale: N.T.S.
			Dwg: Q204
			Fig: 204

FIGURE D-204 SANITARY SERVICE DETAIL



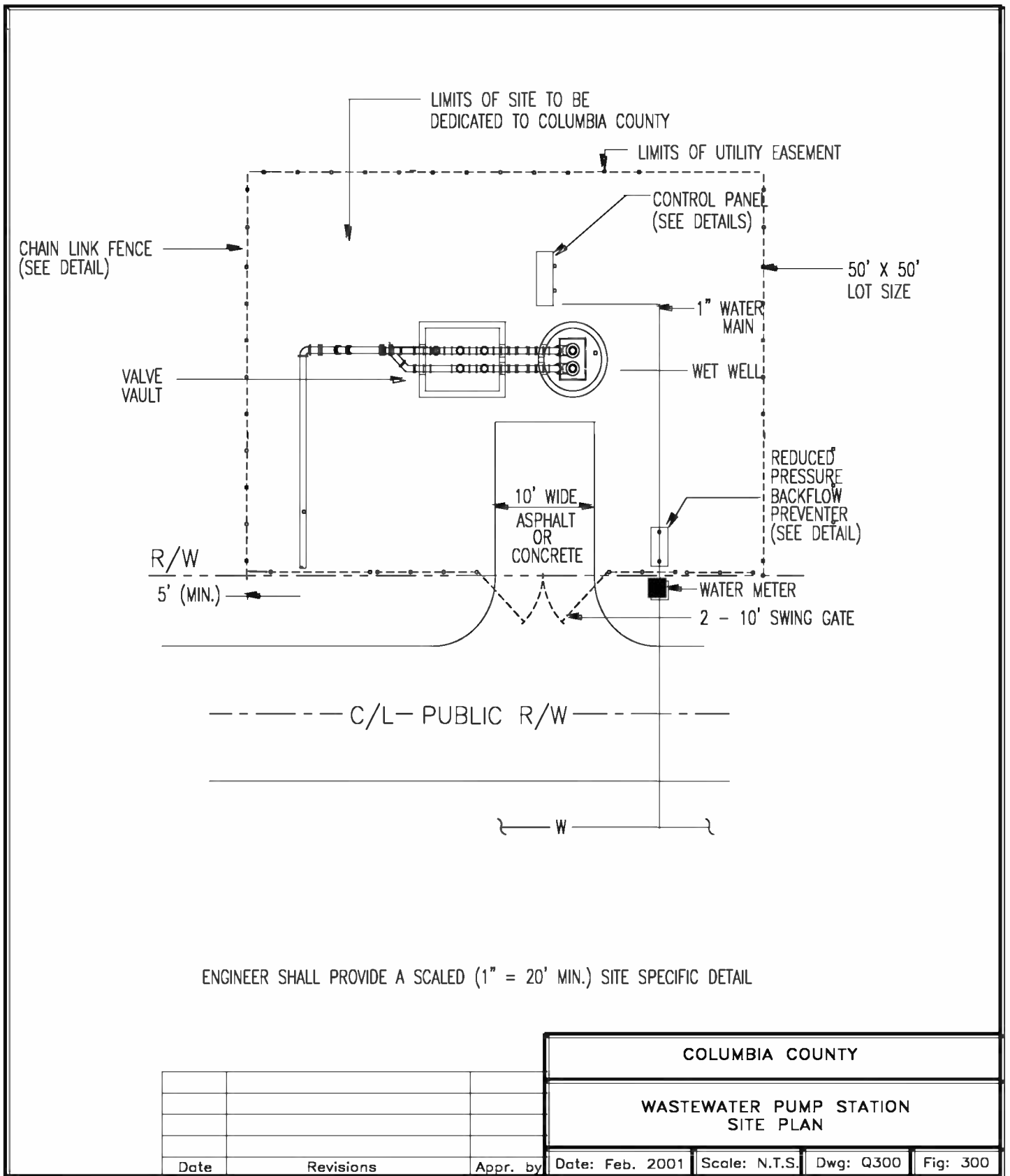


FIGURE D-300 WASTEWATER PUMP STATION SITE PLAN



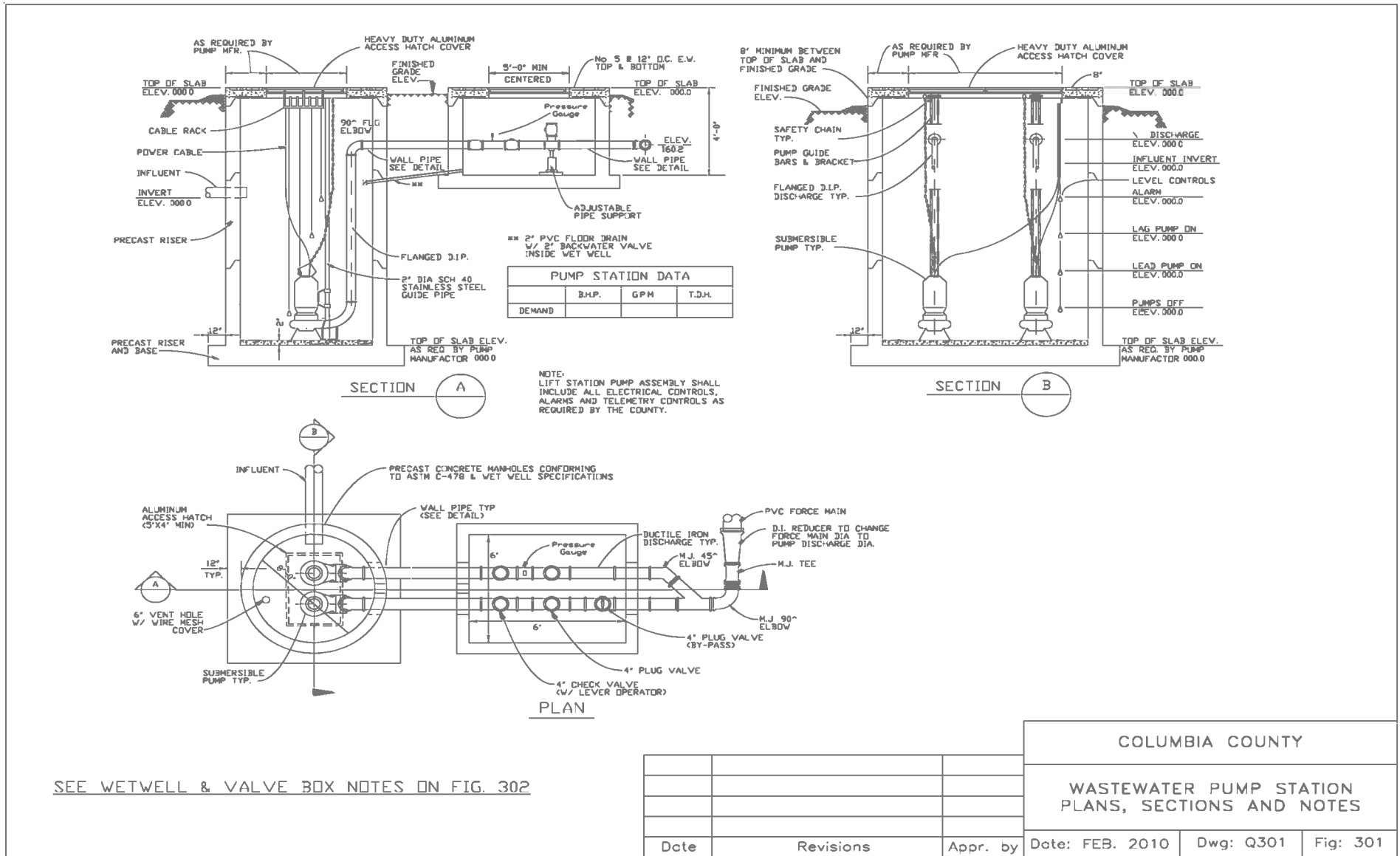
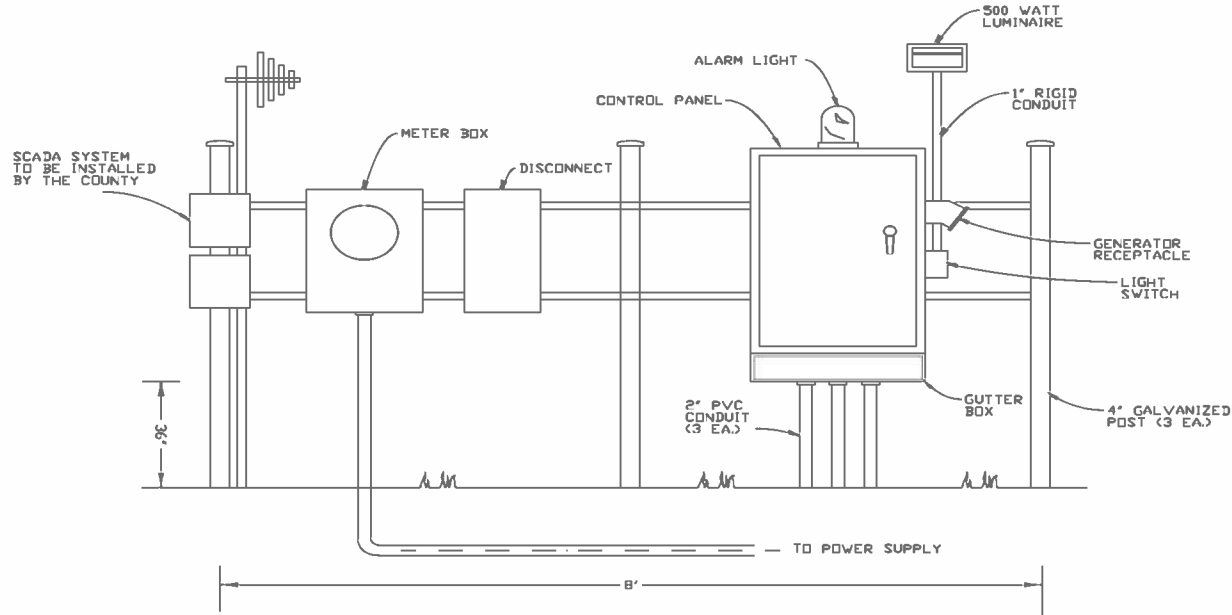


FIGURE D-301 WASTEWATER PUMP STATION PLANS, SECTIONS AND NOTES





CONTROL PANEL NOTES:

1. CONTROL PANEL ASSEMBLY SHALL BE LOCATED AT PUMP STATION SITE.
2. PUMP CONTROL PANEL SHALL BE SUPPLIED BY PUMP MANUFACTURER AND GENERALLY CONSIST OF A 30"Wx36"H NEMA TYPE 3R ENCLOSURE CONSTRUCTED OF 304 STAINLESS STEEL AND UL LISTED.
3. A 12"x 12"x 30" 304 STAINLESS STEEL GUTTER BOX SHALL BE ATTACHED TO THE CONTROL PANEL BY COMPRESSION CORD CONNECTORS ONLY (SIZED FOR THE PUMP, SEAL, AND CONTROL LEADS). NO SEAL OFF FITTINGS SHALL BE INSTALLED IN THE CONDUITS. AN EFFECTIVE SEAL SHALL BE MADE BETWEEN THE CONTROL PANEL AND THE GUTTER BOX, BY THE CORD CONNECTOR GROMETS.
4. CONTRACTOR SHALL INSTALL ALL MOUNTING COMPONENTS (GALVANIZED POSTS, UNISTRUTS, ETC.), CONTROL PANEL, GUTTER BOX, PVC CONDUITS TO WET WELL, POLE LIGHT AND SWITCH, METER BOX AND DISCONNECT, AND POWER CONNECT TO NEAREST POWER SUPPLY.
5. SCADA SYSTEM SHALL BE INSTALLED BY COLUMBIA COUNTY.

LIFT STATION NOTES:

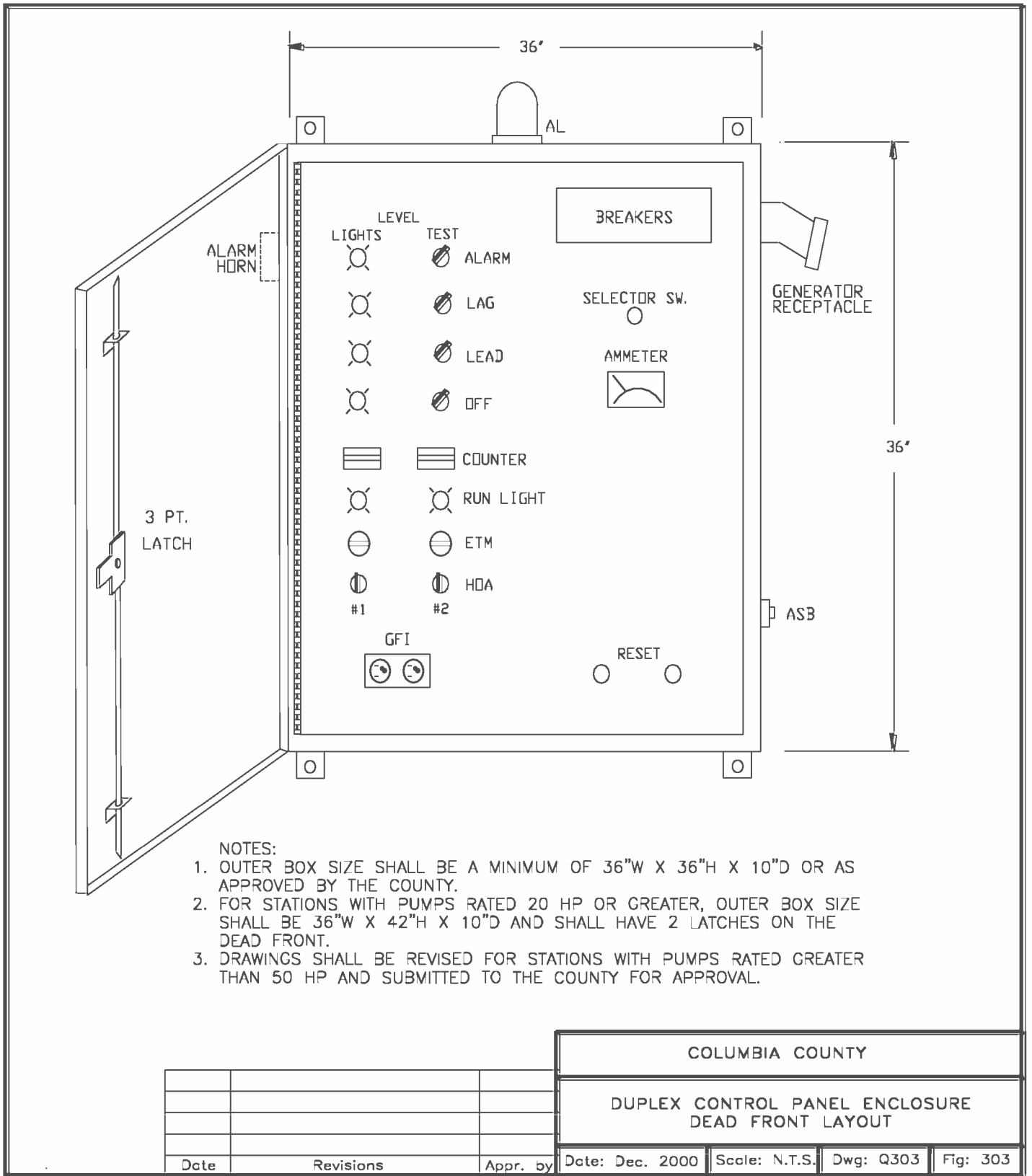
1. WET WELL AND VALVE VAULT SHALL BE COATED WITH 'FARBERTITE' OR COAL TAR EQUIVALENT INSIDE AND OUT (TWO COATS, 9 MILS EACH).
2. WET WELL BASE AND FIRST RISER SHALL BE PRECAST AS A CONTIGUOUS UNIT.
3. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE 'BOOT' OR FILLED WITH NON-SHRINK GROUT.
4. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL.
5. WET WELL AND VALVE VAULT COVERS SHALL BE 5'x4' 'HEAVY DUTY' ALUMINUM WITH 316 S.S. HARDWARE AND LOCK BRACKET.
6. ALL PIPE FITTINGS INSIDE OF THE WET-WELL AND VALVE BOX SHALL BE FLANGE x FLANGE, ALL MJ PIPE FITTINGS OUTSIDE OF THE WETWELL & AND VALVE BOX SHALL BE RESTRAINED WITH MEG-A-LUG COLLARS

			COLUMBIA COUNTY		
			WASTEWATER PUMP STATION CONTROL PANEL INSTALLATION DETAIL		
Date	Revisions	Appr. by	Date: FEB 2010	Dwg: Q302	Fig: 302

FIGURE D-302

WASTEWATER PUMP STATION CONTROL PANEL INSTALLATION DETAIL

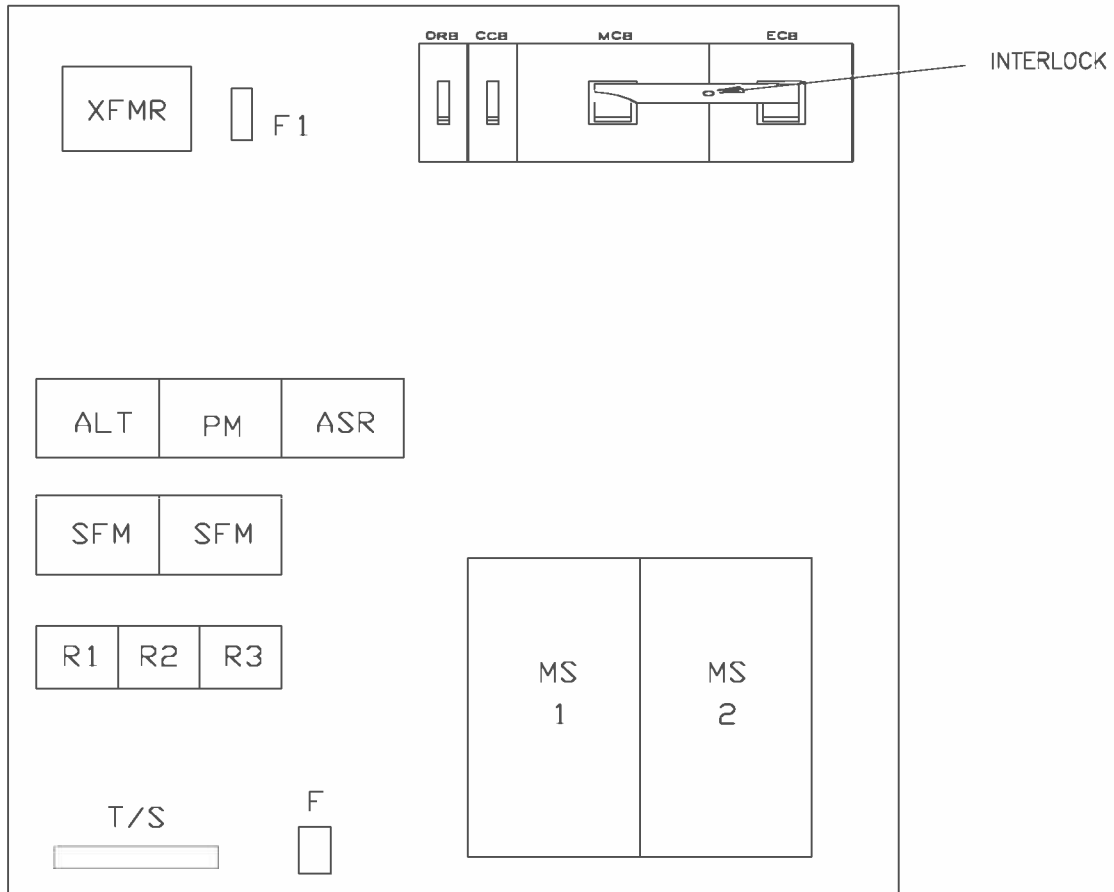




**FIGURE D-303 DUPLEX CONTROL PANEL ENCLOSURE
DEAD FRONT LAYOUT**



TYPICAL BACKPLATE LAYOUT



			COLUMBIA COUNTY			
			DUPLEX CONTROL PANEL ENCLOSURE SUBPANEL LAYOUT			
Date	Revisions	Appr. by	Date: Dec. 2000	Scale: N.T.S.	Dwg: Q304	Fig: 304

FIGURE D-304 **DUPLEX CONTROL PANEL ENCLOSURE
SUBPANEL LAYOUT**



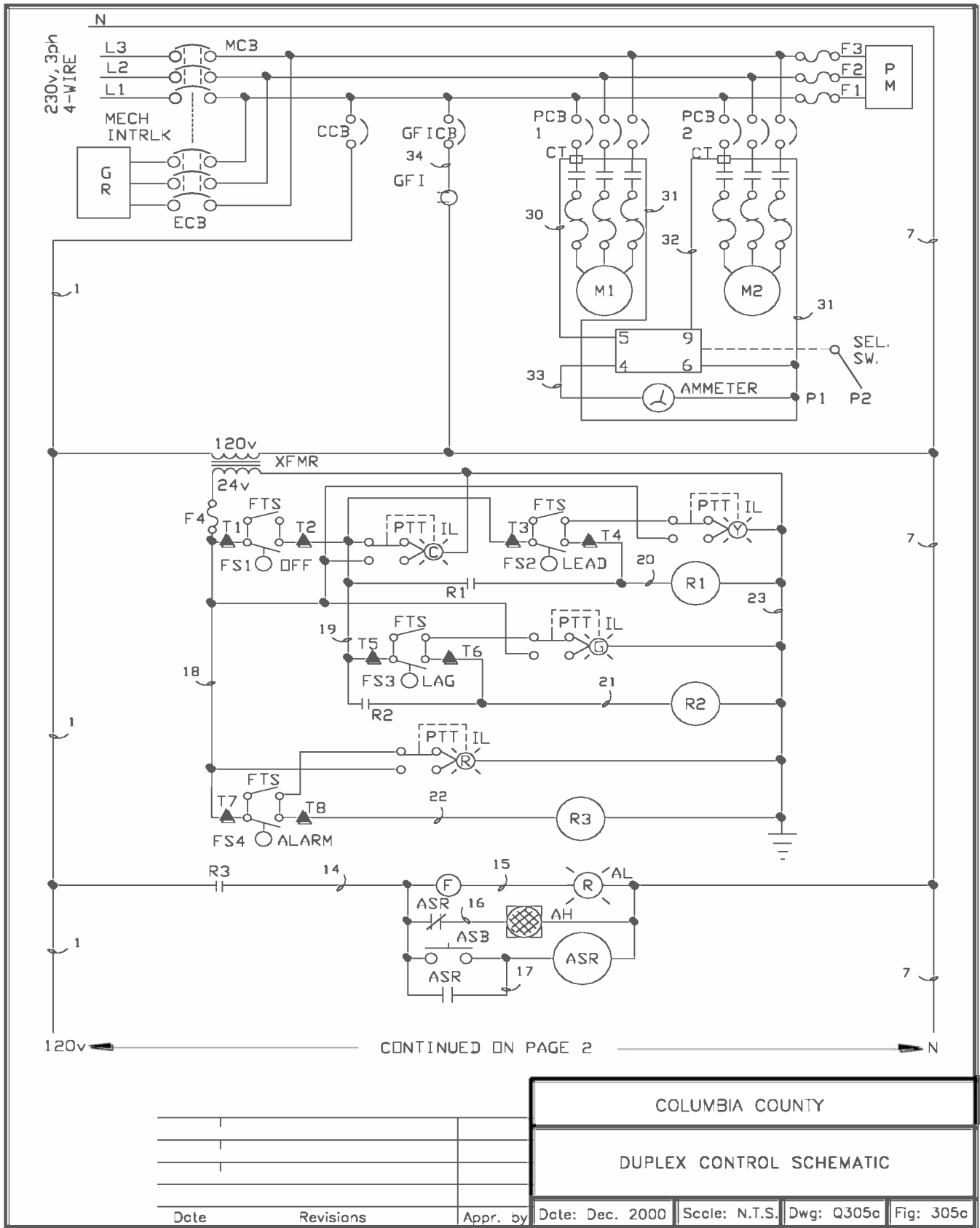


FIGURE D-305A DUPLEX CONTROL SCHEMATIC PAGE 1 OF 2



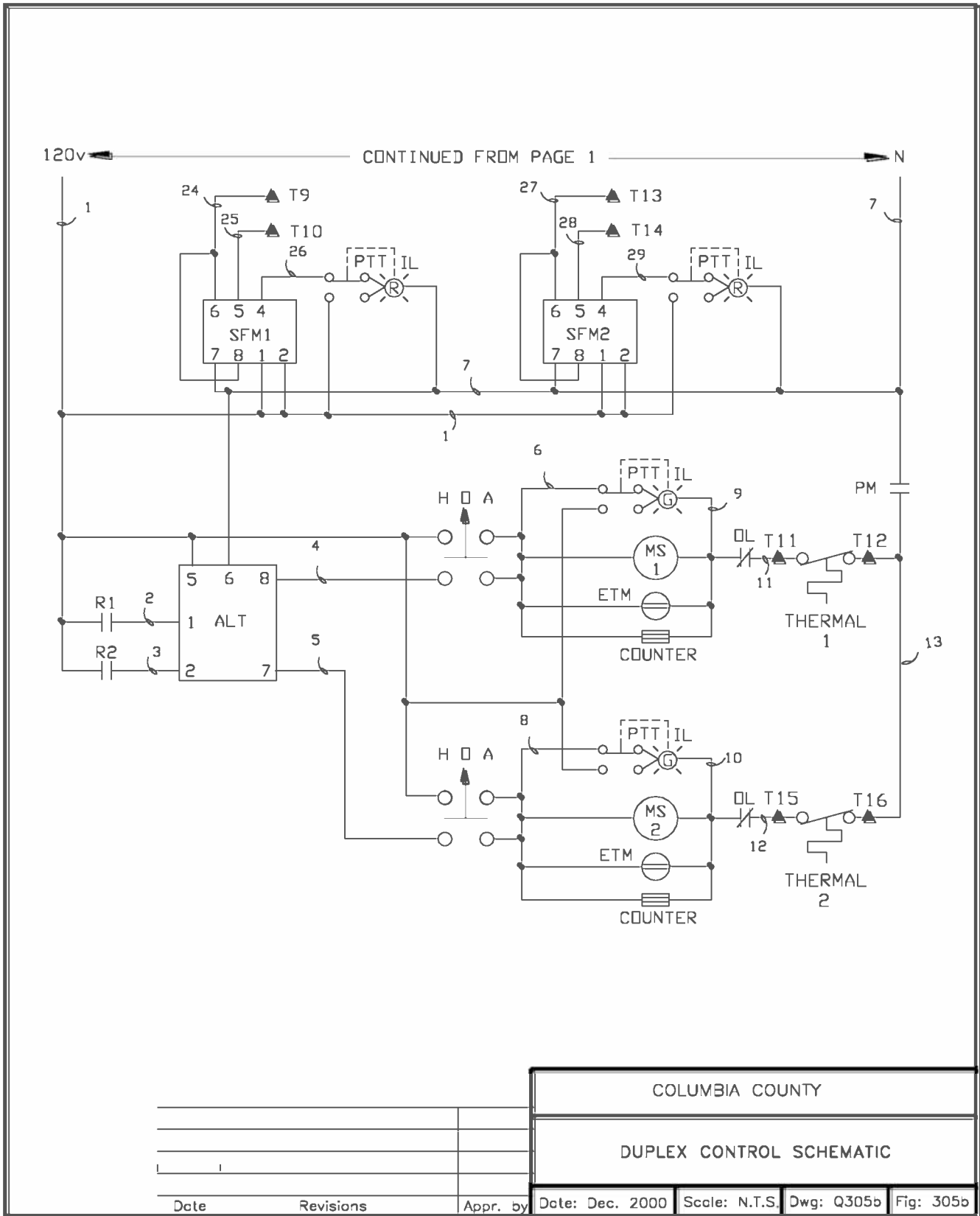
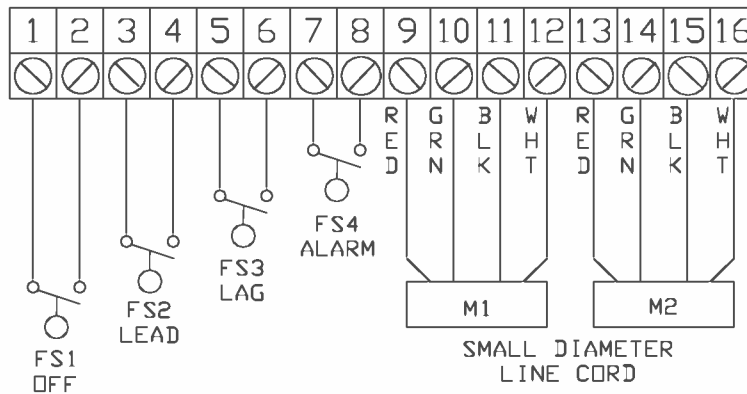


FIGURE D-305B DUPLEX CONTROL SCHEMATIC PAGE 2 OF 2



BILL OF MATERIALS

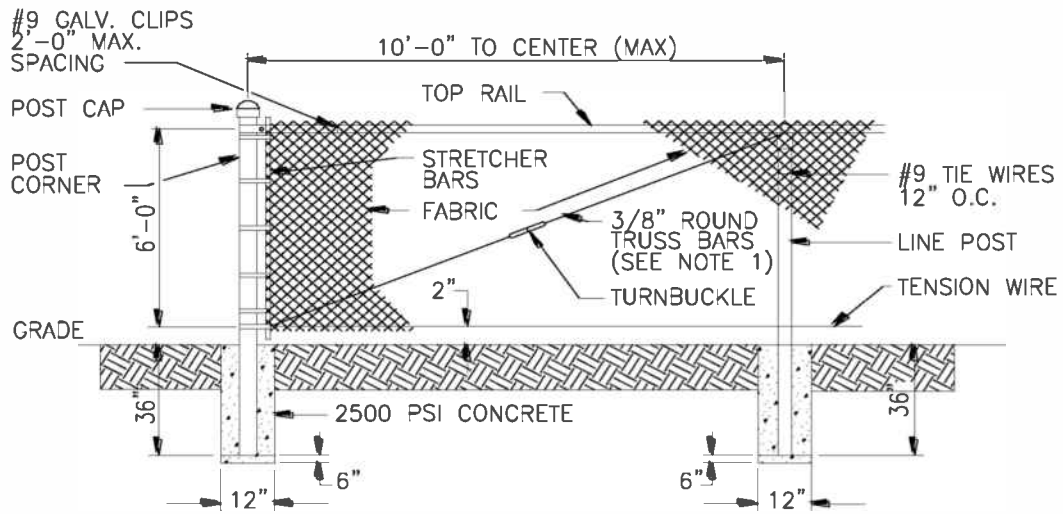
ENC	STAINLESS STEEL ENCLOSURE	CUST. EQUIP. 36X36X12 304SS 3PT LATCH
MCB	MAIN CIRCUIT BREAKER	SQ-D, FAL36
ECB	EMERGENCY CIRCUIT BREAKER	SQ-D, FAL36
PCB1, 2	PUMP CIRCUIT BREAKER	SQ-D, FAL36
CCB	CONTROL CIRCUIT BREAKER	SQ-D, FAL12015
GFICB	GFI CIRCUIT BREAKER	SQ-D, FAL12015
MS1, 2	STARTER	SQ-D, 8536
DL	HEATER	SQ-D, S. A. R.
XFMR	TRANSFORMER 120V/24V	SQ-D, 9070 T100D13
GR	GENERATOR RECEPTACLE	CROUSE-HINDS, AR1041 S22 S4
PM	PHASE MONITOR	TIME MARK, 258B-240
IL	INDICATING LIGHT	SQ-D, 9001 SKT38 PUSH TO TEST
RL	RUN LIGHT	SQ-D, 9001 SKT38 PUSH TO TEST
F	FLASHER	INGRAM, FL-120-60
AL	ALARM LIGHT	INGRAM, LRXB-40
AH	ALARM HORN	FEDERAL, 350-WB-120
ASB	ALARM SILENCE BUTTON	SQ-D, 9001 SKR1BH5
ASR	ALARM SILENCE RELAY	SQ-D, 8501 KP12 V20
R1-3	CONTROL RELAY	SQ-D, 8501 KP12 V14
HDA	HAND OFF AUTO SWITCH	SQ-D, 9001 SKS43BH13
ETM	ELAPSED TIME METER	ENM, T50B2-08
ALT	ALTERNATOR	TIME MARK 261DXT120
GFI	CONVENIENCE RECEPTACLE	LEVITON, 6598-I
SFM	SEAL FAIL MODULE	SSAC, LLC543A
F1-3	FUSES	BUSS, AGC 1/2
F4	FUSE	BUSS, MDL-3
	COUNTER	EATON, 4-Y-41314-406-MEQ
CT	CURRENT TRANSFORMER	INST. TRANSFORMERS, 2SFT-
AM	AMMETER	YOKOGAWA, TE-250-340-LS
AS	AMMETER SEL. SWITCH	SPR & SCH, LE2-12-8751=LES2-A-4-875
FTS	FLOAT TEST SWITCH	CARLING, 6FA53-73



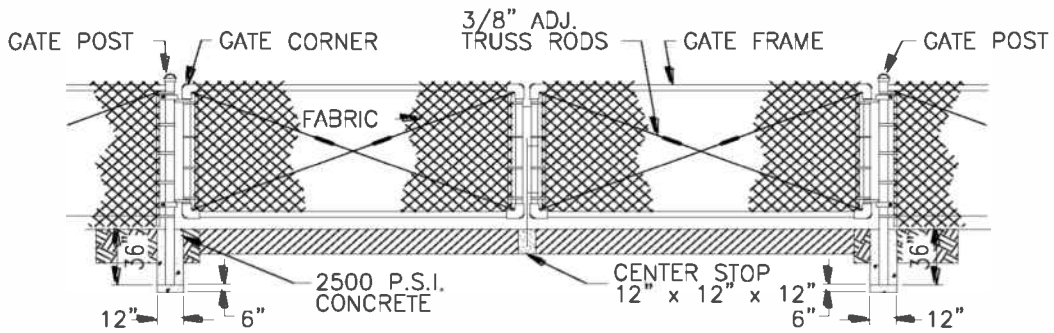
COLUMBIA COUNTY			
Control Panel Legend			
Date	Revisions	Appr. by	Date: Dec. 2000 Scale: N.T.S. Dwg: Q306 Fig: 306

FIGURE D-306 CONTROL PANEL LEGEND





FENCE DETAIL



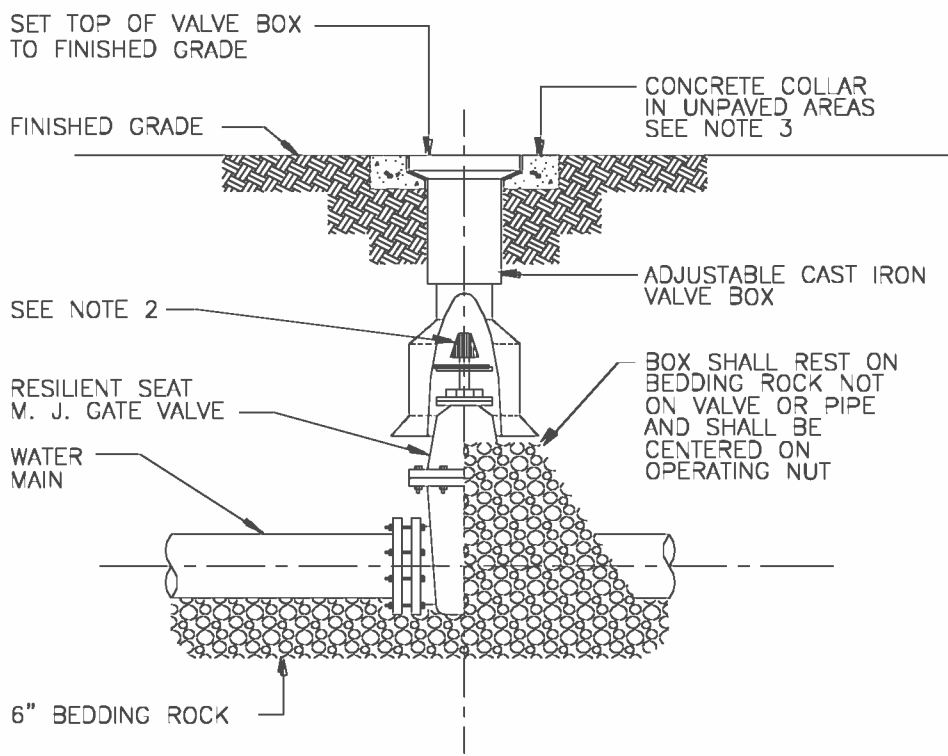
20' DOUBLE SWING GATE DETAIL

- NOTES:
 1. TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.

