Laurel County Water District #2

Final Engineering Report
for the
Water Treatment Plant Expansion
Water Intake and
Raw Water Transmission Main Project

February 12, 2010

Laurel County Water District #2
3910 South Laurel Road
London, Ky 40744

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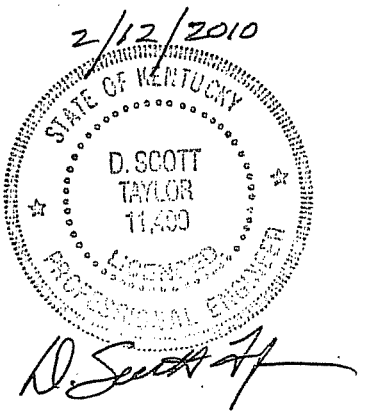


PRELIMINARY ENGINEERING REPORT

FOR THE

LAUREL COUNTY WATER DISTRICT NO. 2 EXPANSION / IMPROVEMENT PROJECT

OCTOBER 2005

624 Wellinton Way
Lexington, Kentucky 40514
1-859-223-5694

TABLE OF CONTENTS

Page Number

Tables

Figures

Appendix A

BACKGROUND

The Laurel County Water District No. 2 owns and operates its own water utility system, which is governed by an independent board appointed by the Laurel County Judge-Executive. The District's operation is regulated by the Kentucky Public Service Commission. Existing primary system components of supply, treatment and transmission capability were constructed in 1963 and 1964. Part of the distribution system and a storage tank were purchased from the L & N Railroad when the District began operating in 1965. The water treatment plant has been improved over the years, and currently has a rated capacity of 1.44 million gallons per day (mgd). This rating is based on plant parameters. Actual production at the water plant is averaging about 1.34 mgd with hours of operation. Clearly, additional plant capacity is needed.

The system supplies water primarily to the area between London and Corbin and the surrounding part of Laurel and Knox Counties, for a total estimated population served of approximately 10,800 based on service to 5,400 customers including about 60 institutional, and commercial and industrial users, mostly in Laurel County. The District is one of six public water systems which provide service in Laurel County.

Water to supply the northern portion of the water system (near London) is purchased from the City of London. Service is provided by a 10 inch line connected to the London system for a gravity feed near the London Airport on US. 25 South of the Bypass. The pressure at the London master meter is normally about 100 psi and provides the operating pressure for this portion of the system.

The remainder of the Laurel No. 2 system is normally supplied by the District's water plant. The south part of the District's service area is served primarily by an 8 inch transmission line which is in good condition. This line feeds a 400,000 gallon tank, a 1,000,000 gallon tank and three other smaller tanks. The four storage tanks containing a combined 1,825,000 gallons are all supplied by the existing plant. The plant discharge pressure is normally about 62 psi.

A separate water plant expansion is also proposed. This project would expand the existing water plant capacity from about 1.44 mgd to 2.9 mgd. This would be done by constructing two parallel 500 gpm "claricone" treatment units to operate in series with the existing facility. A new filter building and clearwell expansion would also be required.

Project Area

Laurel County is located about 85 miles south of Lexington on I-75 at the west edge of the Kentucky coal fields. The county is an Appalachian County and about 60% of the county's 286,080 acres is occupied by forest or woodlands. A relatively large amount of the County's land is flat and suitable for development. The county is traversed by I-75 which, particularly in the central and southern end of the county passes through relatively flat uplands, which are suitable for development. The Daniel Boone Parkway traverses the County from east to west and has created a new growth corridor in the County. Laurel County had a 1990 population of 43,438 which represents a gain of 11.43 percent from 1980.

Laurel County continued to experience population growth during the 1980's. The increased employment opportunities due to development near I-75 sparked much of the growth. The natural topography of some of the main tributaries of the Laurel and Rockcastle Rivers does provide favorable homesites and land for commercial/industrial development above the floodplain limits. The area between London and Corbin is expected to have the greatest amount of industrial development of any place in the area. This is, of course, the area served by Laurel Water District No. 2. This land is flat, floodfree and has good access to I-75. Close proximity to the cities of London and Corbin, makes this a particularly advantageous place from a labor market standpoint. This area is also served by railroads and is close to the London-Corbin Airport. The north Corbin area, which is part of the corridor between London and Corbin, but is associated particularly with Corbin, is experiencing considerable industrial and commercial development at this time. This trend should continue through the entire area along US. 25 between London and Corbin. The District must carefully plan fixture water service in this area to insure adequate service and to protect the financial resources of the District. Other major developments which have impact on growth in the District include major recreational facilities.

The Laurel River Lake, operated by the Corps of Engineers and the US. Forest Service, is one of the area's major recreation resources. The 6,000 acre lake contains boat launching ramps, picnicking and camping areas, hiking trail systems and commercial facilities, such as marinas, lodges and restaurants. The Levi Jackson State Park, located just southeast of London, is an important tourist and recreational facility for the entire community and is located in the District's territory.

The opportunity to live in a rural type of environment within a reasonable distance of an area which has good medical and business facilities, seems to appeal to many Laurel Countians and the population gain is expected to continue. This has been especially true for people of retirement age who have remained in this area during the last two decades. The construction of the Cumberland Gap Tunnel and widening of US. 25 are expected to promote access and have a large impact on the present economic and population growth in the District's service area because of greatly reduced travel time to I-75 and Central Kentucky for residents of the Upper Cumberland River area.

The county has two urban areas; London with a population of 5,757 and Corbin with 7,419 people. Corbin is located on the Whitley-Laurel County line while London is in the center of the County. Both London and Corbin operate their own municipal water and sewer systems.

Table 1 shows the population trends in Laurel County, confirms the recent growth trends and indicates that continued growth is expected, especially around the urban areas in the County.

TABLE 1

POPULATION STATISTICS

LAUREL COUNTY, KENTUCKY*

Year	Laurel County	London	Corbin	Laurel County Water District #2
1970	27,386	4,337	7,474	2,400
1980	38,982	4,002	8,075	5,600
1990	43,438	5,757	7,419	9,700
2000	52,715	5,692	7,742	12,700

**Source: US. Census and Kentucky Economic Statistics, 2000*

Six public water systems provide service in Laurel County. London and Corbin each operate a complete municipal system. London serves the central portion of the County, while Corbin serves the urban area in the south portion of the County. In addition to Laurel Water District No. 2, the Wood Creek Water District, the East Laurel Water District and the West Laurel Water Association serve extensive areas in Laurel county.

Water Source

Laurel Water District No. 2 obtains its water from Laurel River at an impoundment formed by Dorthae Dam near the headwaters of Laurel River Lake. The lake only impounds about 450 acre-feet of water and covers 37 acres, however, the drainage area of the lake is 62,080 acres. The lake is estimated to have a dependable yield of about 1.4 mgd. The dam is a concrete structure, "run-of-river" type construction, subject to continuous overflow. The District's supply is basically dependent on the river's ability to maintain baseflow. Also, because the reservoir is small with little buffering capacity, water quality varies greatly depending on the timing of runoff events in the river.

According to District records, the amount of water available has always exceeded the District's requirements but continued growth and development have pushed the supply to over its limits and an additional source is required.

The quality of the lake is highly variable. Iron, manganese, turbidity and algae problems require diligent operation to maintain quality water. Constant monitoring of pH, combined with chlorine application and potassium permanganate feed have proved necessary to control water quality especially manganese. The water plant is located a short distance from the lake intake structure and supplied by pump through an 8" line. The 8" raw water line is currently adequate for the plant capacity.

Water Treatment

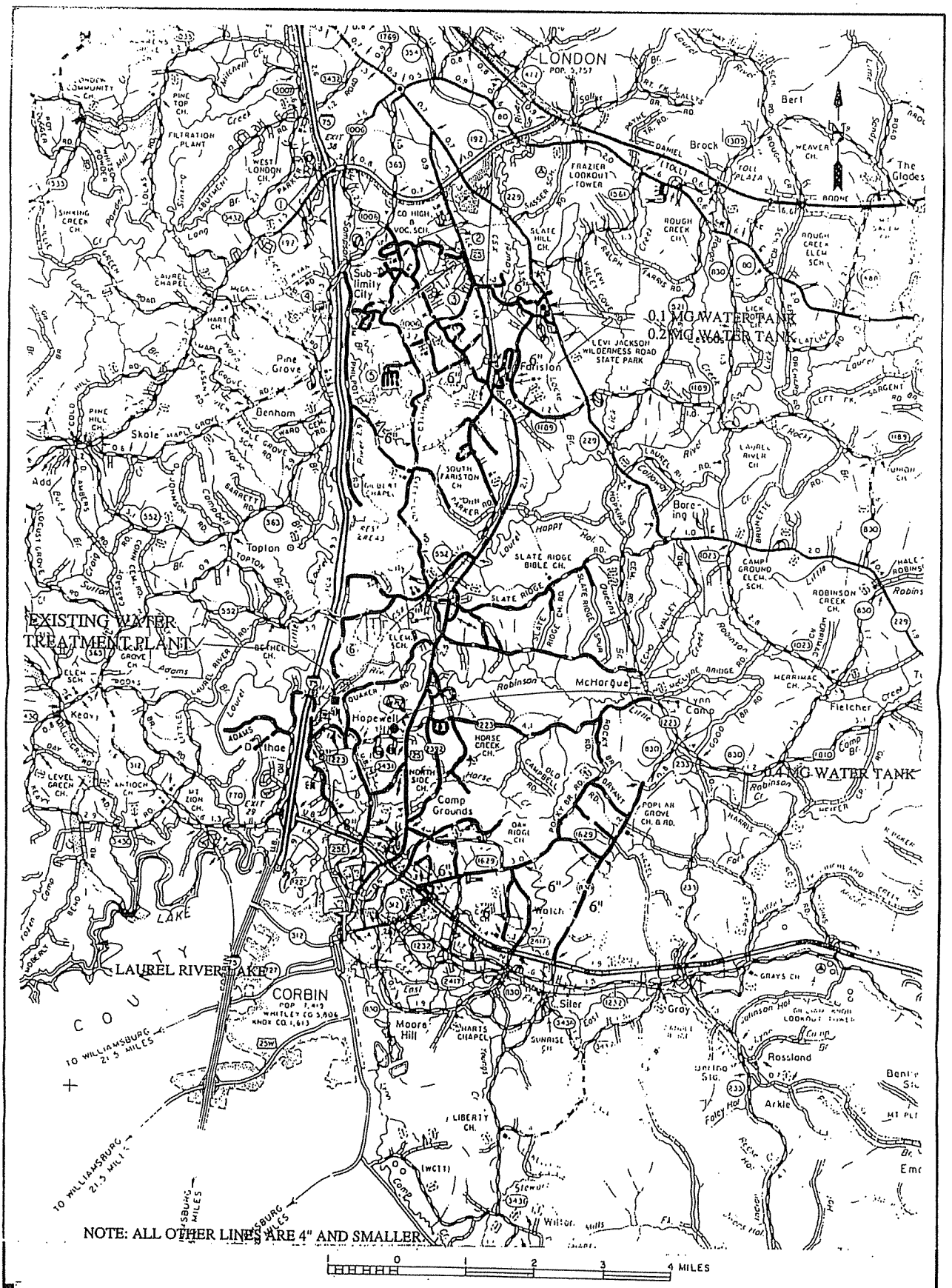
The present water treatment plant was built in the mid 1960's and is a conventional rapid sand filtration type. The plant was originally constructed with a nominal capacity of 0.55 mgd (384 gpm). Subsequently, the plant was modified to a capacity of 514 gallons per minute (0.74 mgd), by changing the filter media for a higher filtration rate, installing new pumps rated and making related instrumentation changes. The District further expanded the plant to 1.44 MGD with the addition of two claricone units, new pumps, additional clearwell capacity and related upgrades . Table 2 shows a summary of the existing plant treatment components.

Water Distribution

The Laurel Water District No. 2 distribution system network due to its size, is very complex. Due to the topography, several pressure districts have been used to maintain an acceptable flow in the range of pressures that are adequate but not excessive. Figure I shows the existing water distribution system and the location of important components.

TABLE 2
LAUREL COUNTY WATER DISTRICT NO. 2
EXISTING PLANT OPERATING PARAMETERS

Traetment Unit		
Daily Production	568,740	GPD
Filter Area	288	SF
Conventional Filter Capacity	576	SF
High Rate Filter Capacity	1152	SF
Proposed Filter Rate	1008	gpm
Proposed Filtration Rate	3.5	gpm/SF
Filter Run Required	9.4	hours
Capacity at Actual Rate	1,451,520	GPD
Flocculator Detention Time	16	miin
Flocculator Capacity	16,600	gallons
Settling Basin Detention Time	120	miin
Settling Basin Capacity	87,360	gallons
Clearwell Capacity / WTP Capacity	14%	
Clearwell Capacity	200,000	gallons
Clearwell Detention Time	198	miin
Approximate CT Value at Capacity	297	



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LAUREL COUNTY WATER DISTRICT #2
OAK RIDGE PROJECT

EXISTING WATERLINES

These pressure districts are best defined by the storage tanks which serve them as shown in Table 3. The system has a total of 2.2 MG in storage which represents a 1.64 day supply based on water sales. All tanks are supplied from the water plant, with various devices used to prevent overflows because of varying tank elevations.

The system is estimated to include the following quantities of distribution line:

		Miles
14"	-	3.50
12"	-	4.50
10"	-	307.00
8"	-	6.12
6"	-	38.96
4"	-	61.55
3"	-	10.51
2"	-	8.69

The section of the system served by London is isolated from the remainder of the system by closed valves. When required, these valves can be opened to allow the London system to supplement flows to the Levi Jackson tanks. This provides flexibility during times of high demand or when other emergencies have arisen.

TABLE 3

TREATED WATER STORAGE

Name	Location	Year Erected	Capacity (Mg)	Overflow Elevation
Levi Jackson # 1	Hwy 229 @ Levi Jackson. S.P.	1964	0.100	1330
Levi Jackson #2	Hwy 229 @ Levi Jackson S.P	1964	0.200	1330
Hopewell	US. 25 near Hopewell	1964	0.400	1359
Aisin	On U.S. 25 near Aisin Ind.	1996	0.500	1359
Oak Ridge	Knox County Line	1996	1.000	1385

TABLE 4
LAUREL COUNTY WATER DISTRICT NO. 2
WATER PRODUCTION STATISTICS

Month	Purchased	Produced	Total	Sales
January	1,570	39,541	41,111	36,888
February	838	37,446	38,284	28,790
March	1,310	38,011	39,321	27,888
April	1,583	37,698	39,281	32,647
May	4,314	38,061	42,375	33,091
June	2,017	38,803	40,820	36,597
July	2,865	39,411	42,276	36,944
August	3,189	39,380	42,569	36,448
September	3,195	37,380	40,575	34,677
October	393	36,652	37,045	33,618
November	1,055	33,326	34,381	34,895
December	2,650	35,913	38,563	33,296
Total	24,979	451,622	476,601	405,779

Current Water Use

As shown in Table 4, net water plant production is about 37.6 million gallons per month (451,622,000 annually) or 1.2 million gallons pumped for distribution. Some water losses are accounted for including in-plant use, and distribution water losses are averaging about 9 percent.

