

Project:

Date:

SECTION 3		Water Supply, Treatment and Distribution System - Design Requirements	Comments
EPD Letters required for private systems: 1) County does not provide water, 2) Local concurrence, 3) Landfill clearance.			
Trust Indenture with County where applicable.			
EPD Letters required for public systems: 1) County will provide water, 2) Landfill clearance.			
Fees due before approval.			
1.14	DEVELOPER'S PLANS AND SPECIFICATIONS	All engineering plans shall ... include, explicitly or by reference, into the Developer's engineering design, plans and specifications, the applicable standards and specifications of Lowndes County. As a minimum, for the following types of facilities, include the indicated information: Water Mains Plan at a scale no smaller than 1 inch = 100 feet. Location of valves, hydrants and service lines.	
3.01	GENERAL	Public systems shall be located entirely within rights-of-way or dedicated permanent easements. Private system shall be located entirely within perpetual easements and/or rights-of-way.	
3.02	DESIGN FLOWS – SUBMIT HYDRAYLIC	All new water systems shall be sized to provide peak domestic requirements at residual pressures of not less than 30 psi at all points in the system.	
	A.	Average Residential Demand Rates: In the absence of data to the contrary, the following shall be used:	
	1	110 gallons per capita per day (gpcd)	
	2	300 gallons per day per connection (single-family)	
	3	Basis for design flows must be clearly stated in the Developer's submittal to the County.	
	B.	Commercial and Industrial: Actual flow or estimated for each individual case in accordance with the Water and Sewer Code of Lowndes County, Georgia. Basis for design estimate must be clearly stated in the Developer's submittal to the County.	
		Peak Demand Rates: In the absence of data to the contrary, peak demand rates for domestic usage by residential, commercial and industrial users shall be taken as follows:	
	1	Maximum Day Demand Rate: 175 percent of average day demand rate. Provide water supply and treatment capacity adequate to meet maximum day demand.	
	2	Maximum Hour Demand Rate: 350 percent of average day demand rate. Provide combination of water supply, treatment and storage capacities adequate to maintain, for four hours, the greater of:	
		a. Maximum hour demand; or	
		b. Average day demand plus fire flow (as established in Paragraph E. below).	
	C.	Fire Flows	
	1	Residential: Fire flows of at least 500 gpm in single-family residential developments and at least 1,500 gpm from at least two fire hydrants in multi-family residential developments at a residual pressure of at least 20 psi at the hydrant shall be provided.	
	2	Commercial and Industrial: Fire flow minimum requirements are the same as for multi-family residential requirements.	
3.03	DESIGN PERIOD	All transmission and distribution lines shall be sized for the ultimate population density (50 years); pumping stations and storage facilities may be designed on a 20-year population prediction, with expansion by modules considered.	
3.04	HYDRAULIC		
	A.	Velocities: Velocities shall normally be less than 5 fps.	
	B.	C Factors: The following Hazen-Williams roughness coefficients shall be used for new construction:	
	1	16-Inch Diameter and Larger Cement-Lined Ductile Iron Pipe: 140	
	2	Less than 16-Inch Diameter Cement-Lined Ductile Iron Pipe: 130	
	3	PVC Pipe (All Sizes): 140	
	C.	Review Submittal Requirements: Include with submittal hydraulic analyses of the planned water transmission/principal distribution main system. Either manual (Hardy Cross Method) or computerized analyses will be acceptable. Balance heads to within 1 psi.	
		As a minimum, submit:	
	1	Analysis at maximum hour demand rate demonstrating maintenance of residual pressure not less than 30 psi at each junction or node for four (4) hours.	
	2	Analysis at average day demand rate plus fire flow (at one or more locations located remotely with respect to water source) demonstrating maintenance of residual pressure not less than 25 psi at each junction or node (which will be accepted as assurance that 20 psi minimum is maintained at all hydrants, per Article 3.02, Paragraph E.) for four (4) hours.	

3.05	LOCATION		
	A.	Mains: Water mains within County rights-of-way, private roads and easement shall not be located under pavement if at all possible.	
	B.	Water and Sewer Separation	
	1	Horizontal separation shall be a minimum of 10 feet. If this is not possible, a water main may be laid closer than 10 feet to, or in the same trench, or on an undisturbed earth shelf located to one side of the sewer and at such an elevation that the bottom of the water main is as least 18-inches above the top of the sewer.	
	2	Vertical separation shall be a minimum of 18-inches where a water main crosses a sewer. This vertical separation shall be maintained for that portion of the water main located within 10 feet, horizontally, of any sewer to be crossed. If this vertical separation cannot be met, the sewer line must be encased as per County Standard Detail, shown elsewhere in these Specifications.	
	3	Water mains shall be installed above sewer mains.	
	C.	Fire Hydrants: Fire hydrants in single-family residential areas shall be not more than 600 feet apart when measured along streets or acceptable accessways, except in a cul-de-sac or dead-end street where a fire hydrant shall be located not more than 600 feet from the center of the turnaround. Fire hydrants in commercial, industrial, and multi-family residential areas shall be not more than 500 feet apart when measured along streets or acceptable accessways. All fire hydrants and independent valves shall be located within the street rights-of-way or easements.	
	D.	Meters: Each commercial, industrial and single family customer shall be provided with a meter. All RV parks, campgrounds, mobile home parks, and multi-family residences, except duplexes, shall be provided with only a single master meter.	
	E.	Valves: Valves shall be installed at a maximum spacing of 1,200 feet on long extensions in single-family residential areas, and 1000 feet in multi-family residential, industrial and commercial areas. There shall be a sufficient number of valves so that single lines in the network may be isolated from the remainder of the system. Valves shall be installed in two directions on a tee; three directions on a cross.	
	F.	Flushing Hydrants: Flushing hydrants or fire hydrants shall be installed at the dead-ends of all non-circulating mains.	
3.06	SERVICES		
	A.	A separate service connection shall be provided for each lot. The minimum size service allowable for new single-family residences shall be 3/4-inch.	
	B.	Service Line Sizing	
	1	For Single Family, Residential Service:	
	a.	Single Service not Crossing Street: 3/4-inch pipe.	
	b.	Single Service Crossing Street: 1-inch pipe.	
	2	For Remaining Services (all in inches)	
		Meter: 5/8" 1" 1.5" 2"	
		Corporation Stop: 3/4" 1" 1.5" 2"	
		Service Line: 3/4" 1" 1.5" 2"	
		Curb Stop: 3/4" 1" 1.5" 2"	
3.07	WATER TREATMENT	Water treatment plants to be dedicated to the County will be considered on an individual basis.	
3.08	WATER WELLS	Water wells will be considered on an individual basis.	
3.09	FIRE PROTECTION REQUIREMENTS	All water systems shall be capable of maintaining fire flows in accordance with Article 3.02 of this Section. The system shall consist of, but not be limited to, a 6-inch minimum size main; fire hydrants; isolation valves; etc. The fire main and water main shall be a common pipeline. NOTE: change in private drinking water supply systems due to EPD ruling. Build for fire hydrants, give County hydrants but plug stubs.	
3.1	RECORD DRAWINGS	When completed, Record Drawings shall be submitted to the County for all systems, whether public or private, for review and approval.	
END OF SECTION			