COLUMBIA COUNTY			
CHAIN LINK FENCE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q307 Fig: 307

FIGURE D-307 CHAIN LINK FENCE DETAIL





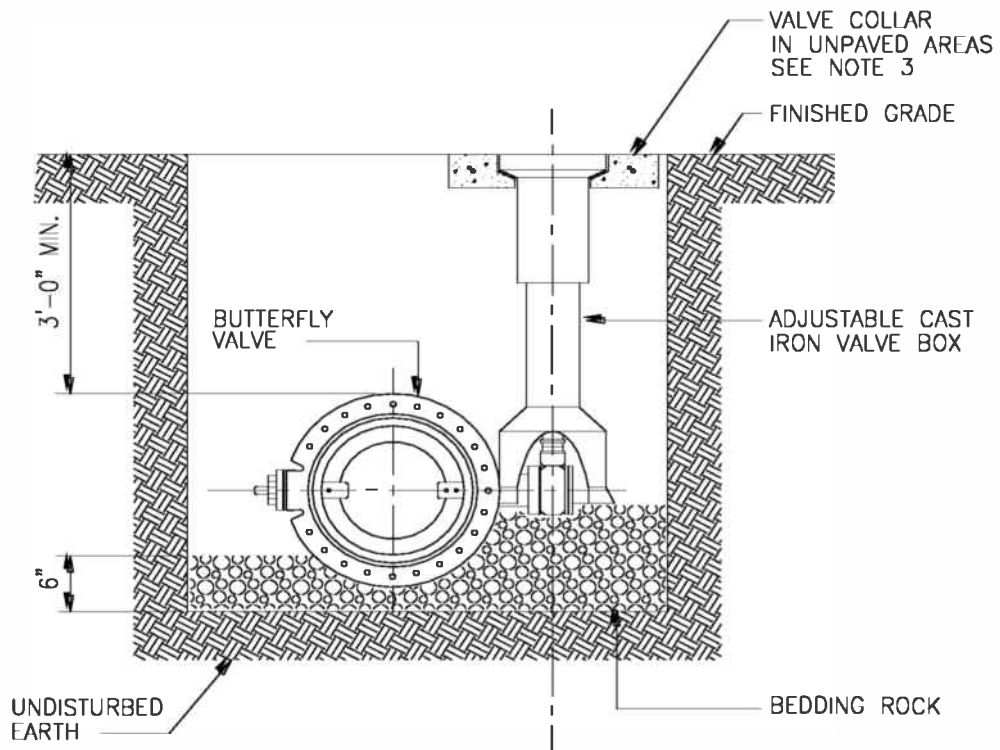
NOTES:

1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. VALVE COLLAR SHALL BE 18"x18"x6" CONCRETE COLLAR W/4 - #4 BARS.

COLUMBIA COUNTY			
GATE VALVE AND BOX DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q400 Fig: 400

FIGURE D-400 GATE VALVE AND BOX DETAIL



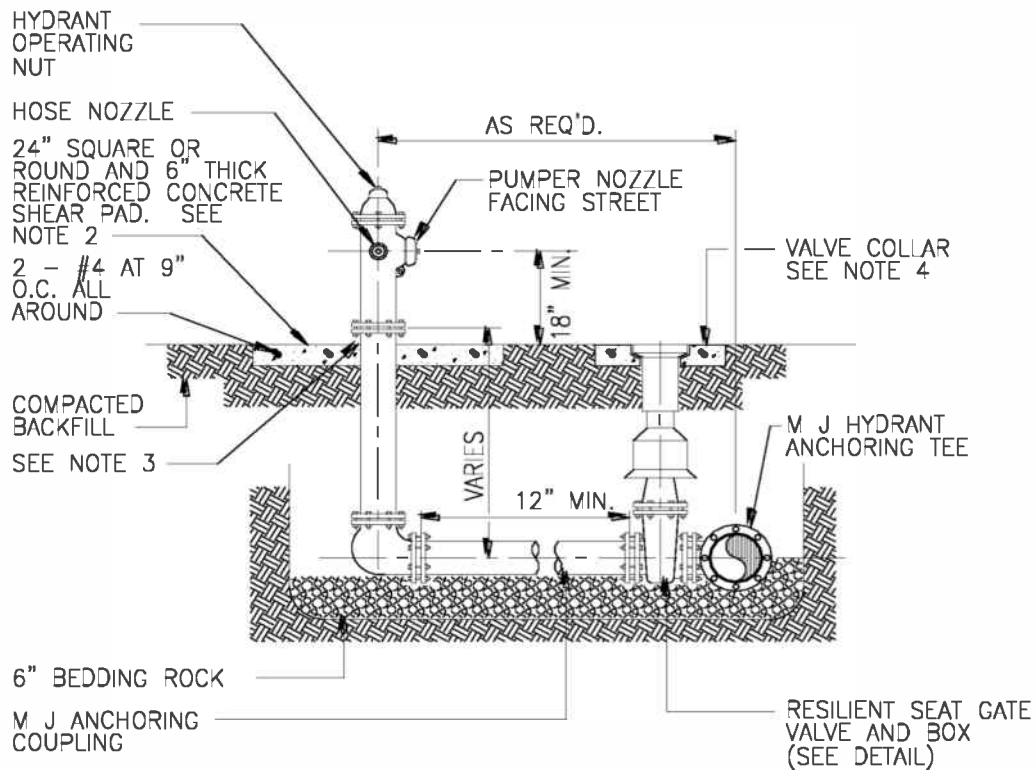


- NOTES:
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
 2. ALL WATER SHUT-OFF VALVES SIXTEEN (16) INCHES AND LARGER SHALL BE BUTTERFLY VALVES.
 3. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS.

			COLUMBIA COUNTY			
			BUTTERFLY VALVE AND BOX DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q401	Fig: 401

FIGURE D-401 BUTTERFLY VALVE AND BOX DETAIL





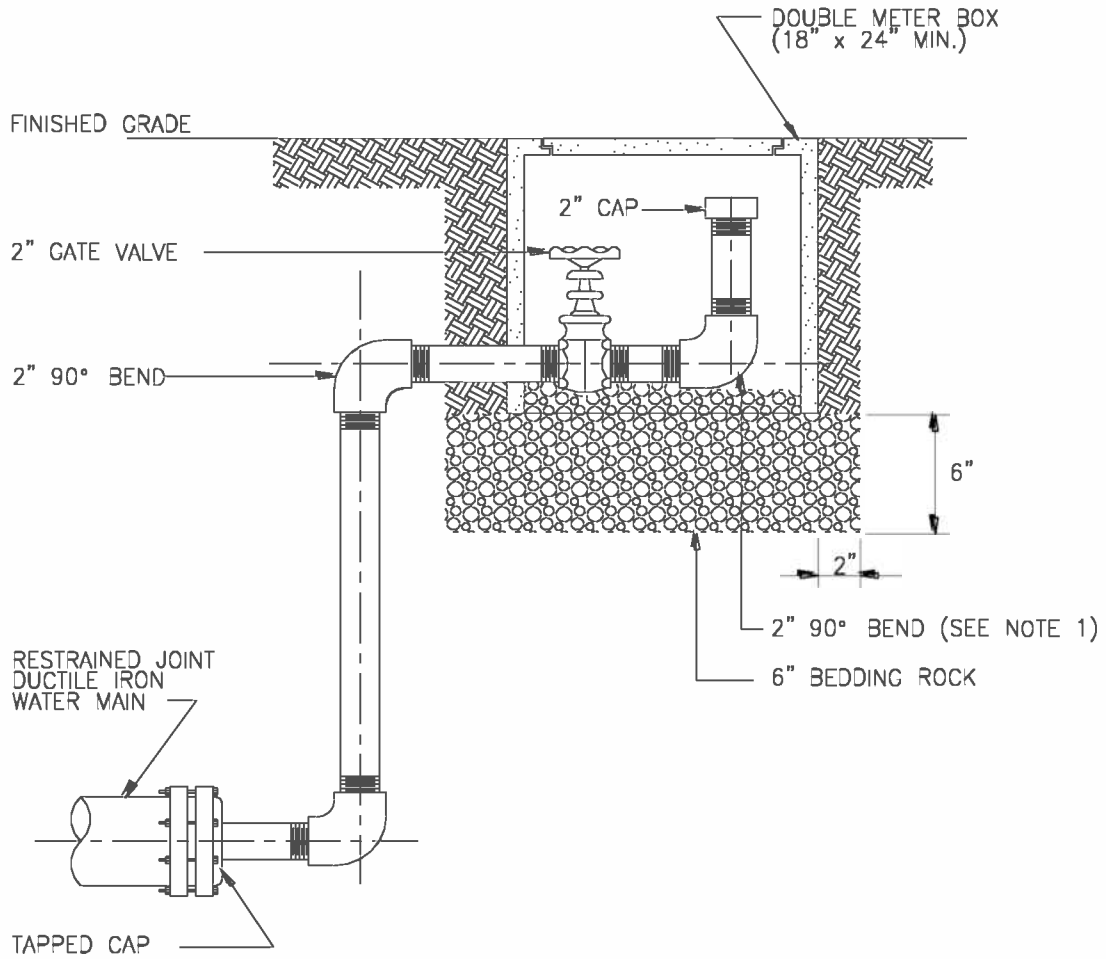
NOTES:

1. FIRE HYDRANT SHALL BE SUPPLIED WITHOUT A WEEP HOLE, OR WITH A PERMANENTLY PLUGGED WEEP HOLE.
2. THE DEVELOPER MAY INSTALL THE SHEAR PAD RECESSED UP TO 4 INCHES BELOW FINISHED GRADE AND SOD THE RECESSED SECTION.
3. CLEARANCE BETWEEN BOTTOM OF BOLTS AND TOP OF SHEAR PAD SHALL BE A 6" MINIMUM.
4. VALVE COLLAR SHALL BE 18"x18"x6" CONCRETE COLLAR W/4 - #4 BARS

			COLUMBIA COUNTY			
			FIRE HYDRANT ASSEMBLY DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q402	Fig: 402

FIGURE D-402 FIRE HYDRANT ASSEMBLY DETAIL



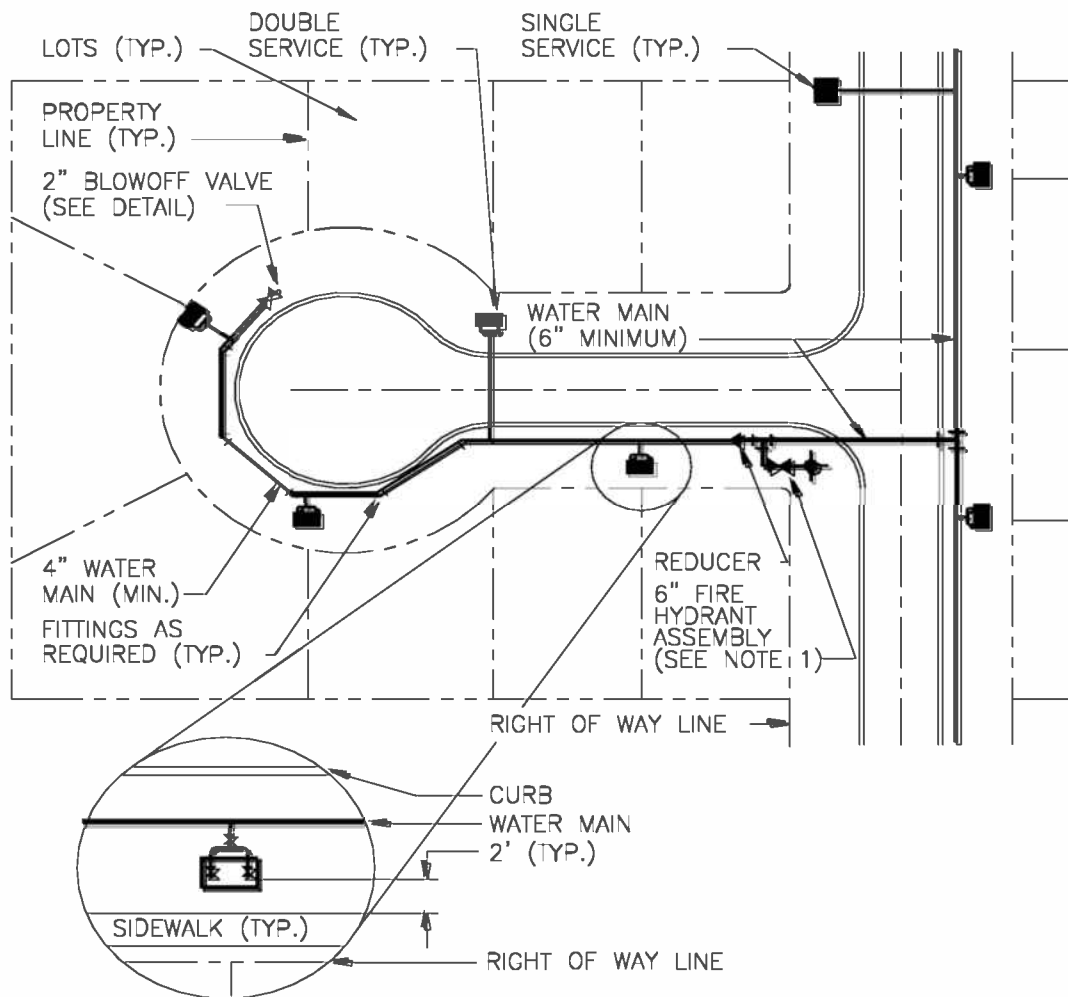


- NOTES:
1. ALL 2" PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL OR BRASS WITH THREADED (NPT) JOINTS.
 2. BEND SHALL BE ROTATED APPROXIMATELY 20° FROM VERTICAL.

	COLUMBIA COUNTY			
	BLOW OFF VALVE DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.
			Dwg: Q403	Fig: 403

FIGURE D-403 BLOW OFF VALVE DETAIL



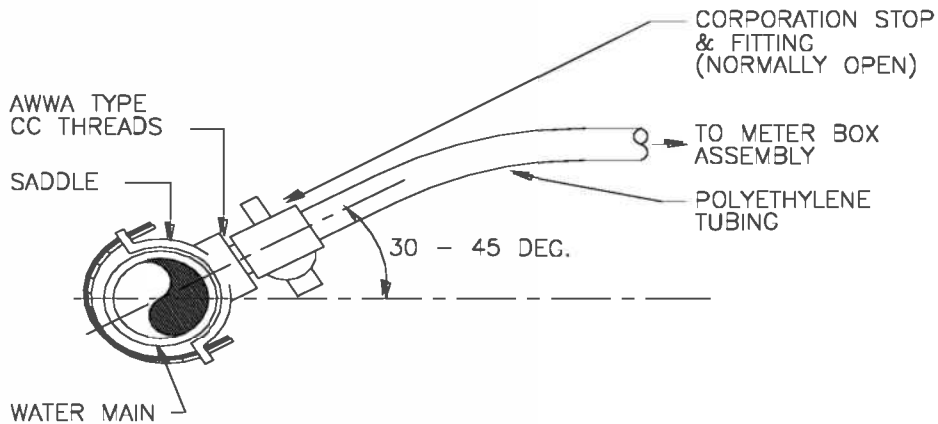
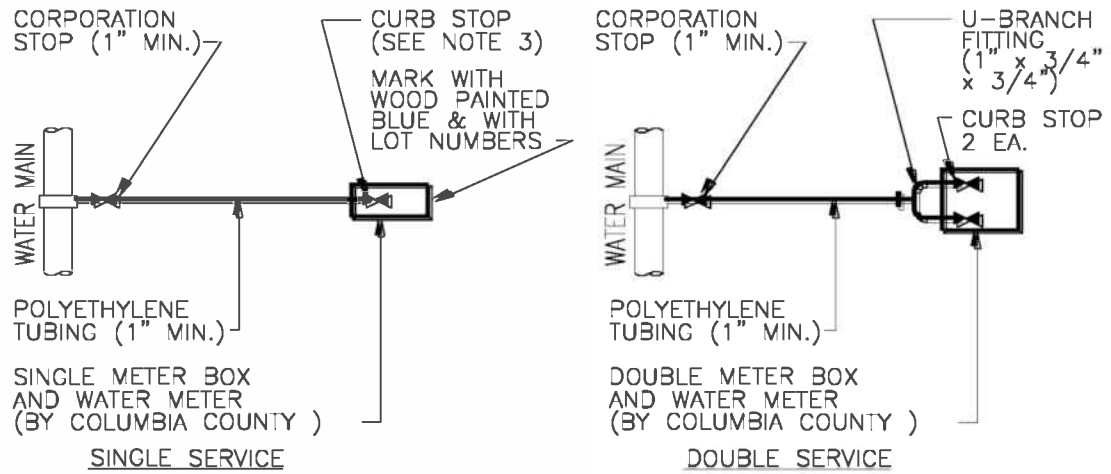


- NOTES:
1. ANCHORING TYPE 90° BEND SHALL ONLY BE USED WHERE RIGHT-OF-WAY CONSTRUCTIONS WILL NOT ALLOW INSTALLATION OF A STRAIGHT ASSEMBLY.

COLUMBIA COUNTY			
WATER SERVICE LOCATION DETAIL			
Date	Revisions	Appr. by	Date: Sept. 1996 Scale: N.T.S. Dwg: Q404 Fig: 404

FIGURE D-404 WATER SERVICE LOCATION DETAIL





NOTES:

1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3. EACH SERVICE SHALL TERMINATE AT A CURB STOP(S) WHICH SHALL BE BURIED APPROXIMATELY 3" BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2" X 2" X 18" STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE NUMBER OF THE LOT(S) TO BE SERVED.
4. INDENT CURB WITH "W" AT EACH WATER SERVICE LOCATION

CITY OF LAKE CITY			
WATER SERVICE CONNECTION DETAILS			
Date	Revisions	Appr. by	Date: Sept. 1996
			Scale: N.T.S.
			Dwg: Q405
			Fig: 405

FIGURE D-405 WATER SERVICE CONNECTION DETAILS



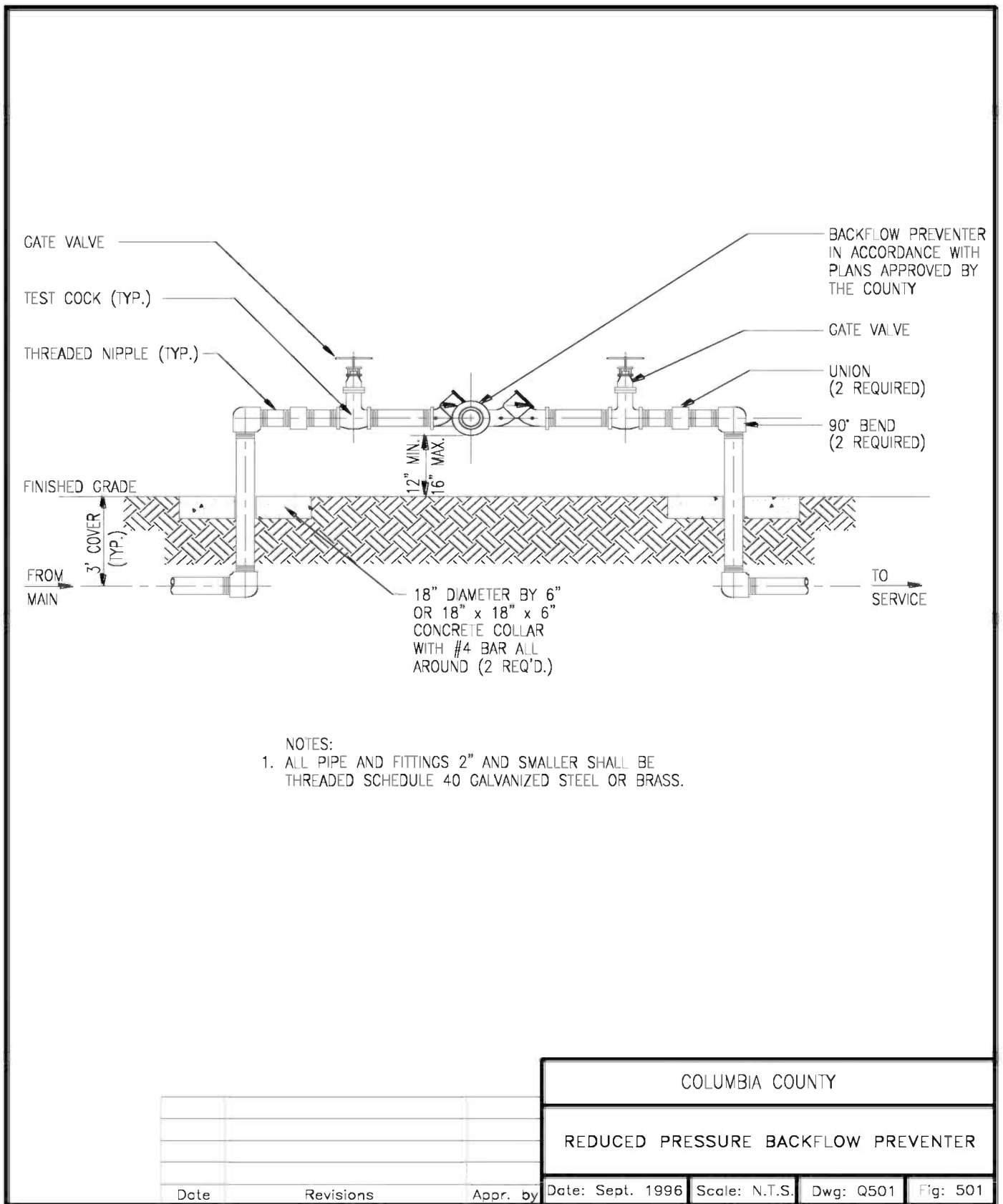
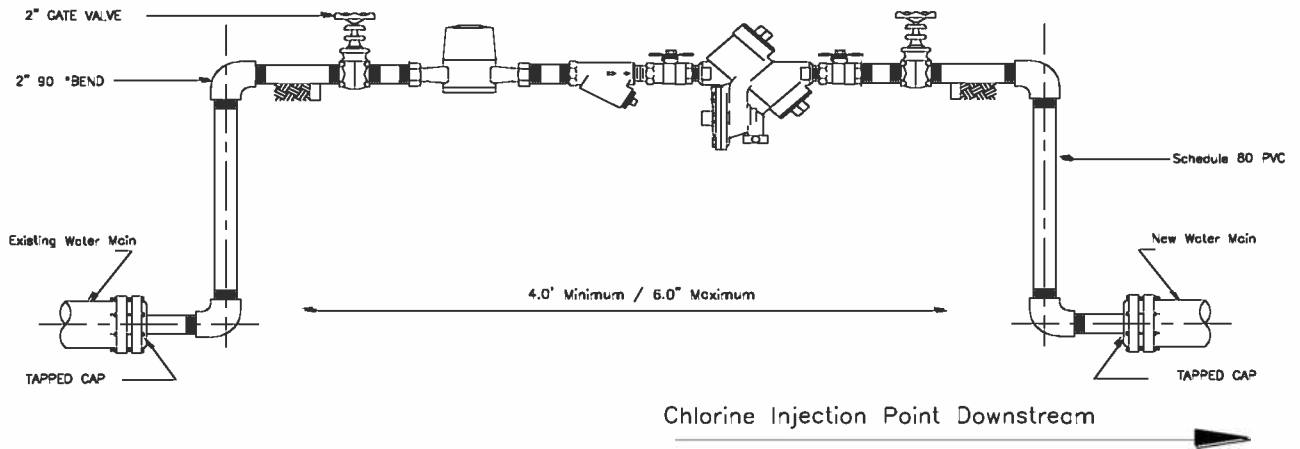


FIGURE D-501 REDUCED PRESSURE BACKFLOW PREVENTER



Reduced Pressure Backflow Preventer Assembly
(Provided by Contractor)

Assembly Must Comply with AWWA M-14 Standards



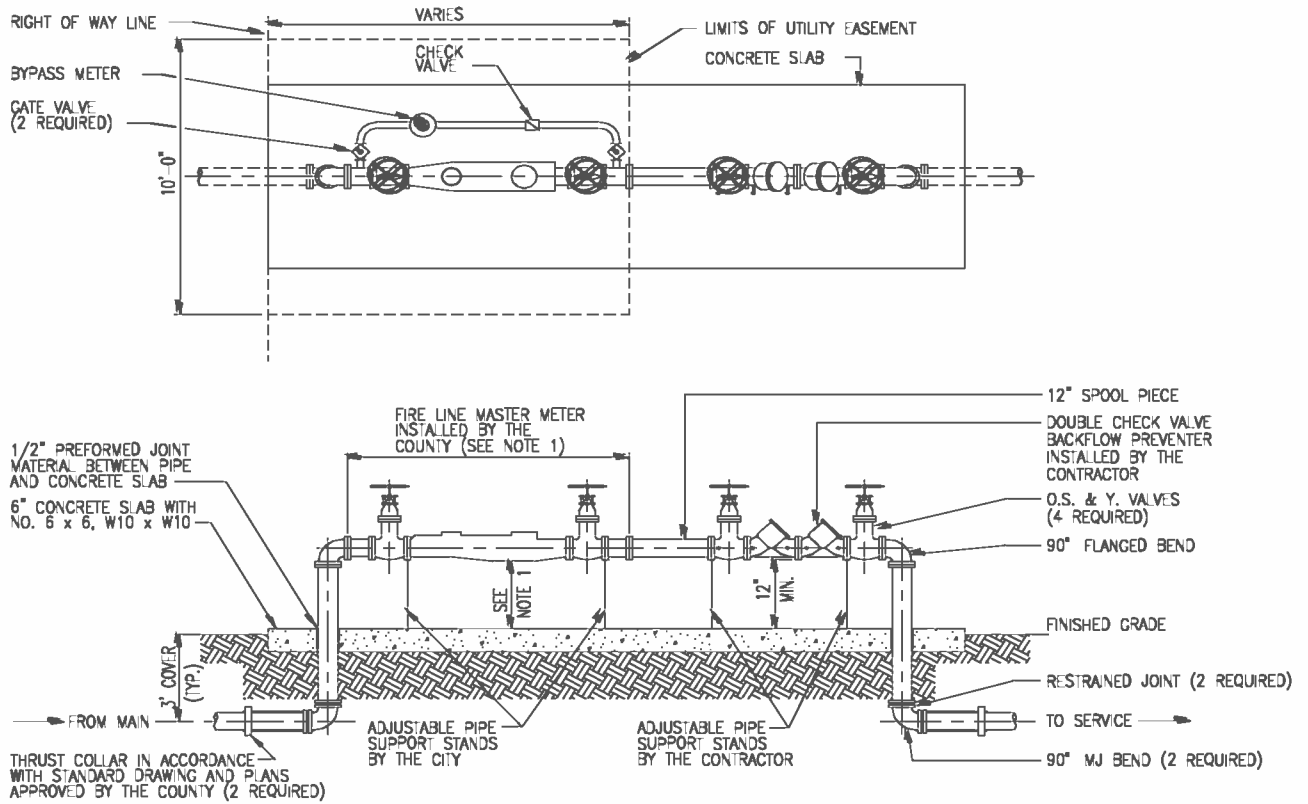
NOTES:

1. FINAL CONNECTION TO BE WITNESSED BY THE COUNTY UTILITIES INSPECTOR.
2. INSTALL JUMPER TAP SYSTEM FOR TEMPORARY METER DOWNSTREAM OF BLIND FLANGE FOR CONSTRUCTION WATER.
3. TAPPING SADDLES MAY BE EITHER STAINLESS STEEL OR DUCTILE IRON.
4. JUMPER ASSEMBLY MUST BE MINIMUM OF 18 INCHES ABOVE FINISHED GRADE.
5. BACKFLOW ASSEMBLY REQUIRES INITIAL CERTIFICATION BY CERTIFIED BACKFLOW TESTER.
6. THIS ASSEMBLY SHALL ONLY BE USED IF NO COMBUSTIBLES WILL BE ON SITE. IF COMBUSTIBLES ARE BROUGHT ON SITE, THEN THE TEMPORARY BACKFLOW PREVENTERS AND FIRE PROTECTION METER TIE-IN ASSEMBLY WILL BE USED.
7. THIS ASSEMBLY IS NOT APPROVED TO PROVIDE FIRE PROTECTION WATER TO THE SITE DURING CONSTRUCTION. ASSEMBLY NOT TO BE REMOVED AND SPOOL PIECE INSTALLED FOR FINAL CONNECTION UNTIL AFTER TESTING, BACTERIAL CLEARANCE, FINAL INSPECTION AND COUNTY ACCEPTANCE.
8. GAP CONFIGURATION TO BE INSTALLED WITHIN 24 HOURS OR LESS AT THE DISCRETION OF THE WATER DISTRIBUTION DEPARTMENT.

	COLUMBIA COUNTY			
	Jumper Connection Detail			
Date	Revisions	Appr. by	Date: Feb. 2010	Scale: N.T.S.
			Dwg: Q501A	Fig: 501A

FIGURE D-501A JUMPER CONNECTION DETAIL





- NOTES:
1. THE CONTRACTOR SHALL CONTACT THE INSPECTOR FOR EXACT ASSEMBLY LENGTH AND HEIGHT ABOVE THE SLAB REQUIRED FOR THE FIRE LINE MASTER METER TO BE INSTALLED BY THE COUNTY. ALL OTHER PIPE, FITTINGS AND APPURTENANCES SHALL BE INSTALLED BY THE CONTRACTOR.
 2. ALL ABOVE GROUND PIPE SHALL BE FLANGED DUCTILE IRON.

COLUMBIA COUNTY			
FIRE LINE MASTER METER ASSEMBLY			
Date	Revisions	Appr. by	Date: Sept. 1996
			Scale: N.T.S.
			Dwg: Q502
			Fig: 502

FIGURE D-502 FIRE LINE MASTER METER ASSEMBLY



APPENDIX E
COLUMBIA COUNTY
ORDINANCES AND MAP

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ORDINANCE NO. 2010- 1

AN ORDINANCE OF COLUMBIA COUNTY, FLORIDA REGULATING THE CONSTRUCTION, USE AND PROVISION OF WATER AND WASTEWATER FACILITIES AND SERVICES WITHIN THE UNINCORPORATED AREAS OF COLUMBIA COUNTY, FLORIDA, DESIGNATES A SHORT TITLE, STATES THE COUNTY'S JURISDICTION, STATES THE COUNTY'S AUTHORITY TO ACT, MAKES CERTAIN FINDINGS, DESIGNATES CERTAIN UNINCORPORATED AREAS OF THE COUNTY AS EXCLUSIVE COUNTY WATER AND WASTEWATER SERVICE AREAS AND OTHER AREAS AS DESIGNATED WATER AND WASTEWATER SERVICE AREAS, PROHIBITS WATER AND WASTEWATER CONSTRUCTION AND SERVICE BY OTHER (NONCOUNTY) WATER AND WASTEWATER UTILITIES IN THE EXCLUSIVE COUNTY WATER AND WASTEWATER SERVICE AREAS, PROHIBITS WATER AND WASTEWATER CONSTRUCTION AND SERVICE BY OTHER (NONCOUNTY) WATER AND WASTEWATER UTILITIES IN THE DESIGNATED WATER AND WASTEWATER SERVICE AREAS WITHOUT THE COUNTY'S PRIOR WRITTEN CONSENT, REQUIRES MANDATORY CONNECTION PURSUANT TO COUNTY ORDINANCE 2010-2, CONTAINS A SEVERABILITY CLAUSE, RESERVES POWERS TO THE COUNTY, SETS FORTH ENFORCEMENT AND PENALTY PROVISIONS AND PROVIDES AN EFFECTIVE DATE.

FILED
 2010 MAR 23 PM 1:00
 TALLAHASSEE, FLORIDA

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA, as follows:

SECTION 1. SHORT TITLE. This Ordinance shall be known and cited as the Columbia County Water and Wastewater Service Area Ordinance.

SECTION 2. JURISDICTION. This Ordinance shall apply in the unincorporated areas of Columbia County, Florida, as such area exists on the date this Ordinance is enacted.

SECTION 3. AUTHORITY. Pursuant to Article VIII, §1(f), Florida Constitution, and §125.01(1)(k), Florida Statutes, and other applicable general and special laws, excluding



specifically Chapter 153, Florida Statutes, the Board of County Commissioners is authorized to provide, regulate, purchase, construct, improve, extend, enlarge and reconstruct water and wastewater facilities; and to operate, manage and control water and wastewater facilities within the County.

SECTION 4. FINDINGS. The Board of County Commissioners of Columbia County, Florida finds, determines and declares the following:

1. The County is projected to experience large population increases within the next twenty years.

2. As the population increases, the demand for central water and wastewater services will also increase.

3. To protect the health, safety and welfare of its citizens, it is necessary and appropriate that the Board of County Commissioners coordinate and regulate the provision of water and wastewater infrastructure that is necessary for development within the unincorporated areas of the County. To that end the County currently plans to construct water and wastewater systems serving the area known as the Ellisville area. Additional plans for water and wastewater system construction are under consideration and are anticipated in the future.

4. To protect the health, safety and welfare of its citizens, it is also necessary and appropriate that the County operate its existing and future water and wastewater facilities as cost-effectively and efficiently as possible and that it effectively and efficiently coordinate its services with such other water and wastewater services providers in the unincorporated areas of the County as are necessary and appropriate to provide competent, safe and efficient and economical water and wastewater services to the citizens of the County.

5. To accomplish these goals, the County deems it necessary to enact this water and



wastewater service area regulatory ordinance.

SECTION 5. CREATION OF SERVICE AREA. There is hereby created the Columbia County Water and Wastewater Service Area (hereinafter referred to as the Service Area) consisting of all unincorporated areas of the County as such areas exist on the date this Ordinance is enacted. The Service Area consists of areas hereby designated as either Exclusive Service Area or Designated Service Area.

SECTION 6. SERVICE AREA BOUNDARIES.

1. The Board of County Commissioners hereby establishes the County's Exclusive Service Area consisting of the area described in Exhibit "A" attached hereto and incorporated into this Ordinance exclusive of: (a) those areas certified for water and/or wastewater service by the Florida Public Service Commission (FPSC) prior to the date that this Ordinance was enacted, for as long as such certification remains in effect, (b) those areas certificated for water and/or wastewater service by the Board of County Commissioners on the date this Ordinance is enacted, for as long as such certification remains in effect, (c) those areas currently being provided water and/or wastewater services by municipalities on the date this Ordinance is enacted, for as long as such services are provided, (d) those areas served or scheduled to be served with water and/or wastewater services within community development districts by such districts as have been lawfully created prior to the enactment of this Ordinance, and (e) those areas served or to be served with water and/or wastewater services by a municipality pursuant to a territorial agreement between the County and a municipality for so long as the agreement remains in effect. The Board of County Commissioners may enlarge or reduce the County's Exclusive Service Area by resolution(s). The County shall, and is obligated to, provide water and/or wastewater service to all persons and entities who request such service within the Exclusive Service Area in



accordance with applicable County ordinances and rules and regulations.

2. The Board of County Commissioners hereby establishes the County's Designated Service Area consisting of the Service Area described in Section 5, less (a) the County's Exclusive Service Area, (b) those areas certified for water and/or wastewater service by the Florida Public Service Commission (FPSC) prior to the date that this Ordinance was enacted, for as long as such certification remains in effect, (c) those areas certified for water and/or wastewater service by the Board of County Commissioners on the date this Ordinance is enacted, for as long as such certification remains in effect, (d) those areas currently being provided water and/or wastewater services by municipalities on the date this Ordinance is enacted, for as long as such services are provided, (e) those areas served or scheduled to be served with water and/or wastewater services within community development districts by such districts as have been lawfully created prior to the enactment of this Ordinance, and (f) those areas served or to be served with water and/or wastewater services by a municipality pursuant to a territorial agreement between the County and a municipality for so long as the agreement remains in effect. The Board of County Commissioners may enlarge or reduce the County's Designated Service Area by resolution(s)

SECTION 7. OTHER UTILITIES OF SIMILAR CHARACTER PROHIBITED.

1. No person or entity other than the County and/or its designees shall provide water or wastewater services (other than bottled water) to any person or location within the County's Exclusive Service Area or Designated Service Area without the County's express written permission. No person or entity other than the County and/or its designee shall construct or use water and/or wastewater transmission lines, pipes, mains, pumping stations or the like on or within established rights of way for the purpose of providing water and/or wastewater service to

4



land located within the County's Exclusive Service Area or Designated Service Area. These prohibitions shall not be deemed to prohibit private water wells and/or septic tanks for individual structures if mandatory connection is not required under Ordinance [to come 1/5/10], as amended from time to time.

2. When cost effective and in the best interests of the County's citizens, the County may (a) issue a franchise to another water and/or wastewater utility that meets County standards set forth in Ordinance [private utility regulatory ordinance] to operate within portions of the County's Designated Water and Wastewater Service Area or (b) enter a territorial agreement with a municipality or municipalities providing for such entity or entities to provide water and/or wastewater service within portions of the County's Designated Water and Wastewater Service Area.