In addition to the plant production, 24,979,000 gallons were purchased from London in 2004 for re-sale to the District's customers. Table 5 summarizes the District's water production, sales and unaccounted for water loss.

TABLE 5
LAUREL COUNTY WATER DISTRICT NO. 2
WATER PRODUCTION STATISTICS

	Annual	Avg Daily
Water Produced	451,622,000	1,237,321
Water Purchased	24,979,000	68,436
Total Water Produced and Purchased	476,601,000	1,305,756
Water Sales		
Residential	284,869,000	780,463
Commercial	120,910,000	331,260
Total Water Sales	405,779,000	1,111,723
Other Water Used		
Utility/Water Treatment Plant	20,223,000	55,405
System Flushing	3,946,000	10,811
Fire Department	4,767,000	13,060
Total Other Water Used	28,936,000	79,277
Water Loss		
Line Breaks	2,463,000	6,748
Other	39,423,000	108,008
	41,886,000	114,756
Water Loss Percentage	8.8%	

EXISTING OPERATIONS

The Laurel Water District No. 2 operates the water system with is own billing and maintenance staff. The current water rates are shown in Table 6.

The water system has grown steadily since its beginning as shown in Figure 2. The water system currently serves about 5,447 customers. About 33.8 million gallons per month are billed to customers.

The water system has the following long term debt obligations:

Issue	Rate	Balance	Annual P & I
1992 FmHA Bonds	4.69%	$365,000	$ 48,640
1980 FmHA Bonds	5.00%	$409,000	$ 29,450
1994 RD Bonds	5.00%	$350,000	$ 20,750

The water system's operation appears to be financially sound for 2004 because of the continued growth in system revenues. A review of Table 7 shows that for the 2004 audit year, the system had a balance of $240,331 available for coverage and depreciation. Bond principal payments of $7,500 & $72,503 were made from this balance leaving a net cash flow of about $160,328. If the depreciation account of $225,497 was to be maintained and the coverage of $14,834 were to be fully funded, then a rate increase on the existing operation of about 3.7 % would be needed.

Figure 2 - LAUREL COUNTY WATER DISTRICT NO. 2

HISTORIC POPULATION SERVED

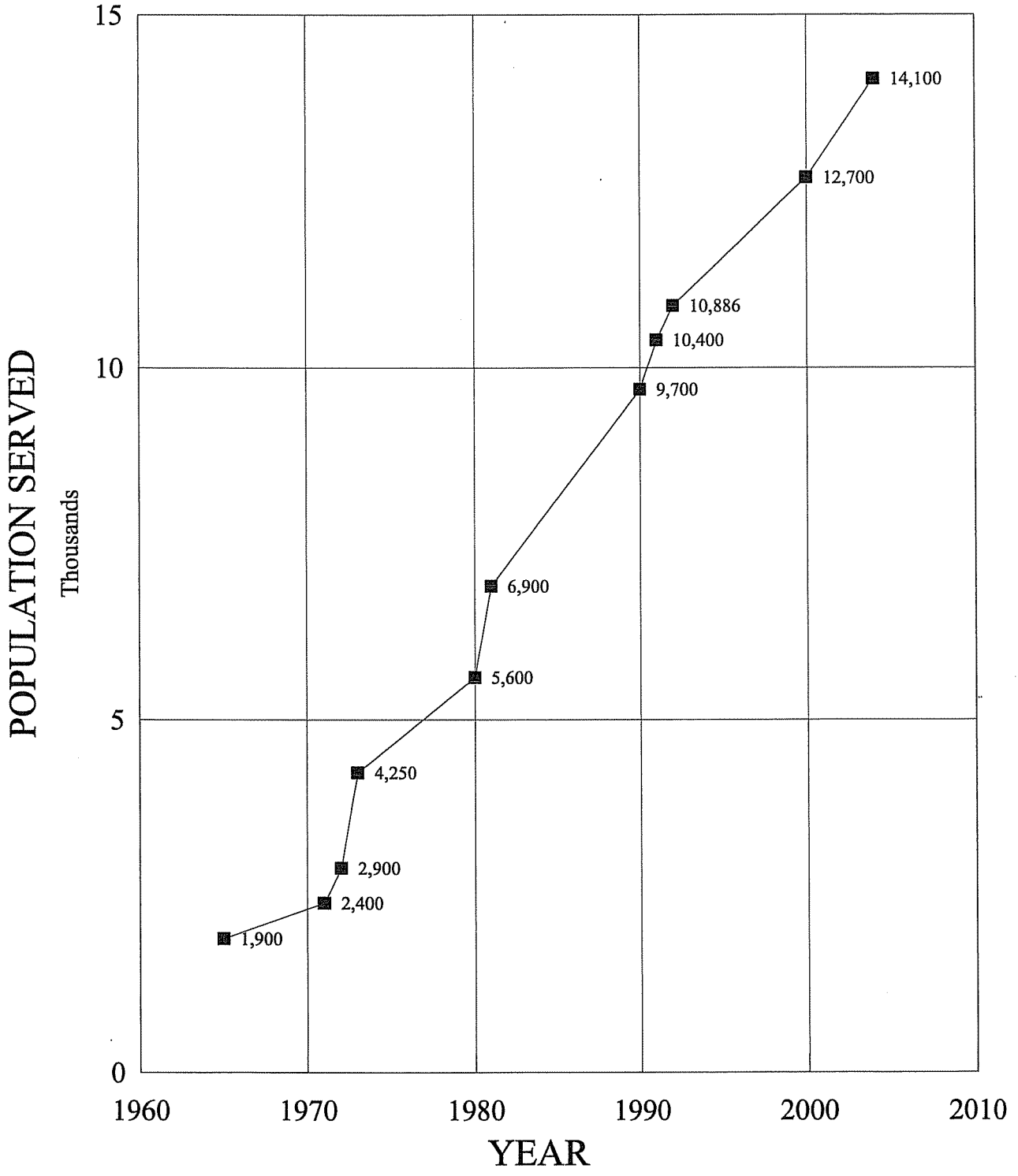


TABLE 6 - LAUREL COUNTY WATER DISTRICT NO. 2

EXISTING RETAIL RATES

5/8x3/4" Meters

First	1,000 gallons	@	$ 6.20	Minimum Bill
Next	4,000 gallons	@	$ 2.60	Per 1,000 gallons
Next	5,000 gallons	@	$ 2.40	Per 1,000 gallons
All Over	10,000 gallons	@	$ 2.20	Per 1,000 gallons

1" Meters

First	5,000 gallons	@	$ 16.60	Minimum Bill
Next	5,000 gallons	@	$ 2.40	Per 1,000 gallons
All Over	10,000 gallons	@	$ 2.20	Per 1,000 gallons

1-1/2" Meters

First	10,000 gallons	@	$ 28.60	Minimum Bill
All Over	10,000 gallons	@	$ 2.20	Per 1,000 gallons

2" Meters

First	20,000 gallons	@	$ 28.60	Minimum Bill
All Over	20,000 gallons	@	$ 2.20	Per 1,000 gallons

3" Meters

First	30,000 gallons	@	$ 28.60	Minimum Bill
All Over	30,000 gallons	@	$ 2.20	Per 1,000 gallons

4" Meters

First	50,000 gallons	@	$ 28.60	Minimum Bill
All Over	50,000 gallons	@	$ 2.20	Per 1,000 gallons

6" Meters

First	100,000 gallons	@	$ 28.60	Minimum Bill
All Over	100,000 gallons	@	$ 2.20	Per 1,000 gallons

TABLE 7
LAUREL COUNTY WATER DISTRICT NO. 2
2004 PSC Annual Report / Annual Audit

	Project Operating Budget	Current Operation
A.	Operating Income:	
	Water Sales	$1,276,285
	Disconnect/Reconnect/Late Charge Fees	64,791
	Other (Describe)	0
	Less Allowances & Deductions	0
	Total Operatng Income	$1,341,076
B.	Operation and Maintnenace Expenses:	
	Purchased Water	29,497
	Source of Supply	12,516
	Water Treatment	402,112
	Transmission and Distribution	158,739
	Customer Accounts	168,479
	Administrative and General	197,563
	Taxes	37,788
	Total Operating Expenses	$1,006,694
	Net Operating Income	$334,382
C.	Non-Operating Income:	
	Interest on Deposits	6,795
	Other (Identify)	
	Total Non-Operating Income	6,795
D.	Net Income	$341,177
E.	Debt Repayment:	
	FmHA Interest	23,153
	FmHA Principal	7,500
	Non-FmHA Interest	45,184
	Non-FmHA Principal	72,503
	Total Debt Repayment	$148,340
F.	Balance available for Coverage and Depreciation	$192,837
G.	Coverage and Depreciation Requirement:	
	Coverage	14,834
	Depreciation	225,497
	Total Coverage and Depreciation	$240,331
H.	Balance after Coverage and Depreciation	($47,494)

PROPOSED PROJECT

Water Expansion & Improvements Project

Figure 3 shows the general location of the proposed facilities for this project. The existing water source and water treatment capacity as discussed earlier are inadequate to meet the continued growth of the County and the District's service area. The project includes an allocation of water from the Corps of Engineers from Laurel River Reservoir, a new intake on the lake, a raw water booster pumping station and transmission mains to the existing Laurel County Water District No. 2 water treatment plant. The project also includes a major upgrade of the water treatment plant to 2.88 MGD.

New Raw Water Source

The COE has allocated the use of 2 MGD for Laurel River Reservoir for Laurel County Water District #2. The use of this allocation coupled with the existing Dorthea Lake supply will yield a supply in excess of 3.5 MGD. Current water use is 1.34 MGD and the 2010 projected use is 2.0 MGD.

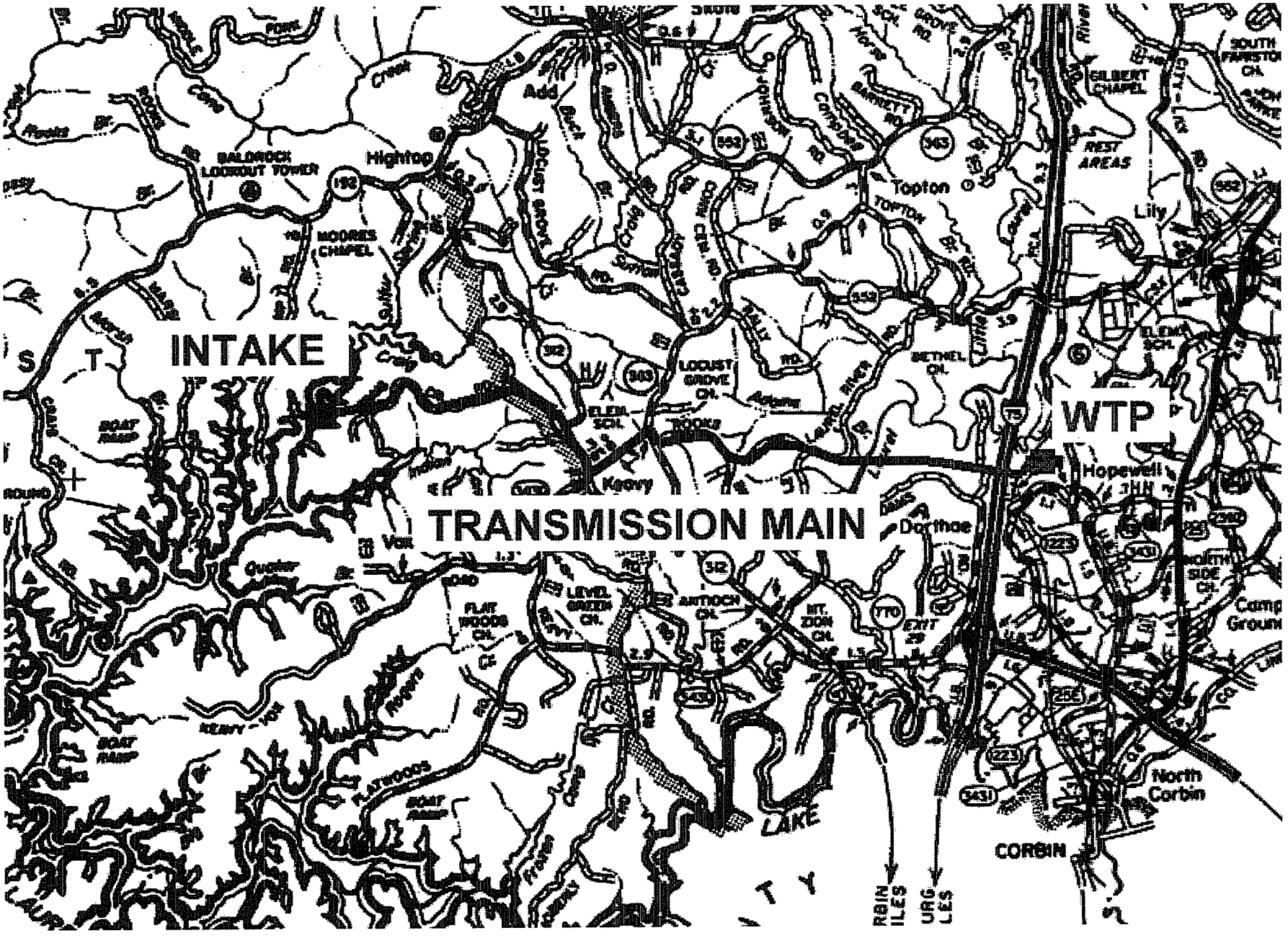
The COE has calculated the cost of the allocation base on the net amount of water needed from the Reservoir, their own construction and maintenance cost and lost power generation at other sites. The cost of the 2 MGD allocation is $92,807 with annual costs of $1,547. In order to develop the source, the LCWD will need to purchase land or secure easements from the COEand others as well as pay the allocation costs.

Raw Water Intake Station

The Laurel River Reservoir has other existing intake facilities. Their location has an existing access road and power. The proposed Laurel County Water District #2 intake and pump station are intended to be located nearby in order to minimize the cost of the facilities by eliminating duplicate facilities and minimizing power transmission expenses. The intake will be sized for maximum capacity to match the Water Treatment Plant capacity of 2.88 MGD and will include racks and screws for protection with backwash capability. Table 8 shows the estimated cost for the intake facilities and rights to be $1,305,000.