SECTION 8. COMPREHENSIVE PLAN.

Nothing contained in this Ordinance shall be construed to allow the County or its designees to provide water and/or wastewater service to any area within the County's Exclusive Service Area or Designated Service Areas if providing such service(s) would be inconsistent with the County's Comprehensive Plan.

SECTION 9. CONNECTION TO WATER AND WASTEWATER SYSTEMS.

Mandatory connection to County water and wastewater facilities shall be required in accord with the provisions of County Ordinance [to come 1/5/10], as amended from time to time.

SECTION 10. SEVERABILITY.

If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held to be invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not



affect the validity of the remaining portions thereof.

SECTION 11. FLORIDA PUBLIC SERVICE COMMISSION.

Nothing contained in this Ordinance is intended to affect or amend the existing service territories of water and wastewater utilities previously regulated by the Florida Public Service Commission pursuant to Chapter 367, Florida Statutes, now regulated by the County pursuant to [private utility regulatory ordinance].

SECTION 12. COLUMBIA COUNTY UTILITY AUTHORITY MATTERS.

Nothing contained in this Ordinance is intended to affect or amend the existing service territories of water and wastewater utilities regulated by the Board of County Commissioners pursuant to Columbia County Ordinance [private utility regulatory ordinance], as amended, nor shall this Ordinance be construed to affect the powers of the Board of County Commissioners with regard to processing and conducting certification proceedings for new utilities or for extensions of existing water and/or wastewater service territories located outside of the County's Exclusive Service Area.

SECTION 13. CODE ENFORCEMENT. This Ordinance may be enforced by any method prescribed by law, including injunctive relief and the provisions of Chapter 162, Florida Statutes and ordinances enacted thereunder.

SECTION 14. PENALTIES. Any person or entity violating any of the provisions of this Ordinance shall be prosecuted in the same manner as misdemeanors are prosecuted. Such violation shall be prosecuted in the name of the State of Florida in a court having jurisdiction of misdemeanors by the prosecuting attorney thereof and, upon conviction the violator shall be punished for each violation by a fine not to exceed \$500 or by imprisonment in the County jail not to exceed 60 days or by both such fine and imprisonment. Each incident or separate




occurrence that violates this Ordinance shall be deemed a separate offense. Each day that an offense or violation of this Ordinance continues shall be deemed a separate offense.

SECTION 15. EFFECTIVE DATE.

This Ordinance shall take effect upon a certified copy thereof being filed with the Florida Department of State.

PASSED AND ENACTED by the Board of County Commissioners of Columbia County, State of Florida, this 11th day of March, 2010.

BOARD OF COUNTY COMMISSIONERS
OF COLUMBIA COUNTY, FLORIDA

BY: 
Ronald Williams, Chairman

ATTEST: P. DeWitt Cason, CLERK

BY: 
Clerk

STATE OF FLORIDA, COUNTY OF COLUMBIA
I HEREBY CERTIFY that the above and foregoing
is a true copy of the original filed in this office
P. DEWITT CASON, CLERK OF COURTS
By: 
Date: 3/16/10



EXHIBIT

“A”



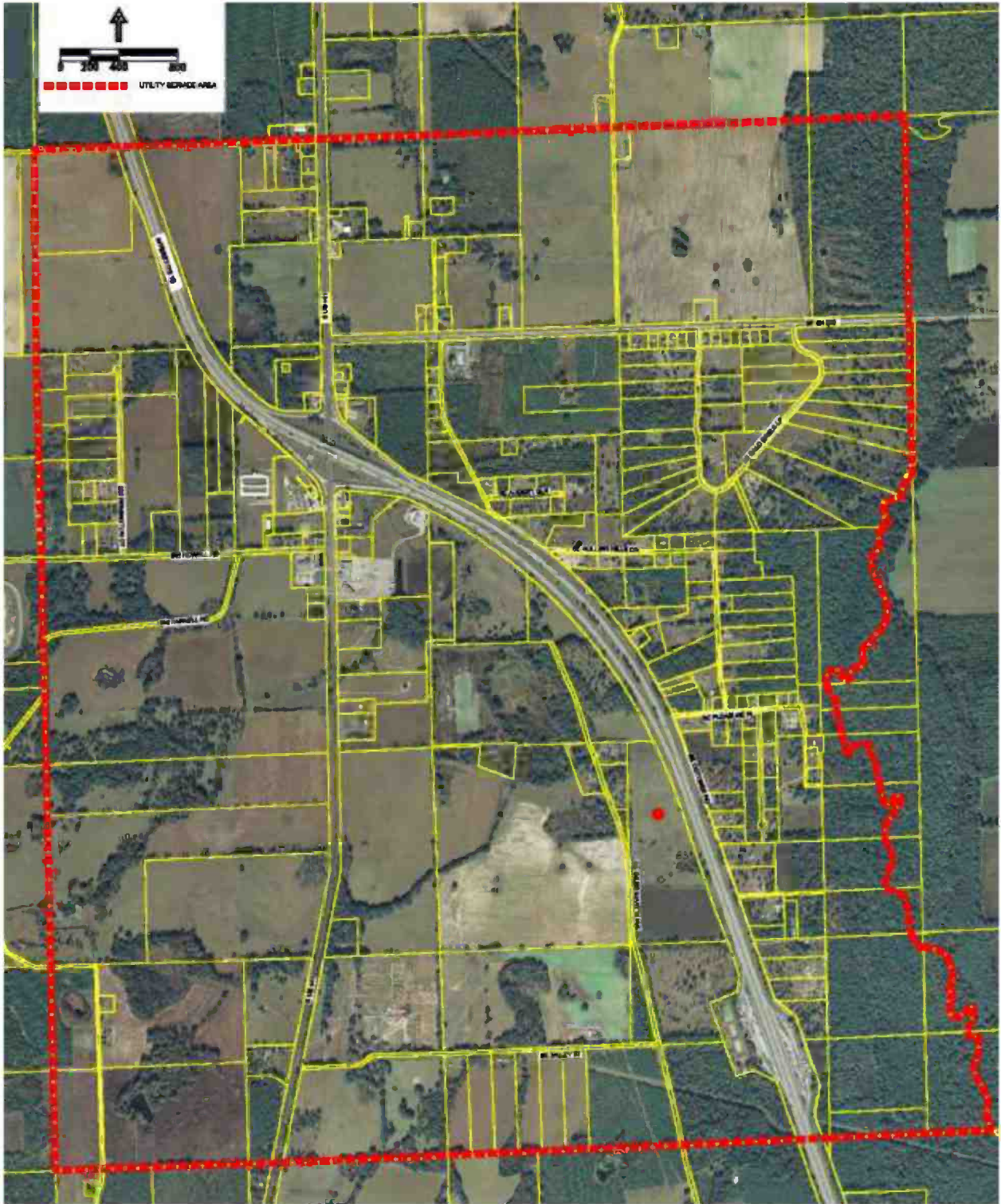


EXHIBIT A

MAP OF ELLISVILLE UTILITY WATER SERVICE AREA



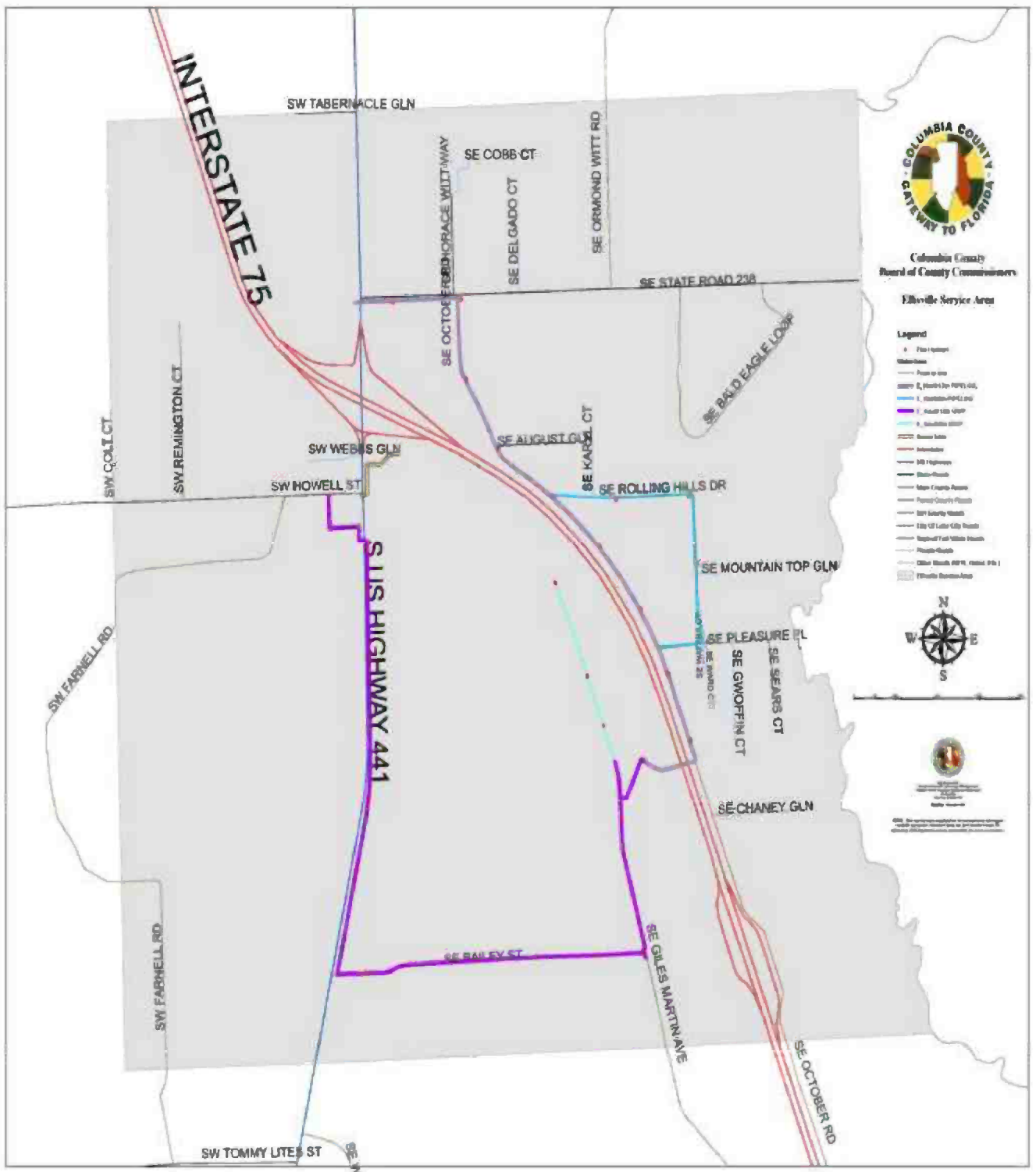


EXHIBIT A-1

MAP OF ELLISVILLE UTILITY WATER SERVICE AREA – STREET DETAILS



Ordinance No. 2010-2

*Establishing Regulations for Connection to the County Public
Water, Wastewater and Reclaimed Water Utility Systems*

COLUMBIA COUNTY, FLORIDA

WATER AND WASTEWATER CONNECTIONS ORDINANCE

ADOPTED March 25, 2010



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Page No.



ORDINANCE NO. 2010-2

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA, ENACTING AND ESTABLISHING REGULATIONS FOR CONNECTION TO THE COUNTY PUBLIC WATER, WASTEWATER, AND RECLAIMED WATER UTILITY SYSTEMS; PROVIDING A GENERAL PURPOSE AND SHORT TITLE; PROVIDING FOR MANDATORY CONNECTION TO PUBLIC UTILITIES; PROVIDING REQUIREMENTS FOR SERVICE APPLICATION; PROVIDING FOR CONSTRUCTION OF PERMANENT, TRANSITIONAL AND COMMUNITY FACILITIES; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE AND APPLICABILITY.

WHEREAS, the standards and requirements set forth herein for connection to public water, wastewater, and reclaimed water utility systems are necessary for the preservation and protection of the public health, safety, and general welfare; and

WHEREAS, the County intends to ensure that the development of any land within Columbia County subject to this Ordinance shall include the installation of such water, wastewater, and reclaimed water facilities as will reasonably protect the citizens and taxpayers from having to bear the cost resulting from the haphazard construction of such facilities; and

WHEREAS, the construction of public water, wastewater, and reclaimed water infrastructure is an element of community development which impacts other public facilities, roadways and adjacent lands, and the prosecution of such construction in a proper and orderly fashion is in the best interest of the public health, safety, and welfare; and

WHEREAS, the standards and requirements set forth herein are necessary for the health, safety and welfare of the citizens of Columbia County and the protection of its environment and natural resources; and

WHEREAS, the standards and requirements set forth herein are intended to benefit the public by ensuring that property owners enjoy a reasonable, beneficial, and economic use of property; and

WHEREAS, the Board of County Commissioners recognizes that the provision of water, wastewater, and reclaimed water utility services is an essential public service and is in the best interest of the public health, safety, and welfare



NOW, THEREFORE, be it ordained by the Board of County Commissioners of Columbia County, Florida, this 25th day of March, 2010, that the following regulations be established.



ARTICLE I

GENERAL PURPOSE AND SHORT TITLE

SECTION 1.01. PURPOSE AND SHORT TITLE. This Ordinance establishes requirements for utility connections to the County's potable water, wastewater and reclaimed water utility systems, when and where available. This Ordinance shall be known and may be cited or referred to as the "Water and Wastewater Connections Ordinance."

SECTION 1.02. OVERVIEW. This Ordinance is organized into six Articles. Article I provides general applicability, including purpose, overview, policy, administration, jurisdiction and enforcement for utility connections. Article II provides for those utility connections that are mandatory. Article III provides for applications for utility connections (availability determinations), reservations of capacity, line extensions, and conditions of service. Article IV provides alternatives for construction of permanent, transitional and community facilities. Article V provides abbreviations and definitions used in this Ordinance and sets out rules for language construction. Article VI provides for severability and an effective date and applicability.

SECTION 1.03. POLICY FOR LAND DEVELOPMENT. No subdivision of real property or any act of development within the unincorporated area of the County that falls within the jurisdiction of this Ordinance (pursuant to Section 1.08 of this Ordinance) shall occur without first requesting utility service for potable water, wastewater, and reclaimed water from the County. The County shall determine the utility provider for the service area where such development is proposed. All such developments must be connected to public utility facilities, in accordance with the County's Comprehensive plan, and the owners of such properties shall pay all fees and charges prescribed for the services provided.

SECTION 1.04. AGREEMENT FOR TEMPORARY SERVICE. Connections within the County's Service Area to any public utility facility other than County Public Utility facilities must be pursuant to an agreement to provide temporary service between the public utility and the County.

SECTION 1.05. POLICY FOR PERMANENT COUNTY FACILITIES. The County shall make every reasonable effort to provide permanent potable water, wastewater and reclaimed water treatment and conveyance facilities within the County Service Area, in accordance with the County's Comprehensive Plan, Water and Wastewater Service Area Ordinance and Utility Master Plan.

SECTION 1.06. DEBT OR PLEDGE. Nothing in this Ordinance shall be construed to create a debt or general obligation of the County or a pledge of the full faith and credit or taxing power of the County.



SECTION 1.07. ADMINISTRATION. The County Manager shall administer this Ordinance. The County Manager is responsible for the development and promulgation of the necessary rules, policies, regulations, procedures and manuals that will be needed to assist County staff and Applicants with connections to County Public Utility facilities. All such rules, policies, regulations, procedures, construction and technical standards and other manuals shall be made a part of the administration of this Ordinance.

SECTION 1.08. JURISDICTION OF UNINCORPORATED COUNTY SERVICE AREAS. The County connection requirements of this Ordinance shall apply to the unincorporated areas of Columbia County identified in the County's Water and Wastewater Service Area Ordinance, Ordinance No. 2010-1, other than municipal service areas or areas served by private utilities pursuant to certificates of authority issued by the County as provided for in Ordinance No. 2007-15.

SECTION 1.09. JURISDICTION OF OTHER SERVICE AREAS. Public Utility connection requirements of the City of Lake City, Fort White or appropriate private franchisees shall apply to those areas served by those entities. Construction and technical standards established in any service area granted by the County to a private utility shall meet or exceed County standards. Within a municipal service area, construction and technical standards shall meet or exceed the standards established by that municipality.

SECTION 1.10. ENFORCEMENT.

(A) Violations. It shall be a violation of this Ordinance to fail to fully comply with any provision of this Ordinance, or to conduct, commence, or maintain any activity and/or facility prohibited by this Ordinance. Each violation shall constitute a separate offense.

(B) Code Enforcement Board. The County Manager may refer violations of this Ordinance to the County's Code Enforcement Board for enforcement action. Upon such referral, the Code Enforcement Board shall levy such fines and/or other remedies within its powers to remedy the violations of the provisions of this Ordinance.

(C) Other Legal Penalties and Remedies. Nothing herein shall preclude the County from seeking all other remedies available under general law, including without limitation:

- (1) Civil actions pursuant to Chapter 403, Florida Statutes.
- (2) Criminal prosecution pursuant to section 125.69, Florida Statutes, such that a Violator shall be subject to prosecution in the name of the State of Florida in the same manner as misdemeanors are prosecuted and, upon conviction, such Violator shall be punished by a fine not to exceed \$500.00 or by imprisonment in the County Jail not to exceed sixty (60) days or by both such fine and imprisonment for each such



conviction. Each day that the violation remains outstanding shall be considered a separate violation.

(3) Any other injunctive relief available to the County through appropriate legal or equitable relief actions in a court of competent jurisdiction to enforce the provisions of this Ordinance.

SECTION 1.11. LIABILITY FOR COSTS. A Violator shall be liable for all costs, including attorney's fees, attributable to any violation of this Ordinance or related policies, rules or regulations and for the costs of correcting damages due to such violations. However, payment of these costs shall not relieve the offending person from other civil or criminal penalties that may be applicable.

SECTION 1.12. PROHIBITION OF UNAUTHORIZED WORK ON COUNTY UTILITY FACILITIES.

(A) County Utility Facilities. Unless expressly authorized in writing by the County Manager, or during a County recognized emergency, no individual or organization shall tamper with, work on, or in any way alter or damage any County Utility facility; or cut into or make any connection with or alter the operation of any County Utility facility.

(B) Private Facilities. Whenever the private (Customer's) side of a utility service connection requires repair, the Customer shall request that the County Utility make adjustments to the County's side of the utility service connection if required to accommodate the repair. Such adjustments by the County shall be paid for by the Customer.

SECTION 1.13. INSPECTIONS.

(A) County Manager Reserves Rights. In order to ascertain and ensure compliance, the County Manager reserves the right to inspect, secure, and/or disconnect any and all devices, wherever located, which connect to or control any County Public Utility facility.

(B) With Reasonable Cause of Violation. Inspections by the County Manager where there is reasonable cause to believe that this Ordinance or any related ordinance, policy, rule or regulation is being violated shall be at such times and with such frequency as the County Manager deems necessary.

(C) Without Reasonable Cause of Violation. Inspections by the County Manager without reasonable cause to believe that this Ordinance or any related ordinance, policy, rule or regulation is being violated shall be conducted only during normal working hours.

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(D) Consent and Entry. Upon signing an application for service, the Customer is deemed to have consented to entry by the County Manager upon the property described in the application for the purpose of conducting any inspection permitted pursuant to this Ordinance and the Customer waives the right to receive any further notice from the County Manager for inspections conducted pursuant to this Ordinance.

(E) Denial of Access. If a Customer denies access by the County Manager to any property receiving County utility service for the purpose of conducting any inspection permitted under this Ordinance such denial will constitute a violation of this Ordinance and may be grounds for immediate discontinuance of any and all County supplied utility service to the subject premises.

SECTION 1.14. EMERGENCY ACTS.

(A) Interruption. The County Manager may interrupt the delivery of County Utility service to any property for or upon which a violation of this Ordinance or any related ordinance, rule, policy, or regulation has occurred. Any such interruption will continue until restoration of County Utility service is deemed appropriate by the County Manager.

(B) Emergency Action. The County Manager may take whatever emergency action is deemed necessary and appropriate to protect persons or property from any injury, loss, or damage which may reasonably be expected to result from each specific violation of this Ordinance or of any related ordinance, rule, policy, or regulation. The Customer or other Violator shall be responsible for all costs incurred by the County for any emergency measures performed by or at the request of the County Manager as a result of such a violation attributed to the Customer or other Violator.

SECTION 1.15. NOTICES. All notices from the County, required under this Ordinance shall be in writing, and delivered by first class U.S. Mail or delivered and presented by the County Manager. All notices to the County required under this Ordinance shall be in writing and delivered by first class U.S. Mail or delivered and presented to the County Manager.

SECTION 1.16. COMPREHENSIVE PLAN. The provisions of this Ordinance are intended to be in full compliance with the Comprehensive Plan. In the event an alleged conflict arises between the provisions of this Ordinance and the Comprehensive Plan, the Board of County Commissioners shall resolve the conflict



ARTICLE II

MANDATORY CONNECTION TO PUBLIC UTILITIES

SECTION 2.01. PURPOSE. The requirement for mandatory connection to a Public Utility facility is to protect the public health, welfare, safety, and environment, to promote water resource conservation; to eliminate inferior treatment processes, and to create economies of scale for treatment processes and conveyance operations.

SECTION 2.02. PROPOSED DEVELOPMENT. Pursuant to Section 1.03, it shall be mandatory for all proposed developments to request Public Utility services, and for all proposed developments within the County Service Area to connect to County Public Utility facilities in accordance with the County's Comprehensive Plan and this Ordinance.

SECTION 2.03. CONNECTIONS WITH WATER AND SEWER SYSTEMS. Where service is available, the owner of every lot or parcel of land within the County adopted Service Area shall connect or cause the plumbing of any building or buildings thereon to be connected with the County Water System and/or County Sewer System within six (6) months of notice of availability by the County and shall use the facilities of such systems. All such connections shall be made in accordance with the County Water and Wastewater Technical Manual and rules and regulations which shall be adopted from time to time by the Board, which rules and regulations shall provide for a charge for making connections in such reasonable amount as the Board may establish. Nothing herein shall affect liability for service charges as provided in this Ordinance or in other County ordinances. The County shall notify the owner of any affected improved lot or parcel of the availability of the central water and/or sewer service. Owners of existing buildings shall have the option of paying the amortized value of required Capacity Fees in equal monthly installments over a period not to exceed ten (10) years from the date of the initial notification of present or anticipated availability. For purposes of this subsection, "available" water and/or wastewater service shall mean, subject only to a determination by the County that supply, treatment and/or conveyance capacity exists or Connection is otherwise practicable with respect to any Connection, the following:

(A) For residential or commercial subdivisions and for areas zoned or used for an industrial manufacturing purpose or its equivalent, or a single family residence or establishment any of which has an estimated sewage flow of 1,000 gallons per day or more, if the County Water System or County Sewer System is located within 1,320 feet of the development; or

(B) A single-family residence or establishment any of which has an estimated sewage flow of 1,000 gallons per day or less, if the County Water System or County Sewer System is located within 100 feet of a Potential Customer's lot-line.



(C) "Establishment" means any buildings or properties used for human occupancy, employment, recreation or other purposes.

SECTION 2.04. TIMING OF CONNECTION. Developments served by private wastewater treatment plants operating pursuant to authority from the County that are operating out of compliance with FDEP operating permits must be connected to available County wastewater facilities within 180 days after the notice to connect is received by the development owner.



ARTICLE III

APPLICATION FOR SERVICE

SECTION 3.01. SERVICE REVIEW. Each Applicant seeking to develop property located within the unincorporated County but outside the service areas of municipalities shall apply for potable water, wastewater, and reclaimed water service from the County. The County Manager shall review such applications and determine whether service is available for the development. Each review shall review such applications and characterize the development by one or more of the following criteria:

(A) Permanent Service Is Available. The proposed development is in the County Service Area, and the County is currently able to provide permanent service or will be able to provide service in time to meet the Applicant's building schedule.

(B) Permanent Service Is Not Available But Is Planned. The proposed development is in the County Service Area, the County is not able to provide permanent service in time to meet the Applicant's building schedule, but future service is planned in the County's Utility Master Plan.

(C) Permanent Service Is Not Available But Transitional Facilities May be Appropriate. The proposed development is in the County Service Area, the County is not able to provide permanent service due to its location or infrastructure limitations, but Transitional Facilities may be an appropriate alternative under Article IV.

(D) Permanent Service Is Available but Development Is Outside County Service Area. The proposed development is not in the County Service Area, but the County is currently able to provide permanent service if permitted to do so under the provisions of the County's Comprehensive Plan.

(E) Permanent Service Is Not Available. The proposed development is not in the County Service Area and the County is not able to provide permanent service to the development.

(F) Permanent Service Will Be Subject to Special Conditions. The provision of permanent service to the proposed development will be subject to specific utility conditions established by rezoning, Utility Master Plan approval, Developer's Agreement, and/or the Development of Regional Impact process.

SECTION 3.02. SERVICE AVAILABILITY. Service shall be deemed available if the proposed connection to County Utility facilities conforms to the provisions of the Comprehensive Plan and successfully passes the tests described in this Section for system sufficiency and operational feasibility. Development within the County Service Area shall be deemed to have passed such tests and shall proceed with connection to County Utility facilities unless the County Manager approves a variance providing otherwise in compliance with established County procedures.

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SECTION 3.03. TEST ONE - SYSTEM CAPACITY DETERMINATION. The County Manager shall verify that sufficient capacity in the County's Public Utility facilities exists to accommodate each proposed connection thereto before the connection is authorized. The sufficiency of capacity for connection of any development shall be determined through an engineering analysis of the capacity in an appropriate treatment plant and in the transmission system between that plant and a reasonable point-of-connection for the development.

(A) Sufficient Capacity for Proposed Development. Capacity for any Utility Service shall be deemed sufficient for any such connection if excess treatment and transmission capacity is available to provide the quality and quantity of service necessary to meet the service demands of the development pursuant to the County's conditional approval of the connection to its Public Utility facilities.

(B) Allocation of Unpermitted Treatment Capacity. The County may allocate treatment capacity for a development in excess of the permitted capacity of the Wastewater Treatment Plant that will serve it, provided that additional treatment capacity in the plant becomes available before actual annual average daily flow exceeds the plant's permitted capacity and the County is otherwise compliant with the plant's regulatory permit. Any such allocation shall require the County Manager to monitor actual plant flows; project the time at which the capacity of the facility will be exceeded; and plan, design, construct and place in operation any required capacity expansion pursuant to Rule 62-600.405, Florida Administrative Code.

(C) Building Permits and Connections Depend upon Treatment Capacity. Upon written notification from the FDEP or its designee to the County Manager that the monthly average of the actual daily flow for three consecutive months through a County Wastewater Treatment Plant has reached or exceeded 100% of its permitted average daily flow capacity, the County Manager shall suspend the issuance of Building Permits for either the construction of any structure which would be served by the plant or the connection of any development to the plant. Upon receipt of FDEP's written acknowledgement to the County Manager that the actual flow through the County Wastewater Treatment Plant no longer exceeds its permitted capacity, the County Manager may recommence issuing Building Permits and/or allowing utility connections.

SECTION 3.04. TEST TWO - OPERATIONAL FEASIBILITY. The County Manager shall determine that each proposed new connection to the County's Public Utility facilities is operationally feasible before the connection is authorized. A proposed connection shall be deemed operationally feasible if the Utility Master Plan transmission lines needed to serve the development are in service or will be in service in time to meet the Applicant's building schedule. In the event that a new connection is not operationally feasible on the basis stated above, the connection nevertheless shall be deemed operationally feasible if:



(A) The development is within a feasible distance of the point-of-connection pursuant to the applicable distance criteria specified in the Columbia County Water and Wastewater Technical Manual for similar connections.

(B) The Applicant signs a developer agreement pursuant to which Applicant agrees to fund the connection, including necessary off-site facilities, as determined by the County Manager.

(C) No existing or potential hydraulic condition or severe operations, maintenance, construction or other condition related to the proposed connection have been identified by the County Manager which would render the connection impractical or undesirable.

(D) The County Manager has not granted a lawful variance that allows the development to proceed without connection to County Public Utility facilities.

SECTION 3.05. EXTENSION OF TRANSMISSION FACILITIES. The County or Developers, pursuant to developer agreements with the County, shall construct all transmission facilities identified in the County's Utility Master Plan. Utility Master Plan transmission lines are the core facilities needed to provide service throughout the County Service Area.

SECTION 3.06. REVIEW OF UTILITY MASTER PLAN AND 5-YEAR CAPITAL IMPROVEMENTS PLAN ("CIP"). Upon request of an Applicant, the County shall review the approved Utility Master Plan and its current 5-year CIP to consider incorporation of the Applicant's requested line extension project. If the County determines it is appropriate to amend the Utility Master Plan and its 5-year CIP to include the Applicant's line extension project, the County may construct the line extension project. If the Applicant desires to accelerate the line extension project to meet the construction schedule for a planned development, the Applicant may construct the line extension project by entering into a line extension agreement with the County, as further described in Section 3.08.

SECTION 3.07. DEVELOPER RESPONSIBLE FOR CONNECTOR TRANSMISSION LINES. Depending on the location of any development, additional connector transmission lines may be needed to connect the development to the Utility Master Plan transmission lines. The Developer is responsible for the full cost for the design and construction of all connector lines from a development to a point-of-connection with the Utility Master Plan transmission facilities. The Developer shall not be entitled to reimbursement from the County for the construction of any connector transmission line unless it was oversized at the request of the County Manager or as otherwise may be provided by County ordinance, policy or rule.

SECTION 3.08. LINE EXTENSION AGREEMENTS. A Line Extension Agreement shall be required whenever an Applicant meets the conditions described in Section 3.06 and elects to construct any Utility Master Plan transmission facilities. Such



an Agreement shall provide that the Applicant is responsible for the full cost of design, construction and inspection of any Utility Master Plan transmission lines ("actual cost of construction"), as certified by the Applicant's engineer and approved by the County Manager. However, if the County Manager requires an oversizing of these Utility Master Plan transmission lines, the Applicant may be reimbursed for the oversizing costs in the manner provided by applicable County ordinance, policy or rule.

SECTION 3.09. RESERVATION OF CAPACITY. To reserve capacity in the County's Public Utility System, the Applicant must first submit an application for utility service and receive preliminary plat or preliminary plan approval for the development. The Applicant must then prepare and submit construction plans for the development or for the initial phase of the development and otherwise comply with applicable County ordinances. When construction plans are approved, the Applicant must then pay the non-refundable Accrued Guaranteed Revenue Fees ("AGRF") for the capacity that the Applicant seeks to reserve for the two (2) year capacity reservation period. The minimum amount of capacity that can be reserved is the capacity defined in the general distribution and/or collection system permits, as applicable, for the Applicant's initial phase of development. Developer shall pay AGRF for each successive phase of development.

SECTION 3.10. PRELIMINARY REVIEW. When the preliminary plat or the preliminary plan is approved, the County Manager will issue a preliminary review letter, including a Concurrency Certificate of Capacity. The Certificate of Capacity shall be valid for a period of six months or until the construction plans are approved, whichever occurs first. During that six-month period, the Applicant must complete and submit construction plans for the development or for that phase of development for which a capacity reservation is requested. If construction plans have been submitted but not approved, the County Manager may grant a three-month extension of the Certificate of Capacity.

SECTION 3.11. COMMITMENT LETTER. As required by Section 3.09, the Applicant must pay the AGRF when notified that the County Manager has approved construction plans. When the County receives the AGRF from the Applicant, the County Manager will issue a Commitment Letter and a Certificate of Capacity to reserve capacity for a two year period. Master Plan review of the entire development may be required by the County; however, the capacity reservation will be limited to the permitted capacity in the distribution and/or collection system for which construction plans were submitted.

SECTION 3.12. PAYMENT ELECTION. After the Applicant receives all required regulatory and permit approvals and prior to beginning construction of the development, the Applicant shall either: (a) elect not to go forward with the project, or (b) elect to go forward with the project.

(A) If the Applicant elects not to go forward with the project, all commitments for a reservation of capacity will be voided.



(B) If the Applicant elects to go forward with the project, the Applicant must enter into a Developer's Agreement with the County, specifying the terms for construction, and including warranty of the improvements required for the development.

SECTION 3.13. TRANSITIONAL FACILITIES. If the County is unable to provide permanent service to meet the Applicant's building schedule, the Applicant may elect to enter into an agreement with the County to construct transitional facilities pursuant to the provisions of Article IV.

SECTION 3.14. CONTRACT. Acceptance by the Applicant of the conditions of service enumerated in the Developer Agreement shall bind the Applicant to pay for the services rendered at the rates and charges prescribed by the County's Rate Resolution, and to comply with all applicable rules and regulations. Such rates and charges shall accrue and be a lien against the property to which service is provided and available, regardless of whether the property served is disconnected from service later. Once connected to the County Utility System, the Applicant agrees for itself and its successors and assigns that the County shall have the sole and exclusive right and privilege to provide potable water, wastewater and reclaimed water service to the property and to the occupants of each residence, building or unit constructed on the property to the exclusion of all other service providers, including service from on-site utility systems.

SECTION 3.15. USE OF SERVICE. Use of the County's potable water, wastewater, and/or reclaimed water service shall constitute acknowledgement and acceptance of all State and local laws, ordinances, rules, regulations and conditions applicable to the provision of such services by the County.



ARTICLE IV

CONSTRUCTION OF PERMANENT, TRANSITIONAL AND COMMUNITY FACILITIES

SECTION 4.01. GENERAL.

(A) Conditions. After the determination that service for a proposed development is available at one or more Points of Connection ("POCs"), the Applicant's responsibilities for construction of permanent utility facilities must be determined. The facilities are in two major categories, "on-site" and "off-site" and each may include "oversizing." When utility service is not currently available in the County Service Area but is found to be available within the timeframe of the Utility Master Plan, an Applicant may request to use transitional facilities. When Utility service is not currently available and is not available within the timeframe of the Utility Master Plan, the Applicant may request the use of community facilities. This Article IV sets out the responsibilities for funding, design and construction of these types of facilities.

(B) Technical Basis. Design and construction of permanent, transitional and community utility facilities shall be in accordance with sound engineering practices, the appropriate County policies, the Columbia County Water and Wastewater Technical Manual, County standards and specifications, and all other applicable standards. The capacities of utility facilities are to be sized based upon the Columbia County Water and Wastewater Technical Manual and other applicable County engineering standards.

SECTION 4.02. OWNERSHIP.

(A) Conveyance. All permanent utility facilities constructed by an Applicant shall be conveyed to the County in accordance with the procedures for acceptance of the utility facility described in the current Columbia County Water and Wastewater Technical Manual and the Applicant's specific Developer's Agreement. All transitional and community utility facilities constructed by an Applicant shall be conveyed to the County in accordance with the procedures for acceptance of permanent utility facilities and in accordance with any special conditions described in this Article IV.

(B) Acceptance. The County shall not accept permanent utility facilities constructed by the Applicant until the County Manager determines that: the facilities are either in a public right-of-way, in a County-accepted utility easement, or on property deeded to the County for a public purpose; the facilities have been inspected and approved by the County Manager; the Applicant's Engineer-of-Record has certified that the facilities were designed and constructed in accordance with sound engineering practices, the appropriate County policies, the Columbia County Water and Wastewater Technical Manual and all other applicable standards and specifications; all approvals and clearances have been obtained by Developer from FDEP and other applicable agencies; and the Applicant has complied with the requirements of the Applicant's specific Developer's Agreement.



SECTION 4.03. APPLICANT-INSTALLED PERMANENT PUBLIC FACILITIES.

(A) Responsibility. The Applicant shall be solely responsible for the construction of all on-site and off-site permanent utility facilities to the point-of-connection required for connection of the Applicant's development to the County's Utility facilities, and for all costs associated with such construction.

(B) Facility Oversizing by Applicant. The County Manager shall determine through engineering analysis if oversizing beyond the minimum technical standards is required for a facility, and the Applicant shall be so advised and shall perform such oversizing as a condition of proceeding with the proposed development.

(C) Facility Oversizing Financing by Applicant. All costs associated with oversizing the utility facilities shall be totally the responsibility of the Applicant and may only be recovered by the Applicant by such means as may be provided by Ordinance, policy or rule of the County.

(D) Additional Project Costs. The Applicant shall be totally responsible, at the Applicant's cost, for any improvements to the County's Utility facilities required as a condition of rezoning, Utility Master Plan or Development of Regional Impact approval, and/or as stated in any Developer Agreement or other agreement with the County.

(E) County Shall Connect. When the County Manager determines that permanent service is available at the designated point-of-connection for a development with transitional or community facilities, the County shall provide for disconnecting the development and connecting it to the County Utility facilities, except that the County shall not be responsible for removal or restoration required to connect individual on-site septic systems to County Utility facilities.

(F) Time for Completion. All off-site facilities needed for this transfer shall be installed and connected to the point-of-connection within 365 days (unless otherwise specified by an Agreement) after written notification that permanent County utility service is available for the development.

SECTION 4.04. APPLICANT-INSTALLED TRANSITIONAL PUBLIC UTILITY FACILITIES.

(A) General. In the event that the County Manager determines that transitional facilities are an appropriate alternative for a development in accordance with the County's Comprehensive Plan, the Applicant may, with the approval of the County, install transitional on-site potable water, wastewater, and reclaimed water facilities. The Applicant shall install all on-site and off-site facilities required by this Ordinance for permanent service in addition to any transitional facilities required as a result of the



Applicant's election to provide transitional service to the development until permanent service is available, unless waived by the County Manager.

(B) Transitional Facilities. The Applicant shall be totally responsible for all costs to design, permit and construct all transitional facilities. The transitional Public Utility facilities may consist of the following:

(1) Potable Water Facilities. These shall consist of transitional potable water supply well(s), storage, treatment and pumping facilities required so the Applicant's permanent distribution facilities can be used during the transition period.

(2) Reclaimed Water Facilities. For those areas identified by the County Manager as feasible for reclaimed water service but for which reclaimed water service is not yet available, the Applicant may be required to install permanent reclaimed water distribution facilities provided that County and regulatory agency approvals are obtained.

(3) Wastewater Treatment Facilities. These facilities shall be constructed in accordance with Sections 4.05 and 4.06, as applicable.

(4) Individual On-Site Wastewater Disposal Facilities. This type of transitional wastewater service shall be provided by treatment in septic tanks with the disposal of the effluent by absorption fields. All permanent on-site and off-site conveyance facilities required to connect the development to permanent County Public Utility facilities shall be constructed and permitted as dry-line facilities. The installation of the electrical and pumping equipment in a pump station may be deferred until permanent County wastewater service is available provided, however, that concurrent with conveyance of the off-site facilities, the Applicant escrows the funds necessary for the purchase and installation of the deferred equipment.

SECTION 4.05. TRANSITIONAL WASTEWATER TREATMENT PLANTS (TWWTP).

(A) General. It is the County's policy to discourage the construction of transitional wastewater treatment plants and the County Manager shall evaluate each case individually for a recommendation to the Board of County Commissioners.

(B) Purpose of TWWTP Requirements. The use of a TWWTP may be approved by the Board of County Commissioners when the Applicant requests wastewater treatment and disposal services within the County Service Area, and when permanent wastewater service is not currently available to the project but will be available to a project by completion of a capital improvement project in the County's Utility Master Plan.



(C) Transitional Plant Agreements. The use of a TWWTP to provide service to one or more developments shall be approved only by written agreement between the Applicant(s) and the County, in accordance with the provisions of Article IV.

(D) Applicant's Performance Bonds. The Applicant may acquire the TWWTP by purchase or lease, but in either case, shall protect the County by providing proper bond, or other acceptable security, to assure performance under the TWWTP Agreement. The Applicant shall bear the cost of such performance bond.

(E) Applicant Provides Effluent Disposal. Reclaimed water use shall be the preferred method of effluent disposal utilized to meet the needs of the TWWTP's permitted capacity however, the Applicant may provide for other efficient disposal methods which comply with applicable State laws and this ordinance in such cases where reclaimed water use is not feasible, as shall be determined by the County Manager. If actual performance of the effluent disposal system is insufficient to properly dispose of the plant's effluent, the Applicant shall provide additional disposal capacity. The County may suspend issuance of building permits and certificates of occupancy until sufficient capacity is provided.

(F) Treatment Process Requirements. An advanced wastewater treatment ("AWT") process using extended aeration shall be the preferred treatment process, however, the Applicant may provide for other treatment processes which comply with applicable State law and this Ordinance in such cases where AWT is not feasible, as shall be determined by the County Manager.

(G) Plant Plans and Construction Reviewed. The Applicant shall submit the TWWTP design and construction plans to the County Manager for review and approval before applying for building permits. The TWWTP shall meet the specifications for TWWTPs in the Columbia County Water and Wastewater Technical Manual and shall comply with all related FDEP regulations. The County Manager shall have the right to review and monitor construction of the TWWTP. The Applicant shall remedy all construction deficiencies reported by the County Manager to the Applicant.

(H) Phased Build-Out and Permitting. The Applicant shall provide a development phasing or build-out schedule to the County Manager. If the County is unable to provide off-site treatment by the time the TWWTP is at capacity, the Applicant may elect to expand the TWWTP capacity according to the provisions of this Ordinance in effect at the time of the request. The Applicant shall coordinate any such construction or expansion to avoid disruption of any operation of the TWWTP by the County. Any construction or expansion of a TWWTP beyond the capacity stated in a TWWTP agreement shall require a modification to the TWWTP agreement.



(I) Off-Site Improvements to Permanent Point-of-Connection. The construction of off-site facilities shall be completed and found acceptable in the opinion of the County for connection at the designated point-of-connection within 365 days after written notification to the Applicant that permanent County wastewater treatment and conveyance service is available for the project. The Applicant is responsible for the design, permitting, construction and all associated costs of all off-site improvements to the point-of-connection. The County may suspend issuance of building permits until connection of the off-site facilities is made.

(J) Start Construction in 24 Months. Construction of the TWWTP shall begin within 24 months from the date of the TWWTP agreement; otherwise, the agreement shall expire. A TWWTP agreement that meets the provisions of this Article IV and receives approval from the Board of County Commissioners may be extended upon the written consent of the parties thereto. The County Manager is authorized to consent for the County.

(K) Authorized Connections to TWWTP. The County Manager will authorize all connections to the TWWTP in accordance with standard County acceptance and approval practices for connection to County Utility facilities provided, however, that:

(1) The Applicant's Engineer of Record has certified that the TWWTP has been constructed in accordance with County standards and specifications.

(2) The County Manager has determined that the TWWTP is substantially complete and acceptable for use.

(3) The Applicant has provided the County with proper bond and all other documentation and payments required by the TWWTP agreement for approval of such connections.

(4) The TWWTP is operating within regulatory requirements.

(L) Connections Not Authorized to TWWTP. Unless otherwise provided pursuant to an agreement between the Applicant and FDEP or between the County and FDEP, no authorization shall be granted for any connection to a TWWTP where such connection would result in the TWWTP exceeding its permitted capacity.

(M) Removal of TWWTP. The County shall at its own expense, remove the TWWTP and restore the site within 120 days after the development served by the TWWTP has been connected to a permanent County Utility facility.

(N) Operation and Maintenance. The Applicant shall be responsible for the TWWTP operation and maintenance, for regulatory agency compliance, and for all costs associated therewith until the TWWTP operating permit is transferred to the County and the TWWTP is accepted by the County. After acceptance, the County will

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be responsible for all such costs until the TWWTP is taken out of service and all projects served by the TWWTP are connected to permanent County Utility facilities.



SECTION 4.06. COMMUNITY WASTEWATER TREATMENT PLANTS (CWWTP).

(A) **General.** It is the County's policy to discourage the construction of community wastewater treatment plants and the County Manager shall evaluate each case individually for recommendation to the Board of County Commissioners.

(B) **Purpose of the CWWTP Requirements.** A CWWTP may only be used to provide service if that use is permitted in the Comprehensive Plan. Then, the use of a CWWTP may be approved by the Board of County Commissioners if the applicant requests wastewater treatment and disposal services in the County Service Area, permanent wastewater service is not currently available, and permanent service will not be available even after the build-out of all Public Utility facilities identified in the County's current Utility Master Plan. The use of a CWWTP requires that the Board of County Commissioners determine that special circumstances warrant using a CWWTP. This determination may be made when utilization of a CWWTP is the only reasonable alternative available to the Applicant for the development; and the Board of County Commissioners determines that it is in the County interest for the development to proceed prior to the availability of permanent County wastewater service. The Board of County Commissioners will use the following criteria in its evaluation of a project's benefit and value when making its determination of "public interest":

(1) The proposed action is found to have a substantial benefit to the public of the County.

(2) Reasonable alternatives to the proposed action have been presented to and fully considered by the BOCC.

(3) Alternatives to the proposed action are found unacceptable, including for reasons related to the substantially greater costs to the public of such alternatives.

(4) Environmental impacts of the proposed action have been presented to and considered by the Board of County Commissioners.

(5) Potentially adverse environmental impacts of the proposed action have been minimized to the greatest extent feasible.

(6) The proposed action complies with all applicable federal, state and local environmental laws.

(7) The proposed action is found not to adversely affect the property of others or the public health, safety, and welfare.

(C) **Application for Service and Determination Not In County's Utility Master Plan.** Before proceeding with a request to use a CWWTP, the Applicant must receive



written notification from the County that permanent wastewater treatment is not available in time to meet the Applicant's building schedule and will not be available in the future when the County builds-out its then current Utility Master Plan.

(D) Request to County for Use of CWWTP. At the written request of the Applicant, the County Manager shall submit the Applicant's request for the use of a CWWTP to the Board of County Commissioners. This request shall include the following information at a minimum:

(1) The size and type of the wastewater treatment and effluent disposal facilities proposed by the Applicant.

(2) The length of time before permanent service is to become available.

(3) An assessment of current transmission and treatment plant capacity and all Utility Master Plan projects that will make capacity available from the County Utility facilities to provide permanent service to the Applicant's project.

(4) An assessment of the feasibility of the use of a community wastewater facility compared to the extension of permanent wastewater transmission facilities by the Applicant.

(5) A staff recommendation for approval or denial of the CWWTP.

(E) Approved CWWTP Requirements. Upon approval of the use of a CWWTP, the Applicant may submit a request for a CWWTP Agreement to the County Manager. CWWTP agreements shall be subject to the same requirements as provided in Section 4.05 for the use of TWWTPs.

(F) Permanent Service Available Within 5-Year CIP. At the time permanent service to the development is programmed in the current 5-Year CIP, the County Manager shall reevaluate the development's status in regard to the provisions of this Ordinance. The County Manager will determine improvements that can be made to connect the development to County Utility facilities.

SECTION 4.08. FINANCING OF FACILITIES.

(A) Agreements. Financial conditions relating to a development's requirements shall be specified in a written agreement between the Applicant and the County.

(B) Applicant-Installed Public Utility Facilities. The Applicant shall be required to pay all of the costs to design, permit, and construct the on-site and off-site Public Utility facilities necessary to serve the development as well as any improvements



necessary to the County's Utility facilities due to the impact of the development on existing or proposed County Utility facilities.

(C) Funds for Development Needs. The Applicant is required to fund the cost of all on-site and off-site Public Utility facilities required for the development, including utility easements and rights-of-way.

(D) Funds for Oversizing. The Applicant is required to fund the costs of oversizing all Public Utility facilities, as determined by the engineering analysis performed by the County Manager pursuant to Section 4.03.

(E) Oversizing Reimbursement Agreement. The County Manager shall consider and recommend to the Board of County Commissioners whether the Applicant may be reimbursed for oversizing costs pursuant to an agreement between the Applicant and the County.

(F) County-Installed Off-Site Facilities. The County Manager may elect to construct oversized facilities to serve a project to prompt the cost-effective, efficient and/or timely provision of services. If the County Manager determines that the public interest will best be served through County construction of such oversized facilities, the County Manager shall provide notice of such determination for the development.

(G) Applicant Pays Fees. The Applicant shall pay all Capacity Fees, AGRF, meter installation fees and other applicable fees and charges set forth in the Rate Resolution.

(H) Special Assessments. When the County Manager determines that constructing a line extension is feasible and that the use of a special assessment is an appropriate mechanism for funding the design and construction of the line extension, a special assessment district comprised of all the benefited properties may be established by the County in accordance with applicable County ordinances, as may be amended from time to time, and all other applicable State and local laws, ordinances and regulations.

(I) Capacity Fees. Capacity Fees shall be paid prior to connecting to the County's Utility facilities. Development using special assessments to pay for line extensions will be required to pay Capacity Fees. If approved by the Board of County Commissioners, Capacity Fees may be included in a special assessment.





SECTION 5.01. GENERAL. This Article V includes words, terms and phrases with defined and specific uses unique to this Ordinance.

SECTION 5.02. RULES OF LANGUAGE CONSTRUCTION. All provisions, terms, phrases and expressions contained in this Ordinance shall be liberally construed in order that the true intent and meaning of the Board of County Commissioners may be fully carried out. Terms used in this Ordinance, unless otherwise specifically defined in this Ordinance, shall have the meanings prescribed by the statutes of this State.

SECTION 5.03. ABBREVIATIONS.

AGRF:	Accrued Guaranteed Revenue Fee(s)
AWT:	Advanced Wastewater Treatment
BOCC:	Board of County Commissioners
CO:	Certificate of Occupancy
CIP:	Capital Improvement Program
CWWTP:	Community Wastewater Treatment Plant
FDEP:	Florida Department of Environmental Protection
DRI:	Development of Regional Impact
ERC:	Equivalent Residential Connection
FAC:	Florida Administration Code
TWWTP:	Transitional Wastewater Treatment Plant
POC:	Point-of-Connection

SECTION 5.04. DEFINITIONS.

"Accrued Guaranteed Revenue Fee (AGRF)" means the fee established by the Board of County Commissioners in a Utility Rate Resolution to reimburse the costs of reserving, operating and maintaining unused water and wastewater capacity in the County Utility System for a prudent investment period of up to two (2) years.

"Act" or "The Act" means the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq.

"Applicant" means a property owner or a duly authorized representative of the property owner, or occupants of said property, who applies for utility service to and for certain property, either voluntarily or through the mandatory connection procedures, and who can be bound to all legal obligations related to utility services.

"Builder Payment" means the minimum amount due from a builder prior to issuance of a certificate of occupancy, as established by the Board of County Commissioners in the Utility Rate Resolution, to pay the Accrued Guaranteed Revenue Fees and all or a portion of the Capacity Fees.



"Capacity Fee" means the fee established by the Board of County Commissioners in the Utility Rate Resolution to fund the capital cost of water and wastewater facilities attributable to a service connection.

"Certificate of Capacity (CA)" means a certification of a Determination of Capacity issued by the County Manager upon approval of subdivision construction plan, site development plan, DRI Development Order, Building Permit, or Development Agreement and payment of the reservation fee.

"Certificate of Occupancy (CO)" means a document issued by an authorized official setting forth that land, a building or structure legally complies with the Columbia County Building Code, the Land Development Code and other pertinent state and local requirements, and that the same may be used for the purpose therein.

"Commitment Letter" means a document issued by the County Manager to advise an applicant that their construction plans have been approved, the AGRF has been paid, and that capacity will be reserved for up to two (2) years, as may be extended in two year increments, provided Applicant remains in compliance with all County requirements and requests extensions of their Certificate of Capacity before it expires.

"Community Wastewater Treatment Plant" means a wastewater treatment plant, its collection system, appurtenant effluent disposal/reclaimed water reuse facilities, and sludge treatment and disposal facilities, that is authorized for use by the County.

"Comprehensive Plan or Comp Plan" means the Columbia County Comprehensive Plan, as may be amended from time to time.

"County" means a political subdivision of the State of Florida known as Columbia County as governed by the Board of County Commissioners (BOCC) and as administered by the County Manager.

"County Manager" means the Columbia County Manager, or the Columbia County Manager's designee, or such other person as may be designated by the Board of County Commissioners.

"Customer" means an Applicant who has contracted to receive utility services from a Utility and is financially responsible for the payment of all charges legally assessed by the Utility with respect to that particular Utility connection. The term "Customer" also shall include the actual user of utility services.

"Developer" means a property owner or an agent of the owner of land proposed for development.



"Developer Agreement" means an agreement between the County and a developer used with new developments to describe the conditions under which improvements can be constructed and warranted before the improvements can be accepted by the County.

"Development of Regional Impact" means any development which, because of its character, magnitude, or location, would have a substantial effect upon the health, safety, or welfare of the citizens of more than one county, as more fully defined in Section 380.06, Florida Statutes.

"Dry-line Facilities" means utility facilities that are permanent in nature, that have been installed, but are not useable until other permanent facilities are available.

"Effluent" means water, after some degree of wastewater treatment, flowing out of any treatment facility.

"Equivalent Residential Connection" means a unit of potable water, reclaimed water, or wastewater capacity which is equivalent to the annual average number of gallons per day of service that is attributable to a detached single family residence, as such number is established from time to time by the County Manager.

"Establishment" means any buildings or properties used for human occupancy, employment, recreation or other purposes.

"Line Extension" means any utility transmission system improvements needed to provide service to an existing or future development.

"Off-Site Facilities" means utility facilities that are not located within an Applicant's property limits.

"On-site Facilities" means utility facilities that are located within an Applicant's property limits.

"On-Site Wastewater Treatment and Disposal Facilities (or Systems)" means the facilities used for the treatment of wastewater in septic tanks and the disposal of the effluent by absorption fields.

"Oversized Facilities" means utility facilities sized beyond the needs of the development for which the facilities were initially installed or are to be installed to provide service.

"Point-of-Connection" means the point where the Applicant's on-site improvements and any required off-site improvements will connect into the County Utility facilities, generally at an existing pump station or transmission line.



"Potable Water Facilities" means all facilities required for the production, treatment, storage, transmission, distribution and delivery of potable water.

"Potable Water Distribution Facilities" means those pipes, fire hydrants, valves, fittings, service connections and appurtenances, sized in accordance with County engineering standards, used to convey potable water from a transmission system to a customer.

"Rate Resolution" means a resolution, approved at a properly advertised public hearing, and amended from time to time by the Board of County Commissioners, that authorizes the fees and charges that support the general administration, operation and maintenance of the County Utility facilities, and that enables the County to provide potable water, wastewater and reclaimed water services to its customers.

"Reclaimed Water" means domestic wastewater that has received at least the required levels of treatment defined by the FDEP, and is then stored, pumped and distributed to customers for use in a beneficial manner as an alternative to potable water.

"Reclaimed Water Facilities" means all facilities required for the storage, transmission, and distribution of reclaimed water.

"Reclaimed Water Service Connection" means the reclaimed water connection from a reclaimed water distribution facility to the point of delivery to a Customer. For a residential Customer, this point of delivery is the downstream side of the valve box, meter box or meter installation, generally located at the Customer's property line. For a non-residential Customer, the actual point of delivery may be at a location other than the property line, to be determined by the County Manager in coordination with the Customer.

"Reuse" means the deliberate application of reclaimed water for a beneficial purpose that reduces the use of water of a higher quality.

"Reuse Facilities" means those facilities located downstream of the Reclaimed Water Service Connection for the purpose of practicing reuse.

"Service Area" means the parcel(s) of land, collectively, to which a utility is legally entitled to provide utility services.

"Service Availability" means the result of determining through engineering analysis, cost feasibility and operational feasibility studies, if utility service is available to an Applicant for property that has existing development or is proposed for development.

"Transitional Facilities" means temporary County Utility facilities that are designed to be used until permanent facilities are available to a development. Generally, such facilities are expected to be used for less than 20 years.



"Transitional Wastewater Treatment Plant" means a wastewater treatment facility that is authorized for use in the County Service Area under a Transitional Wastewater Treatment Plant Agreement with the County, and is scheduled to be removed from service when permanent County Utility facilities are available to the development.

"Utility Master Plan" means the County's Utility Master Plan, as amended from time to time by the Board of County Commissioners, that describes County Utility facilities which the County plans to build for up to the next 20 years to provide adequate potable water, wastewater and reclaimed water services to planned development within the County Service Area.

"Violator" means a person or persons who violate any provision of this Ordinance.

"Wastewater" means the liquid and water-carried domestic or industrial wastes from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water, and stormwater that may be present, whether treated or untreated.

"Wastewater Facilities" means all facilities required for the collection, transmission, treatment and disposal of wastewater.

"Wastewater Collection Facilities" means a system of laterals, pipes and manholes used to collect wastewater and convey it to a pumping station or treatment plant.

"Wastewater Service Connection" means that point of discharge from a customer's wastewater line to a wastewater collection facility. For a residential customer, this point of delivery is the point where the customer's wastewater line discharges into the service lateral, and is generally located at the Customer's property line. For a nonresidential customer, the actual point of delivery may be the discharge side of a wastewater pump station and may be at a location other than the property line, to be determined by the County Manager in coordination with the customer.

"Wastewater Service Lateral" means a small pipe, usually 4" or 6" in diameter that is connected to the Customer's wastewater line at the property line and branches from the Customer's property line to the closest wastewater collection line in the public right-of-way thereby providing a point of discharge from the Customer's property into the County's collection facility.

"Wastewater Treatment Plant" means those facilities used to receive, store, and treat wastewater and to dispose of effluent and sludge, including but not limited to, headworks, aerators, digesters, clarifiers, filters, storage tanks, percolation-evaporation ponds, spray irrigation fields and direct discharge pipes.



"Well" means the physical structure, facility or device, at and below the land surface, from or through which groundwater flows or is pumped from subsurface, water-bearing formations.

"Wellfield" means an area containing one or more wells contributing water to a public potable water system as defined in Rule 17-550.200, Florida Administrative Code.



ARTICLE VI

MISCELLANEOUS PROVISIONS

SECTION 6.01. SEVERABILITY. If any article, section, subsection, paragraph, phrase, or word of this Ordinance for any reason is held to be unconstitutional or invalid, such holdings shall not affect the remaining portions hereof and it shall be construed to have the legislative intent to pass this Ordinance without such unconstitutional or invalid part.

SECTION 6.02. EFFECTIVE DATE AND APPLICABILITY. This Ordinance shall take effect on March 25, 2010 or upon filing with the Secretary of State, whichever occurs later. Except as specifically provided otherwise herein, this Ordinance shall supersede all other ordinances of Columbia County to the extent such other ordinances are in conflict herewith.

DULY ADOPTED this 25 day of March, 2010.

BOARD OF COUNTY COMMISSIONERS OF
COLUMBIA COUNTY, FLORIDA

By: _____

Chairman

ATTEST:

P. Dewitt Cason
Clerk of Court

STATE OF FLORIDA COUNTY OF COLUMBIA
I HEREBY CERTIFY that the above and foregoing
is a true copy of the original filed in this office
P. DEWITT CASON, CLERK OF COURTS
by AP Allen
Date 3/31/10



Ordinance No. 2010-6

***Rules for the Provision of Main Extensions for Water,
Wastewater and Reclaimed Water***



ORDINANCE NO. 2010-8

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA; RELATING TO RULES FOR THE PROVISION OF MAIN EXTENSIONS FOR WATER, WASTEWATER AND RECLAIMED WATER SERVICES AND FACILITIES; AUTHORIZING THE IMPOSITION AND COLLECTION OF MAIN EXTENSION PARCEL CONTRIBUTIONS INCLUDING MAIN EXTENSION SPECIAL ASSESSMENTS AGAINST PROPERTY; PROVIDING FOR DEFINITIONS; ESTABLISHING A PROCEDURE FOR IMPOSING MAIN EXTENSION SPECIAL ASSESSMENTS; PROVIDING THAT MAIN EXTENSION SPECIAL ASSESSMENTS CONSTITUTE A LIEN ON ASSESSED PROPERTY UPON ADOPTION OF ASSESSMENT RESOLUTION; PROVIDING THAT THE LIEN FOR A MAIN EXTENSION SPECIAL ASSESSMENT SHALL ATTACH TO THE PROPERTY ON THE DATE OF THE ADOPTION OF AN ASSESSMENT RESOLUTION; PROVIDING THAT A PERFECTED LIEN SHALL BE EQUAL IN RANK AND DIGNITY WITH THE LIENS OF ALL STATE, COUNTY, DISTRICT, OR MUNICIPAL TAXES AND ASSESSMENTS AND SUPERIOR IN DIGNITY TO ALL OTHER PRIOR LIENS, MORTGAGES, TITLES, AND CLAIMS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

BE IT ENACTED BY THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA:

ARTICLE I

INTRODUCTION

SECTION 1. INTENT. It is the intent of the County to establish procedures to facilitate the orderly expansion of the County's water and wastewater systems, including a reclaimed water system, and provide alternatives for funding such expansion by those benefiting thereby. Where there are no existing Mains or other facilities available to provide water, wastewater or reclaimed water service to a Developer's property located within or outside of the County's boundaries, the County



may authorize, pursuant to the provisions of this Ordinance, an extension of a County Main and construction of other facilities as may be necessary to provide service provided that the Developer has first filed an application for service and entered into a Developer's Agreement or Refundable Advance Agreement with the County, as may be required by the County.

SECTION 2. DEFINITIONS. As used in this Ordinance, the following words and terms shall have the following meanings, unless the context clearly otherwise requires:

"Assessable Costs" means the total cost of the Off-Site Facilities assessed to Benefited Parcels, plus costs incurred by the County in the structure, imposition, collection, and enforcement of the Main Extension Special Assessments.

"Assessment Resolution" means the resolution adopted by the County imposing a Main Extension Special Assessment and adopted in conformity with Article IV of this Ordinance.

"Benefited Parcels" means all Tax Parcels that are benefited by the provision of potential utility access from the construction of the Off-Site Facilities as provided in the Refundable Advance Agreement other than Tax Parcels owned by the Developer that is a party to such Agreement.

"Board of County Commissioners" means the Board of County Commissioners of Columbia County, Florida.

"County" shall mean Columbia County, Florida.

"Developer" means any individual, partnership, corporation, owner, subdivider, or any other entity who proposes or undertakes the construction of water, wastewater or



reclaimed water facilities to provide service for any property or properties, area, development or subdivision in which the water, wastewater or reclaimed water facilities are to be extended from, connected to or ultimately become part of the water, wastewater or reclaimed water system of the County.

"Developer's Agreement" means a written agreement setting forth in detail the terms and conditions under which the County will render services to a Developer's property.

"Main" means a water, wastewater, or reclaimed water pipe, conduit or facility which conveys utility service to individual service lines or to other Mains.

"Main Extension Capacity Fee" means a charge other than a Main Extension Special Assessment as may be identified in a Refundable Advance Agreement and calculated in the manner provided in such Agreement or otherwise established by the Board of County Commissioners.

"Main Extension Parcel Contribution" means the prorata share of the cost of the Off-Site Facilities attributable to each Benefited Parcel determined under the method of apportionment adopted by the County or as may be established in the Assessment Resolution or by the method of calculation of the Main Extension Capacity Fee provided in the applicable Developer Agreement or Refundable Advance Agreement.

"Main Extension Special Assessment" means a special assessment levied and imposed by the County on Benefited Parcels to recover Assessable Costs and which may be refunded to a Developer pursuant to a Refundable Advance Agreement.



"Main Extension Special Assessment Area" means those Tax Parcels identified by the County as benefiting from the construction of Off-Site Facilities which permit the County to provide water, wastewater or reclaimed water service to such parcels.

"Off-Site Facilities" means the water transmission and distribution Mains and facilities to be constructed either to provide water service, including reclaimed water service, or to collect wastewater from properties served or to be served by the County and which may be described in a Refundable Advance Agreement, including, but not limited to, (a) wells, storage and pumping facilities and the wastewater collection trunk Mains and facilities; (b) manholes, wastewater force Mains, lift stations, and reclaimed water Mains; and (c) storage and pumping facilities, the purpose of which are either to provide water service, including reclaimed water service, to properties or to collect wastewater received from properties served or to be served by the County.

"On-Site Facilities" means the portion of the water treatment and distribution system, the wastewater collection and treatment system or the reclaimed water system that has been, or is to be, located wholly within the property to which service is to be extended, excluding water service lines located downstream of the County's meter and wastewater collection lines and reclaimed water lines located on individual lots and not conveyed to the County.

"Refundable Advance" means property transferred to the County by a Developer in order to receive water, wastewater or reclaimed water service. The advance is made so that the proposed extension may be rendered economically feasible and so that service may be obtained from the County by the Developer. As



Benefited Parcels connect to the water, wastewater or reclaimed water system, portions of the advance, without interest, may be returned to the Developer over a specified period of time in accordance with a Refundable Advance Agreement. In no event shall a Developer recover an amount greater than the difference between the cost of Off-Site Facilities transferred to the County and the Developer's own proportionate share of such costs, without interest, as determined by the County.

"Refundable Advance Agreement" or "Agreement" means a Developer's Agreement containing a provision by which the County agrees to repay the Developer for a portion of Off-Site Facilities constructed by Developer and transferred to the County in the manner set forth in such agreement. In no event shall a Developer recover an amount greater than the difference between the cost of Off-Site Facilities transferred to the County and the Developer's own proportionate share of such costs, without interest, as determined by the County.

"Tax Parcel" means a parcel of property to which the Property Appraiser has assigned a distinct ad valorem property tax identification number.

"Water Equivalent Residential Connection" or "Water ERC" means (a) 350 gallons per day, (b) the number of gallons the County demonstrates is the average daily flow for a single residential unit, or (c) the number of gallons which has been approved by the Department of Environmental Protection for a single residential unit.

"Wastewater Equivalent Residential Connection" or "Wastewater ERC" means (a) 350 gallons per day, (b) the number of gallons the County demonstrates is the average daily flow for a single residential unit, or (c) the number of gallons which



has been approved by the Department of Environmental Protection for a single residential unit.

SECTION 3. GENERAL FINDINGS. It is hereby ascertained, determined, and declared that:

(A) Pursuant to Article VIII, section 1, Florida Constitution, and sections 125.01 and 125.66, Florida Statutes, the Board has all powers of local self-government to perform county functions and to render county services except when prohibited by law, and such power may be exercised by the enactment of legislation in the form of County ordinances.

(B) The purpose of this Ordinance is to: (1) provide procedures and standards for the imposition of Main Extension Parcel Contributions under the general home rule powers of a county and specifically to authorize the imposition of Main Extension Special Assessments; (2) authorize a procedure for the funding of water, wastewater and reclaimed water services, facilities, or programs providing special benefits to property through Main Extension Parcel Contributions and specifically through Main Extension Special Assessments; and (3) legislatively determine the special benefit provided to Benefited Parcels from the provision of water, wastewater and reclaimed water services by the County.

SECTION 4. LEGISLATIVE DETERMINATIONS OF SPECIAL BENEFIT. It is hereby ascertained and declared that the water, wastewater and reclaimed water services and facilities comprising the Assessable Costs provide a special benefit to property because water, wastewater and reclaimed water services and facilities possess a logical relationship to the use and enjoyment of improved property by: (1)



facilitating the development of property and increasing the use and enjoyment thereof; (2) positively affecting the marketability and market value of the property by the presence of central water treatment and supply, and central sewage collection, treatment and disposal including the provision of reclaimed water services; (3) providing safe and sufficient supplies of water for improved property; (4) properly and safely disposing of sewage generated from improved property; and (5) enhancing improved property through the environmentally responsible use and enjoyment of the property.

ARTICLE II

MAIN EXTENSION RULES

SECTION 5. DECLARATION OF MAIN EXTENSION RULES. Whenever an extension to water, wastewater or reclaimed water Mains is required to provide service to a Developer's property and the Board of County Commissioners makes a determination that the Off-Site Facilities are to be advance funded by the Developer as a condition of development approval, the Main extension shall be constructed by the Developer in accordance with the rules and procedures provided in this Ordinance.

SECTION 6. CONDITIONS FOR APPROVAL OF REFUNDABLE ADVANCE AGREEMENT.

(A) The County shall consider the approval of a Refundable Advance Agreement at the time of the Developer's request for service as a special funding arrangement available within its discretion to defray the cost of any Off-Site Facilities necessary to provide service to the Developer's property under the following circumstances:





(1) the Main extension and other Off-Site Facilities will enable the County to serve properties in addition to the Developer's property;

(2) the County determines that an extension to the Developer's property is economically justified or is appropriate to improve system reliability or efficiency;

(3) the location, size or proposed density of the Developer's property make adequacy of service to such property dependent upon the construction of Off-Site Facilities which will also benefit future customers of the County;

(4) the County believes it is prudent to expedite the installation of Off-Site Facilities based on flows expected from the Developer's property and adjacent properties;

(5) the County has plans for Mains or Off-Site Facilities that are larger than necessary to serve the Developer's property and the County requires that the Off-Site Facilities be oversized to enable service to be provided to such additional territory;
or

(6) such other facts exist which render it fair and reasonable for the County and the Developer to enter a Refundable Advance Agreement within the discretion of the Board of County Commissioners.

(B) *Basis of Refundable Advance.* The amount of the Refundable Advance will be based on the actual cost of the Off-Site Facilities less the Developer's proportionate share of such costs. No interest shall accrue to the Developer on any Refundable Advance at any time.



(C) *Limits on refund.* Notwithstanding any other provisions of this Ordinance, the term of the Refundable Advance Agreement shall be as provided in the Agreement and such term shall not exceed five (5) years, after which time no further refund shall be made to the Developer. Main Extension Special Assessments or Main Extension Capacity Fees which may be collected by the County after expiration of a Refundable Advance Agreement will be retained by the County and such Refundable Advance Agreement will be canceled. In no event shall a Developer recover an amount greater than the difference between the cost of Off-Site Facilities transferred to the County and the Developer's own proportionate share of such costs, as determined by the County. Any Main Extension Special Assessments or Main Extension Capacity Fees collected by the County and not refunded to a Developer pursuant to a Refundable Advance Agreement shall be placed in a separate capital improvement fund and shall be used for the construction, acquisition, addition, extension, renewal and replacement to water, wastewater and reclaimed water facilities of the County, as appropriated from time to time by the Board of County Commissioners, or for such other utility purpose as may be approved by the Commission, provided also that the earnings of the sums placed into such fund also shall be retained in the fund. If funds are collected by the County through a Main Extension Special Assessment, such funds, and earnings thereon, shall be used to construct, acquire, add, extend, renew or replace water, wastewater or reclaimed water facilities providing a benefit to Benefited Parcels or for such other utility purpose as may be approved by the Commission.

SECTION 7. APPLICATION FOR MAIN EXTENSIONS. The Developer shall submit to the County an application for service containing information regarding



the specific Main extension and other On-Site Facilities and Off-Site Facilities to be constructed by the Developer. The application shall include, at a minimum, the following information, if applicable:

(A) A legal description of the property to be served including reference to section, township and range.

(B) A drawing of the property showing its boundaries.

(C) The present zoning classification of the property.

(D) A plat map.

(E) Three sets of a site and utility plan (and floor plan for commercial developments).

(F) The intended land use of the development, including densities and types of use.

(G) The name and address of the person or entity making the application for service.

(H) The nature of the Developer's title to or interest in the described property.

(I) Estimated number of Water Equivalent Residential Connections and Wastewater Equivalent Residential Connections to be served by the proposed Main extension.

(J) The date, or estimated date, that service will be needed.

(K) An identification by maps, engineering drawings, plans or list of projected project elements of the Off-Site Facilities and On-Site Facilities proposed to be constructed by the Developer.



SECTION 8. RULES FOR EXTENDING MAINS TO DEVELOPER. The extension of a Main or construction of other facilities determined by the County to be necessary to provide service shall be constructed by Developer and may be constructed pursuant to the terms and conditions of a Developer Agreement or Refundable Advance Agreement. The Developer shall design, permit, construct, install and pay for the required Main extension and other On-Site and Off-Site Facilities. All Developer Agreements or Refundable Advance Agreements are subject to the approval of the County at the discretion of the Board of County Commissioners and shall be proposed in accordance with the following:

(A) The Developer shall be responsible for the planning, design, permitting, and development of construction drawings needed to serve the proposed development. All designs and construction shall be in accordance with the requirements set forth in the County's Water and Wastewater Technical Manual. By way of further explanation, the Developer will be responsible for the following:

(1) *Design of new facilities.* The Developer will retain the services of a registered professional engineer to prepare all plans and specifications for On-Site Facilities and Off-Site Facilities necessary to connect to the County's system at points designated by the County. The plans and specifications must be reviewed and approved by the County prior to submission to any regulatory agency. The Developer also shall reimburse the County for all costs associated with the performance of these reviews. Main extensions shall be extended across the full property frontage to facilitate future connections and extensions.



(2) **Approvals and permits.** The Developer shall be required to obtain all necessary approvals and permits for construction of the On-Site Facilities and Off-Site Facilities from the appropriate regulatory agencies.

(3) **Construction of facilities.** The Developer will, at its own expense, construct and install all On-Site Facilities and Off-Site Facilities in accordance with the plans and specifications as approved by the County. Additionally, the Developer shall be responsible for certifying to the appropriate regulatory agency that the On-Site Facilities and Off-Site Facilities have been installed and tested in accordance with the plans and specifications prepared by the engineer for Developer and approved by the County.

(4) **Warranty on workmanship.** The Developer shall warrant all On-Site Facilities and Off-Site Facilities against defect in materials and workmanship for a period of one year and 30 days from the date of acceptance of the On-Site Facilities and Off-Site Facilities by the County.