Water Plant Expansion

The existing water plant has operated for ten years since the last expansion. In order to maintain competitive rates for its customers, the Water District believes it must control its own production costs. The District does receive a very favorable rate of $1.18 per 1,000 gallons for purchased water from London. The District can also purchase water from Corbin at a much higher rate in the event of an emergency. However, the District continues to produce as much of its own water as possible and in fact, will produce all its water as the system hydraulics are improved to allow conveyance from the plant to the north section of the system.



PROPOSED FACILITIES LOCATION MAP **FIGURE 3**

Laurel County Water District #2
FY 2006 - Expansion/Improvements Project
Preliminary Cost Estimate

LAUREL LAKE WATER SOURCE		
Purchased Water Rights		$170,000
Lake Intake/Screen Structure		$800,000
Raw Water Intake Pump Station		$200,000
Electrical Service		$100,000
Site Work		$15,000
Telemetry		$20,000
	Sub Total	$1,305,000
WATER TREATMENT PLANT EXPANSION		
Two Claricones & Headtank		$400,000
Foundations		$85,000
Filters 1, 2, 3 & 4		$380,000
Filter Building		$160,000
Site Piping		$150,000
Caricone Enclosure/Walks		$270,000
Filter Valves and Controls		$250,000
Clearwell #3		$225,000
Electrical		$200,000
Plumbing		$40,000
Backwash System		$100,000
Sludge Lagoon		$280,000
	Sub Total	$2,540,000
Raw Water Transmission		
44,000 LF - 16" DI Pipe		$1,892,000
16" Valves		$22,000
Casing Pipe - Bored		$40,000
Creek Crossings		$15,000
Air Valves		$10,000
Hydrants		$12,000
Paving Repair		$40,000
	Sub Total	$2,031,000
CONTINGENCIES		$200,000
CONSRUCTION COST ESTIMATE		$6,076,000
OTHER		
Engineering		$393,700
Inspection		$235,800
Legal/Bond		$27,500
Administrative		$20,000
Geotechnical		$7,000
Intake Site/Easements		$20,000
Permits/Other		$50,000
Plant Site Property		$70,000
Envionmental Studies		$100,000
	Sub Total	$924,000
ESTIMATED PROJECT COST		$7,000,000

Prepared by:
of Kentucky, Inc.

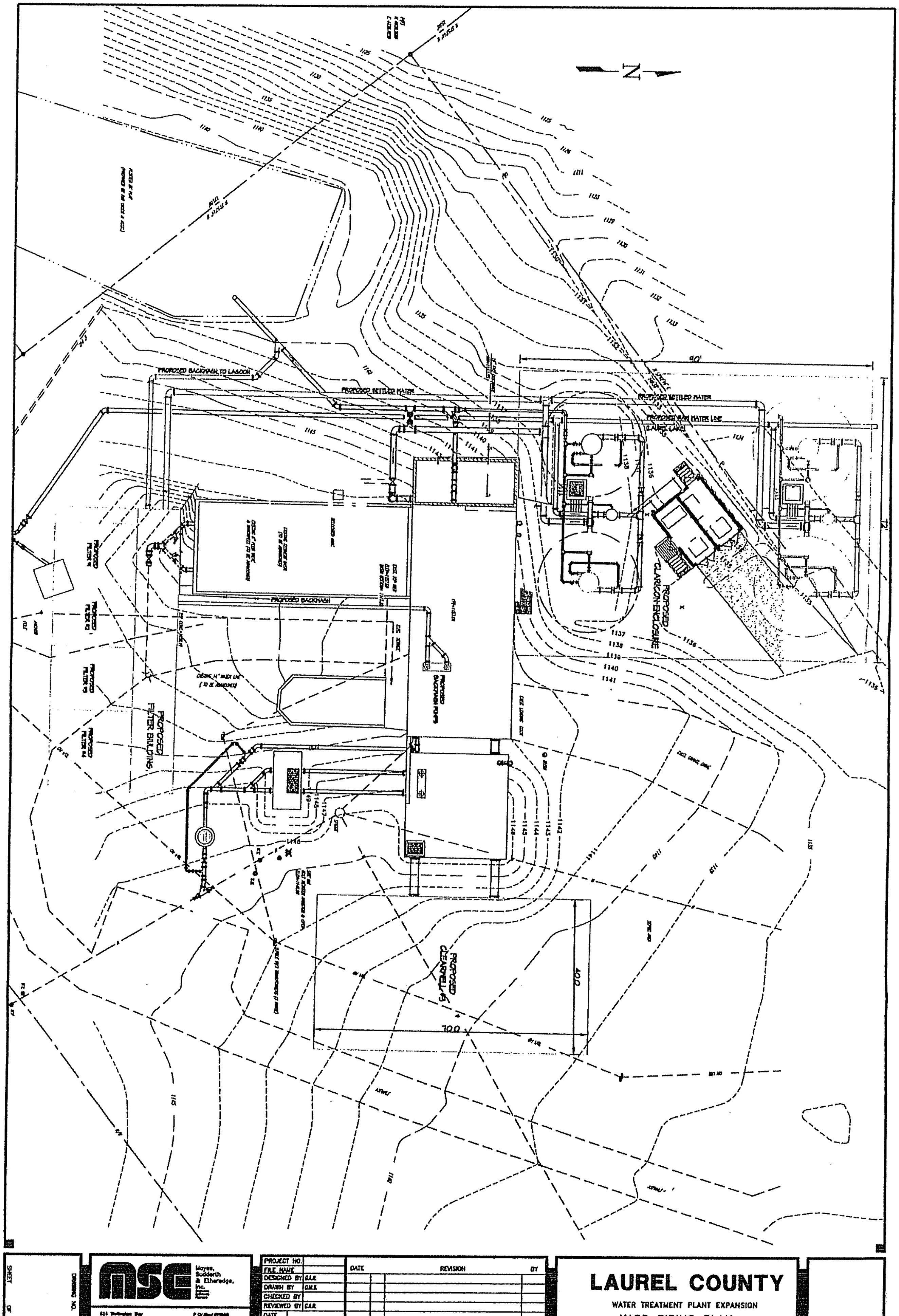
Table 10 shows the proposed operating parameters for the plant after the proposed expansion. The plant production rate is proposed to be 2,000 gpm or 1.44 mgd. Pumping capacity may be less than plant production capacity because of hydraulic constraints in the distribution system until the proposed distribution improvements are phased in.

TABLE 2
LAUREL COUNTY WATER DISTRICT NO. 2
PROPOSED PLANT OPERATING PARAMETERS

Traetment Unit		
Daily Production	1,500,000	GPD
Filter Area	576	SF
Conventional Filter Capacity	1152	SF
High Rate Filter Capacity	2304	SF
Proposed Filter Rate	2000	gpm
Proposed Filtration Rate	3.5	gpm/SF
Filter Run Required	12.5	hours
Capacity at Actual Rate	2,880,000	GPD
Flocculator Detention Time	15	miin
Flocculator Capacity	30,000	gallons
Settling Basin Detention Time	120	miin
Settling Basin Capacity	240,000	gallons
Clearwell Capacity / WTP Capacity	15%	
Clearwell Capacity	432,000	gallons
Clearwell Detention Time	216	miin
Approximate CT Value at Capacity	300	

Six alternative methods were evaluated for performing the plant expansion. These alternatives are summarized in the appendix of this report. Alternative 2 was selected as the preferred method. This alternative involves construction of two - 500 gpm "claircone" units to operate in parallel. The claricone unit utilizes a rotating slurry blanket maintained in suspension by a tangential inlet at the base of the cone shaped unit. The unit combines mixing, tapered flocculation and solids contact clarification in a suspended sludge blanket without any mechanical energy other than the hydraulic energy provided by the incoming raw water. The unit also provides for automatic solids removal from the treatment process. Figure 4 shows a diagram of the proposed treatment process.

Table 9 shows the estimated cost for the water plant expansion project with a total construction cost of $2,060,000 to be funded along with the transmission main and intake facilities.



SHEET	OF
DRAWING NO.	

MSE
Moyes, Sudderth & Etheredge, Inc.
Engineers
824 Wellington Way
Phone (606)223-5694
P.O. Box 11998
Lexington, Ky. 40524

PROJECT NO.	
FILE NAME	
DESIGNED BY	G.A.R.
DRAWN BY	C.M.S.
CHECKED BY	
REVIEWED BY	G.A.R.
DATE	
SCALE	1"=10'

DATE	REVISION	BY

LAUREL COUNTY

WATER TREATMENT PLANT EXPANSION

YARD PIPING PLAN

PROJECT NEED

A clear and obvious public health threat exists for the project area residents because of the inability of unserved persons to have access to public water supply. These persons are forced to gather water from contaminated wells and cisterns all unapproved private water supplies or to haul water at great expense. The Knox County Health Department considers the northwest area of the County to be in critical need of a safe, potable water supply. Many of the wells tested by the Health Department in this area have been contaminated by coliform bacteria. The potential for waterborne disease including Type A hepatitis is real and is a threat to all residents using these supplies. In addition, the District water plant is unable to adequately provide all the water needs of the system. This necessitates large purchases of water from the City of London. Where possible, the District wants to produce its own water. The improved treatment process will also result in a higher quality product for all existing users and sufficient capacity to expand into all the unserved areas of the District.

Another important factor justifying the need for the project is the expense and aggravation experienced by project area residents who maintain their own private water supply. As stated by local residents, 1,000 gallons of hauled water costs about $30.00. This means an average monthly water usage of 4,000 gallons costs $120.00. Considering many of the project residents are low income individuals, $120.00 a month is astronomical and extremely burdensome. It is this high cost that drives many of these residents to use other sources of contaminated water.

ALTERNATIVES CONSIDERED

There are no cost-effective alternatives to the water system expansion proposed in this project. Continuation of the existing mechanism for obtaining water results in many residents continued exposure to serious health hazards. Hauling water has an average cost of about $120 per month which is clearly not feasible for most of the area residents.

The Laurel County Water District No. 2 is the only provider of water in these rural areas and is the logical provider since these routes are in its service area.

The environmental impacts of the project are minimal and are those associated with normal water line construction activities. These include construction noise, dust, ditch erosion and disturbance of road side areas temporarily during construction. These effects can be mitigated with dust and erosion control techniques and by avoiding routes which disturb large trees or other permanent or man-made features of local significance. Typically, environmental effects are not observable one year after construction and surface restoration are completed. An environmental assessment has been prepared for the project.

The project requires continuous easements or right-of-way permits for all lines. 1n addition, fee-simple acquisition of a tank site is required.

Project facilities are to be designed in accordance with Kentucky Division of Water and FmHA requirements. These include: minimum pressure at customer's meter of 30 psi; maximum pressure

at customer's meter of 100 psi; and, two day's storage capacity available in the system. In addition, approved flush hydrants are to be installed to avoid disinfection problems. Pipe materials will be rated a minimum of 200 psi working pressure (Class 200, PVC) and the design pressure will only utilize 2/3 of that rating as a safety factor. Line capacities are based on peak-flow operating conditions which are three times the average projected flows for areas served by four inch or larger lines. For smaller lines, higher peak flow ratios are used in accordance with standards recommended by the Kentucky Public Service Commission.

Improvements at the water plant will also have minimal environmental impact. All construction activities will be confined to the existing plant site. Land disturbance will be minimal. The plant already has a KPDES permit for its wastewater discharge and this will remain unchanged. Plant design requires Kentucky Division of Water approval and issuance of a construction permit.

FINANCING

The financial analysis for this project is contained in the following fifteen exhibits. A user analysis was developed using the existing rates and the 2004 audit and PSC annual report to calibrate for accuracy. An analysis of the existing users was conducted to determine the distribution of users in the various rate brackets to verify existing revenues and to predict the new revenues and usages. This existing analysis is shown in Exhibit 1. The projected revenue is shown in Exhibit 10. Exhibit 3 is a summary of the operating revenues and expenses for the test year which is the 2004 audit year. Exhibit 4 is a calculation of the average debt service for all loans. The new bond issue is the RD loan for the extension project. The existing bonds include the KIA Drinking Water Fund Loan.

Exhibit 5 contains a summary of the operating expenses and adjustments for new users. No change is shown in water treatment cost, although, some reduction in costs is anticipated. Exhibit 6 shows the basis for calculating the operating adjustments. Exhibit 7 shows the depreciation calculations and adjustments for the proposed project. Exhibit 8 is a projection of the annual revenue requirements for the project after it goes in full operation. Exhibit 9 shows the projected rates required to generate the necessary revenue. Exhibit 11 shows the 2004 and the projected cash flow summary. As shown, the rate increase compensates for the 2004 loss when depreciation and coverage is considered.

The budget for the combined system operation is contained in Exhibit 11 based upon adjustment to the 2004 operations. Based upon the adjustments computed, the combined system could support the additional loans for the development of the new source and the plant expansion. The Summary/Addendum included at the end of this report contains the usual analysis for the users for

the loan only alternative. Exhibit 12 summarizes the project cost and assumed funding for the extension project. Exhibit 13-15 contains detailed billing analyses used in the other exhibits.

The project is feasible given the proposed funding scenario and participation by all users with the loan terms described herein. It is recommended that the District pursue implementation of the alternatives as described in this report. It should be noted that PSC approval of the project construction and rates is facilitated by submitting a single submission under the terms of a Rural Development Administration letter of conditions.

WATER DEMAND PROJECTIONS

Projections of Water Demands
and
Water Returned
for
Laurel County Water District No. 2

May 29, 2002

CONTENTS

Mayes Sudderth & Etheredge, Inc.

Project No. 9545-05

ST\LAUREL\COE-USG\USAGE.WK4

Table 1
Water Produced and Purchased
Average Usage in MGD

	Autual Data			Linear Regression	
	Produced	Purchased	Total	Produced	Total
1990	505,471	289,255	794,726	442,192	652,322
1991	652,926	202,751	855,677	516,618	725,878
1992	570,260	289,808	860,068	591,043	799,434
1993	670,727	250,904	921,631	665,469	872,990
1994	681,817	281,698	963,515	739,895	946,546
1995	646,233	308,328	954,561	814,320	1,020,102
1996	682,978	355,150	1,038,128	888,746	1,093,658
1997	913,725	151,780	1,065,505	963,171	1,167,215
1998	1,173,477	81,836	1,255,312	1,037,597	1,240,771
1999	1,239,660	214,060	1,453,721	1,112,023	1,314,327
2000	1,251,047	155,910	1,406,956	1,186,448	1,387,883
2001	1,230,074	171,945	1,402,019	1,260,874	1,461,439
2002				1,335,300	1,534,995
2003				1,409,725	1,608,551
2004				1,484,151	1,682,107
2005				1,558,577	1,755,664
2006				1,633,002	1,829,220
2007				1,707,428	1,902,776
2008				1,781,853	1,976,332
2009				1,856,279	2,049,888
2010				1,930,705	2,123,444

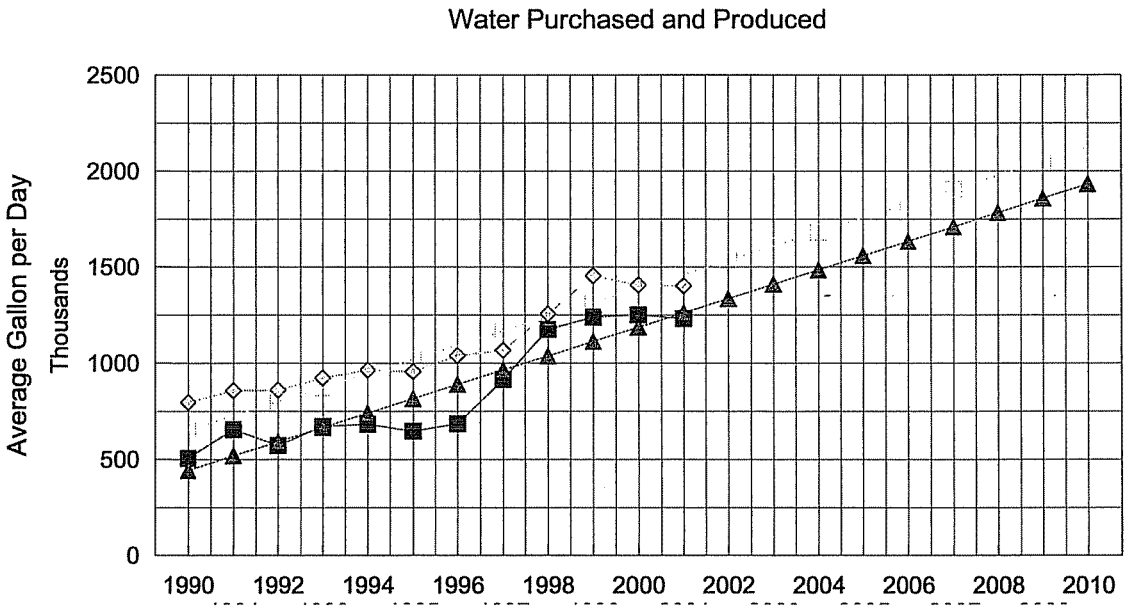


Table 1A
Water Produced and Purchased
Usage in Gallons per CalendarYear

	Autual Data			Linear Regression	
	Produced	Purchased	Total	Produced	Total
1990	184,497,000	105,578,000	290,075,000	161,400,074	238,097,423
1991	238,318,000	74,004,000	312,322,000	188,565,431	264,945,409
1992	208,145,000	105,780,000	313,925,000	215,730,788	291,793,395
1993	244,815,500	91,579,780	336,395,280	242,896,146	318,641,380
1994	248,863,200	102,819,800	351,683,000	270,061,503	345,489,366
1995	235,875,060	112,539,600	348,414,660	297,226,860	372,337,352
1996	249,286,900	129,629,900	378,916,800	324,392,217	399,185,338
1997	333,509,800	55,399,600	388,909,400	351,557,574	426,033,324
1998	428,319,000	29,870,000	458,189,000	378,722,931	452,881,310
1999	452,476,000	78,132,000	530,608,000	405,888,288	479,729,295
2000	456,632,000	56,907,000	513,539,000	433,053,645	506,577,281
2001	448,977,000	62,760,000	511,737,000	460,219,003	533,425,267
2002				487,384,360	560,273,253
2003				514,549,717	587,121,239
2004				541,715,074	613,969,224
2005				568,880,431	640,817,210
2006				596,045,788	667,665,196
2007				623,211,145	694,513,182
2008				650,376,502	721,361,168
2009				677,541,860	748,209,153
2010				704,707,217	775,057,139

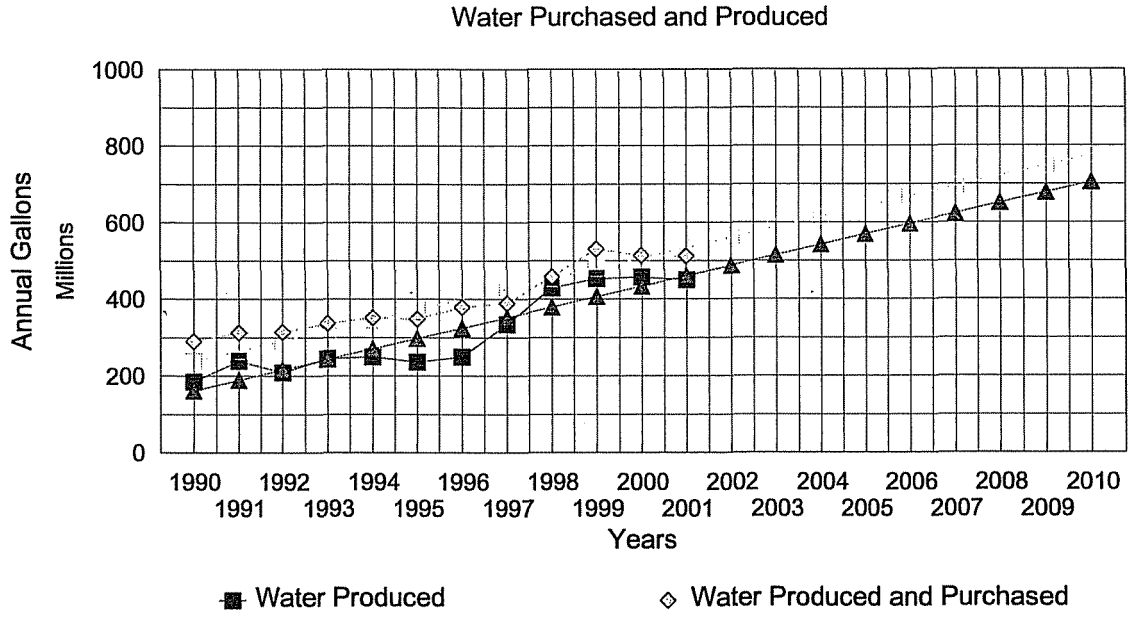


Table 2
Water Returned to the Basin

	2000		2010	
Municipal Discharges	Customers	MGD	Customers	MGD
Corbin Sewer (1.)	547	0.180	2336	0.769
London Sewer	130	0.110	195	0.165
Lily Industrial Park		0.200		0.400
Sub-Total Municipal Discharges		0.490		1.334
Point Source Discharges in LCWD#2 Service Area		MGD		MGD
'LCWD#2 WTP Discharge (2.)		0.103		0.161
Schools (3.)		0.016		0.049
Sub-divisions (3.)		0.018		0.055
Industries, other (3.)		0.060		0.181
Sub-Total Point Source Discharges		0.197		0.446
Other Returns		MGD		MGD
Dorthea Lake Balance (4.)		1.240		1.240
LCWD#2 System Leakage (5.)		0.173		0.406
Sub-Total Other Water Returns		1.413		1.646
Total Water Returned to the Basin		2.100		3.426

1. An estimated 70% of the projected growth in the London 201 will be in the Laurel County Water District #2 service area. Source: 201 Facilities Plan Update. See Table 3.

2. Laurel County Water District No. 2 discharges backwash water from its plant operations below Lake Dorthea in the Laurel Lake watershed which will continue and increase with projected water usage increaases. See Table 4.

3. See Table 5 for other wastewater permits and discharges.

4. Laurel County Water District No. 2 currently withdrawals 1.24 MGD from Dorthea Lake in the Laurel Lake basin. By changing water withdrawals from Dorthea Lake to Laurel Lake, the withdrawals from Dorthea Lake can be eliminated allowing 1.24 MGD back into the basin from todays operations.

Table 3
Water Returned by the London Sewer System
1990-2020 County Planning Area and Wastewater Service Populations

Year	Laurel Co [1].	Pop in 2011.	Service Pop1.	Increase	% Increase
1990	43,438	28,903	0		
1998	51,200	34,068	7,144	7144	
2000	52,792	35,127	7,377	233	3%
2010	59,710	39,731	9,933	2556	35%
2020	65,122	43,332	13,433	3500	35%

1. Source: London 201 Facilities Plan Update

Additional Sewer Users in 201 Planning Area	2556
Portion in LCWD#2 Service Area	70%
Additional Sewer Users in LCWD#2 Service Area	1789

Water Returned by the Corbin Sewer System
1990-2020 County Planning Area and Wastewater Service Populations

Year	Laurel Co	Pop in 2011.	Service Pop1.	Increase	% Increase
1990	43,438		130		
1998	51,200		153	23	18%
2000	52,792		158	5	3%
2010	59,710		179	21	13%
2020	65,122		195	16	9%

Table 4
Laurel County Water District No. 2
Plant Use and Backwash Water

	Treated Water	BackWash	Plant Use	Produced	BW %
1990	184,497,000	5708000	6235000	172554000	3.31%
1991	238,318,000	5465000	8741000	224112000	2.44%
1992	208,145,000	3466000	7753000	196926000	1.76%
1993	244,815,500	5197000	1998000	237620500	2.19%
1994	248,863,200	7429000	8730000	232704200	3.19%
1995	235,875,060	7045000	2495000	226335060	3.11%
1996	249,286,900	7042000	504000	241740900	2.91%
1997	333,509,800	13887000	7476000	312146800	4.45%
1998	428,319,000	16355000	14569000	397395000	4.12%
1999	452,476,000	29519000	13067000	409890000	7.20%
2000	456,632,000	37126000	14990000	404516000	9.18%
2001	448,977,000	32005000	14170000	402802000	7.95%
Totals	3,729,714,460	170,244,000	100,728,000	3,458,742,460	

Dorthea Lake Withdrawals in 1999 =	452,476,000	gallons
	1,239,660	GPD
	1.24	MGD
BackWash	170,244,000	
Produced	3,458,742,460	
Average Backwash	4.92%	
Plant Use	100,728,000	
Produced	3,458,742,460	
	2.91%	
Total Plant Return Water	270,972,000	
Produced	3,458,742,460	
Average Plant Return Water	7.83%	
Future Demand (MGD)	2.050	
Average Plant Return Water (%)	7.83%	
Average Plant Return Water (MGD)	0.161	

Table 6
Laurel County Water District No. 2
Distribution System Water Loss

	Produced	Purchased	Sold	Losses	BW %
1990	172,554,000	105,578,000	227,410,000	50,722,000	18.24%
1991	224,112,000	74,004,000	221,655,000	76,461,000	25.65%
1992	196,926,000	105,780,000	255,435,000	47,271,000	15.62%
1993	237,620,500	91,579,780	278,268,000	50,932,280	15.47%
1994	232,704,200	102,819,800	196,356,000	139,168,000	41.48%
1995	226,335,060	112,539,600	299,010,000	39,864,660	11.76%
1996	241,740,900	129,629,900	314,976,000	56,394,800	15.19%
1997	312,146,800	55,399,600	313,485,000	54,061,400	14.71%
1998	397,395,000	29,870,000	336,262,000	91,003,000	21.30%
1999	409,890,000	78,132,000	372,803,000	115,219,000	23.61%
2000	404,516,000	56,907,000	398,321,000	63,102,000	13.68%
2001	402,802,000	62,760,000	396,219,000	69,343,000	14.89%
Totals	3,458,742,460	1,004,999,680	3,610,200,000	853,542,140	19.12%

Losses	853,542,140
Produced and Purchased	4,463,742,140
Average Backwash	19.12%

Table 5
Laurel County Water District No. 2
Laurel County Wastewater Discharge Permits

Treatment Plant	KPDES #	Receiving Stream	Capacity (MGD)
Cornerstone Christian School	KY0026581	UT Laurel River	0.0099
LM Feltner 4H Camp	KY0087904	Lick Creek	0.0090
Laurel Co Board of Education	KY0101036	Lynn Camp Ck	0.0300
Total Discharge Schools			0.0489
Northland Estates	KY0060381	Lynn Camp Ck	0.0500
Stidham Properties	KY0074331	Lynn Camp Ck	0.0050
Total Discharge Sub-divisions			0.0550
Corbin KOA	KY0089800	Lynn Camp Ck	0.1500
CPG	KY0052698	Laurel River Lake	0.0310
Total Other Discharges			0.1810
Total Future Discharge Rate			0.2849
Additional Permits Previosly Considered			
London STP	KY0021270	Whitley Branch	4.000
Corbin STP	KY0020133	Lynn Camp Ck	4.500

HYDRAULIC ANALYSIS

Hydraulics
on
Water Distribution System
Laurel County Water District No. 2

Introduction:

Hydraulic analyses were performed on the water distribution system of Laurel County Water District No. 2. The purpose of the analyses is to evaluate various options of improvements to the existing water distribution system. The system with each modification option was modeled and computed for a 48-hour extended simulation using PIPE2000 computer program. Observations were made in the computed minimum pressures, maximum pressures, water tank circulations, and the amount of flow carried in the existing water lines on US 25.

The Modifications Considered to the Water Distribution System:

The following specific items of system modifications were investigated with hydraulic analyses. Separate hydraulic analysis was conducted on the water distribution system with each combination of the items of modifications. Extra modifications to the distribution system were also added for the cases that the computed results indicated that the distribution system would not operate properly without the extra modifications. The improper operation situations included the pressures too low in the pipelines, the stagnancy in a tank, and others. The extra modifications are described in the summary of the results.

A. Demand increases for two future business and industrial developments.
One addition of 300 gpm demand is considered in an area in the south of Fariston and another addition of 300 gpm demand in an area in the south of Rt.1223 and in the west of Rocky Branch Road. In the computer model, these demands were assigned to Junctions J-125 and J-126.

B. The pumping capacity in the treatment plant increased from 1000 GPM to 2000 GPM.
The change in the pumping rate was modeled by changing the demand from -1000 GPM to -2000 GPM at Junction J-400

C. 1.0 MGD water purchased from London.
A demand equal to -694.4 GPM was assigned to Junction J-127 in the computer model to reflect the the 1.0 MGD input from London.

D. Replacing Twin Tank by a new 1 million gallon tank in Levi JacksonWilderness Road State Park.
The twin tank was modeled as Tank T-1 with an overflow elevation at 1330 feet. The new tank was modeled either as Tank T-6 with the overflow elevation at 1324 feet or as Tank T-7 with the overflow elevation at 1345 feet.

E. Removal of the water tank near Hopewell.
Tank T-5 was closed in the computer model to reflect the removal of the Hopewell tank.

F Adding a 12-inch parallel line from the water treatment plant, to Hopewell and then to Felt Church on the north side of US25E.
The proposed 12-inch line is modeled by P-426, P-425, P-442, P-460 and P-461 in series. The 12-inch line is connected to an existing 10-inch line that is connected with Oak Ridge Tank (Tank T-3).

Hydraulic Analyses:

The computer model of the water distribution system was revised and adjusted to include an option of improvements to the distribution system. An option of the distribution improvements is composed of one item or several items of the above listed modifications plus the extra modifications that are not list above. Hydraulic analysis was performed on the distribution system for each option. Each option of modification that was analyzed using PIPE2000 computer program was given a label for identification.