(5) **Inspection of facilities.** The County shall have the right to inspect the construction of all Developer facilities including On-Site Facilities and Off-Site Facilities. Additionally, within sixty (60) days after the completion, certification and conveyance to the County of the On-Site Facilities and Off-Site Facilities, the County may perform an inspection of the On-Site Facilities and Off-Site Facilities to ensure compliance with the plans and specifications previously approved by the County and the County's Water and Wastewater Technical Manual. The Developer shall complete any changes required by the County to achieve such compliance, at the Developer's





cost. The Developer also shall reimburse the County for all costs associated with the performance of these inspections.

(6) *Conditions precedent to acceptance of title.* Prior to a letter of acceptance of title to the On-Site Facilities and Off-Site Facilities being issued by the County, and before the County shall accept the responsibility for operation and maintenance of the On-Site Facilities and Off-Site Facilities, the Developer shall provide, without charge to the County, the following information:

(a) **Cost Report** - which shall detail, as provided for under **Generally Accepted Accounting Principles** as pronounced by the **Governmental Accounting Standards Board**, all costs incurred in the construction of the **On-Site Facilities and Off-Site Facilities**, including engineering, inspection, and administrative costs and which specifically shall include, but not be limited to, a breakdown of costs by pipe size and utility service, indicating pipe size, pipe type, installed footage and cost;

(b) **"As-Built-Plans"** - such plans shall be signed and sealed by a professional engineer (three signed paper copies), provided in electronic format using the latest version of AutoCad then available as well as a copy on 24"x36" Mylar, must show precise location of all lines and appurtenances tied to 1988 state plane coordinates and be consistent with the **As-Built requirements** set forth in the County's **Water and Wastewater Technical Manual**;

- (c) **Easements** - as required;
- (d) **Contractor's waiver and release of lien**;
- (e) **Contractor's letter of warranty or Developer's contract bond**;
- (f) **Bill of Sale**; and



(g) All required fees and charges.

(7) Conveyance of title. Developer shall convey title to the On-Site Facilities and Off-Site Facilities to the County immediately upon issuance of the County's letter of acceptance of such facilities.

ARTICLE III

COLLECTION OF A CHARGE, FEE OR SPECIAL ASSESSMENT FROM BENEFITED PARCELS

SECTION 9. MAIN EXTENSION CHARGE, FEE OR SPECIAL ASSESSMENT. In areas where Off-Site Facilities are installed, the County shall have the right and power to charge Benefited Parcels a Main Extension Special Assessment or a Main Extension Capacity Fee as a condition to the issuance of a building permit as provided in Sections 12 or 13 of this Ordinance, whichever section is applicable. The Main Extension Special Assessment or the Main Extension Capacity Fee shall be in addition to any other fee or charge collected by the County. Upon collection, the Main Extension Special Assessment or the Main Extension Capacity Fee shall be disbursed in the manner provided in the Developer Agreement or Refundable Advance Agreement.

ARTICLE IV

IMPOSITION AND COLLECTION OF MAIN EXTENSION SPECIAL ASSESSMENT OR MAIN EXTENSION CAPACITY FEE

SECTION 10. SPECIAL ASSESSMENT OPTION. At the option of the County, the mechanism to provide payment of a Main Extension Parcel Contribution



imposed against Benefited Parcels may be the imposition of a Main Extension Special Assessment. The election of such assessment collection option shall be documented by the adoption by the County of an Assessment Resolution providing: (1) a description of the Main Extension Special Assessment Area by a listing or enumeration of the Tax Parcels found to be benefited by the On-Site Facilities; (2) a description of the Off-Site Facilities to be constructed and the Assessable Costs of such facilities; (3) a reference to the applicable Refundable Advance Agreement, if any; (4) the method of apportionment of the Assessable Costs among the Benefited Parcels within each Main Extension Special Assessment Area which method of apportionment may include: (a) a division of the area of a Benefited Parcel by the total area of all Benefited Parcels within the Main Extension Special Assessment Area and multiplying the product by the Assessable Costs; (b) a division of the projected Water or Wastewater ERCs projected for each Benefited Parcel by the total Water or Wastewater ERCs to be served by the proposed Main extension and multiplying the product by the Assessable Costs; or (c) any other method of apportionment approved by the County, (5) approval of a Main Extension Special Assessment Roll containing: (a) a listing of all Benefited Parcels to be assessed a Main Extension Special Assessment within each Main Extension Special Assessment Area; and (b) the amount of the Main Extension Special Assessment imposed against each Benefited Parcel; and (6) approval of the form of the final Main Extension Assessment Notice to be recorded in the official records of the County, which notice form shall contain: (a) a legal description of the Benefited Parcel included on the Main Extension Special Assessment Roll and the tax identification number contained and assigned in the real property assessment roll maintained by the County Property



Appraiser; (b) the amount of the Main Extension Special Assessment imposed against each Benefited Parcel; (c) a reference to the applicable Assessment Resolution; (d) a reference to the applicable Refundable Advance Agreement, if any; and (e) a statement that the payment of the Main Extension Special Assessment is a condition to the platting of property, issuance of a building permit requiring connection to the utility system or the date of actual connection to the County's utility system, whichever event occurs first.

SECTION 11. NOTICE OF ADOPTION OF THE ASSESSMENT RESOLUTION. The Assessment Resolution imposing a Main Extension Special Assessment as a method of collection of a Main Extension Parcel Contribution shall be adopted at a public hearing. At least twenty (20) days prior to the public hearing, a notice of the time, date and place of the public hearing shall be published and the notice shall generally describe the Off-Site Facilities to be constructed, the estimated Assessable Costs and a geographic description of the Main Extension Special Assessment Area. In lieu of the publication of such notice, an individual notice of the public hearing to be held to adopt the Assessment Resolution may be provided by first class United States mail to the owner of each Benefited Parcel as reflected on the real property assessment roll maintained by the County Property Appraiser, which notice shall contain the information required to be included in the Main Extension Assessment Notice as set forth in Section 10 of this Ordinance.

SECTION 12. PAYMENT OF MAIN EXTENSION SPECIAL ASSESSMENT AS A CONDITION OF THE PLATTING OF PROPERTY, THE ISSUANCE OF A BUILDING PERMIT OR CONNECTION TO THE COUNTY'S





WASTEWATER FACILITIES. Payment of the Main Extension Special Assessment imposed against any Benefited Parcel shall be a condition to the platting of property, the issuance of a building permit requiring connection of the Benefited Parcel to the County's utility system or the date of actual connection to the County's utility system, whichever event occurs first.

SECTION 13. PAYMENT OF MAIN EXTENSION CAPACITY FEE OR FEE AS A CONDITION OF THE ISSUANCE OF A BUILDING PERMIT. In the event the payment of a Main Extension Capacity Fee or other fee is selected by the County as the mechanism for payment by Benefited Parcels of a Main Extension Parcel Contribution, prorated share of the cost of Off-Site Facilities, payment of such Main Extension Capacity Fee shall be a condition to the platting of property, the issuance of a building permit requiring connection of the Benefited Parcel to the County's utility system or the date of actual connection to the County utility system, whichever event occurs first.

SECTION 14. ALLOCATION OF MAIN EXTENSION SPECIAL ASSESSMENTS UPON SUBDIVISION.

(A) In the event any Benefited Parcel that is subject to a Main Extension Special Assessment is subsequently subdivided, the Main Extension Special Assessment shall be reallocated among the subdivision parcels upon application of the owner of the Benefited Parcel to the County requesting the reallocation which application shall contain the following: (1) a recorded plat, approved site plan or comparable document sufficient in detail to describe adequately the location of the original Benefited Parcel and the new individual parcels within the Benefited Parcel and



the acreage of each parcel in the proposed subdivision and (2) proof that the County Property Appraiser has assigned distinct ad valorem property tax identification numbers to each individual subdivided parcel or committed in writing to assign such numbers prior to the next ensuing August 1 or any later date approved by the County.

(B) Upon such application, the County by resolution shall take all necessary steps to reallocate the Main Extension Special Assessment to each subdivided Tax Parcel within the original Benefited Parcel following the same allocation method used in the Initial Assessment Resolution and, as nearly as practicable, the provisions for notice, recording of notice and other provisions of this Ordinance as may apply to Main Extension Special Assessments.

SECTION 15. LIEN OF MAIN EXTENSION SPECIAL ASSESSMENTS.

All Main Extension Special Assessments shall constitute a lien against Benefited Parcels equal in rank and dignity with the liens of all state, county, district, or municipal taxes and special assessments. Except as otherwise provided by law, such lien shall be superior in dignity to all other prior liens, mortgages, titles, and claims, until paid. The lien for a Main Extension Special Assessment shall be deemed perfected upon the Commission's adoption of the Assessment Resolution. The lien for a Main Extension Special Assessment shall attach to the Benefited Parcel on the date of adoption of the Assessment Resolution.

SECTION 16. REVISIONS TO MAIN EXTENSION SPECIAL ASSESSMENTS. If any Main Extension Special Assessment made under the provisions of this Ordinance is either in whole or in part annulled, vacated, or set aside by the judgment of any court, or if the Commission is satisfied that any such Main



Extension Special Assessment is so irregular or defective that the same cannot be enforced or collected, or if the Commission has failed to include or omitted any Benefited Parcel which property should have been included in the Main Extension Special Assessment Area, or if circumstances change concerning a Benefited Parcel such that the Main Extension Parcel Contribution of a Benefited Parcel should be changed, the Commission may take all necessary steps to impose a new Main Extension Special Assessment against such Benefited Parcel, following as nearly as may be practicable, the provisions of this Ordinance and in case such second Main Extension Special Assessment is annulled, vacated, or set aside, the Commission may obtain and impose other Main Extension Special Assessments until a valid Main Extension Special Assessment is imposed.

SECTION 17. PROCEDURAL IRREGULARITIES. Any informality or irregularity in the proceedings in connection with the levy of any Main Extension Special Assessment under the provisions of this Ordinance shall not affect the validity of the same after the approval thereof, and any Main Extension Special Assessment as finally approved shall be competent and sufficient evidence that such Main Extension Special Assessment was duly levied, that the Main Extension Special Assessment was duly made and adopted, and that all other proceedings adequate to such Main Extension Special Assessment were duly had, taken, and performed as required by this Ordinance; and no variance from the directions hereunder shall be held material unless it be clearly shown that the party objecting was materially injured thereby.

SECTION 18. CORRECTION OF ERRORS AND OMISSIONS. When it appears that any Main Extension Special Assessment should have been imposed under



this Ordinance against a parcel of property specially benefited by the provision of water, wastewater or reclaimed water services, facilities, or programs, but that such property was omitted from the Assessment Resolution; or such property was erroneously assessed; or was not listed on the Tax Roll as an individual parcel of property as of the effective date of the Assessment Resolution, the Commission may, upon provision of a notice by mail provided to the Owner of the omitted or erroneously assessed parcel, impose the applicable Main Extension Special Assessment.

ARTICLE V

GENERAL PROVISIONS

SECTION 19. SEVERABILITY. The provisions of this Ordinance are severable; and if any section, subsection, sentence, clause or provision is held invalid by any court of competent jurisdiction, the remaining provisions of this Ordinance shall not be affected thereby.

SECTION 20. DEVELOPER OBLIGATIONS. Nothing contained in this Ordinance shall affect or alter the obligations of a Developer to construct and convey to the County any On-Site Facilities as a condition of development approval in such manner as may be required by applicable County ordinances, policies or rules including, but not limited to, the County's Water and Wastewater Technical Manual.

SECTION 21. EFFECTIVE DATE AND APPLICABILITY. This Ordinance shall take effect on July 20, ____, 2010, or upon filing with the Secretary of State, whichever occurs later. Except as specifically provided otherwise herein, this





Ordinance shall supersede all other ordinances of Columbia County to the extent such other ordinances are in conflict herewith.

DULY ADOPTED THIS 20th DAY OF July, 2010.

**BOARD OF COUNTY COMMISSIONERS
OF COLUMBIA COUNTY, FLORIDA**



Ronald W. Williams
Chair

ATTEST:

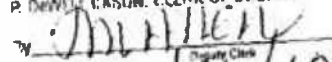

Clerk

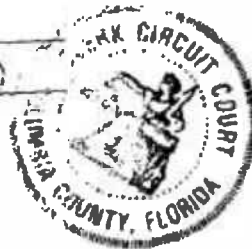
Approved as to form and correctness:


Marin M. Feagle
County Attorney

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STATE OF FLORIDA, COUNTY OF COLUMBIA
I HEREBY CERTIFY that the above and foregoing
is a true copy of the original filed in this office.
P. DENNIS CARSON, CLERK OF COURTS

By 
Date 7/24/10



ORDINANCE NO. 2010-13

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA IMPLEMENTING AN OIL AND GREASE MANAGEMENT AND PREVENTION PROGRAM INCLUDING PROVISIONS FOR ADMINISTRATIVE PROCEDURES, ENFORCEMENT, PENALTIES AND INJUNCTIVE RELIEF; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE AND APPLICABILITY.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA, AS FOLLOWS:

**ARTICLE I
OIL AND GREASE MANAGEMENT PROGRAM**

SECTION 1.1. PURPOSE AND INTENT. The purpose of this Ordinance is for implementation of an Oil and Grease Management Program which shall be referred to as the "County Oil and Grease Management Program". The objective of the County Oil and Grease Management Program is to minimize the introduction of fat-soluble wastes to the County wastewater collection and treatment system and to provide enforcement procedures and cost recovery charges from users receiving and treating abnormally high-strength compatible wastes, such as carbonatious biochemical oxygen demand (CBOD) and total suspended solids (TSS).

SECTION 1.2. DEFINITIONS.

"Backflush" means the act of returning previously removed material to a grease interceptor or trap.

"Baffles" means the interior walls of a grease interceptor or trap that slows the flow of water.

"BOD" or "BIOCHEMICAL OXYGEN DEMAND" means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five days at 20 degrees Celsius, expressed in terms of weight and concentration (milligrams per liter).

"CBOD" means Carbonatious Biochemical Oxygen Demand.

"Decanting" means the act of returning water to a grease interceptor or trap that has been separated from the waste removed from a grease interceptor or trap.



"Emulsions" means a mixture of two immiscible (unblendable) substances. One substance (the dispersed phase) is dispersed in the other (the continuous phase). Examples of emulsions include butter and margarine, milk and cream, espresso, mayonnaise, etc.

"OGMP" means the Oil and Grease Management Program.

"POTW" means the Publicly Owned Treatment Works of the Columbia County Wastewater Treatment Plant.

"Sludge" means settled material found on the bottom of a grease interceptor or trap.

"TSS" or "Total Suspended Solids" means all solids that either float on the surface or are in suspension in water, sewage, wastewater or other liquids and which are removable by laboratory filtering.

"User" means any nonresidential establishment that prepares, processes or serves food or food products and any nonresidential establishment that has the potential to discharge wastes containing residual petroleum based oil and grease and shall include owners of multifamily dwellings, such as triplexes, quadruplexes, townhouses, condominiums, apartment buildings and apartment complexes.

"Wastewater" means any water that has been adversely affected in quality. It comprises liquid waste discharged by domestic residences, commercial properties, industry, and/or agriculture and can encompass a wide range of potential contaminants and concentrations.

ARTICLE 2 OIL AND GREASE PREVENTION PROGRAM

SECTION 2.01. GENERAL CRITERIA.

(A) The discharge by a user to the publicly owned treatment works (POTW) of certain liquids or wastes may be prohibited or limited by the provisions of this Ordinance.

(B) Wastes, which contain oil and grease, may be discharged to the POTW in accordance with the conditions set forth in this Ordinance.

(C) Wastes containing oil and grease, including materials processed through garbage grinders shall be directed to the grease interceptor or trap.

(D) Wastes containing residual (trace amounts) petroleum based oil and grease shall be directed to the oil/water separator.

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(E) Sanitary facilities and other similar fixtures shall not be connected or discharged to the oil and grease interceptor or the oil/water separator.

(F) Liquid wastes shall be discharged to the oil and grease interceptor or oil/water separator through the inlet pipe only and in accordance with the design/operating specifications of the device.

(G) Oil and grease interceptors and oil/water separators shall be installed in a location that provides easy access at all times for inspections, cleaning and proper maintenance, including pumping. Oil and grease interceptors shall not be located in or near any part of a structure where food handling is done. The County shall approve the location of the oil and grease interceptor or oil/water separator prior to installation.

(H) Nonresidential establishments (users) that prepare process or serve food or food products shall have an approved oil and grease interceptor. Nonresidential establishments that have the potential to discharge wastes containing residual petroleum based oil and grease, such as commercial laundries, car washes and automotive related facilities, shall have an approved oil/water separator. Other users may be required by the County to install an approved oil and grease interceptor or an oil/water separator, as appropriate, for the proper handling of wastes containing oil and grease exceeding one hundred (100) mg/l by weight.

(I) Other types of food manufacturing or food preparation enterprises, such as, but not limited to, commissaries, commercial kitchens and caterers shall install an oil and grease interceptor. Oil and grease interceptors shall be sized on an individual case by case basis. A control manhole or inspection box for monitoring purposes shall be required and installed at the owner/operator's sole expense, as approved by the County.

(J) Multifamily dwellings; such as triplexes, quadraplexes, townhouses, condominiums, apartment buildings, apartment complexes or areas of intensified dwelling which are found by the County to be contributing oil and grease in quantities sufficient to cause main line stoppages, lift station malfunctions, or necessitate increase maintenance on the collection system, said user(s) shall be directed to implement an onsite education program for the tenants of said structures. Cease discharging oil and grease to the POTW and/or shall be required to install a grease and oil interceptor. The capacity of the oil and grease interceptor shall be evaluated on a case by case basis. A control manhole or inspection box for monitoring purposes shall be required and installed at the owner/operator's sole expense, as approved by the County.

(K) Automotive related enterprises, commercial laundries, Laundromats, and other users, which contribute wastes containing petroleum (hydrocarbon) based oils and greases shall install an oil/water separator. Oil/water separators shall be sized on an individual case by case basis using established design guidelines for the proposed facility. A control manhole or inspection box shall be installed downstream.



(L) Oil and grease interceptors and oil/water separators shall be installed solely at the user's expense. Proper operation, maintenance, and repair shall be done solely at the user's expense.

(M) Minimum removal efficiency for oil and grease interceptors for animal fats and vegetable oils shall be eighty percent (80%). Minimum removal efficiency for oil/water separators for trace petroleum based wastes shall be ninety percent (90%).

(N) The County may request that the non-residential user provide documentation on the design and performance of the oil and grease interceptor or oil/water separator. Information to be submitted includes, but may not be limited to, catalog cuts, performance data, materials of construction, installation instructions and operation and maintenance manual.

(O) The County may assign a nonresidential user to the Surcharge Program.

SECTION 2.02. DESIGN.

(A) Oil and grease interceptors and oil/water separators shall be designed and constructed in accordance with this Ordinance, the County's "Columbia County Water and Wastewater Technical Manual", latest edition, and other applicable State and local regulations. The County shall approve design and construction

(B) The design of oil/water separators shall be based on peak flow and where applicable, capable of treating and removing emulsions. Oil/water separators shall be sized to allow efficient removal (retention) of the petroleum-based oils and grease from the user's discharge to the POTW.

(C) Alternative oil and grease removal devices or technologies shall be subject to written approval by the County and shall be based on demonstrated (proven) removal efficiencies. Under-the-sink oil and grease interceptors are prohibited for new facilities.

(D) An adequate number of inspection and monitoring points, such as a control manhole or inspection box, shall be provided.

SECTION 2.03. CAPACITY. The capacity of the approved oil and grease interceptor and oil/water separator shall be in accordance with the requirements set forth in the latest edition of the "Columbia County Water and Wastewater Technical Manual". The County may modify the requirements on a case by case basis.



SECTION 2.04. INSTALLATION.

(A) **New Facilities.** On or after the effective date of this Ordinance, facilities having the potential to discharge oil and grease, which are newly proposed or constructed, or existing facilities which shall be expanded or renovated to include a food service facility where such facilities did not previously exist, shall be required to install an approved, properly operated and maintained oil and grease interceptor or oil/water separator. Sizing calculations shall be in accordance to the formulas listed in the County's Columbia County Water and Wastewater Technical Manual, latest edition. Oil and grease interceptors or oil/water separators shall be installed prior to the opening or reopening of said facilities.

(B) **Existing Facilities.**

1. On or after the effective date of this Ordinance, existing food service or automotive related facilities shall be required to install an approved, properly operated and maintained oil and grease interceptor or oil/water separator when any of the following conditions exist:

(a) The facilities are found by the County to be contributing oils and grease in quantities sufficient to cause line stoppages or necessitate increased maintenance on the collection system.

(b) Remodeling of the food preparation or kitchen waste plumbing facilities that are subject to a permit that is issued by the Building Department.

(c) Remodeling of an automotive related enterprise, commercial laundry or other users that potentially may contribute wastes with petroleum based oils and greases.

2. The County shall determine the compliance date under this Subsection.

SECTION 2.05. EXTENSIONS. Any requests for extensions to the required installation dates must be made in writing to the County, at least fifteen (15) days in advance of the compliance date. The written request shall include the reasons for the user's failure or inability to comply with the compliance date set forth, the additional time needed to complete the remaining work, and the steps to be taken to avoid future delays.

SECTION 2.06. MAINTENANCE.

(A) The user shall perform cleaning and maintenance. Cleaning shall include the complete removal of all contents, including floating materials, wastewater, and bottom sludge and solids.



(B) Decanting, backflushing or discharging of removed wastes back into the oil and grease interceptor or oil/water separator from which the waste was removed or any other oil and grease interceptor or oil/water separator, for the purpose of reducing the volume to be hauled and disposed is prohibited.

(C) Oil and grease interceptors and oil/water separators shall be pumped out completely at a minimum frequency of once every ninety (90) days, or more frequently as needed to prevent carry over of oil and grease into the collection system. Under the sink oil and grease traps shall be cleaned at a minimum frequency of once per week, or more often as necessary to prevent pass through of grease and other food solids to the collection system. Cleaning and maintenance shall include removal of materials from the tank walls, baffles, cross pipes, inlets and outlets.

(D) Pumping frequency shall be determined by the County based on flows, quantity of oil and grease in the discharge, volume of business, hours of operations and seasonal variations. In no case shall the pumping frequency exceed ninety (90) days. The user shall be responsible for maintaining the oil and grease interceptor or oil/water separator in such a condition for efficient operation. An interceptor shall be considered to be out of compliance if the grease layer on top exceeds six (6) inches and the solids layer on the bottom exceeds twelve (12) inches or if removal efficiencies as determined through sampling and analysis indicate less than eighty percent (80%) .

(E) Wastes removed from each oil and grease interceptor or oil/water separator shall be disposed at a permitted facility to receive such wastes or a location designated by the County for such purposes, in accordance with the provisions of this Ordinance. In no way shall the pumpage be returned to any private or public portion of the collection system or the treatment plants.

(F) Additives placed into the oil and grease interceptor, oil/water separator or building discharge line system on a constant, regular or scheduled basis shall be reported to the County in writing at least five (5) days prior to use. Such additives shall include, but not be limited to, emulsifiers, enzymes, commercially available bacteria, or other additives designed to absorb, purge, consume, treat, or otherwise eliminate grease and oils. The County prior to introduction into the waste stream, interceptor, or separator shall approve any use of additives in writing. The use of additives in no way shall be considered, as a substitution to the maintenance procedures required herein.

(G) Flushing the oil and grease interceptor or oil/water separator with water having a temperature in excess of 140° F shall be strictly prohibited.

(H) All maintenance of oil and grease management devices, including proper disposal, shall be performed by the user at the user's sole expense.





SECTION 2.07. USER IDENTIFICATION.

(A) It is unlawful for any facility producing oil and grease waste to discharge into the County's collection system without authorization from the County. Authorization shall be given in the form of an oil and grease discharge certificate. Application for a certificate shall be made to the County. If, after examining the information contained in the oil and grease registration certificate application, it is determined by the County that the proposed facility does not conflict with the provisions of the Ordinance, a certificate shall be issued allowing the discharge of such wastes into the collection system. Each oil and grease registration certificate shall be issued for a time not longer than five years from the date of the certificate. The user shall apply for certificate re-issuance a minimum of sixty (60) days prior to the expiration of the user's existing certificate. The terms and conditions of the certificate may be subject to modification by the County during the term of the certificate as limitations or requirements as identified in this Ordinance are modified or other just causes exist. The user shall be informed of any proposed changes in the issued certificate at least sixty days prior to the effective date of the change(s). Any changes or new conditions in the certificate shall include a reasonable schedule for compliance.

(B) As a condition precedent to the granting of an oil and grease registration certificate, the recipient under this section shall agree to hold harmless the County and the County's employees from any liabilities arising from the user's operations under this certificate.

(C) The County shall establish a schedule of charges for issuance and renewal of the oil and grease registration certificates. The charges shall be established to insure full cost recovery in the enforcement of this ordinance, and shall include, but shall not be limited to, the cost of field, administrative, engineering and clerical expenses involved. The schedule of charges shall be on file at the Office of the County Manager or his designee and shall be available to the public.

SECTION 2.08. ADMINISTRATIVE PROCEDURES.

(A) A manifest that confirms pumping, hauling, and disposal of waste shall be kept by user to track pumpage from oil and grease interceptors and oil/water separators. This manifest shall contain the following information:

1. Generator information:
 - Name
 - Contact Person
 - Address
 - Telephone Number
 - Volume Pumped
 - Date and Time of pumping



- Name and Signature of generator verifying generator information.
2. Transporter information:
- Company Name
 - Address
 - Telephone Number
 - Volume Pumped
 - Date and Time of pumping
 - Driver Name and Signature of transporter verifying transporter information and service
 - Destination Information Disposal Site or Facility:
 - Company Name | Permit Number(s)
 - Contact Person(s)
 - Address
 - Telephone Number
 - Location of Disposal Site/Facility
 - Volume Treated
 - Date and Time of Delivery
 - Driver Name, Signature and Vehicle No.
 - Name and Signature of operator verifying disposal site and facility information.

(B) The user shall maintain a log of pumping activities for the previous twelve (12) months. The user shall post the log of pumping activities in a conspicuous location for immediate access. The log shall include the date, time, volume pumped, hauler's name and license number and hauler's signature. The user shall report pumping activities within forty-eight (48) hours to the County on the form so designated by the County for such purposes.

(C) The user shall maintain a file on site of the records and other documents pertaining to the facility's oil and grease interceptor or oil/water separator. The file contents shall include, but is not limited to, the record (as-built) drawings, record of inspections, log of pumping activities and receipts, log of maintenance activities, hauler information, disposal information and monitoring data. The file shall be available at all times for inspection and review by the County.

(D) The County may require the user to provide, operate and maintain at the user's expense, appropriate monitoring facilities, such as a control manhole, that are safe and accessible at all times, for observation, inspection, sample collection and flow measurement of the user's discharge to the POTW. The County may impose additional limitations and monitoring requirements for the discharge to the POTW in accordance with the provisions set forth in this Ordinance.



SECTION 2.09. ENFORCEMENT.

(A) A Notice of Violation shall be issued to a user for failure to:

1. Report pumping activities;
2. Properly maintain (clean-out or pump) the interceptor or separator in accordance with the provisions of the oil and grease discharge certificate;
3. Maintain and post the log of pumping activities;
4. Maintain a file of records on site at all times;
5. Provide logs, files, records, or access for inspection or monitoring activities;
6. Obtain or renew the oil and grease discharge certificate registration; or
7. Pay program fees.

(B) The County may serve any user a written notice stating the nature of violation. The user shall have seventy-two (72) hours to complete corrective action and submit evidence of compliance to the County.

(C) If a user violates or continues to violate the provisions set forth in this section or fails to initiate/complete corrective action within the specified time period in response to a Notice of Violation, then the County may pursue one or more of the following options:

1. Pump the oil and grease interceptor or oil/water separator and place the appropriate charge on the user's monthly sewer bill;
2. Collect a sample and assess the appropriate surcharge (2) for compatible wastes in accordance with the provisions of this Ordinance;
3. Impose an administrative penalty;
4. Assess a reasonable fee for additional inspection, sample collection and laboratory analyses;
5. Revoke the County occupational license;
6. Terminate water and sewer service; or



7. Any combination of the above enforcement actions.

(D) Progressive enforcement action shall be pursued against users with multiple violations of the provisions of this section including, but not limited to, termination of water service.

(E) The user shall pay all outstanding fees, penalties, and other utility charges prior to reinstatement of water and sewer service.

(F) Any user in the Oil and Grease Management Program found in violation of the provisions in this Ordinance, and any orders, rules, regulations and permits that are issued pursuant to this Ordinance, shall be served by the County with written notice by personal delivery by an authorized County employee or by registered or certified mail that states the nature of the violation and providing a reasonable time limit for satisfactory correction of the violation. The affected user shall permanently cease all violations within the time period specified in the notice. The enforcement remedies available to the County to achieve compliance with the requirements of the OGMP shall include those in Ordinance 2010-1 and any Ordinance as may be enacted to address wastewater pretreatment requirements.

(G) The County may assign a non-residential user to the Surcharge Program for noncompliance with the provisions of this Ordinance.

SECTION 2.10. PERMITS. The County shall issue a Certificate of Registration to the users in the OGMP. The County may require users to complete an information questionnaire and facility visit prior to issuance of the registration certificate.

SECTION 2.11. OIL AND GREASE MANAGEMENT Enforcement; COST RECOVERY CHARGES. The County may adopt a schedule of charges as deemed necessary to enforce the requirements and programs in this ordinance. These charges are imposed to recover the costs incurred by the County to implement and enforce the provisions of this ordinance. These fees relate solely to the matters covered by this ordinance and are separate from all other fees, fines, and penalties assessed by the County.

SECTION 2.12. INJUNCTIVE RELIEF. When the County Manager finds that a user has violated, or continues to violate, any provision of this Ordinance, a wastewater discharge permit, or order issued hereunder, or any other pretreatment standard of requirement, the County Manager may petition the circuit court through the City's attorney for the issuance of a temporary or permanent injunction, as appropriate, which restrains or compels the specific performance of the wastewater discharge permit, order, or other requirement imposed by this Ordinance on activities of the user. The County Manager may also seek such other action as is appropriate for legal and/or equitable relief, including a requirement for the user to conduct environmental



remediation. A petition for injunctive relief shall not be a bar against, or a prerequisite for, taking any other action against a user.

SECTION 2.13. CIVIL PENALTIES.

(A) A user who has violated, or continues to violate, any provision of this Ordinance, a wastewater discharge permit, or order issued hereunder, or any other pretreatment standard or requirement shall be liable to the County for a maximum civil penalty of \$1,000.00 per violation, per day. In the case of a monthly or other long-term average discharge limit, penalties shall accrue for each day during the period of the violation.

(B) The County shall be entitled to recover reasonable attorneys' fees, court costs, and other expenses associated with enforcement activities, including sampling and monitoring expenses, regulatory fines or penalties, and the cost of any actual damages incurred by the County.

(C) In determining the amount of civil liability, the court shall take into account all relevant circumstances, including, but not limited to, the extent of harm caused by the violation, the magnitude and duration of the violation, any economic benefit gained through the user's violation, corrective actions by the user, the compliance history of the user, and any other factor as justice requires.

(D) Filing a suit for civil penalties shall not be a bar against, or a prerequisite for, taking any other action against a user.

SECTION 2.14. REMEDIES NONEXCLUSIVE. The remedies provided for in this article Ordinance are not exclusive. The County Manager or his designee may take any, all, or any combination of these actions against a noncompliant user. Enforcement of pretreatment violations will generally be in accordance with the County's enforcement response plan. However, the County Manager or his designee may take other action against any user when the circumstances warrant. Further, the County Manager or his designee is empowered to take more than one enforcement action against any noncompliant user.





**ARTICLE III
MISCELLANEOUS PROVISIONS**

SECTION 3.01. SEVERABILITY. If any article, section, subsection, paragraph, phrase, or word of this Ordinance for any reason is held to be unconstitutional or invalid, such holdings shall not affect the remaining portions hereof and this Ordinance shall be construed to have the legislative intent to pass this Ordinance without such unconstitutional or invalid part.


SECTION 3.02. EFFECTIVE DATE AND APPLICABILITY. This Ordinance shall take effect upon filing with the Secretary of State. Except as specifically provided otherwise herein, this Ordinance shall supersede all other ordinances of Columbia County to the extent such other ordinances are in conflict herewith.

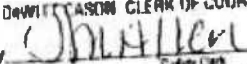
DULY ADOPTED this 20th day of July, 2010.

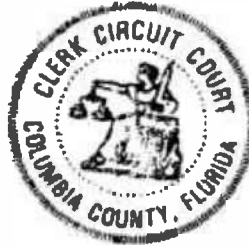
**BOARD OF COUNTY COMMISSIONERS OF
COLUMBIA COUNTY, FLORIDA**

By: 
Chairman

ATTEST:


Clerk of Court

STATE OF FLORIDA, COUNTY OF COLUMBIA
I HEREBY CERTIFY that the above and foregoing
is a true copy of the original filed in this office
DEWITT CASON, CLERK OF COURTS
By: 
DeWitt Cason
7/26/10





Ordinance No. 2010-14 Amendment to Ordinance 2010-2, Article II, Section 2.03



ORDINANCE NO. 2010-14

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA AMENDING ORDINANCE NO. 2010-2 OF COLUMBIA COUNTY AMENDING ARTICLE II, SECTION 2.03 TO PROVIDE THAT THE OWNERS OF LOTS OR PARCELS OF LAND SOLELY WITHIN EXCLUSIVE SERVICE AREAS OF THE COUNTY IDENTIFIED PURSUANT TO ORDINANCE 2010-1 SHALL BE REQUIRED TO CONNECT TO COUNTY WATER AND SEWER SYSTEMS ONLY UPON THE OCCURRENCE OF CERTAIN CIRCUMSTANCES DESIGNATED IN THIS ORDINANCE; PROVIDING FOR DEFINITIONS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE AND APPLICABILITY.

WHEREAS, the County currently is in the process of constructing water and sewer systems, including water transmission and service lines and wastewater collection lines, in the unincorporated area of the County known as the Ellisville area; and

WHEREAS, it is the intent of the County to provide water and wastewater services promptly and efficiently to customers located in areas of the unincorporated County designated now or hereafter as a County "Exclusive Service Area" pursuant to Ordinance No. 2010-1, which Exclusive Service Area currently includes only the Ellisville area; and

WHEREAS, the County adopted Ordinance No. 2010-2 at a duly noticed public meeting on March 25, 2010 which, in part, provides in Article II, Section 2.03 that it shall be mandatory for every owner of a lot or parcel in the Ellisville area, constituting the only County Exclusive Service Area at the time of this amendment, within certain proximities of the County Water System and County Sewer System to connect the plumbing of any building or buildings thereon to such Systems; and

WHEREAS, the Board of County Commissioners desires to amend Article II, Section 2.03 of Ordinance No. 2010-2 to exclude parcels or lots in the County's Exclusive Service Area, currently only the Ellisville area, upon which a residential building or structure exists as of the effective date of this Ordinance from the mandatory connection requirement of Ordinance 2010-2 and to require such mandatory connection only upon the occurrence of certain events expressly identified in this Ordinance.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA, AS FOLLOWS:



ARTICLE I

AMENDMENT TO ORDINANCE 2010-2

SECTION 1.1. AMENDMENT TO ARTICLE II, SECTION 2.03 OF ORDINANCE 2010-2. Article II, Section 2.03 of Ordinance 2010-2 is hereby amended and restated to read in its entirety as follows:

SECTION 2.03. CONNECTIONS WITH WATER AND SEWER SYSTEMS. If the County Water System or County Sewer System is available to a lot or parcel of land in the County's Exclusive Service Area and a residential building or structure located on that property on the effective date of this amending Ordinance is connected to an individual well, then that residential building or structure will be required to be connected to the County Water System only if (a) the well fails, (b) the well becomes contaminated or experiences a dry well condition, (c) a permit is requested from the County, State or other appropriate authority for a replacement well, (d) a change of ownership of the lot or parcel occurs other than by inheritance, or (e) the County otherwise makes a finding that a public health concern exists relating specifically to an identified lot or parcel. If the County Sewer System is available to a lot or parcel of land in the County's Exclusive Service Area, and a residential building or structure located on that property on the effective date of this Amendment is connected to a septic tank system, then that residential building or structure will be required to be connected to the County Sewer System only if (a) the septic tank fails, (b) a permit is requested from the County, State or other appropriate authority for a septic tank or drainfield replacement, (c) a change of ownership of the lot or parcel occurs other than by inheritance, or (d) the County makes a finding that a public health concern exists relating specifically to an identified lot or parcel. If a non-residential building or structure exists on a lot or parcel or if no building or structure is located on a lot or parcel at the time that the County Water System or County Sewer System is available but a building or structure, including a residential building or structure, is built subsequent to the effective date of this Ordinance, such building or structure will be required to be connected to the County Water System and/or County Sewer System and application therefore shall be made to the County by the owner of the lot or parcel before a building permit or other appropriate permit shall be issued by the County. All such connections shall be made in accordance

Page 2 of 4



with the County Water and Wastewater Technical Manual and rules and regulations which shall be adopted from time to time by the Board, which rules and regulations shall provide for a charge for making connections in such reasonable amount as the Board may establish. Nothing herein shall affect liability for service charges as provided in this Ordinance or in other County ordinances. The County shall notify the owner of any affected improved lot or parcel of the availability of the central water and/or sewer service. For purposes of this subsection, "available" water and/or wastewater service shall mean, subject only to a determination by the County that supply, treatment and/or conveyance capacity exists or Connection is otherwise practicable with respect to any Connection, the following:

(A) For proposed residential or commercial subdivisions and for areas zoned or used for an industrial manufacturing purpose or its equivalent, or a single family residence or establishment any of which has an estimated sewage flow of 1,000 gallons per day or more, if the County Water System or County Sewer System is located within 1,320 feet of the development; or

(B) A single-family residence or establishment any of which has an estimated sewage flow of 1,000 gallons per day or less, if the County Water System or County Sewer System is located within 100 feet of a Potential Customer's lot-line.

(C) "Establishment" means any buildings or properties used for human occupancy, employment, recreation or other purposes, subject to the exclusions relating to residential buildings or structures existing on the effective date of this amending Ordinance, as provided in this Section.



ARTICLE II

MISCELLANEOUS PROVISIONS

SECTION 2.1. DEFINITIONS. Terms used in this Ordinance shall have the meaning provided in Section 5.04 of Ordinance 2010-2 unless modified or otherwise stated herein.

SECTION 2.2. SEVERABILITY. If any article, section, subsection, paragraph, phrase, or word of this Ordinance for any reason is held to be unconstitutional or invalid, such holdings shall not affect the remaining portions hereof and this Ordinance shall be construed to have the legislative intent to pass this Ordinance without such unconstitutional or invalid part.

SECTION 2.3. EFFECTIVE DATE AND APPLICABILITY. This Ordinance shall take effect upon filing with the Secretary of State. Except as specifically provided otherwise herein, this Ordinance shall supersede all other ordinances of Columbia County to the extent such other ordinances are in conflict herewith.

DULY ADOPTED this 20th day of July, 2010.

BOARD OF COUNTY COMMISSIONERS OF COLUMBIA COUNTY, FLORIDA

By: [Signature] Chairman

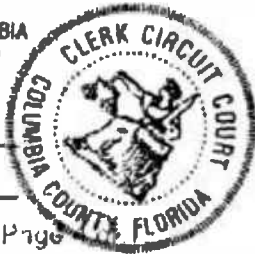
ATTEST:

[Signature] Clerk of Court

F:\General Data\WPDATA\PROJECTS\ColumbiaCounty\09192 - county ordinances\Ordinance Amending Ordinance 2010-2_6-18-10

STATE OF FLORIDA, COUNTY OF COLUMBIA : HEREBY CERTIFY that the above and foregoing is a true copy of the original filed in this office. P. DWIGHT GIBSON, CLERK OF COURTS

[Signature] Clerk of Courts Date 7/26/10



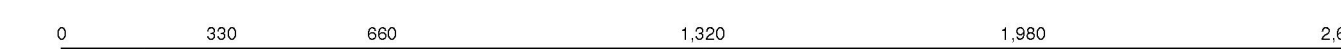
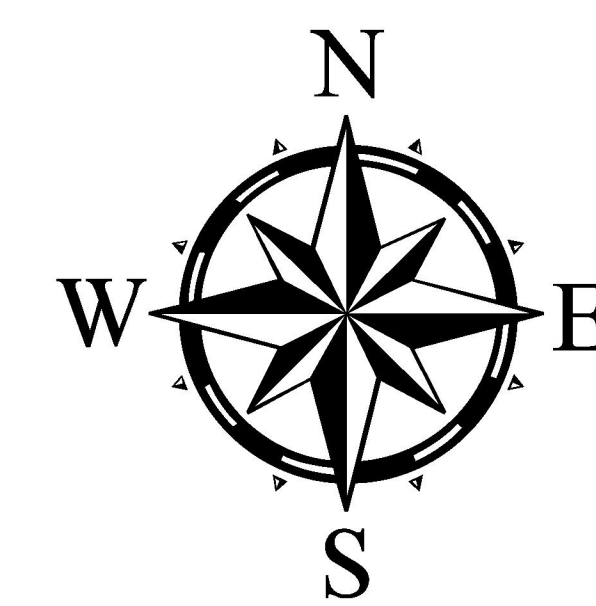


Columbia County Board of County Commissioners

Ellisville Service Area

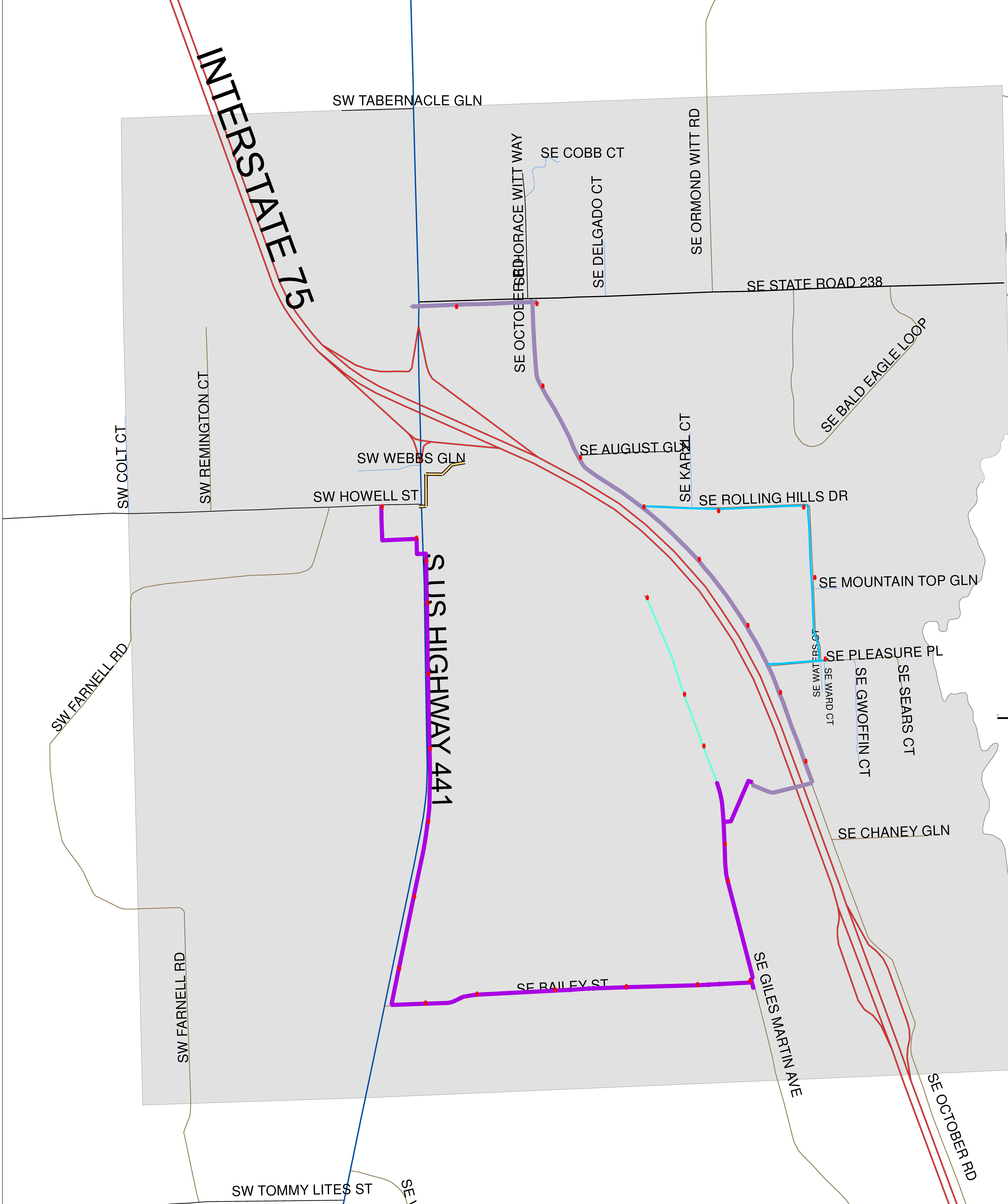
Legend

- Fire Hydrant
- Waterlines
 - Point in line
 - E_North12in PIPELINE
 - E_North6in PIPELINE
 - E_South12in GWP
 - E_South6in GWP
- Sewer Line
- Interstates
- US Highways
- State Roads
- Main County Roads
- Paved County Roads
- Dirt County Roads
- City Of Lake City Roads
- Town of Fort White Roads
- Private Roads
- Other Roads (NFR, Gated, Etc.)
- Ellisville Service Area



Map Produced By: Columbia County 911 Addressing / GIS Department
Columbia County Emergency Management Department
PO Box 1707
Lake City, FL 32056-1707
Map Date: 7 December 2019

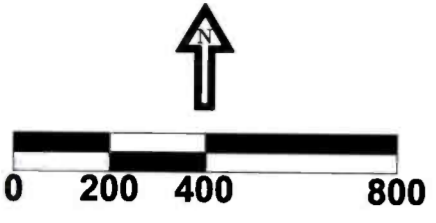
NOTE: This map has been compiled from the most authentic information available and neither Columbia County nor the Columbia County 911 Addressing / GIS Department assume responsibility for errors or omissions.



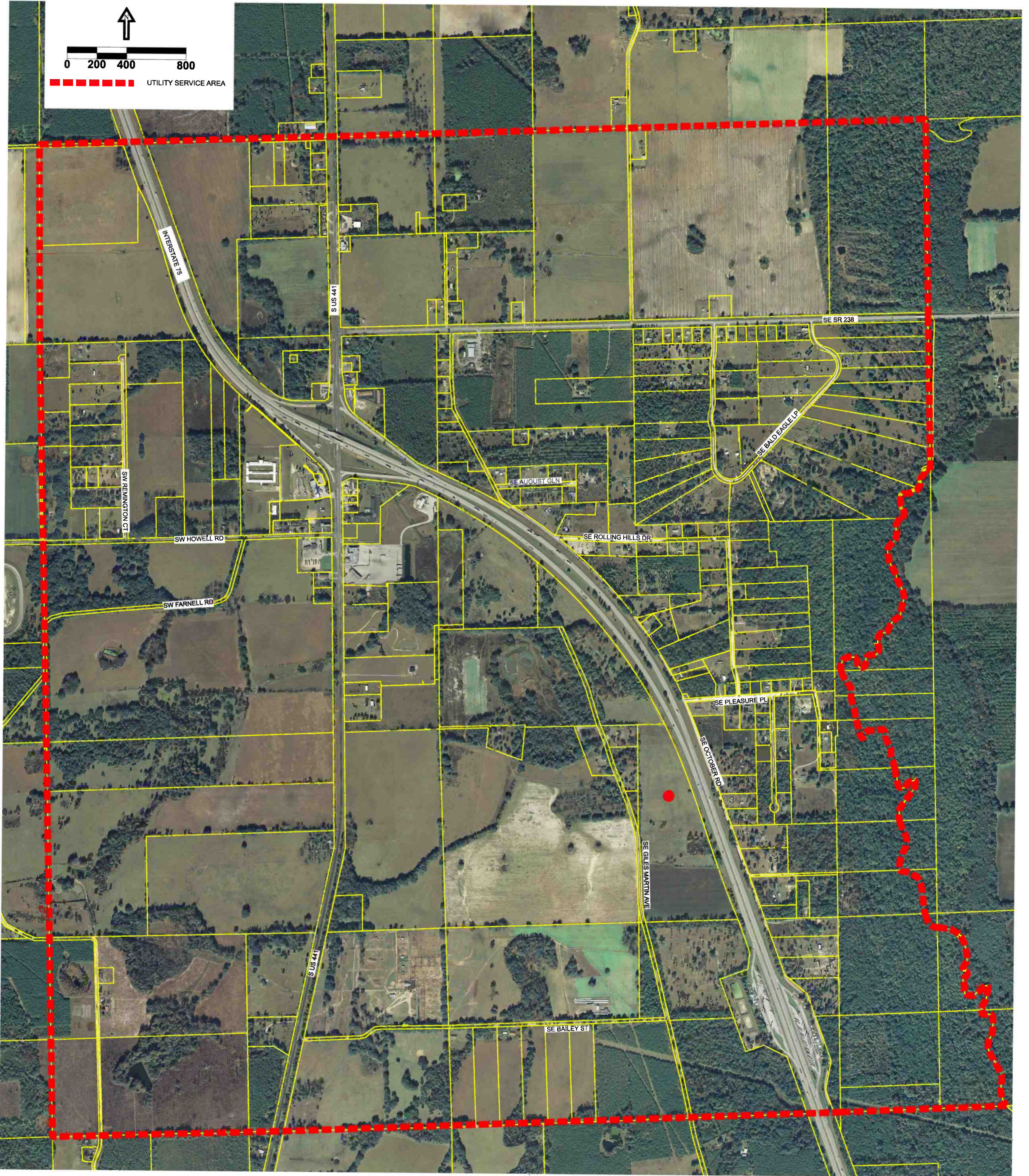
INTERSTATE 75

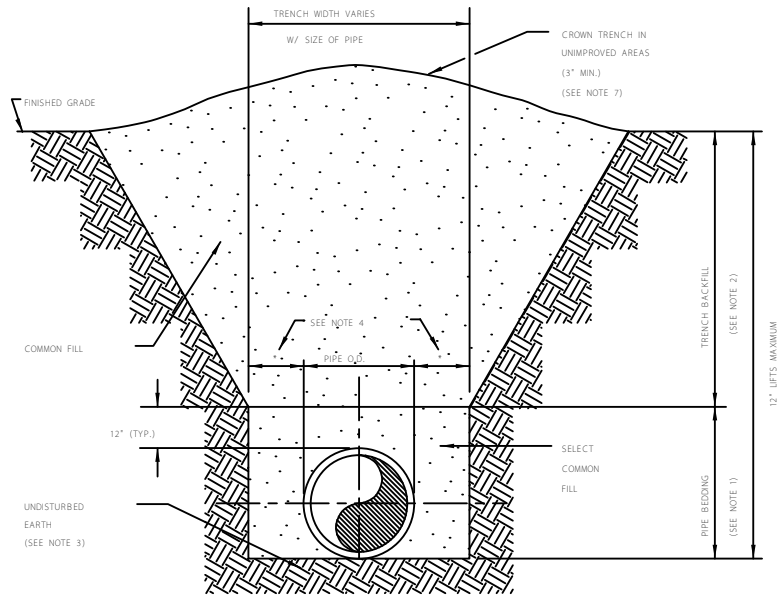
US HIGHWAY 441

SW TABERNACLE GLN
 SE COBB CT
 SE DELGADO CT
 SE ORMOND WITT RD
 SE STATE ROAD 238
 SE OCTOBER RD
 SE BALD EAGLE LOOP
 SE AUGUST GLN
 SE KARYL CT
 SE ROLLING HILLS DR
 SE MOUNTAIN TOP GLN
 SE PLEASURE PL
 SE WARD CT
 SE GWOFFIN CT
 SE SEARS CT
 SE CHANEY GLN
 SE BAILEY ST
 SE GILES MARTIN AVE
 SE OCTOBER RD
 SW COLT CT
 SW REMINGTON CT
 SW WEBBS GLN
 SW HOWELL ST
 SW FARNELL RD
 SW FARNELL RD
 SW TOMMY LITES ST



UTILITY SERVICE AREA





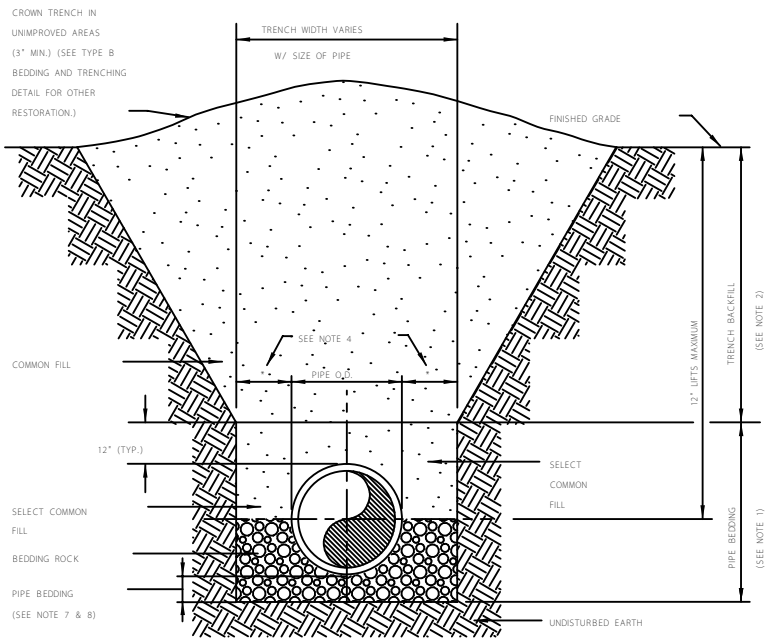
NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE COUNTY.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN THE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH THE APPLICABLE REGULATIONS.

COLUMBIA COUNTY

TYPE B BEDDING
AND TRENCHING DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q100	Fig: 100	



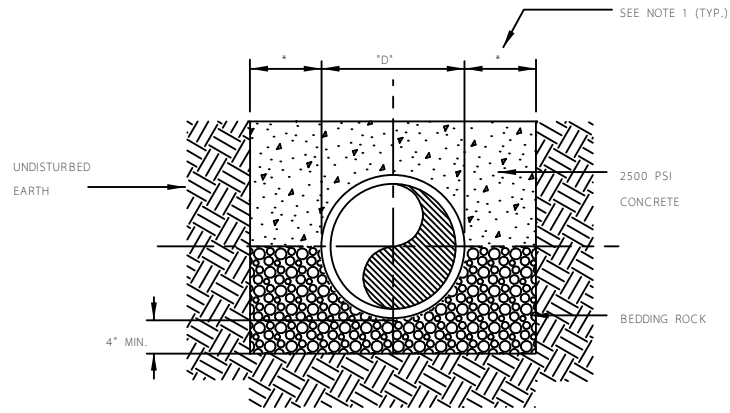
NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. USE TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
7. GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING, IF REQUIRED BY THE COUNTY. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER LESS THAN 15", AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
8. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. APPLICABLE GOVERNING AGENCY SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.

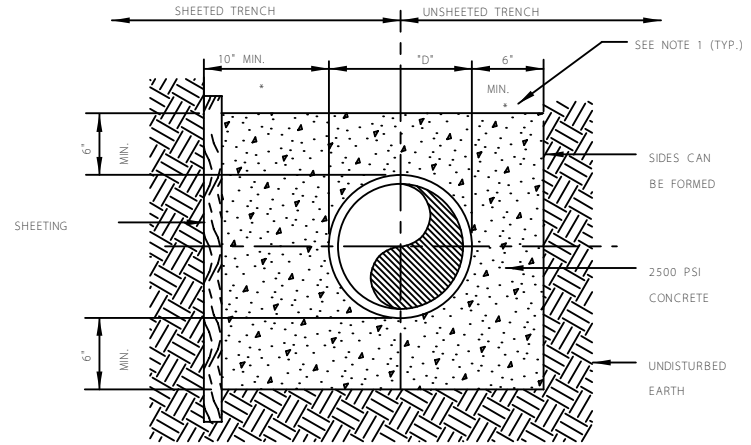
COLUMBIA COUNTY

TYPE A BEDDING
AND TRENCHING DETAIL

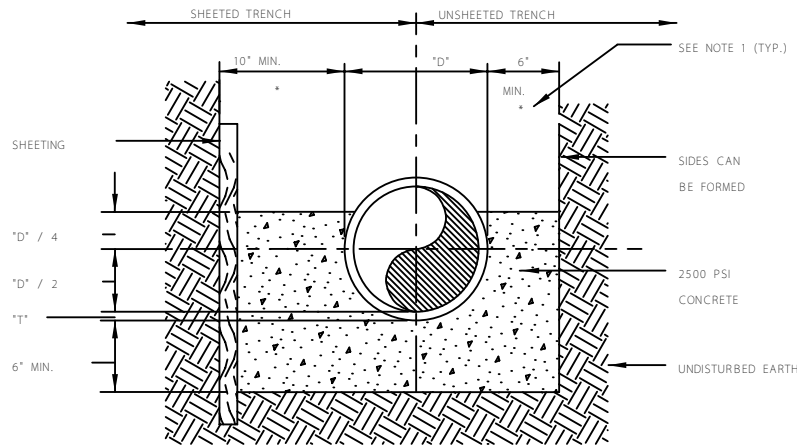
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q101	Fig: 101	



CONCRETE ARCH



FULL ENCASEMENT



CRADLE OR HALF ENCASEMENT

NOTES:

1. (*) : 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIA. 24" AND OVER.
2. "D" REFERS TO THE DIAMETER OF THE PIPE.
3. "T" REFERS TO THE THICKNESS OF THE PIPE.
4. USE OF CONCRETE ARCH HALF ENCASEMENT OR FULL ENCASEMENT TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY.

COLUMBIA COUNTY

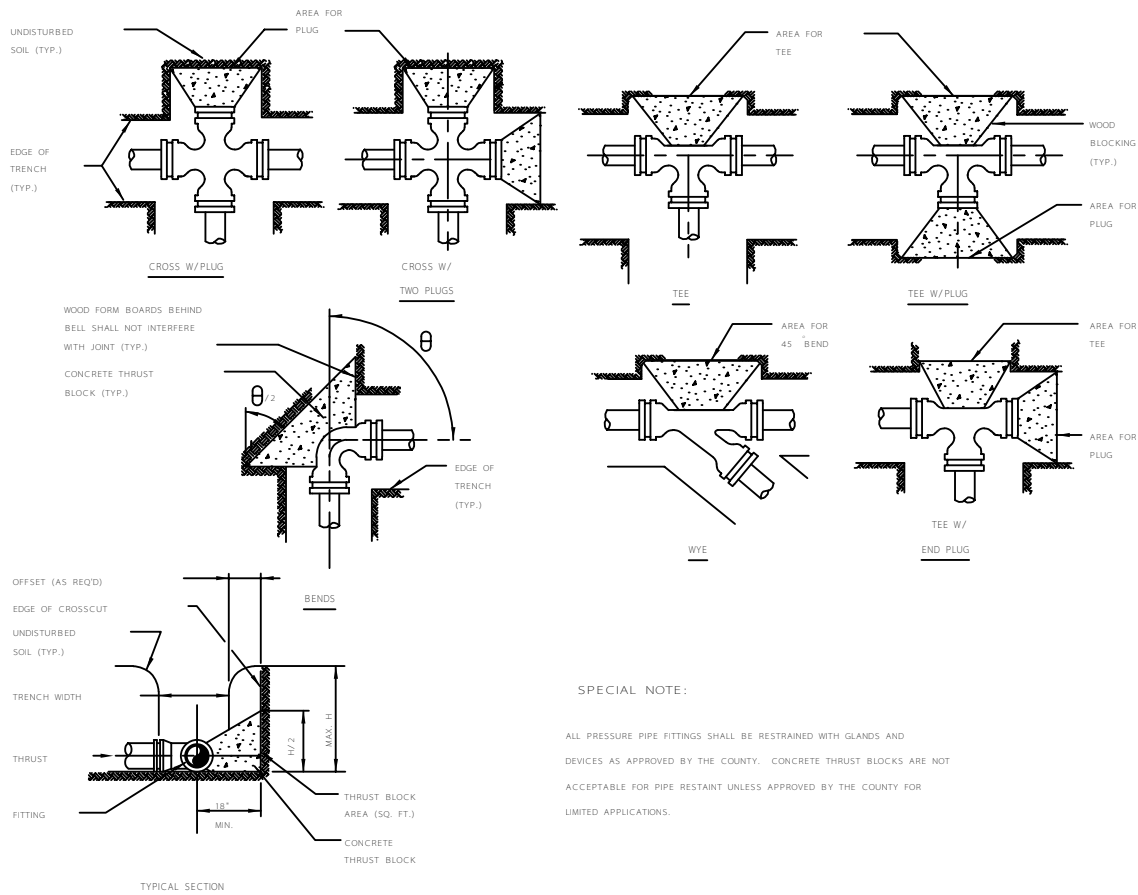
CONCRETE ARCH and
ENCASEMENT DETAILS

Date	Revisions	Appr. by

Date: Jan. 2001

Dwg: Q102

Fig: 102



SPECIAL NOTE:

ALL PRESSURE PIPE FITTINGS SHALL BE RESTRAINED WITH GLANDS AND DEVICES AS APPROVED BY THE COUNTY. CONCRETE THRUST BLOCKS ARE NOT ACCEPTABLE FOR PIPE RESTRAINT UNLESS APPROVED BY THE COUNTY FOR LIMITED APPLICATIONS.

NOTES:

- THRUST BLOCK BEARING AREAS SHALL BE POURED AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE ALL LOOSE MATERIAL AND EXTEND TO UNDISTURBED MATERIAL.
- EXTEND THRUST BLOCK FULL LENGTH OF FITTINGS. JOINTS SHALL NOT BE COVERED BY THRUST BLOCKS. FITTINGS SHALL BE PROTECTED BY POLYETHYLENE FILM (8 MIL.) PRIOR TO PLACING CONCRETE THRUST BLOCK.
- ROUGH BLOCKING FORMS SHALL BE USED ALONG SIDES OF THRUST BLOCKS, AS REQUIRED.
- THRUST BLOCKS SHALL BE USED IN COMBINATION, AS REQUIRED, TO SUIT THE SPECIFIC FITTING ARRANGEMENT.
- ALTERNATE DESIGNED RESTRAINING SYSTEMS SHALL BE PROVIDED WHERE STANDARD THRUST BLOCKING IS NOT SUITABLE AND/OR SOIL RESISTANCE BEARING IS LESS THAN 1500 PSF.
- ALL WOOD BLOCKING SHALL BE PRESSURE TREATED WITH PRESERVATIVE.

SCHEDULE FOR THRUST BLOCK AREAS *

PIPE SIZE (INCHES)	90 BEND (SQ FT)	45 BEND (SQ FT)	22-1/2 BEND (SQ FT)	11-1/4 BEND (SQ FT)	TEE & PLUG (SQ FT)	DESIGN PRESS (PSI)
4						
6						
8						
10						
12						

NOTE: THRUST BLOCK AREAS TO BE COMPUTED ON BASIS OF LBS. PER SQ. FT. SOIL RESTRAINT BEARING. (1,500 MIN) SEE NOTE 5

* TO BE COMPLETED BY ENGINEER.

COLUMBIA COUNTY

THRUST BLOCK DETAIL

Date	Revisions	Appr. by

Date: FEB. 2010

Scale: N.T.S.

Dwg: Q103

Fig: 103

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S). *									
	PIPE SIZE								
	6"	8"	10"	12"	16"	20"	24"	30"	36"
90° BEND									
45° BEND									
22 - 1/2° BEND									
11 - 1/4° BEND									
PLUG OR BRANCH OF TEE									

NOTES:

- FITTINGS SHALL BE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
- INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN SHOWN IN THE TABLE.
- WHERE TWO OR MORE FITTINGS ARE TOGETHER, USE FITTING WHICH YIELDS GREATEST LENGTH OF RESTRAINED PIPE.
- IN LINE VALVES AND THROUGH RUN OF TEES OUTSIDE LIMITS OF RESTRAINED JOINTS FROM OTHER FITTINGS NEED NOT BE RESTRAINED UNLESS OTHERWISE INDICATED.
- LENGTHS SHOWN IN THE TABLE HAVE BEEN CALCULATED IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN 'THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE' AS PUBLISHED BY DIPRA, WITH THE FOLLOWING ASSUMPTIONS:

WORKING PRESSURE: _____ P.S.I.*

SOIL DESIGNATION: _____ *

LAYING CONDITIONS: _____ *

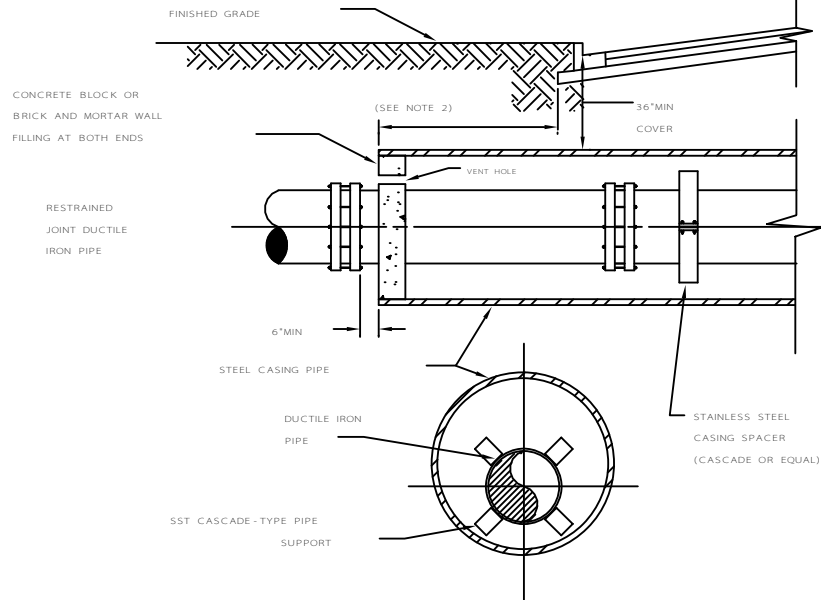
- FOR PIPE ENCASED IN POLYETHYLENE, USE VALUES GIVEN IN PARENTHESES OR INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.

* TO BE COMPLETED BY THE ENGINEER.

COLUMBIA COUNTY

RESTRAINED PIPE DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q104	Fig: 104	



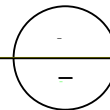
NOTES:

1. WHEN CONSTRUCTION IS WITHIN FDOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE UTILITY ACCOMODATION MANUAL SHALL BE MET.
2. CASING SHALL BE OF SUFFICIENT LENGTH TO EXTEND UNDER ALL PAVEMENTS AND IN NO CASE SHALL THE END OF THE CASING BE CLOSER THAN EIGHT (8) FEET FROM THE PAVEMENT EDGE INCLUDING PAVED SHOULDERS PLUS ADDITIONAL LENGTH AS NECESSARY TO EXTEND TO THE EXCAVATED SLOPES OF THE JACKING AND RECEIVING PITS.
3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF A 2:1 SLOPE (ANY STEEPER AND PIT MUST BE SHEETED AND SHORED) BEGINNING EIGHT (8) FEET FROM EDGE OF PAVEMENT.
4. THE CONTRACTOR SHALL PROVIDE A 4-INCH DIP CASING VENT AS SHOWN ON THE DRAWINGS FOR RAILWAY CROSSINGS, IN LIEU OF VENT HOLE AS SHOWN ABOVE.

UTILITY CROSSING, BORE AND JACK

DETAIL

NTS



COLUMBIA COUNTY

BORING AND JACKING DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q106	Fig: 106	

24" x 24" x 6"
THICK CONC. PAD
TYP. EACH VALVE BOX.

3" DIA. BRONZE DISC
ANCHORED IN CONC. PAD
STAMP AS REQ'D
(SEE NOTE 1)

SIZE OF VALVE

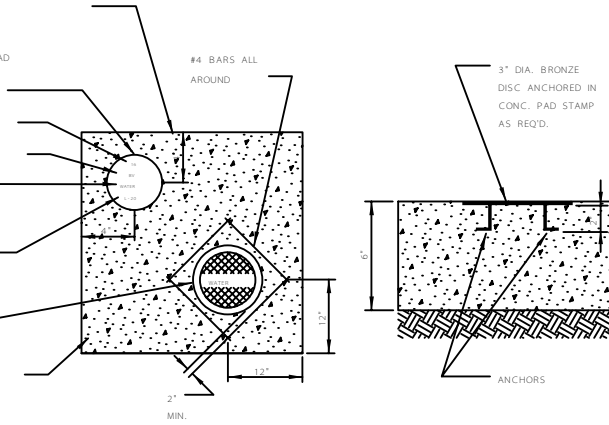
TYPE OF VALVE

SERVICE

DIRECTION & NO.
OF TURNS TO
OPEN

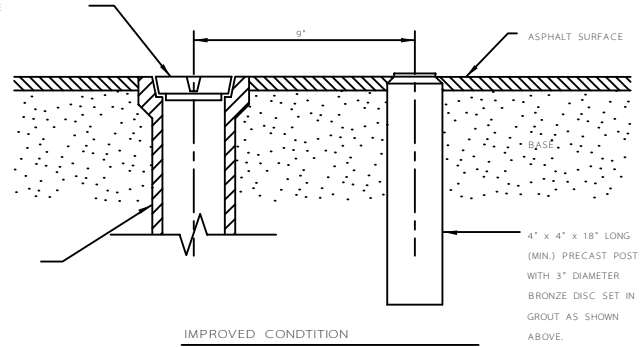
VALVE BOX
AND COVER
(TYP.)

2500 P.S.I.
CONCRETE MIN.



UNIMPROVED CONDITION

TOP FLUSH WITH
FINISHED GRADE



IMPROVED CONDITION

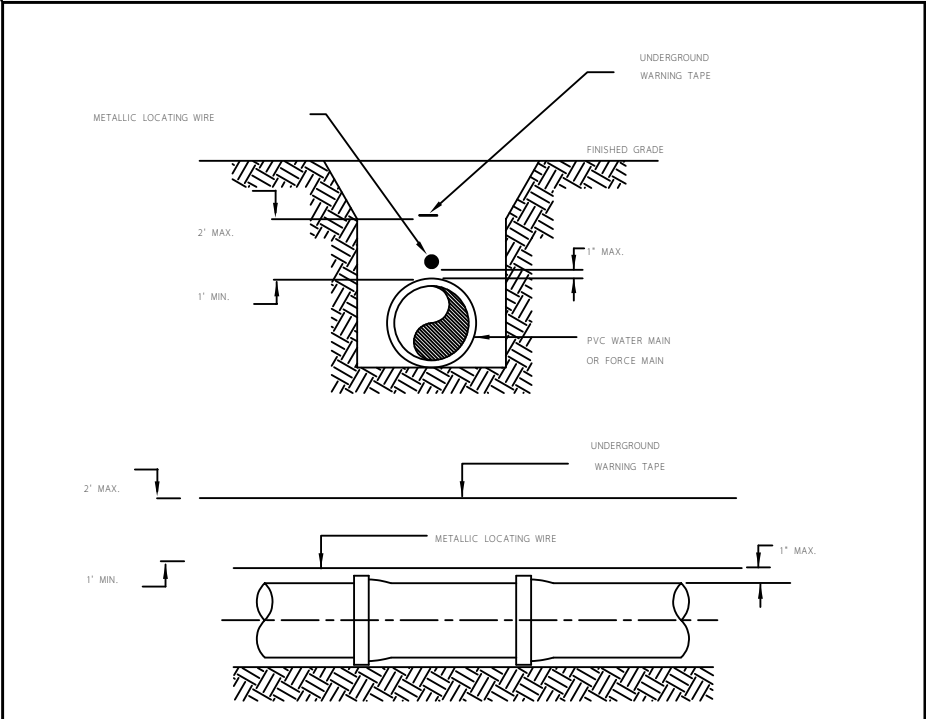
NOTES:

1. BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.

COLUMBIA COUNTY

VALVE COLLAR DETAIL

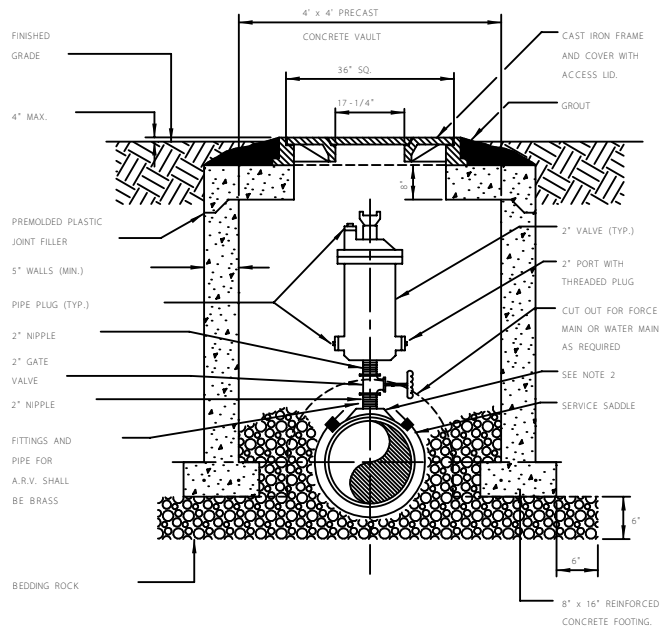
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q107	Fig: 107



NOTES:

1. PVC PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (14 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE.
2. PROPERLY COLOR CODED UNDERGROUND WARNING TAPE SHALL BE PLACED AT A MINIMUM OF 1 FOOT ABOVE THE PIPE AND NO GREATER THAN 2 FEET ABOVE THE PIPE, FOR THE PURPOSE OF IDENTIFYING THE LOCATION OF UNDERGROUND UTILITY LINES.