The following table presents the labels of the PIPE2000 runs performed for the selected options. The summaries of the computed results for all analyzed options are provided in this report and they can be found based on the labels of the PIPE2000 runs

		A Existing system	B Existing system +New1MG tank	C Existing system +New1MG tank -T-5 tank	D Existing system + New 12" lines	E Existing system +New1MG tank + New 12" lines	F Existing system +New1MG tank + New 12" lines -T-5 tank
M	Existing demand	AM	BM (T-7)	CM (T-7)	DM	EM (T-7)	FM (T-7)
N	Existing demand +300gpm demand in 2 areas	not feasible	not feasible	not feasible	not feasible	not feasible	not feasible
O	Existing demand +2000 plant output	AO	BO (T-7)	CO (T-7)	DO	EO (T-7)	FO (T-7)
P	Existing demand +1mgd privided by London	AP	BP (T-7)	CP (T-7)			
Q	Existing demand +300gpm demand in 2 areas +2000 plant output	AQ	BQ (T-6)	CQ (T-6)	DQ	EQ (T-6)	FQ (T-6)
R	Existing demand +300gpm demand in 2 areas +1mgd provided by London	AR	BR (T-7)	CR (T-7)	DR		

Summary and Conclusions of the Computed Results:

1. The addition of 300 gpm demands in two areas would cause pressures around the two areas drop to below 30 psi, particularly at Junction J-117. Larger pipe sizes are needed in these areas to decrease the frictional losses and to increase the service pressures for these areas. All the PIPE2000 runs with the two 300 gpm demand additions (Runs AQ, BQ, CQ, DQ, EQ, FQ, AR, BR, CR and DR) had included the pipe size increases. Pipes P-86, P-109, P-110, P-111, P-144, P-149 and P-150 were changed to 10 inches and Pipes P-25, P-27, and p-151 were changed to 6 inches.

2. Increasing the high service pump pumping rate from 1,000 to 2,000 gpm would cause pressure increases to greater than 200 psi at several locations, particularly in the area near the water treatment plant.

3. The Removal of Hopewell Tank (T-5, a 340,000 gallon tank) would cause significant more flows to run through the lines on US 25 except for the cases with 1 MGD input from London, as observed in the computed discharges in pipes P-17, P-18 and P-24. If London supplies 1 MGD to the system constantly, the removal of Hopewell Tank does not cause more flows in the line on US25 in the south of Lily Tank.

4. With the 2,000 gpm pumping in WTP and the addition of two 300 gpm demands for the future developments, the new tank (T-6) replacing Twin Tank (T-1) needs to be set to a lower elevation (about 6 feet below Twin Tank for the overflow elevation) so that the tank will be capable of cycling. Also, the lines on US25 would carry much more flows. The pressure at J-117 on Slate Ridge Road would drop further down to around 22 psi.

5. The addition of the new 12" lines as described in Item F of the system modifications does not improve the low pressure problems at Location J-11, J-117 and J-97 where the pressures were around 30 psi in all cases analyzed.

6. For the cases that London constantly supplies 1.0 MGD, Twin Tank(T-1) or its replacement tank, and Lily Tank (T-4) would need to be isolated by some line closings (on P-66, P-71, and P-445) when these tanks become full. This arrangement would allow the tanks to cycle. All the PIPE2000 runs with 1.0 MGD input from London had included this arrangement.

7. The 1.0 mgd input from London would cause high pressures at several locations. The maximum pressures reach beyond 200 psi in the area north of Lily. More computed flows were observed in the lines on US25 in the area north of Lily Tank.

8. Replacing Twin Tank (T-1) with a 1.0 million gallon tank would not improve the hydraulics of the distribution system. The new tank would increase the storage capacity for the distribution system by 700,000 gallons.

9. For each case that was analyzed by PIPE2000, the required pumping time per day in the water treatment plant was also computed. The required pumping hours are listed in the summary of the computed results for each run.

SUMMARY OF THE ANALYTICAL RESULTS

Run AM - Existing Condition :

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:
- 32.59 PSI at J-11
- 27.22 PSI at J-117
- 32.37 PSI at J-97

The computed maximum pressure:
- 156.73 PSI at J- 13
- 148.29 PSI at J-410
- 148.29 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 55.22GPM,	Min. Flow= 0.00 GPM,	Max. Flow=137.1GPM
Line P-18:	Average flow = 89.9 GPM,	Min. Flow= 22.0 GPM,	Max. Flow= 130.7GPM
Line P-24:	Average flow = 38.4 GPM,	Min. Flow= 7.2 GPM,	Max. Flow= 75.5GPM

Run BM - Adding a new 1 million gallon tank to replace the existing twin tank.

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:
- 31.52 PSI at J-11
- 28.37 PSI at J-117
- 31.39 PSI at J-97

The computed maximum pressure:
- 156.57 PSI at J-13
- 148.12 PSI at J-410
- 148.11 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 57.1 GPM,	Min. Flow= 3.6 GPM,	Max. Flow= 139.0 GPM
Line P-18:	Average flow = 90.7 GPM,	Min. Flow= 52.7GPM,	Max. Flow= 130.6GPM
Line P-24:	Average flow = 35.7 GPM,	Min. Flow= 7.5 GPM,	Max. Flow= 55.5 GPM

Run CM - Adding a new 1 million gallon tank to replace the existing twin tank and removing Hopewell tank.

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.
Tank T-5 is closed.

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:	The computed maximum pressure:
30.15 PSI at J-11	149.72 PSI at J-13
30.38 PSI at J-117	141.27 PSI at J-410
31.98PSI at J-97	143.20 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 163.9 GPM,	Min. Flow= 60.0 GPM,	Max. Flow= 230.9GPM
Line P-18:	Average flow = 155.9 GPM,	Min. Flow= 102.5 GPM,	Max.Flow= 193.6GPM
Line P-24:	Average flow = 105.4 GPM,	Min. Flow= 43.3 GPM,	Max. Flow= 788.5GPM

Note: The removal of the Hopewell Tank will cause more than twice of flows through the pipes on US 25.

Run DM - Adding a new 12" line from the water plant to Hopewell then to Felt Church :

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:	The computed maximum pressure:
31.18 PSI at J-11	134.58 PSI at J-13
27.39 PSI at J-117	119.31 PSI at J-410
31.72 PSI at J-97	144.81 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 49.8 GPM,	Min. Flow= 6.2 GPM,	Max. Flow= 133.8GPM
Line P-18:	Average flow = 85.2 GPM,	Min. Flow= 24.5 GPM,	Max. Flow= 128.8GPM
Line P-24:	Average flow = 34.3 GPM,	Min. Flow= 4.8 GPM,	Max. Flow= 51.8GPM

Note: Adding the 12" lines does not significantly improve the hydraulics of the existing system.

Run EM - Adding a new 1 million gallon tank to replace the existing twin tank and adding a new 12" line from the water plant to Hopewell then to Felt Church:

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:
- 32.10 PSI at J-11
- 28.41 PSI at J-117
- 32.16 PSI at J-97

The computed maximum pressure:
- 134.57 PSI at J-13
- 119.29 PSI at J-410
- 144.80 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 54.4 GPM,	Min. Flow= 3.5 GPM,	Max. Flow= 120.0GPM
Line P-18:	Average flow = 88.4 GPM,	Min. Flow= 36.4 GPM,	Max. Flow=122.4GPM
Line P-24:	Average flow = 34.2 GPM,	Min. Flow= 2.6 GPM,	Max. Flow= 56.3GPM

Note: This option does not significantly improve the hydraulics of the system except providing more storage for the system.

Run FM - Adding a new 1 million gallon tank to replace the existing twin tank, adding a new 12" line from the water plant to Hopewell then to Felt Church, and removing Hopewell tank:

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 4.7 hours per day.

The computed minimum pressure:
- 29.86 PSI at J-11
- 30.24 PSI at J-117
- 31.17 PSI at J-97

The computed maximum pressure:
- 130.47 PSI at J-13
- 141.08 PSI at J-89
- 123.50 PSI at J-83

The computed flows in the existing line on US25:

Line P-17:	Average flow = 160.5 GPM,	Min. Flow= 61.5 GPM,	Max. Flow= 212.6GPM
Line P-18:	Average flow = 154.6 GPM,	Min. Flow= 97.0 GPM,	Max. Flow= 185.8GPM
Line P-24:	Average flow = 103.0 GPM,	Min. Flow= 34.8 GPM,	Max. Flow= 172.4GPM

Note: The removal of the Hopewell tank makes the lines on US25 important lines. The flows in the lines will be more than doubled if the Hopewell Tank is removed.

Runs AN, BN, CN, DN, EN, and FN - with two 300 gpm demands for future developments added to Runs AM, BM, CM, DM, EM and FM.

Note: The average water usage is 1401.4 gpm.. The high service pump in WTP has a pumping capacity of 1,000 GPM. The supply of water is insufficient for the total demand. These options are not feasible.

Run AO - Increasing the pumping capacity of the high service pump to 2,000 gpm:

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:	The computed maximum pressure:
29.12 PSI at J-11	210.25 PSI at J-12
26.48 PSI at J-117	257.91 PSI at J-13
31.35 PSI at J-97	269.28 PSI at J-410

The computed flows in the existing line on US25:

Line P-17:	Average flow = 53.7 GPM,	Min. Flow= 0.4 GPM,	Max. Flow= 147.2GPM
Line P-18:	Average flow = 92.0 GPM,	Min. Flow= 4.0 GPM,	Max. Flow= 135.8GPM
Line P-24:	Average flow = 36.6 GPM,	Min. Flow= 2.0 GPM,	Max. Flow= 59.4GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.

Run BO - Increasing the pumping capacity of the high service pump to 2,000 gpm and adding a new 1 million gallon tank to replace the existing twin tank :

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:
29.15 PSI at J-11
27.54 PSI at J-117
31.37PSI at J-97

The computed maximum pressure:
210.24 PSI at J-12
257.90 PSI at J-12
269.27 PSI at J-410

The computed flows in the existing line on US25:

Line P-17:	Average flow = 50.9 GPM,	Min. Flow= 0.5 GPM,	Max. Flow= 133.3GPM
Line P-18:	Average flow = 91.8 GPM,	Min. Flow= 45.5 GPM,	Max. Flow= 119.3GPM
Line P-24:	Average flow = 37.7 GPM,	Min. Flow= 13.5 GPM,	Max. Flow= 57.1GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.

Run CO - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding a new 1 million gallon tank to replace the existing twin tank, and removing Hopewell tank :

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 2000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:
29.70 PSI at J-11
29.64 PSI at J-117
31.79 PSI at J-97

The computed maximum pressure:
189.62 PSI at J-12
257.28 PSI at J-13
248.65 PSI at J-410

The computed flows in the existing line on US25:

Line P-17:	Average flow = 182.7 GPM,	Min. Flow= 58.8 GPM,	Max. Flow= 375.6GPM
Line P-18:	Average flow = 168.7 GPM,	Min. Flow= 101.3 GPM,	Max. Flow=294.6GPM
Line P-24:	Average flow = 117.4 GPM,	Min. Flow= 41.0 GPM,	Max. Flow= 278.5GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.
The removal of the Hopewell Tank will cause more than twice of flows through the pipes on US 25.

Run DO - Increasing the pumping capacity of the high service pump to 2,000 gpm, and adding a new 12" line from the water plant to Hopewell then to Felt Church :

The average water usage is 801.4 GPM.

No water is supplied from London.
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:
28.66 PSI at J-11
26.45 PSI at J-117
30.37 PSI at J-97

The computed maximum pressure:
178.92 PSI at J-13
165.63 PSI at J-410
181.95 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 49.6 GPM,	Min. Flow= 1.9 GPM,	Max. Flow= 148.9GPM
Line P-18:	Average flow = 88.6 GPM,	Min. Flow= 4.6 GPM,	Max. Flow= 141.1GPM
Line P-24:	Average flow = 34.9 GPM,	Min. Flow= 1.9 GPM,	Max. Flow= 52.2GPM

Note: The high pressure problems created by the 2,000 gpm pumping in the WTP are reduced by the addition of the 12" lines. The maximum pressures are decreased from 257 psi to 182 psi.

Run EO - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding a new 1 million gallon tank to replace the existing twin tank and adding a new 12" line from the water plant to Hopewell then to Felt Church :

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:
29.34 PSI at J-11
27.55 PSI at J-117
30.73 PSI at J-97

The computed maximum pressure:
179.88 PSI at J-13
166.59 PSI at J-410
182.95 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 51.0 GPM,	Min. Flow= 0.6 GPM,	Max. Flow= 136.3GPM
Line P-18:	Average flow = 91.1 GPM,	Min. Flow= 40.3 GPM,	Max. Flow= 126.2GPM
Line P-24:	Average flow = 36.7 GPM,	Min. Flow= 10.7 GPM,	Max. Flow= 56.0GPM

Note: The high pressure problems created by the 2,000 gpm pumping in the WTP are reduced by the addition of the 12" lines. The maximum pressures are decreased from 269 psi to 183 psi.

Run FO - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding a new 1 million gallon tank to replace the existing twin tank, adding a new 12" line from the water plant to Hopewell then to Felt Church and removing Hopewell tank:

The average water usage is 801.4 GPM.
No water is supplied from London.
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 14.3 hours per day.

The computed minimum pressure:
30.28 PSI at J-11
29.32 PSI at J-117
31.43 PSI at J-97

The computed maximum pressure:
166.28 PSI at J-13
152.99 PSI at J-410
170.51 PSI at J-89

The computed flows in the existing line on US25:

Line P-17:	Average flow = 199.3 GPM,	Min. Flow= 60.6 GPM,	Max. Flow= 323.9GPM
Line P-18:	Average flow = 183.1 GPM,	Min. Flow= 97.6 GPM,	Max. Flow= 268.9GPM
Line P-24:	Average flow = 131.6 GPM,	Min. Flow= 47.7 GPM,	Max. Flow= 253.5GPM

Note: The high pressure problems created by the 2,000 gpm pumping in the WTP are reduced by the addition of the 12" lines. The maximum pressures are decreased from 257 psi to 171 psi.
The removal of the Hopewell tank makes the lines on US25 important lines. The flows in the lines will be more than doubled if the Hopewell Tank is removed. The lines on US25 would carry about 25 percent more flows for the system with 2,000 gpm high service pumping than 1,000 gpm pumping in the WTP.

Run AP - London supplies 1 mgd to the existing system :

The average water usage is 801.4 GPM.

The high service pump in WTP pumps 1,000 GPM when it is on.

The given supply-demand condition allows the high service pump to be shut off for 21.4 hours per day.

Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-1 and T-4) to allow the tanks to recess when the tanks become full.