COLUMBIA COUNTY			
PVC PIPE LOCATING WIRE DETAIL			
Date	Revisions	Appr. by	Date: FEB. 2010 Scale: N.T.S. Desg: 0108 Fig: 108



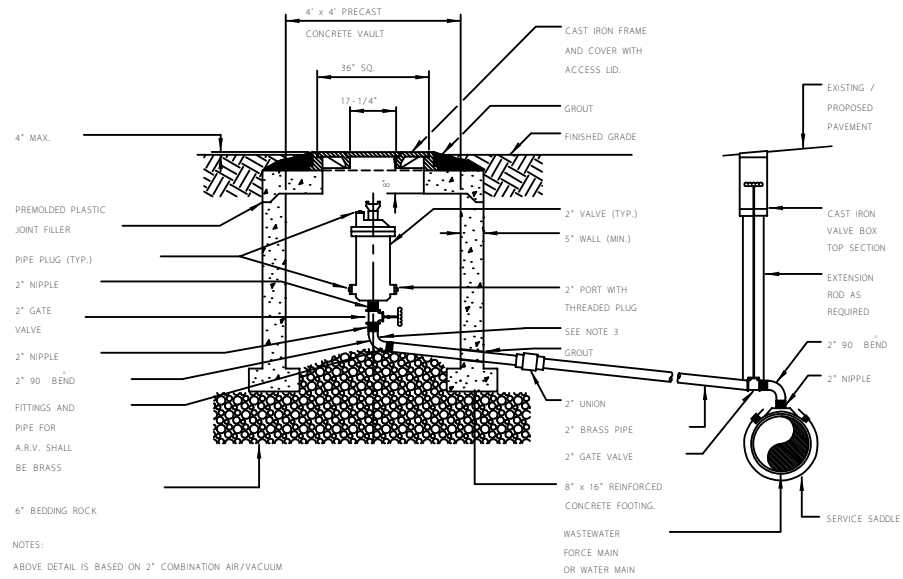
NOTES:

1. ABOVE DETAIL IS BASED ON 2" COMBINATION AIR/VACUUM RELEASE VALVE. CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE CITY PRIOR TO INSTALLATION.
2. THE MINIMUM DIMENSION FROM TOP OF PIPE TO FINISHED GRADE SHALL BE 4.0 FEET.

COLUMBIA COUNTY

AIR OR COMBINATION AIR/VACUUM
RELEASE VALVE DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q109	Fig: 109

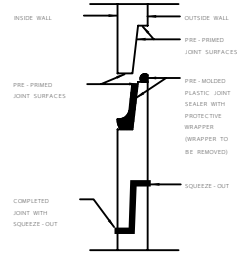
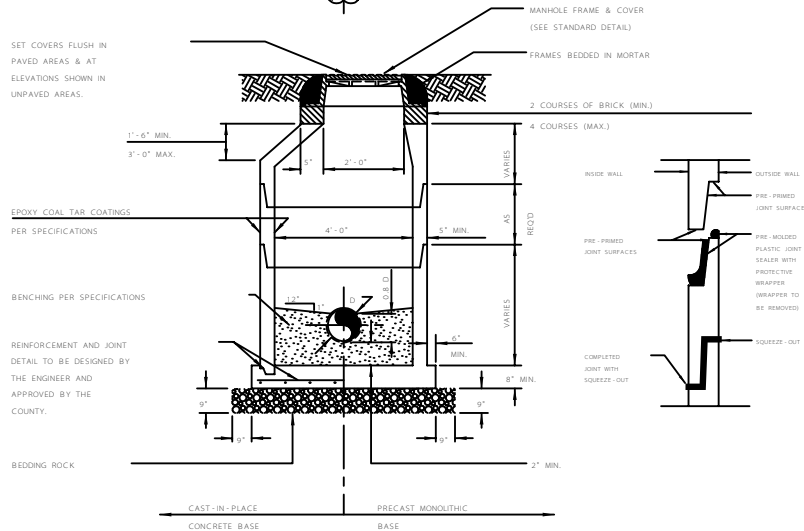
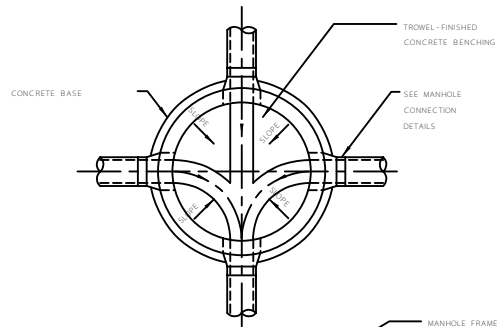


- NOTES:
1. ABOVE DETAIL IS BASED ON 2" COMBINATION AIR/VACUUM RELEASE VALVE. CHANGE PIPE AND FITTINGS ACCORDINGLY FOR OTHER VALVE SIZES AND TYPES. VALVE SIZES TO BE DETERMINED BY THE ENGINEER AND APPROVED BY THE COUNTY PRIOR TO INSTALLATION.
 2. VALVE SHALL BE SUPPORTED TO VAULT WALL.
 3. THE MINIMUM DIMENSION FROM ELBOW INVERT TO FINISHED GRADE SHALL BE 4.0 FEET.

COLUMBIA COUNTY

OFFSET AIR OR COMBINATION AIR/VACUUM
VACUUM RELEASE VALVE DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q110	Fig: 110	

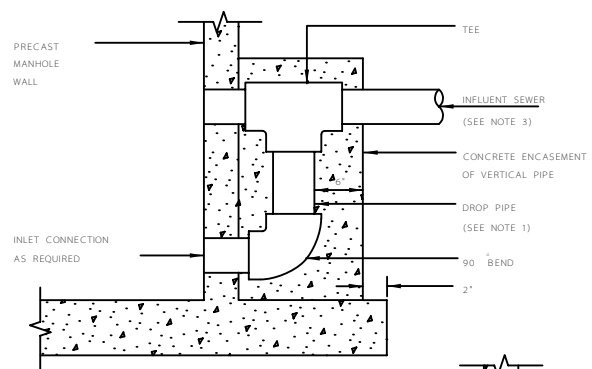


- NOTES:
1. MANHOLE SHOWN IS FOR SEWER SIZE 8" THRU 24", SEE UTILITIES STANDARDS HANDBOOK FOR MANHOLE DIAMETER FOR SEWERS LARGER THAN 24".
 2. DROP CONNECTIONS ARE REQUIRED WHENEVER INVERT OF INFLUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. SEE MANHOLE CONNECTION DETAILS.
 3. APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

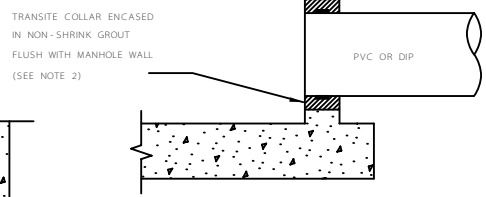
COLUMBIA COUNTY

PRECAST MANHOLE DETAIL

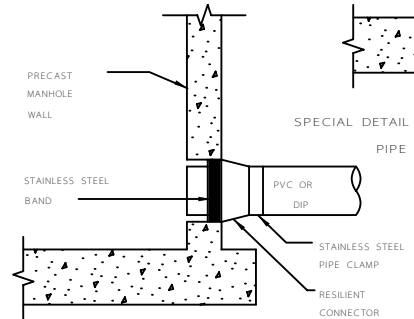
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q200	Fig: 200	



STANDARD DROP DETAIL



SPECIAL DETAIL FOR 24" DIAMETER PIPE AND LARGER



STANDARD PRECAST MANHOLE PIPE CONNECTION

NOTES:

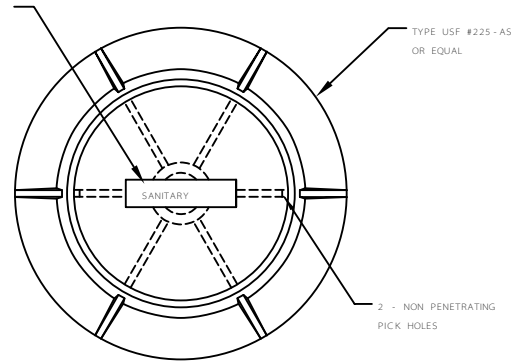
1. DROP PIPE AND FITTINGS SHALL BE OF EQUAL SIZE AND MATERIAL AS THE INFLUENT SEWER.
2. THE COUNTY MAY APPROVE ALTERNATE WATER TIGHT CONNECTION DETAILS FOR CONNECTION OF 24" DIAMETER PIPES AND LARGER.
3. AN OUTSIDE DROP CONNECTION SHALL BE REQUIRED FOR ALL INFLUENT WHICH HAVE AN INVERT 2' OR MORE ABOVE THE MANHOLE INVERT.

COLUMBIA COUNTY

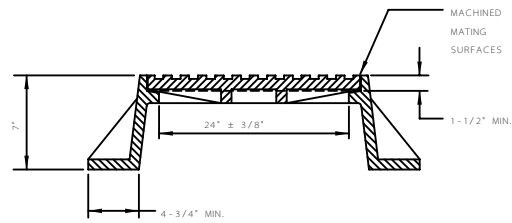
MANHOLE CONNECTION DETAILS

				Date: Sept. 1996	Scale: N.T.S.	Dwg: Q201	Fig: 201
Date	Revisions	Appr. by					

RAISED 1-1/2" LETTERS
FLUSH WITH TOP OF COVER



PLAN

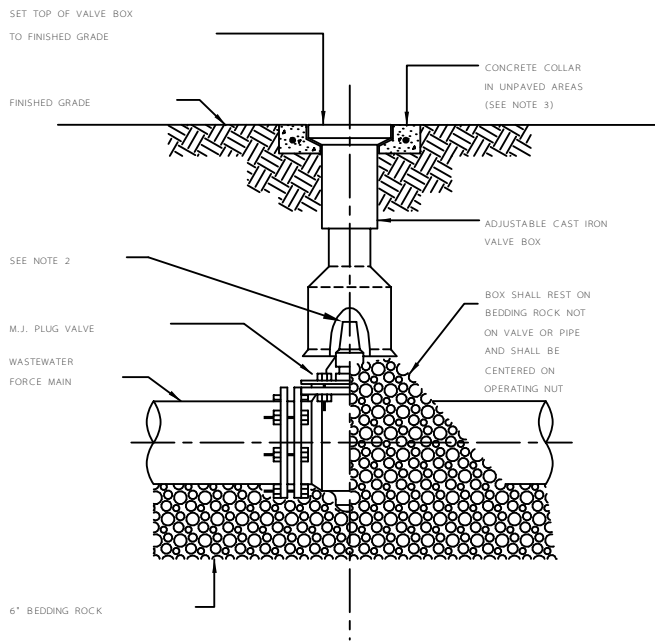


ELEVATION

COLUMBIA COUNTY

SANITARY MANHOLE COVER

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q202	Fig: 202



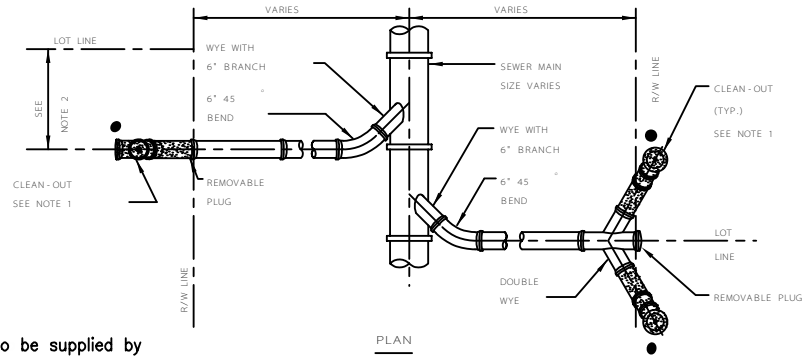
NOTES:

1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS.

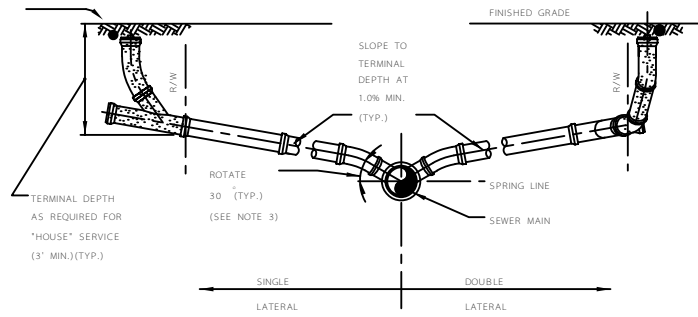
COLUMBIA COUNTY

PLUG VALVE AND BOX DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q203	Fig: 203	



Locator Balls to be supplied by the County



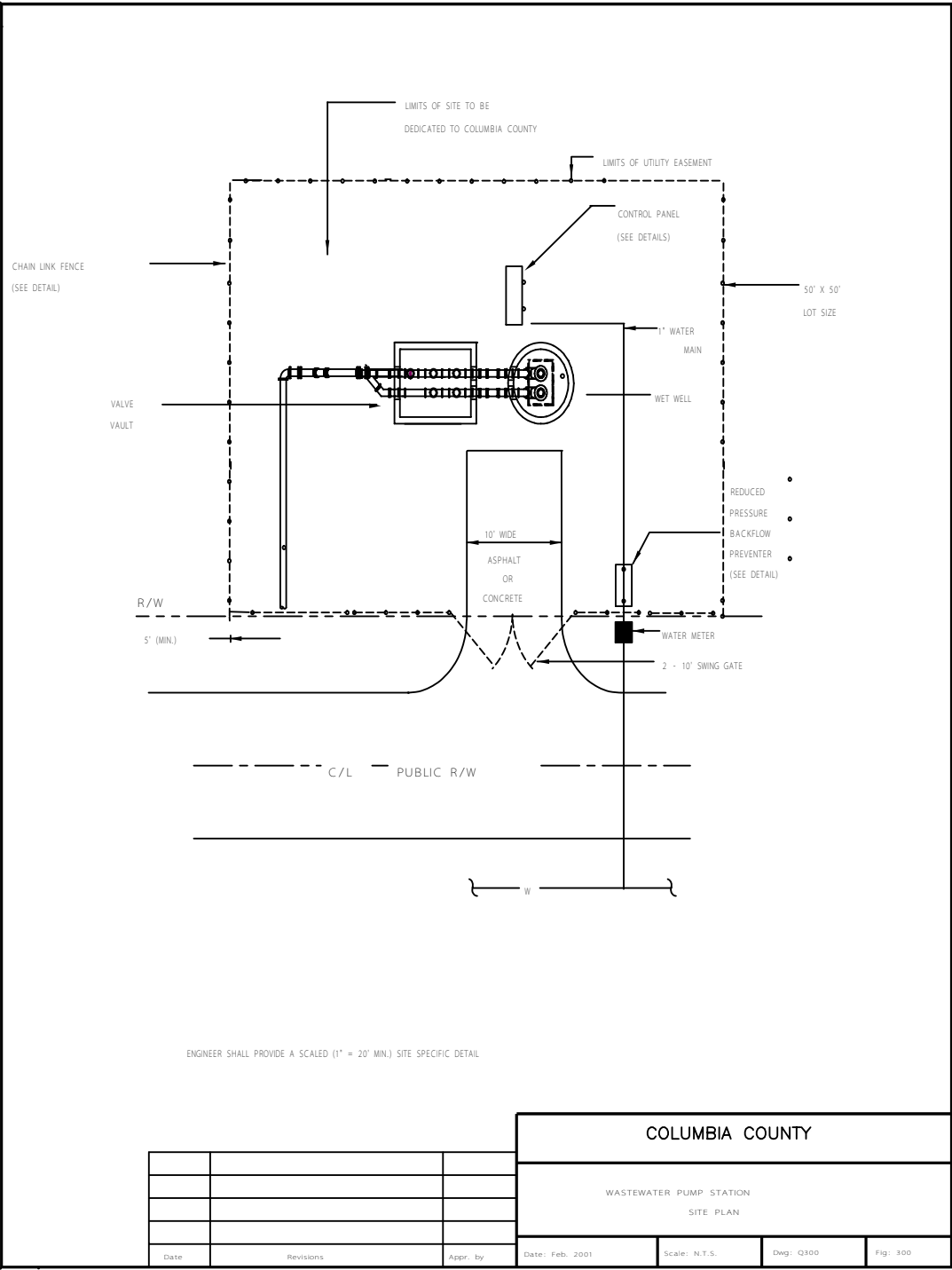
PROFILE

NOTES:

1. CLEAN-OUT (SHOWN SHADED) SHALL BE INSTALLED BY THE BUILDER IN ACCORDANCE WITH STANDARD PLUMBING CODE.
2. LOCATE SINGLE LATERAL AS CLOSE TO LOT LINE AS POSSIBLE, 25' MAXIMUM.
3. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
4. SERVICE LATERALS SHALL HAVE A MINIMUM 18" OF COVER BETWEEN R/W TIE-IN AND BUILDING.
5. INDENT CURB WITH 'S' AT EACH SEWER SERVICE LOCATION.

Date	Revisions	Appr. by

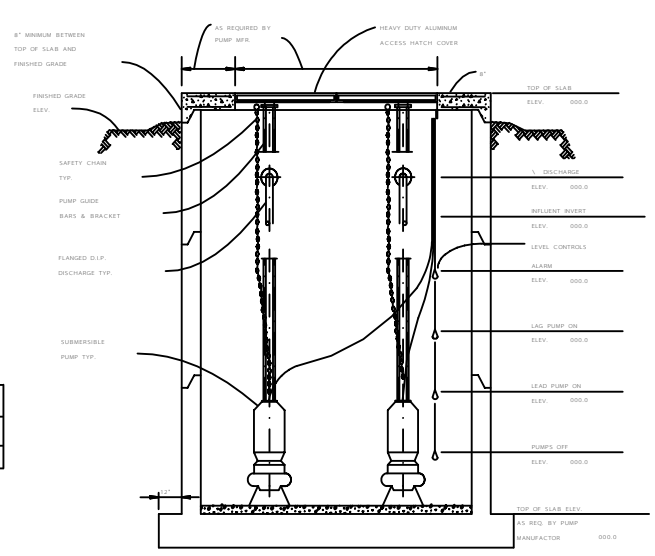
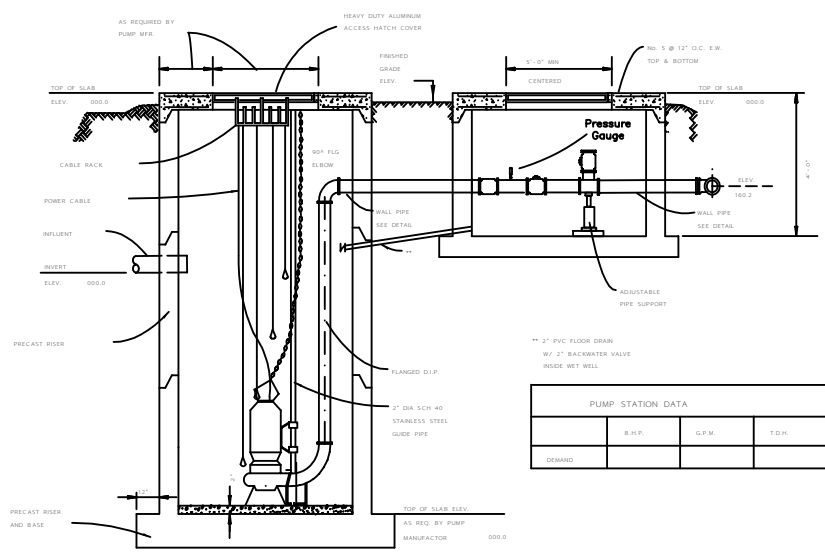
COLUMBIA COUNTY			
SANITARY SERVICE DETAIL			
Date: Sept. 1996	Scale: N.T.S.	Dwg: Q204	Fig: 204



COLUMBIA COUNTY

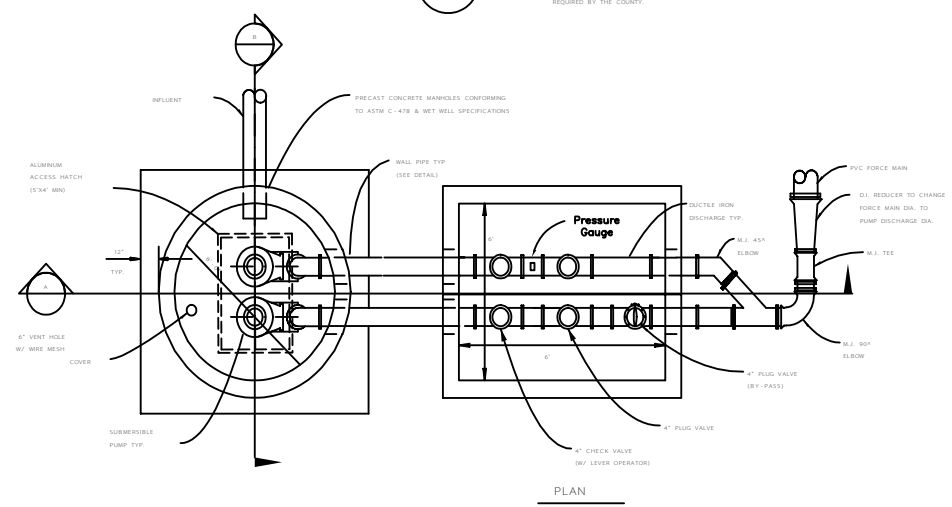
WASTEWATER PUMP STATION
SITE PLAN

Date	Revisions	Appr. by	Date: Feb. 2001	Scale: N.T.S.	Dwg: Q300	Fig: 300



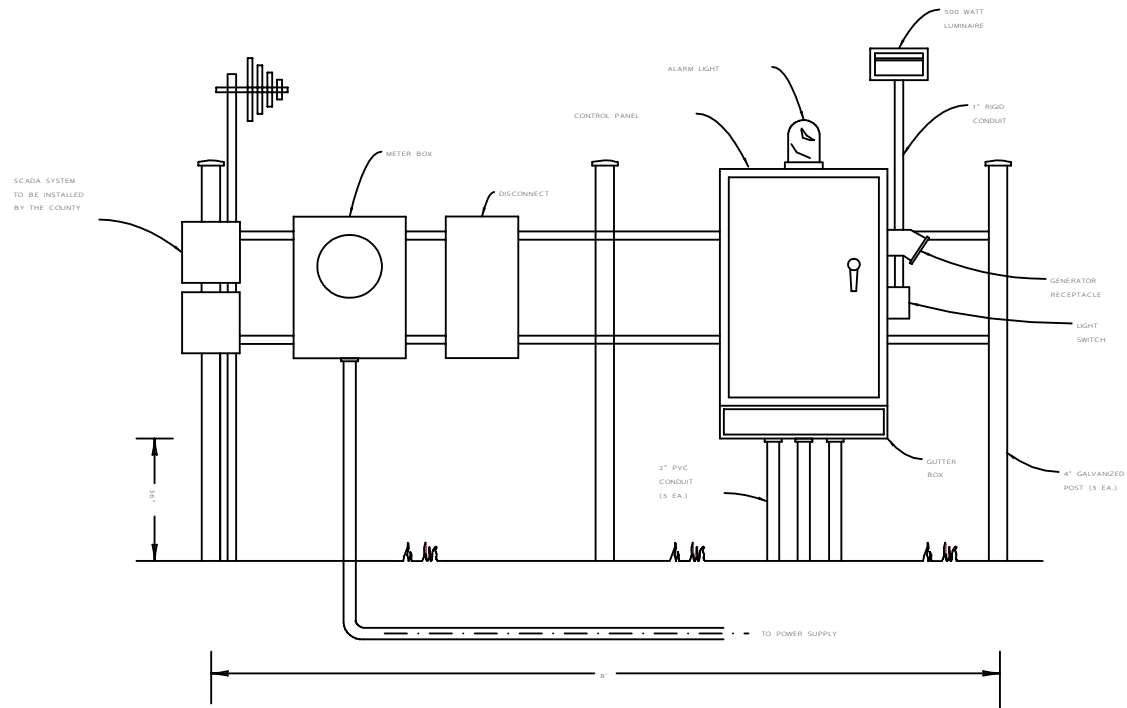
PUMP STATION DATA			
DEMAND	G.M.P.	G.P.M.	T.D.H.

NOTE:
LIFT STATION PUMP ASSEMBLY SHALL INCLUDE ALL ELECTRICAL CONTROLS, ALARMS AND TELEMETRY CONTROLS AS REQUIRED BY THE COUNTY.



SEE WETWELL & VALVE BOX NOTES ON FIG. 302

COLUMBIA COUNTY			
WASTEWATER PUMP STATION PLANS, SECTIONS AND NOTES			
Date	Revisions	Appr. by	Date: FEB. 2010
			Dwg: Q301
			Fig: 301



CONTROL PANEL NOTES:

1. CONTROL PANEL ASSEMBLY SHALL BE LOCATED AT PUMP STATION SITE.
2. PUMP CONTROL PANEL SHALL BE SUPPLIED BY PUMP MANUFACTURER AND GENERALLY CONSIST OF A 30"WX36"H NEMA TYPE 3R ENCLOSURE CONSTRUCTED OF 304 STAINLESS STEEL AND UL LISTED.
3. A 12"x 12"x 30" 304 STAINLESS STEEL GUTTER BOX SHALL BE ATTACHED TO THE CONTROL PANEL BY COMPRESSION CORD CONNECTORS ONLY (SIZED FOR THE PUMP, SEAL, AND CONTROL LEADS). NO SEAL OFF FITTINGS SHALL BE INSTALLED IN THE CONDUITS. AN EFFECTIVE SEAL SHALL BE MADE BETWEEN THE CONTROL PANEL AND THE GUTTER BOX, BY THE CORD CONNECTOR GROMETS.
4. CONTRACTOR SHALL INSTALL ALL MOUNTING COMPONENTS (GALVANIZED POSTS, UNISTRUTS, ETC.). CONTROL PANEL, GUTTER BOX, PVC CONDUITS TO WET WELL, POLE LIGHT AND SWITCH, METER BOX AND DISCONNECT, AND POWER CONNECT TO NEAREST POWER SUPPLY.
5. SCADA SYSTEM SHALL BE INSTALLED BY COLUMBIA COUNTY.

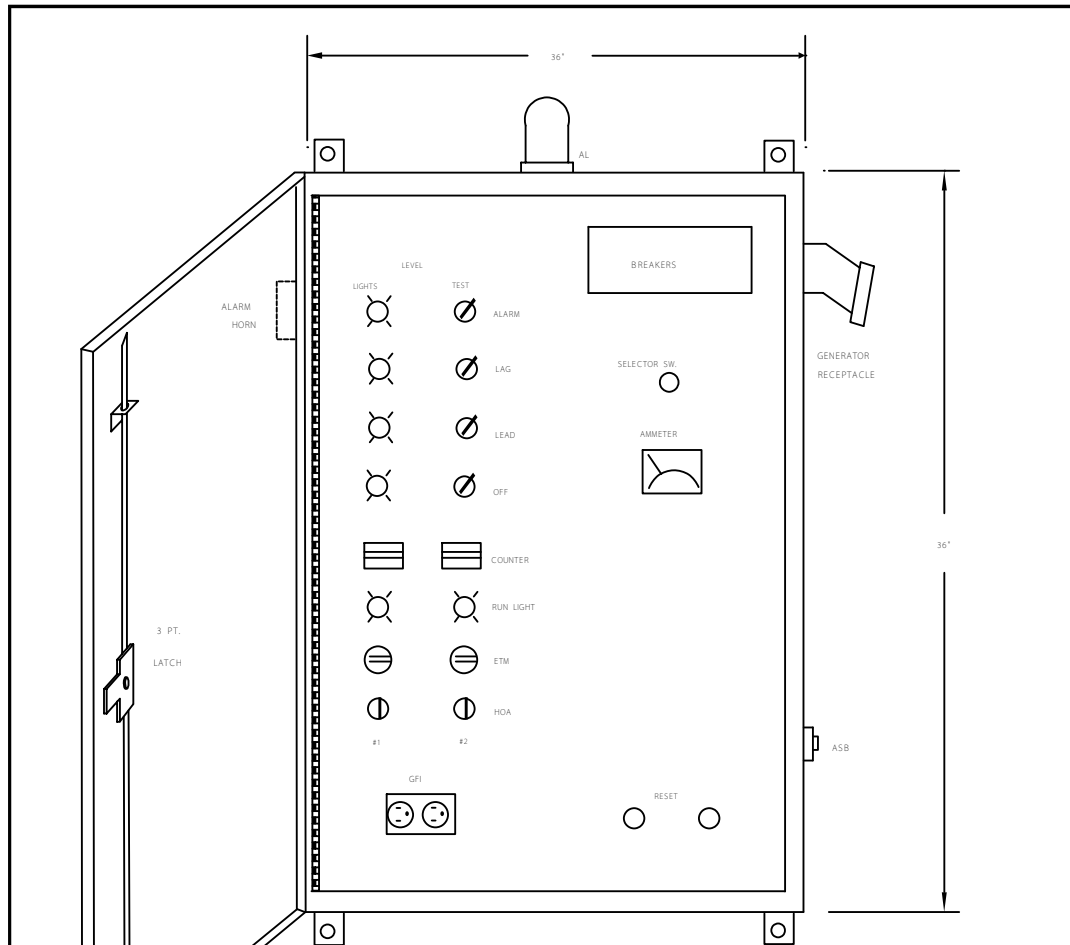
LIFT STATION NOTES:

1. WET WELL AND VALVE VAULT SHALL BE COATED WITH "FARBERTITE" OR COAL TAR EQUIVALENT INSIDE AND OUT (TWO COATS, 9 MILS EACH).
2. WET WELL BASE AND FIRST RISER SHALL BE PRECAST AS A CONTIGUOUS UNIT.
3. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE "BOOT" OR FILLED WITH NON-SHRINK GROUT.
4. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL.
5. WET WELL AND VALVE VAULT COVERS SHALL BE 5'X4" "HEAVY DUTY" ALUMINUM WITH 316 S.S. HARDWARE AND LOCK BRACKET.
6. ALL PIPE FITTINGS INSIDE OF THE WET-WELL AND VALVE BOX SHALL BE FLANGE X FLANGE, ALL MJ PIPE FITTINGS OUTSIDE OF THE WETWELL & AND VALVE BOX SHALL BE RESTRAINED WITH MEG-A-LUG COLLARS

COLUMBIA COUNTY

WASTEWATER PUMP STATION
CONTROL PANEL INSTALLATION DETAIL

Date	Revisions	Appr. by	Date: FEB 2010 Dwg: Q302 Fig: 302



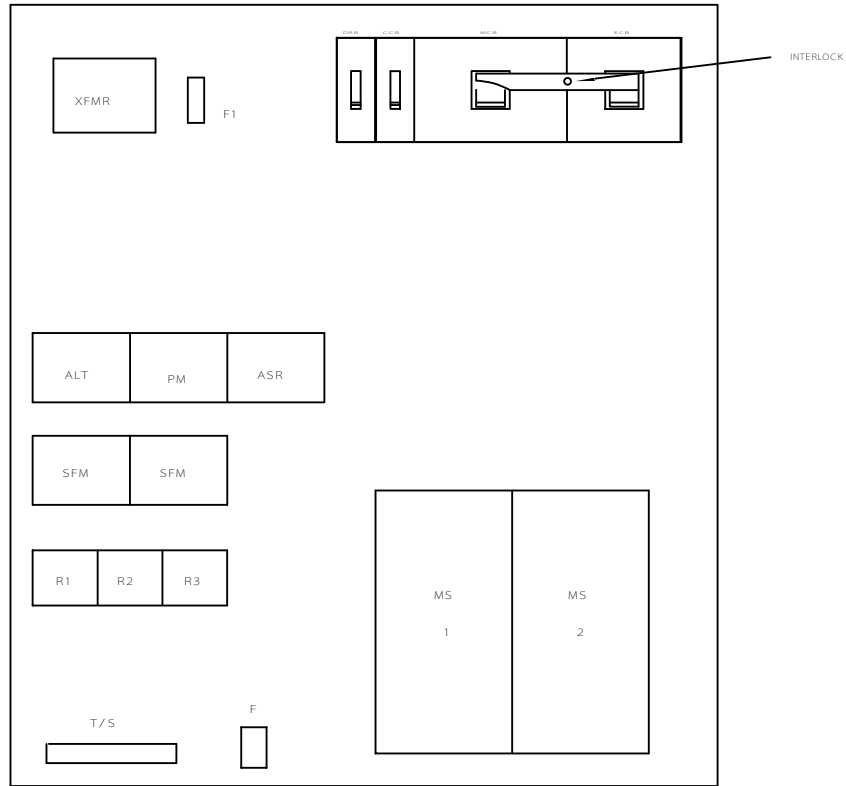
NOTES:

1. OUTER BOX SIZE SHALL BE A MINIMUM OF 36"W X 36"H X 10"D OR AS APPROVED BY THE COUNTY.
2. FOR STATIONS WITH PUMPS RATED 20 HP OR GREATER, OUTER BOX SIZE SHALL BE 36"W X 42"H X 10"D AND SHALL HAVE 2 LATCHES ON THE DEAD FRONT.
3. DRAWINGS SHALL BE REVISED FOR STATIONS WITH PUMPS RATED GREATER THAN 50 HP AND SUBMITTED TO THE COUNTY FOR APPROVAL.