The computed minimum pressure:
29.13 PSI at J-11
31.17 at J-117
28.28 PSI at J-97

The computed maximum pressure:
235.89 PSI at J-127
233.23 PSI at J-115
232.30 PSI at J-114

The computed flows in the existing line on US25:

Line P-17: Average flow = 20.1 GPM, Min. Flow= 2.4 GPM, Max. Flow= 142.7GPM
Line P-18: Average flow = 67.6 GPM, Min. Flow= 0.9 GPM, Max. Flow= 279.4GPM
Line P-24: Average flow = 120.8 GPM, Min. Flow= 3.7 GPM, Max. Flow= 294.2GPM

Note: The maximum pressures are higher at many locations than the cases without the1 mgd from London. The maximum pressures reach beyond 200 psi in the area north of Lily.

The London water will fill Oak Ridge Tank (T-3) in the south.
The WTP pump switch is controlled by the water level in Oak Ridge Tank (T-3) at a lower tank levels (switching at 1370 and 1373.5 feet elevation).

Run BP - London supplies 1 mgd to the system and adding a new 1 million gallon tank to replace the existing twin tank:

The average water usage is 801.4 GPM.
The high service pump in WTP pumps 1,000 GPM when it is on.
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 21.4 hours per day.

Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-7 and T-4) to allow the tanks to recess when the tanks become full.

The given supply-demand condition allows the high service pump to be shut off for 21.4 hours per day.

The computed minimum pressure:
28.87 PSI at J-11
31.06 PSI at J-117
28.38 PSI at J-97

The computed maximum pressure:
235.89 PSI at J-127
233.23 PSI at J-115
232.30 PSI at J-114

The computed flows in the existing line on US25:
Line P-17: Average flow = 15.3 GPM, Min. Flow= 1.4 GPM, Max. Flow= 131.3GPM
Line P-18: Average flow = 57.9 GPM, Min. Flow= 0.3 GPM, Max. Flow= 279.4GPM
Line P-24: Average flow = 105.6 GPM, Min. Flow= 23.3 GPM, Max. Flow= 294.2GPM

Note: The maximum pressures are higher at many locations than the cases without the 1 mgd from London.
The maximum pressures reach beyond 200 psi in the area north of Lily.
The London water will fill Oak Ridge Tank (T-3) in the south.
The WTP pump switch is controlled by the water level in Oak Ridge Tank (T-3) at a lower tank levels (switching at 1370 and 1373.5 feet elevation).

Run CP - London supplies 1 mgd to the system, adding a new 1 million gallon tank to replace the existing twin tank and removing Hopewell tank :

The average water usage is 801.4 GPM.
The high service pump in WTP pumps 1,000 GPM when it is on.
The new 1 million gallon tank (T-7) has an overflow elevation at 1,345 feet.

The given supply-demand condition allows the high service pump to be shut off for 21.4 hours per day.

Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-7 and T-4) to allow the tanks to recess when the tanks become full.

The computed minimum pressure:
27.62 PSI at J-11
29.99 PSI at J-117
28.42 PSI at J-97

The computed maximum pressure:
235.89 PSI at J-127
233.23 PSI at J-115
232.30 PSI at J-114

The computed flows in the existing line on US25:
Line P-17: Average flow = 10.5 GPM, Min. Flow= 2.4 GPM, Max. Flow= 131.3GPM
Line P-18: Average flow = 55.1 GPM, Min. Flow= 1.7 GPM, Max. Flow= 279.4GPM
Line P-24: Average flow = 103.8 GPM, Min. Flow= 11.9 GPM, Max. Flow= 294.2GPM

Note: The maximum pressures are higher at many locations than the cases without the 1 mgd from London.
The maximum pressures reach beyond 200 psi in the area north of Lily.
The London water will fill Oak Ridge Tank (T-3) in the south.
The WTP pump switch is controlled by the water level in Oak Ridge Tank (T-3) at a lower tank levels (switching at 1370 and 1373.5 feet elevation).
Note: The removal of Hopewell tank (T-5) does not cause more flows in the lines on US25.

Run AQ - Increasing the pumping capacity of the high service pump to 2,000 gpm and adding two 300 gpm demand for two future development:

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.2 hours per day.

The computed minimum pressure:
29.13 PSI at J-11
22.98 PSI at J-117
30.34 PSI at J-97

The computed maximum pressure:
270.13 PSI at J-410
258.76 PSI at J-13
211.10 PSI at J-12

The computed flows in the existing line on US25:
Line P-17: Average flow = 94.8 GPM, Min. Flow= 3.6 GPM, Max. Flow= 179.0GPM
Line P-18: Average flow = 142.9 GPM, Min. Flow= 100.1 GPM, Max. Flow= 183.9GPM
Line P-24: Average flow = 94.1 GPM, Min. Flow= 80.8 GPM, Max. Flow= 114.8GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.
Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 22.98 psi.
Note: The lines on US25 carry about 60 percent more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run BQ - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding two 300 gpm demands for two future developments, adding a new 1 million gallon tank to replace the existing twin tank :

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-6) has a over flow elevation at 1,324 feet (6 feet below the overflow of Twin Tank).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.2 hours per day.

The computed minimum pressure:
29.11 PSI at J-11
23.15 PSI at J-117
30.35 PSI at J-97

The computed maximum pressure:
271.28 PSI at J-410
259.91 PSI at J-13
212.25 PSI at J-12

The computed flows in the existing line on US25:
Line P-17: Average flow = 95.2 GPM, Min. Flow= 3.1 GPM, Max. Flow= 176.1GPM
Line P-18: Average flow = 142.2 GPM, Min. Flow= 100.3 GPM, Max. Flow= 180.5GPM
Line P-24: Average flow = 93.3 GPM, Min. Flow= 73.7 GPM, Max. Flow= 107.2GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.
Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 23.15 psi.
Note: The lines on US25 carry about 60 percent more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run CQ - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding two 300 gpm demands for two future developments, adding a new 1 million gallon tank to replace the existing twin tank, and removal of Hopewell Tank (T-5) :

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-6) has an overflow elevation at 1,324 feet (6 feet below the overflow of Twin Tank).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.

Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for7.2 hours per day.

The computed minimum pressure:
27.49 PSI at J-11
22.29 PSI at J-117
29.76 PSI at J-97

The computed maximum pressure:
247.95 PSI at J-410
236.58 PSI at J-13
188.92 PSI at J-12

The computed flows in the existing line on US25:
Line P-17: Average flow = 235.7 GPM, Min. Flow= 93.9 GPM, Max. Flow= 385.5GPM
Line P-18: Average flow = 212.1 GPM, Min. Flow= 130.8 GPM, Max. Flow= 304.4GPM
Line P-24: Average flow = 165.6 GPM, Min. Flow= 69.0 GPM, Max. Flow= 295.8GPM

Note: High pressure problems would be a concern. Pressures becomes greater than 250 psi at several locations when the 2,000 gpm pump is running.
Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 22.29 psi.
Note: The lines on US25 carry much more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run DQ - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding two 300 gpm demands for two future developments, and adding a new 12" line from the water plant to Hopewell then to Felt Church:

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.2 hours per day.

The computed minimum pressure:
29.25 PSI at J-11
22.61 PSI at J-117
29.68 PSI at J-97

The computed maximum pressure:
179.16 PSI at J-13
165.86 PSI at J-410
158.42 PSI at J-3

The computed flows in the existing line on US25:
Line P-17: Average flow = 94.2 GPM, Min. Flow= 3.5 GPM, Max. Flow= 177.5GPM
Line P-18: Average flow = 141.7 GPM, Min. Flow= 91.0 GPM, Max. Flow= 185.8GPM
Line P-24: Average flow = 92.8 GPM, Min. Flow= 79.4 GPM, Max. Flow= 110.9GPM

Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 22.61 psi.
Note: The lines on US25 carry about 40% more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run EQ - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding two 300 gpm demands for two future developments, adding a new 1 million gallon tank to replace the existing twin tank, and adding a new 12" line from the water plant to Hopewell then to Felt Church:

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-6) has an overflow elevation at 1,324 feet (6 feet below the overflow of Twin Tank).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.2 hours per day.

The computed minimum pressure:	The computed maximum pressure:
29.23 PSI at J-11	182.56 PSI at J-89
23.05 PSI at J-117	179.50 PSI at J-13
29.69 PSI at J-97	166.20 PSI at J-410

The computed flows in the existing line on US25:

Line P-17:	Average flow = 96.9 GPM,	Min. Flow= 8.0 GPM,	Max. Flow= 172.9GPM
Line P-18:	Average flow = 142.6 GPM,	Min. Flow= 94.4 GPM,	Max. Flow= 182.8GPM
Line P-24:	Average flow = 92.8 GPM,	Min. Flow= 74.8 GPM,	Max. Flow= 107.0GPM

Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 22.61 psi.
Note: The lines on US25 carry about 40% more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run FQ - Increasing the pumping capacity of the high service pump to 2,000 gpm, adding two 300 gpm demands for two future developments, adding a new 1 million gallon tank to replace the existing twin tank, removal of Hopewell Tank (T-5) and adding a new 12" line from the water plant to Hopewell then to Felt Church :

The average water usage is 1401.4 GPM (adding 300 gpm at J-125 and J-126).
The high service pump in WTP pumps 2,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-6) has an overflow elevation at 1,324 feet (6 feet below the overflow of Twin Tank).
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for7.2 hours per day.

The computed minimum pressure:	The computed maximum pressure:
28.04 PSI at J-11	170.39 PSI at J-89
22.61 PSI at J-117	166.08 PSI at J-13
29.15 PSI at J-97	152.78 PSI at J-410

The computed flows in the existing line on US25:

Line P-17:	Average flow = 201.0 GPM,	Min. Flow= 91.7 GPM,	Max. Flow= 336.7GPM
Line P-18:	Average flow = 192.5 GPM,	Min. Flow= 120.1 GPM,	Max. Flow= 279.5GPM
Line P-24:	Average flow = 144.7 GPM,	Min. Flow= 68.7 GPM,	Max. Flow= 273.8GPM

Note: Pressure at J-117 at the end of a pipe on Slate Ridge Road drops to 22.61 psi.
Note: The lines on US25 carry much more flows than the case without the increase of pumping rate and without the 600 gpm demand increases.

Run AR - Adding 1 mgd supplied to the existing system from London and adding two 300 gpm demands for two future developments:

The average water usage is 1401.4 GPM.
One MGD water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-1 and T-4) to allow the tanks to recess when the tanks become full.
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.0 hours per day.

The computed minimum pressure:	The computed maximum pressure:
29.01 PSI at J-11	207.89 PSI at J-127
29.90 PSI at J-117	205.24 PSI at J-115
27.76 PSI at J-97	203.16 PSI at J-501

The computed flows in the existing line on US25:

Line P-17:	Average flow = 19.7 GPM,	Min. Flow= 7.2 GPM,	Max. Flow= 162.4GPM
Line P-18:	Average flow = 49.8 GPM,	Min. Flow= 0.7 GPM,	Max. Flow= 243.3GPM
Line P-24:	Average flow = 98.8 GPM,	Min. Flow= 7.8 GPM,	Max. Flow= 243.4GPM

Note: The pressures reach over 200 psi in some areas north of Lily Tank.
More flow in the north section of the lines on US25.

Run BR - Adding 1 mgd supplied to the existing system from London, adding two 300 gpm demands for two future developments and adding a new 1 million gallon tank to replace the existing twin tank :

The average water usage is 1401.4 GPM.
1 MGD water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has a over flow elevation at 1,345 feet.
Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-7 and T-4) to allow the tanks to recess when the tanks become full.

Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.0 hours per day.

The computed minimum pressure:	The computed maximum pressure:
29.13 PSI at J-11	209.51 PSI at J-127
30.22 PSI at J-117	206.86 PSI at J-115
28.11 PSI at J-97	204.78 PSI at J-501

The computed flows in the existing line on US25:

Line P-17:	Average flow = 21.3 GPM,	Min. Flow= 0.4. GPM,	Max. Flow= 166.5GPM
Line P-18:	Average flow = 43.5 GPM,	Min. Flow= 1.5 GPM,	Max. Flow= 243.3GPM
Line P-24:	Average flow = 91.7 GPM,	Min. Flow= 10.3 GPM,	Max. Flow= 243.4GPM

Note: The pressures reach over 200 psi in some areas north of Lily Tank.
More flow in the north section of the lines on US25.

Run CR - Adding 1 mgd supplied to the existing system from London, adding two 300 gpm demands for two future developments, adding a new 1 million gallon tank to replace the existing twin tank and removing Hopewell Tank (T-5):

The average water usage is 1401.4GPM.
1 mgd water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
The new 1 million gallon tank (T-7) has a over flow elevation at 1,345 feet.
Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-7 and T-4) to allow the tanks to recess when the tanks become full.
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.0 hours per day.

The computed minimum pressure:	The computed maximum pressure:
28.17 PSI at J-11	209.52 PSI at J-127
30.23 PSI at J-117	206.86 PSI at J-115
27.82 PSI at J-97	204.78 PSI at J-501

The computed flows in the existing line on US25:

Line P-17:	Average flow = 20.0 GPM,	Min. Flow= 7.2. GPM,	Max. Flow= 166.6GPM
Line P-18:	Average flow = 49.9 GPM,	Min. Flow= 1.5 GPM,	Max. Flow= 243.3GPM
Line P-24:	Average flow = 97.2 GPM,	Min. Flow= 0.0 GPM,	Max. Flow= 243.4GPM

Note: The pressures reach over 200 psi in some areas north of Lily Tank.
More flow in the north section of the lines on US25.

Run DR - Adding 1 mgd supplied to the existing system from London, adding two 300 gpm demands for two future developments, and adding a new 12" line from the water plant to Hopewell then to Felt Church: :

The average water usage is 1401.4 GPM.
1 MGD water is supplied from London.
The high service pump in WTP pumps 1,000 GPM when it is on. The pump switch is controlled by the water level in Oak Ridge Tank (T-3).
Pressure switches and shut-off valve are needed to be installed on Lines (P-66, P-71 and P-445) to isolate the areas around tanks (T-1 and T-4) to allow the tanks to recess when the tanks become full.
Lines P-109,P-110,P-111,P144,P-150 and P-86 are changed to 10 inches in size.
Lines P-151, P-25, and P-27 are changed to 6 inches in size.

The given supply-demand condition allows the high service pump to be shut off for 7.0 hours per day.

The computed minimum pressure:	The computed maximum pressure:
29.12 PSI at J-11	173.65 PSI at J-127
30.24 PSI at J-117	170.99 PSI at J-115
27.70 PSI at J-97	168.93 PSI at J-501

The computed flows in the existing line on US25:

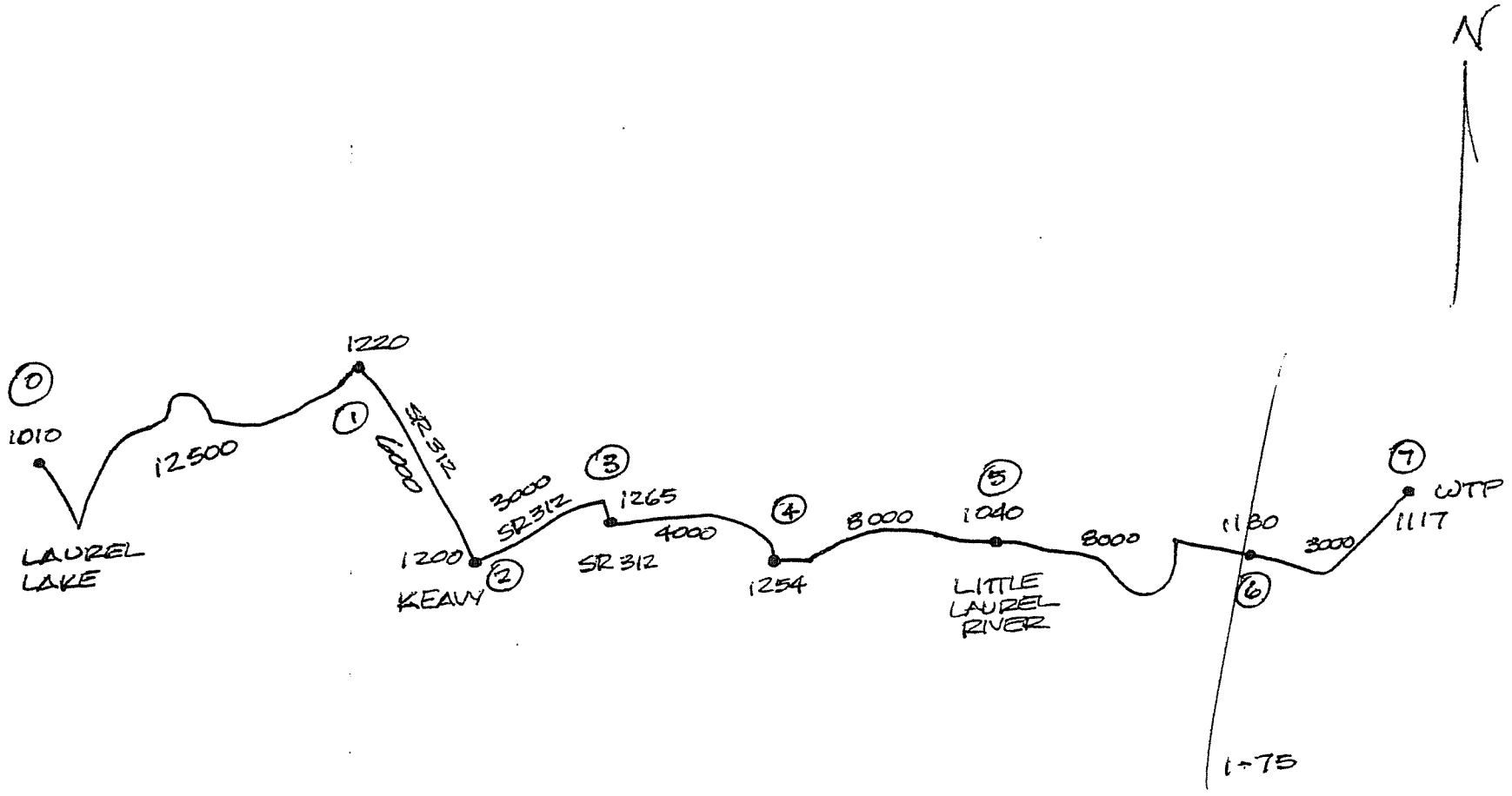
Line P-17: Average flow = 57.2 GPM, Min. Flow= 2.9 GPM, Max. Flow= 169.8GPM
Line P-18: Average flow = 3.4 GPM, Min. Flow= 4.8 GPM, Max. Flow= 135.5GPM
Line P-24: Average flow = 44.3 GPM, Min. Flow= 3.4 GPM, Max. Flow= 109.2GPM

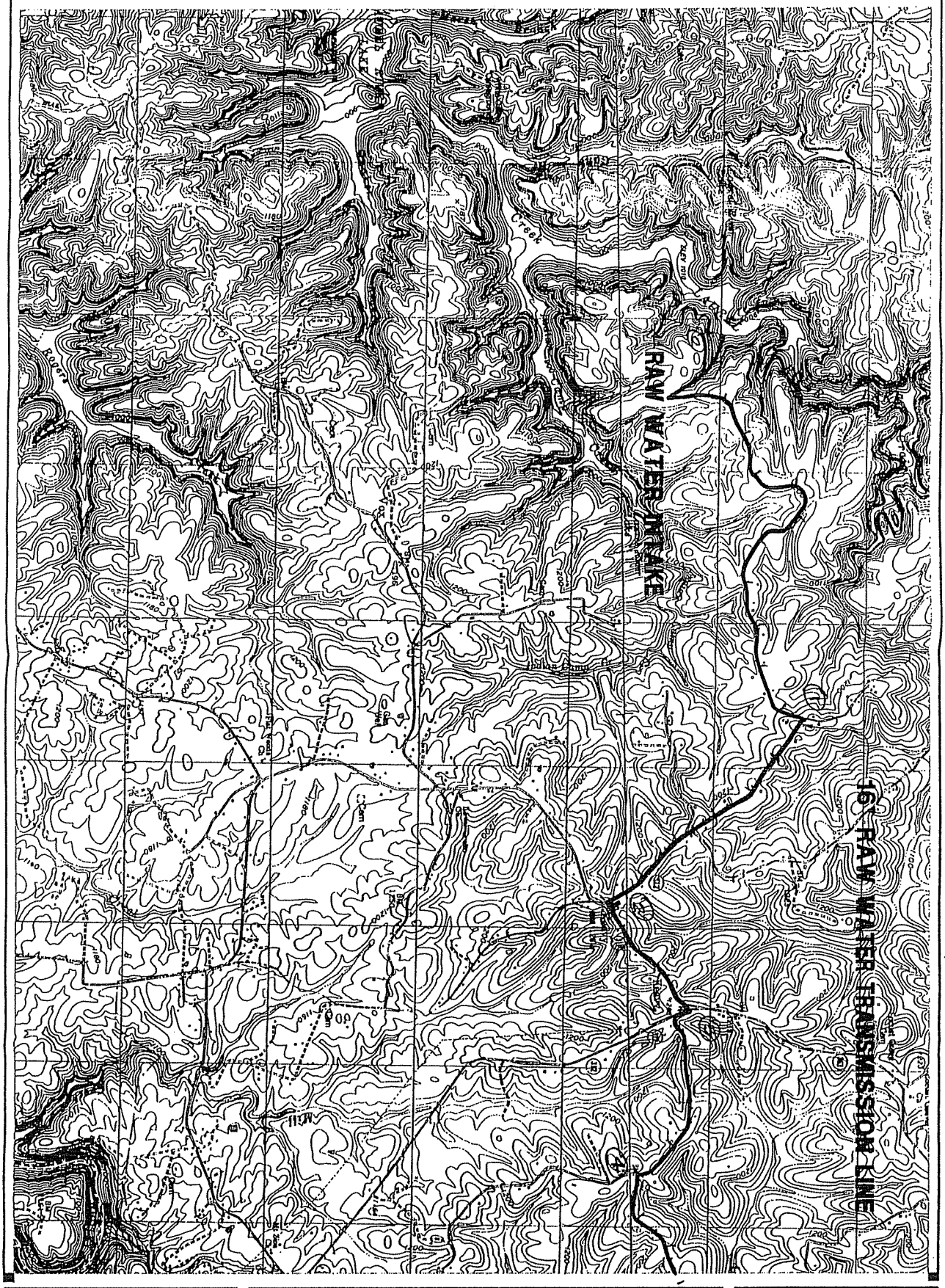
Note: The pressure increases caused by the 1 MGD from London and the two 300 GPM demands for the future developments are reduced by the new 12" line.

Note: The new 12" line does not provide improvements to the low pressure problem along the 12" line.

Note: The lines on US25 carry less flows in this option.

LAUREL LAKE TRANSMISSION
HYDRAULIC SCHEMATIC

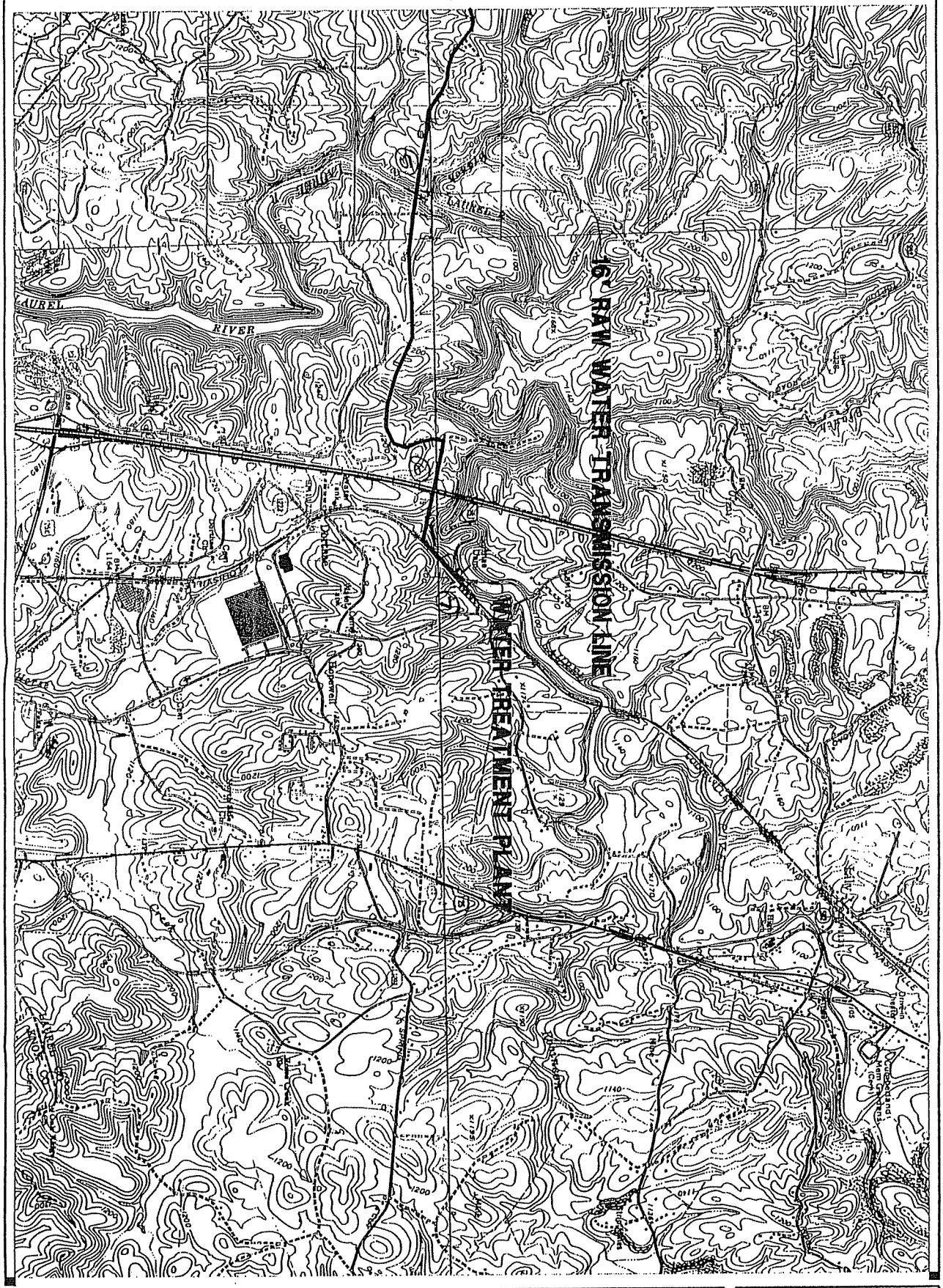




Mayes, Sudderth & Etheredge, Inc.
Engineers Surveyors Planners

624 Wellington Way
Lexington, Ky. 40503
Phone: (606)223-6694
Fax: (606)223-2607

LAUREL COUNTY WATER DISTRICT #2
FY 2003 - EXPANSION / IMPROVEMENTS PROJECT



Mayes, Sudderth & Etheredge, Inc.
Engineers Architects Planners

824 Wellington Way
Lexington, Ky. 40503
Phone: (606)223-5604
Fax (606)223-2607

LAUREL COUNTY WATER DISTRICT #2
FY 2003 - EXPANSION / IMPROVEMENTS PROJECT

Profile Data Input Range

Project Title : Laurel County Water District No. 2
Raw Water Transmission Main - Laurel Lake
Profiled Route Name : Laurel Lake to WTP
File Name : LCWD-Raw .PRO
Average Usage/Customer : 0.1141553 gpm or 5000 gal/mo
25 C/mi

Parallel Pipe Equivalent Diameter Calculation Table

HL(ft)= 45.88595

	Length	Dia	C-Value
First Pipe	41500	16	140
Second Pipe	41500	6	140
Equivalent Pipe	41500	16.45	140