Date	Revisions	Appr. by

COLUMBIA COUNTY			
DUPLIX CONTROL PANEL ENCLOSURE DEAD FRONT LAYOUT			
Date: Dec. 2000	Scale: N.T.S.	Dwg: Q803	Fig: 303

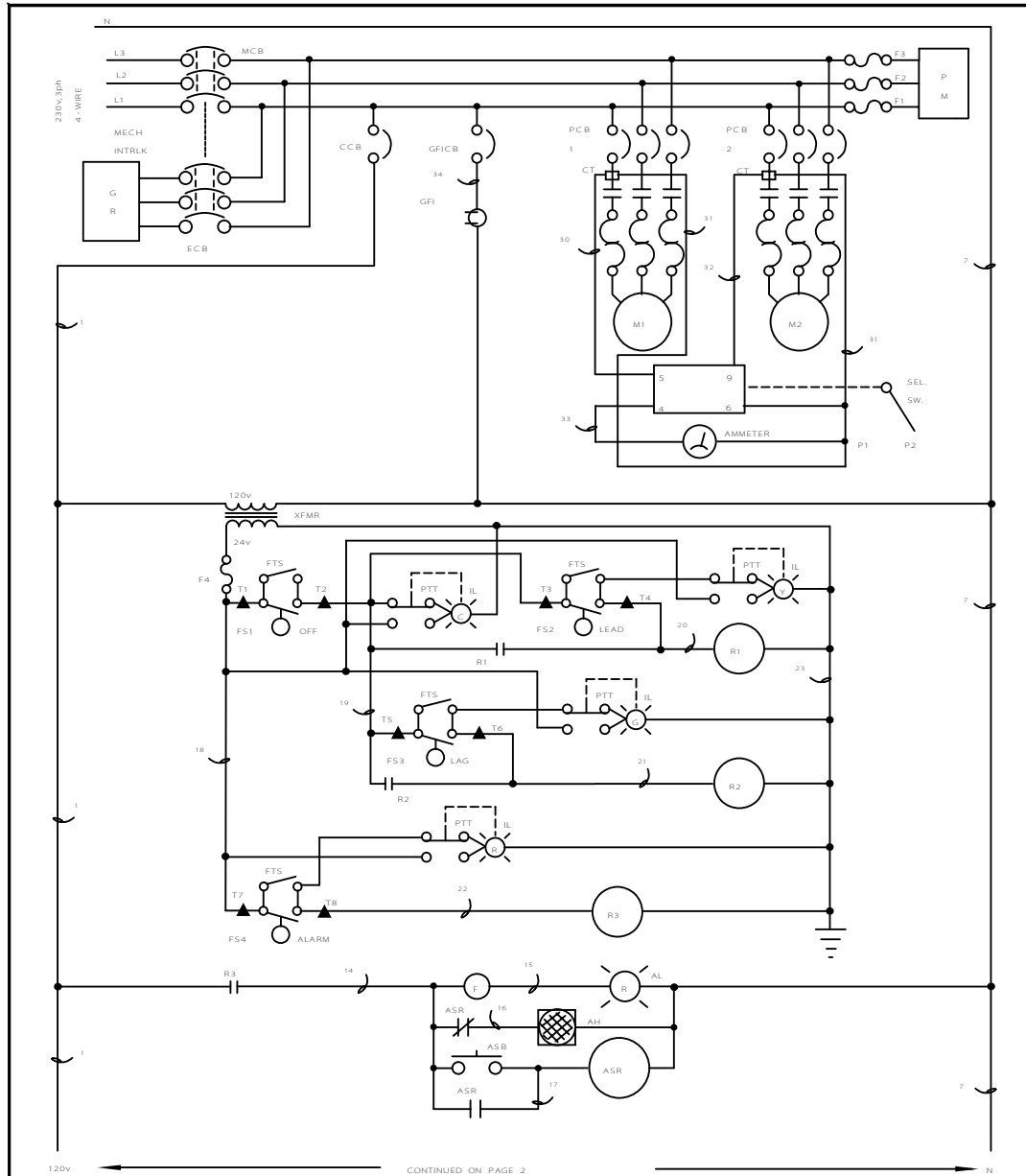
TYPICAL BACKPLATE LAYOUT



COLUMBIA COUNTY

DUPLEX CONTROL PANEL ENCLOSURE
SUBPANEL LAYOUT

Date	Revisions	Appr. by	Date: Dec. 2000	Scale: N.T.S.	Dwg: Q304	Fig: 304



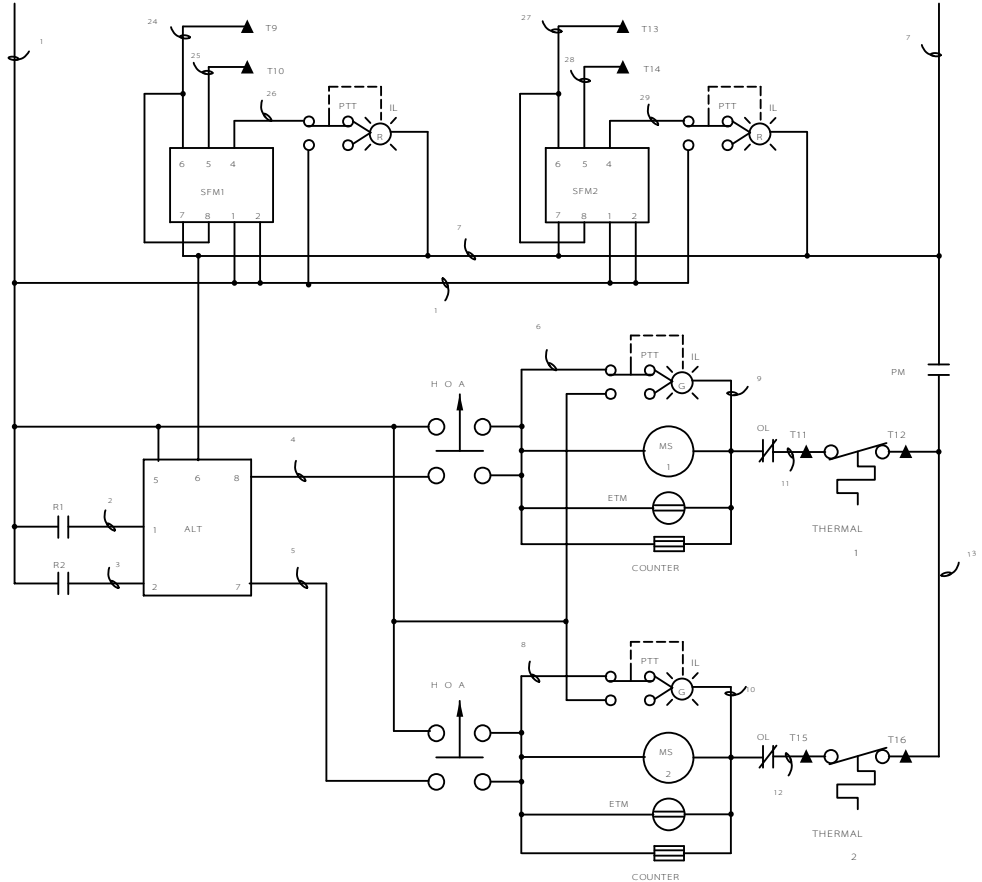
COLUMBIA COUNTY

DUPLEX CONTROL SCHEMATIC

Date	Revisions	Appr. by

Date: Dec. 2000 Scale: N.T.S. Dwg: Q305a Fig: 305a

120v ← CONTINUED FROM PAGE 1 → N



COLUMBIA COUNTY

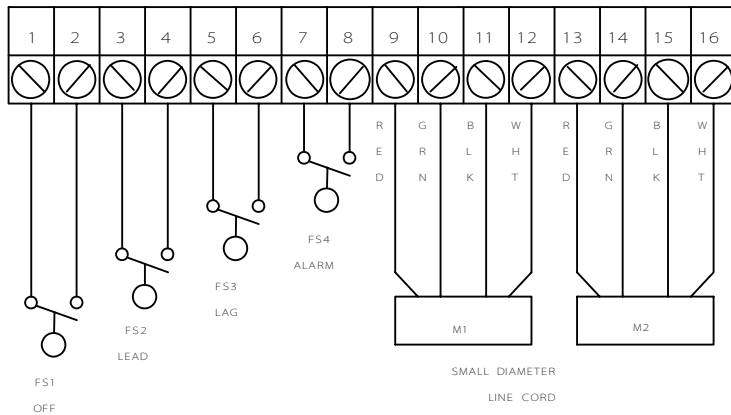
DUPLEX CONTROL SCHEMATIC

Date	Revisions	Appr. by

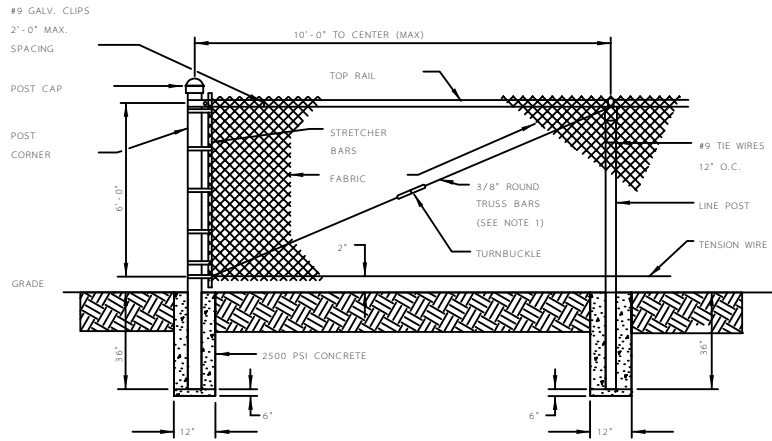
Date: Dec. 2000	Scale: N.T.S.	Dwg: Q305b	Fig: 305b
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BILL OF MATERIALS

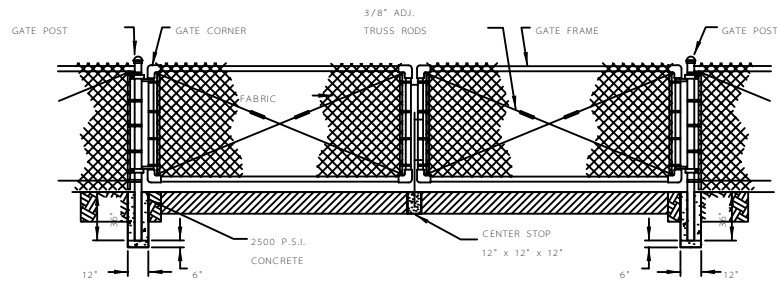
ENC	STAINLESS STEEL ENCLOSURE	CUST. EQUIP. 36X36X12 304SS 3PT LATCH
MCB	MAIN CIRCUIT BREAKER	SQ-D, FAL36
ECB	EMERGENCY CIRCUIT BREAKER	SQ-D, FAL36
PCB1,2	PUMP CIRCUIT BREAKER	SQ-D, FAL36
CCB	CONTROL CIRCUIT BREAKER	SQ-D, FAL12015
GFICB	GFI CIRCUIT BREAKER	SQ-D, FAL12015
MS1,2	STARTER	SQ-D, 8536
OL	HEATER	SQ-D, S.A.R.
XFMR	TRANSFORMER 120V/24V	SQ-D, 9070 T100D13
GR	GENERATOR RECEPTACLE	CROUSE-HINDS, AR1041 S22 S4
PM	PHASE MONITOR	TIME MARK, 258B - 240
IL	INDICATING LIGHT	SQ-D, 9001 SKT38 PUSH TO TEST
RL	RUN LIGHT	SQ-D, 9001 SKT38 PUSH TO TEST
F	FLASHER	INGRAM, FL-120-60
AL	ALARM LIGHT	INGRAM, LRXB-40
AH	ALARM HORN	FEDERAL, 350-WB-120
ASB	ALARM SILENCE BUTTON	SQ-D, 9001 SKR1BH5
ASR	ALARM SILENCE RELAY	SQ-D, 8501 KP12 V20
R1-3	CONTROL RELAY	SQ-D, 8501 KP12 V14
HOA	HAND OFF AUTO SWITCH	SQ-D, 9001 SKS43BH13
ETM	ELAPSED TIME METER	ENM, T50B2-08
ALT	ALTERNATOR	TIME MARK 261DXT120
GFI	CONVENIENCE RECEPTACLE	LEVITON, 6598-1
SFM	SEAL FAIL MODULE	SSAC, LLC54BA
F1-3	FUSES	BUSS, AGC 1/2
F4	FUSE	BUSS, MDL-3
	COUNTER	EATON, 4-Y-41314-406-MEQ
CT	CURRENT TRANSFORMER	INST. TRANSFORMERS, 25FT-
AM	AMMETER	YOKOGAWA, TE-250-340-LS
AS	AMMETER SEL. SWITCH	SPR & SCH, LE2-12-8751=LES2-A-4-875
FTS	FLOAT TEST SWITCH	CARLING, 6FA53-73



COLUMBIA COUNTY			
Control Panel Legend			
Date	Revisions	Appr. by	Date: Dec. 2000
			Scale: N.T.S.
			Dwg: Q306
			Fig: 306



FENCE DETAIL



20' DOUBLE SWING GATE DETAIL

NOTES:

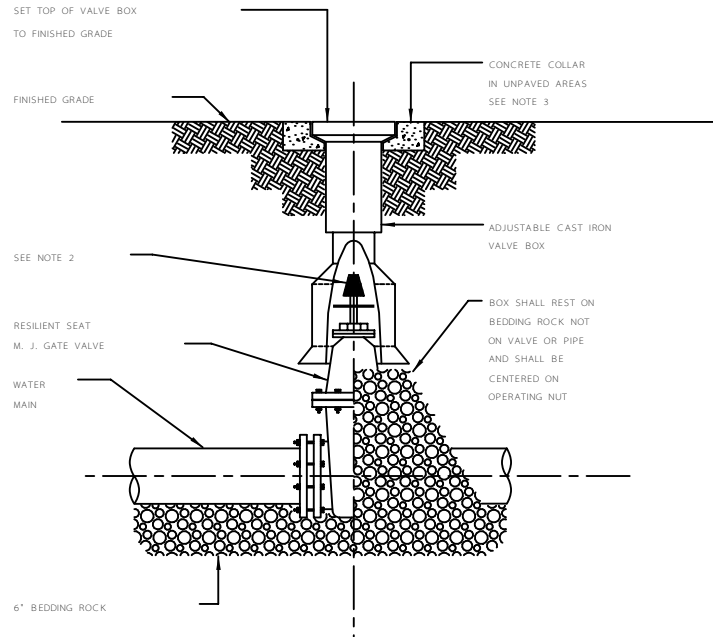
1. TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.

Date	Revisions	Appr. by

COLUMBIA COUNTY

CHAIN LINK FENCE DETAIL

Date: Sept. 1996 Scale: N.T.S. Dwg: Q307 Fig: 307



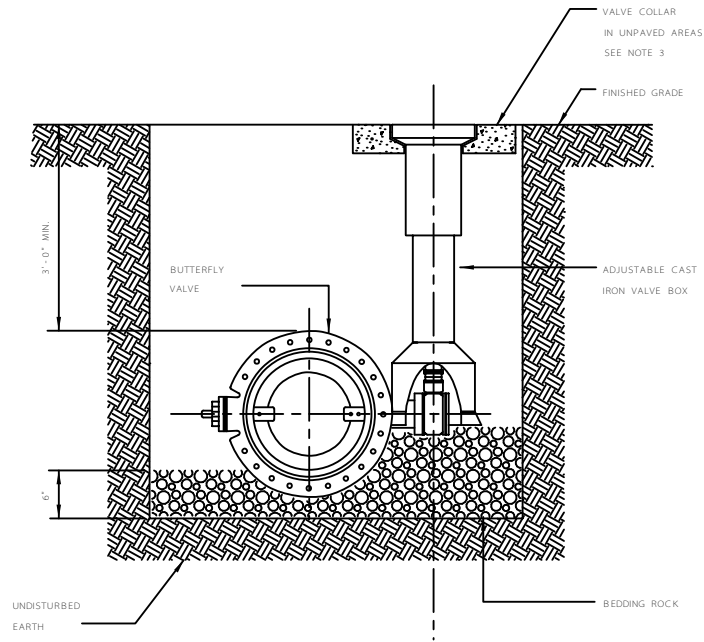
NOTES:

1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. VALVE COLLAR SHALL BE 18"x18"x6" CONCRETE COLLAR W/4 - #4 BARS.

COLUMBIA COUNTY

GATE VALVE AND BOX DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q400	Fig: 400	

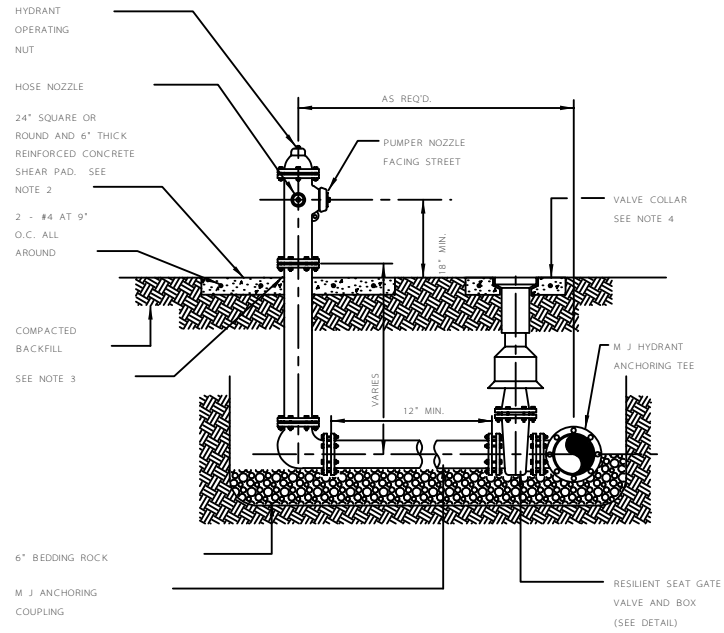


- NOTES:
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
 2. ALL WATER SHUT-OFF VALVES SIXTEEN (16) INCHES AND LARGER SHALL BE BUTTERFLY VALVES.
 3. VALVE COLLAR SHALL BE 18"x18"x6" CONCRETE COLLAR W/4 - #4 BARS.

COLUMBIA COUNTY

BUTTERFLY VALVE AND BOX DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q401	Fig: 401	



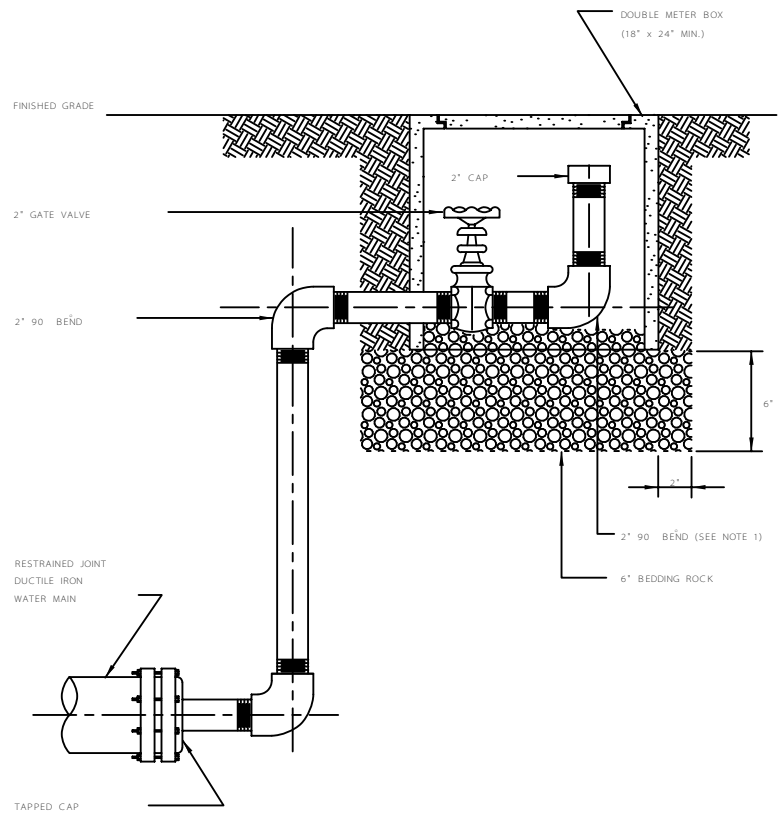
NOTES:

1. FIRE HYDRANT SHALL BE SUPPLIED WITHOUT A WEEP HOLE, OR WITH A PERMANENTLY PLUGGED WEEP HOLE.
2. THE DEVELOPER MAY INSTALL THE SHEAR PAD RECESSED UP TO 4 INCHES BELOW FINISHED GRADE AND SOD THE RECESSED SECTION.
3. CLEARANCE BETWEEN BOTTOM OF BOLTS AND TOP OF SHEAR PAD SHALL BE A 6" MINIMUM.
4. VALVE COLLAR SHALL BE 18"x18"x6" CONCRETE COLLAR W/4 - #4 BARS

COLUMBIA COUNTY

FIRE HYDRANT ASSEMBLY DETAIL

				Date: Sept. 1996	Scale: N.T.S.	Dwg: Q402	Fig: 402
Date	Revisions	Appr. by					



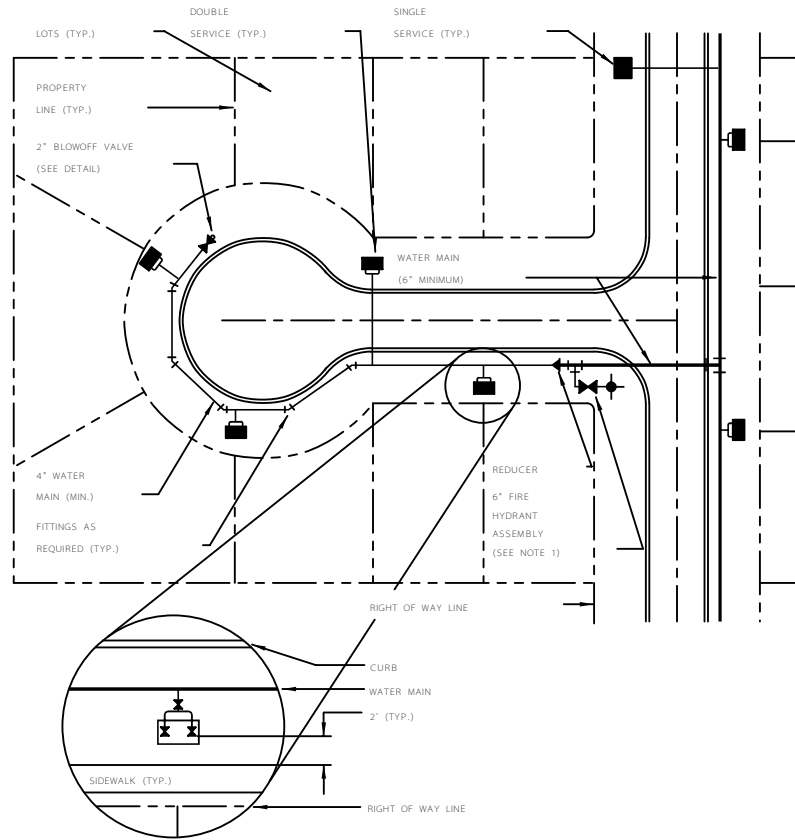
NOTES:

1. ALL 2" PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL OR BRASS WITH THREADED (NPT) JOINTS.
2. BEND SHALL BE ROTATED APPROXIMATELY 20° FROM VERTICAL.

COLUMBIA COUNTY

BLOW OFF VALVE DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q403	Fig: 403	



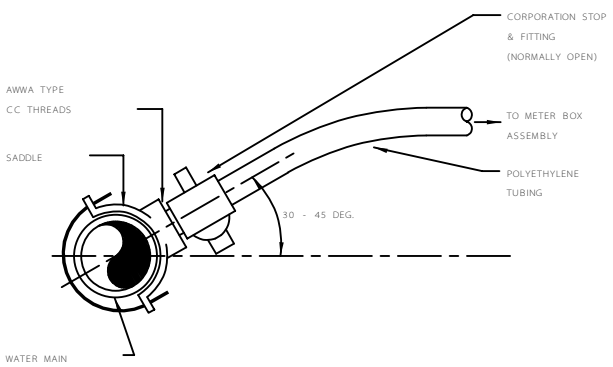
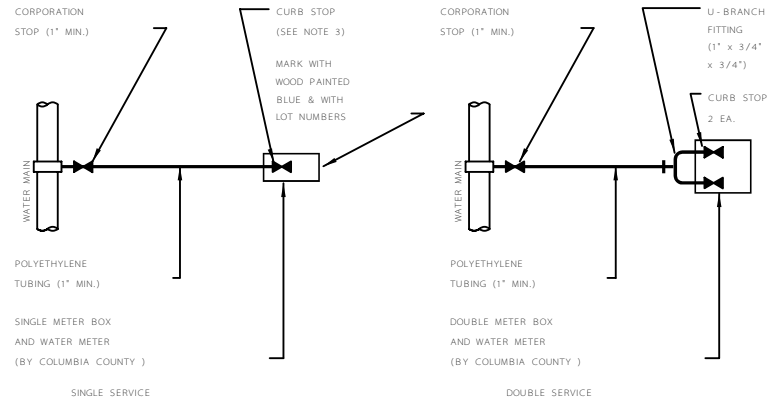
NOTES:

1. ANCHORING TYPE 90° BEND SHALL ONLY BE USED WHERE RIGHT-OF-WAY CONSTRUCTIONS WILL NOT ALLOW INSTALLATION OF A STRAIGHT ASSEMBLY.

COLUMBIA COUNTY

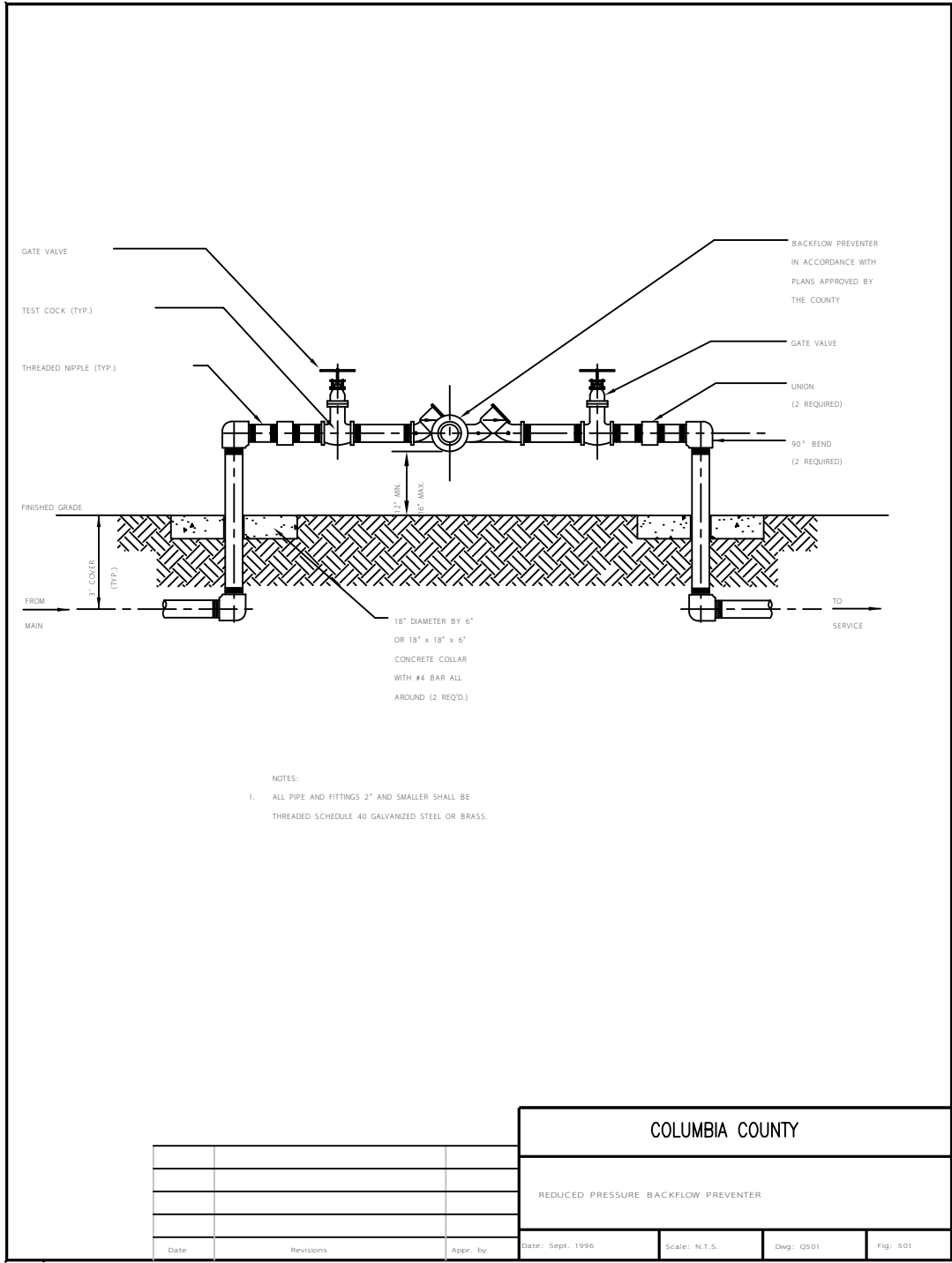
WATER SERVICE LOCATION DETAIL

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q404	Fig: 404	



- NOTES:
1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
 2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
 3. EACH SERVICE SHALL TERMINATE AT A CURB STOP(S) WHICH SHALL BE BURIED APPROXIMATELY 3" BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2" X 2" X 18" STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE NUMBER OF THE LOT(S) TO BE SERVED.
 4. INDENT CURB WITH "W" AT EACH WATER SERVICE LOCATION

				CITY OF LAKE CITY			
				WATER SERVICE CONNECTION DETAILS			
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q405	Fig: 405	

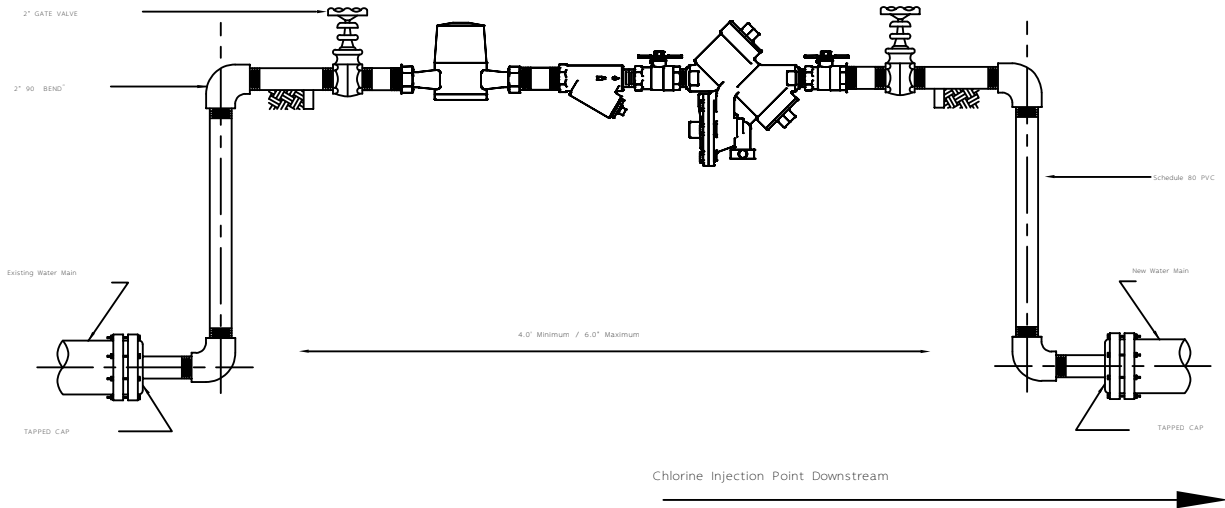


NOTES:
 1. ALL PIPE AND FITTINGS 2" AND SMALLER SHALL BE
 THREADED SCHEDULE 40 GALVANIZED STEEL OR BRASS.

COLUMBIA COUNTY						
REDUCED PRESSURE BACKFLOW PREVENTER						
Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q501	Fig: 501

Reduced Pressure Backflow Preventer Assembly
(Provided by Contractor)

Assembly Must Comply with AWWA M-14 Standards



NOTES:

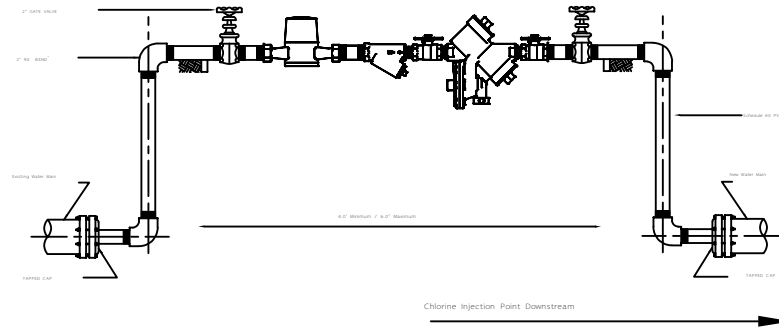
1. FINAL CONNECTION TO BE WITNESSED BY THE COUNTY UTILITIES INSPECTOR.
2. INSTALL JUMPER TAP SYSTEM FOR TEMPORARY METER DOWNSTREAM OF BLIND FLANGE FOR CONSTRUCTION WATER.
3. TAPPING SADDLES MAY BE EITHER STAINLESS STEEL OR DUCTILE IRON.
4. JUMPER ASSEMBLY MUST BE MINIMUM OF 18 INCHES ABOVE FINISHED GRADE.
5. BACKFLOW ASSEMBLY REQUIRES INITIAL CERTIFICATION BY CERTIFIED BACKFLOW TESTER.
6. THIS ASSEMBLY SHALL ONLY BE USED IF NO COMBUSTIBLES WILL BE ON SITE. IF COMBUSTIBLES ARE BROUGHT ON SITE, THEN THE TEMPORARY BACKFLOW PREVENTERS AND FIRE PROTECTION METER TIE-IN ASSEMBLY WILL BE USED.
7. THIS ASSEMBLY IS NOT APPROVED TO PROVIDE FIRE PROTECTION WATER TO THE SITE DURING CONSTRUCTION. ASSEMBLY NOT TO BE REMOVED AND SPOOL PIECE INSTALLED FOR FINAL CONNECTION UNTIL AFTER TESTING, BACTERIAL CLEARANCE, FINAL INSPECTION AND COUNTY ACCEPTANCE.
8. GAP CONFIGURATION TO BE INSTALLED WITHIN 24 HOURS OR LESS AT THE DISCRETION OF THE WATER DISTRIBUTION DEPARTMENT.

Date	Revisions	Appr. by

COLUMBIA COUNTY			
Jumper Connection Detail			
Date: Feb. 2010	Scale: N.T.S.	Dwg: Q501A	Fig: 501A

Reduced Pressure Backflow Preventer Assembly
(Provided by Contractor)

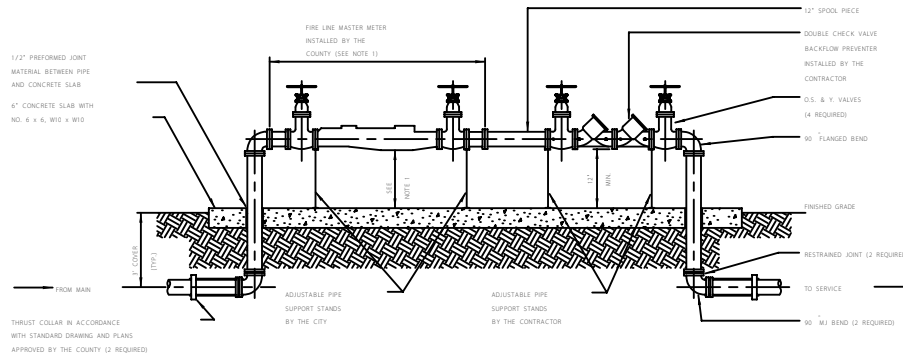
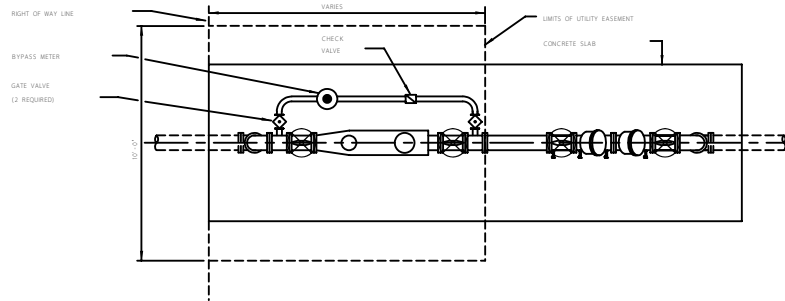
Assembly Must Comply with AWWA M-14 Standards



NOTES:

1. FINAL CONNECTION TO BE WITNESSED BY THE COUNTY UTILITIES INSPECTOR.
2. INSTALL JUMPER TAP SYSTEM FOR TEMPORARY METER DOWNSTREAM OF BLIND FLANGE FOR CONSTRUCTION WATER.
3. TAPPING SADDLES MAY BE EITHER STAINLESS STEEL OR DUCTILE IRON.
4. JUMPER ASSEMBLY MUST BE MINIMUM OF 18 INCHES ABOVE FINISHED GRADE.
5. BACKFLOW ASSEMBLY REQUIRES INITIAL CERTIFICATION BY CERTIFIED BACKFLOW TESTER.
6. THIS ASSEMBLY SHALL ONLY BE USED IF NO COMBUSTIBLES WILL BE ON SITE.
IF COMBUSTIBLES ARE BROUGHT ON SITE, THEN THE TEMPORARY BACKFLOW PREVENTERS AND FIRE PROTECTION METER TIE-IN ASSEMBLY WILL BE USED.
7. THIS ASSEMBLY IS NOT APPROVED TO PROVIDE FIRE PROTECTION WATER TO THE SITE DURING CONSTRUCTION. ASSEMBLY NOT TO BE REMOVED AND SPOOL PIECE INSTALLED FOR FINAL CONNECTION UNTIL AFTER TESTING, BACTERIAL CLEARANCE, FINAL INSPECTION AND COUNTY ACCEPTANCE.
8. GAP CONFIGURATION TO BE INSTALLED WITHIN 24 HOURS OR LESS AT THE DISCRETION OF THE WATER DISTRIBUTION DEPARTMENT.

				COLUMBIA COUNTY			
				Jumper Connection Detail			
Date:	Revisions:	Appr. by:		Date: Feb. 2010	Scale: N.T.S.	Desg: QS10A	Fig: 501A



THRUST COLLAR IN ACCORDANCE WITH STANDARD DRAWING AND PLANS APPROVED BY THE COUNTY (2 REQUIRED)

NOTES:

1. THE CONTRACTOR SHALL CONTACT THE INSPECTOR FOR EXACT ASSEMBLY LENGTH AND HEIGHT ABOVE THE SLAB REQUIRED FOR THE FIRE LINE MASTER METER TO BE INSTALLED BY THE COUNTY. ALL OTHER PIPE, FITTINGS AND APPURTENANCES SHALL BE INSTALLED BY THE CONTRACTOR.
2. ALL ABOVE GROUND PIPE SHALL BE FLANGED DUCTILE IRON.

COLUMBIA COUNTY

FIRE LINE MASTER METER ASSEMBLY

Date	Revisions	Appr. by	Date: Sept. 1996	Scale: N.T.S.	Dwg: Q502	Fig: 502