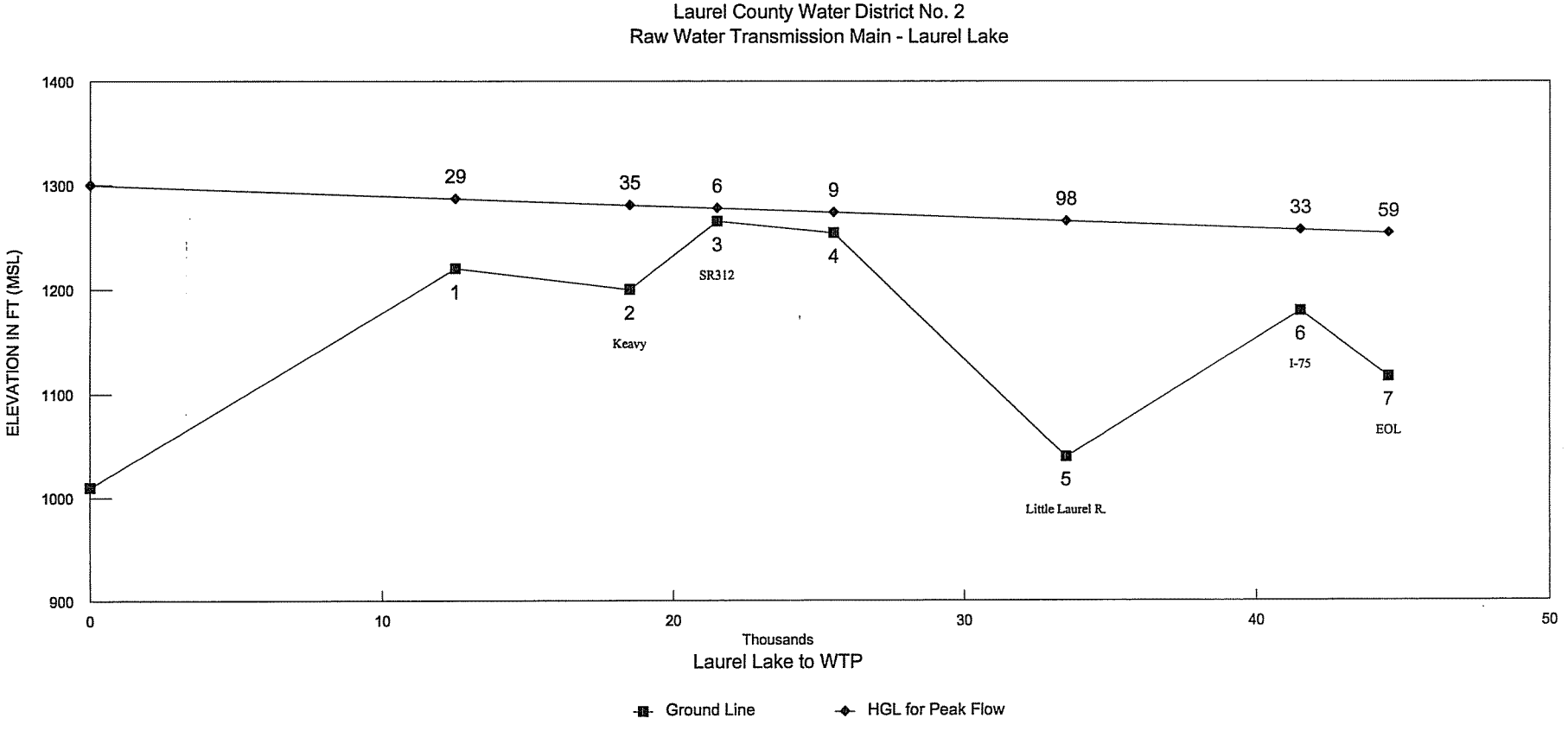
Beginning Grade (ft MSL) = 1300
Pressure = 0

**********NODE DATA**********

DESCRIPTION	NUMBER	ELEVATION	SPECIAL DEMANDS CUST/NODE	PEAK	AVERAGE
Laurel Lake	0	1010			
	1	1220			
Keavy	2	1200			
SR312	3	1265			
	4	1254			
Little Laurel R.	5	1040			
I-75	6	1180			
EOL	7	1117		1400	

**********PIPE DATA**********

NUMBER	LENGTH	DIAMETER	C-VALUE	K-VALUE	PUMP TDH	PRV HGL
1	12500	16.00	140	1.25		
2	6000	16.00	140	0.6		
3	3000	16.00	140	0.3		
4	4000	16.00	140	0.4		
5	8000	16.00	140	0.8		
6	8000	16.00	140	0.8		
7	3000	16.00	140	0.3		
8						
9						



SUMMARY/ADDENDUM

KENTUCKY GUIDE 7
MAY 1998

SUMMARY ADDENDUM

TO

PRELIMINARY ENGINEERING REPORT

DATED October 2005

FOR

Laurel County Water District #2 – Improvements & Expansion Project
(Name of Project)

APPLICANT CONTACT PERSON Jim Sensabaugh

APPLICANT PHONE NUMBER 606-878-2494

APPLICANT TAX IDENTIFICATION NUMBER (TIN) _____

ITEMS IN BOLD ITALIC PRINT ARE APPLICABLE TO SEWER SYSTEMS.

In order to avoid unnecessary delays in application processing, the applicant and its consulting engineer should prepare a summary of the preliminary report in accordance with this Guide.

Please complete the applicable sections of the Summary Addendum. ***Please note, if water and sewer revenue will both be taken as security for the loan, all user information and characteristics of both utility systems will be needed even though the project will benefit only one utility.***

Feasibility reviews and grant determinations may be processed more accurately and more rapidly if the Summary/Addendum is submitted simultaneously with the preliminary engineering report, or a soon thereafter as possible.

I. GENERAL

A. Proposed Project: Provide a brief description of the proposed project. In addition to this summary, the applicant/engineer should submit a project map of the service area.

All reference to Sewers are N/A*

II. FACILITY CHARACTERISTICS OF EXISTING SEWER SYSTEM

A. Sewage Treatment:

1. Type _____

2. Method of Sludge Disposal _____

_____

3. Cost per 1,000 gallons if sewage treatment is contracted:

$ _____

4. Date Constructed _____

B. Treatment Capacity of Sewage Treatment Plant _____

C. Type of Sewage Collector System (Describe) _____

_____

_____

D. Number and Capacity of Sewage Lift Stations _____

_____

E. Sewage Collection System:

Lineal Feet of Collector Lines, by size 6" _____ *8"* _____

10" _____ *12"* _____*, Larger* _____

Date(s) Constructed _____

F. Conditions of Existing System: Briefly describe the conditions and suitability for continued use of facility now owned by the applicant. Include any major renovation that will be needed within five to ten years.

_____

_____

_____

III. FACILITY CHARACTERISTICS OF EXISTING WATER SYSTEM

A. Water Source: Describe adequacy of source (quality and quantity). Include an explanation of raw water source, raw water intake structure, treatment plant capacity, and current level of production (WTP). Also describe the adequacy of Water Purchase Contract if applicable.

The Local Source, Dorthea Lake, and the existing WTP are near capacity and require upgrade and augmentation.

If the applicant purchases water:

Seller(s):

1. City of London
2. _____
3. _____

Price/1,000 gallons:

1. $1.18
2. _____
3. _____

Present Estimated Market Value of Existing System: $ 6,491,115

B. Water Storage:

Type: Ground Storage Tank 1,000,000 Elevated Tank 500,000
Standpipe 100,000; 200,000; 400,000 Other _____
Number of Storage Structures 5
Total Storage Volume Capacity 2.2 MG
Date Storage Tank(s) Constructed Various

C. Water Distribution System:

Pipe Material PVC & DIP

Miles of Pipe:	3" Diameter	10.5	4"	61.6
	6"	39.0	8"	6.1
	10"	30.7	12"	4.5

Date(s) Water Lines Constructed Various
Number and Capacity of Pump Station(s) 1 High Service & WTP only

D. Condition of Existing Water System:

Briefly describe the condition and suitability for continued use of facility now owned by the applicant. Include any major renovation that will be needed within five to ten years.

The existing system is in good condition. New mains and parallel mains will be required to meet the long term growth of the District.

E. Percentage of Water Loss Existing System <15%

IV. EXISTING LONG-TERM INDEBTEDNESS

A. List of Bonds and Notes:

Date of Issue	Bond/Note Holder	Principal Balance	Payment Date	Bond Type Water-Sewer*	Amount on Deposit in Reserve Account
19 96 Issue	KIA	$ 450,000		100 % W %	
19 97 Issue	KIA	$ 1,002,307		100 % W %	
19 87 Issue	GE	$ 500,000		100 % W %	
19 87 Issue	GE	$ 545,000		% W %	
19 Issue		$		% %	

* If a combined issue, show attributable portion to each system.

B. Principal and Interest Payments: (Begin with Next Fiscal Year Payment)

		Payment Year 2005		Payment Year 2006		Payment Year 2007	
Date of Issue	Bond/Note Holder	Principal Payment	Interest Payment	Principal Payment	Interest Payment	Principal Payment	Interest Payment
19 96 Issue	KIA	$ 13,503	$ 6,305				
19 97 Issue	KIA	$ 44,000	$ 29,277				
19 87 Issue		$ 7,500	$ 23,153				
19 87 Issue		$ 15,000	$ 14,650				
19 Issue							
19 Issue							

V. EXISTING SHORT-TERM INDEBTEDNESS

A. List of All Sort Term Debts: (Do Not Show Any Debt Listed in Paragraph IV Above)

Lender or Lessor	Date of Issue (Month & Year)	Principal Balance	Purpose (Water and/ or Sewer)	Payment Date	Principal & Interest Payment (P&I)	Date to Be Paid In Full
None						

VI. LAND AND RIGHTS - EXISTING SYSTEM(S)

Number of Treatment Plant Sites:	Water	1	***Sewer***	
Number of Storage Tank Sites	Water	5	***Sewer***	
Number of Pump Stations:	Water	0	***Sewer***	
Total Acreage:	Water	Acres	***Sewer***	***Acres***
Purchase Price:	Water	Not available	***Sewer***	

VII. NUMBER OF EXISTING USERS

	Water	***Sewer***
Residential (In Town)*		
Residential (Out of Town)*	5,161	
Non-Residential (In Town)		
Non-Residential (Out of Town)	286	
Total		
Number to Total Potential Users Living in the Service Area	5,447	

Note: Residential Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residence.

VII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
⅝ & ¾	$ 500	*$*
All others	$ Actual Cost	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill _____ ***%*** ***Minimum Charge $*** _____

Other: (If Charge Not Based on Water Bill) _____

_____

Date This Rate Went Into Effect _____

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: See Attached.

First	_____	Gallons	@	$ _____	Minimum
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
All Over	_____	Gallons	@	$ _____	per 1,000 Gallons.

Date This Rate Went Into Effect _____

If More Than One Rate Schedule, Please Include All Schedules.

APPENDIX A

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE COMMISSION IN CASE NO. 97-274 DATED JULY 9, 1997.

The following rates and charges are prescribed for the customers in the area served by Laurel County Water District No. 2. All other rates and charges not specifically mentioned herein shall remain the same as those in effect under authority of this Commission prior to the effective date of this Order.

Monthly Rates:

5/8 x 3/4-Inch Meter

First	1,000	Gallons	$ 6.20	Minimum Bill
Next	4,000	Gallons	2.60	Per 1,000 Gallons
Next	5,000	Gallons	2.40	Per 1,000 Gallons
All Over	10,000	Gallons	2.20	Per 1,000 Gallons

1-Inch Meter

First	5,000	Gallons	$16.60	Minimum Bill
Next	5,000	Gallons	2.40	Per 1,000 Gallons
All Over	10,000	Gallons	2.20	Per 1,000 Gallons

1-1/2 Inch Meter

First	10,000	Gallons	$28.60	Minimum Bill
All Over	10,000	Gallons	2.20	Per 1,000 Gallons

2-Inch Meter

First	20,000	Gallons	$50.60	Minimum Bill
All Over	20,000	Gallons	2.20	Per 1,000 Gallons

3-Inch Meter

First	30,000	Gallons	$72.60	Minimum Bill
All Over	30,000	Gallons	2.20	Per 1,000 Gallons

4-Inch Meter

First	50,000	Gallons	$116.60	Minimum Bill
All Over	50,000	Gallons	2.20	Per 1,000 Gallons

6-Inch Meter

First	100,000	Gallons	$226.60	Minimum Bill
All Over	100,000	Gallons	2.20	Per 1,000 Gallons

XI. ANALYSIS OF ACTUAL SEWER USAGE - EXISTING SYSTEM - 12 MONTH PERIOD

For Period _____ *to* _____

All Meter Sizes	*Monthly Sewer Usage*	*Average*	*Residential*		*Non-Residential*	
			No. of Users	*Usage (1000)*	*No. of Users*	*Usage (1000)*
	0 - 2,000 Gallons	*1,000*				
	2,000 - 3,000 Gallons	*2,500*				
	3,000 - 4,000 Gallons	*3,500*				
	4,000 - 5,000 Gallons	*4,500*				
	5,000 - 6,000 Gallons	*5,500*				
	6,000 - 7,000 Gallons	*6,500*				
	7,000 - 8,000 Gallons	*7,500*				
	8,000 - 9,000 Gallons	*8,500*				
	9,000 - 10,000 Gallons	*9,500*				
	10,000 - 11,000 Gallons	*10,500*				
	11,000 - 12,000 Gallons	*11,500*				
	12,000 - 13,000 Gallons	*12,500*				
	13,000 - 14,000 Gallons	*13,500*				
	14,000 - 15,000 Gallons	*14,500*				
	15,000 - 16,000 Gallons	*15,500*				
	16,000 - 17,000 Gallons	*16,500*				
	17,000 - 18,000 Gallons	*17,500*				
	19,000 - 20,000 Gallons	*19,500*				
_____	- _____ *Gallons*	_____				
_____	- _____ *Gallons*	_____				
_____	- _____ *Gallons*	_____				
		Total	( )	( )	( )	( )
		Average Usage		( )		( )

XIX. ANALYSIS OF ACTUAL WATER USAGE - EXISTING SYSTEM - 12 MONTH PERIOD

See attached.

For Period _____ to _____

All Meter Sizes	Monthly Water Usage				Average	Residential		Non-Residential	
						No. of Users	Usage (1000)	No. of Users	Usage (1000)
	0	- 2,000	Gallons		1,000				
	2,000	- 3,000	Gallons		2,500				
	3,000	- 4,000	Gallons		3,500				
	4,000	- 5,000	Gallons		4,500				
	5,000	- 6,000	Gallons		5,500				
	6,000	- 7,000	Gallons		6,500				
	7,000	- 8,000	Gallons		7,500				
	8,000	- 9,000	Gallons		8,500				
	9,000	- 10,000	Gallons		9,500				
	10,000	- 11,000	Gallons		10,500				
	11,000	- 12,000	Gallons		11,500				
	12,000	- 13,000	Gallons		12,500				
	13,000	- 14,000	Gallons		13,500				
	14,000	- 15,000	Gallons		14,500				
	15,000	- 16,000	Gallons		15,500				
	16,000	- 17,000	Gallons		16,500				
	17,000	- 18,000	Gallons		17,500				
	19,000	- 20,000	Gallons		19,500				
		-	Gallons						
		-	Gallons						
		-	Gallons						
					Total	( )	( )	( )	( )
					Average Usage		( )		( )

Total Water Purchased and/or Produced _____ _____

Total Water Sold _____ _____

EXHIBIT 15
LARUE COUNTY WATER DISTRICT NO. 2
Proposed Billing Analysis
Existing Customers

Monthly Water Usage		Average	Average Rate	Residential No. of Bills	Residential Usage	Residential Income	Non-Residential / Commercial No. of Bills	Non-Residential / Commercial Usage	Non-Residential / Commercial Income
0 -	1,000	500	$8.08	17210	8,605,000	$139,139.41	990	495,000	$8,003.95
1,000 -	2,000	1,500	$9.78	8031	12,046,500	78,543.18	442	663,000	4,322.76
2,000 -	3,000	2,500	$13.17	6310	15,775,000	83,105.22	347	867,500	4,570.13
3,000 -	4,000	3,500	$16.56	5163	18,070,500	85,503.41	284	994,000	4,703.27
4,000 -	5,000	4,500	$19.95	4302	19,359,000	85,830.06	237	1,066,500	4,728.43
5,000 -	6,000	5,500	$23.21	3442	18,931,000	79,892.95	189	1,039,500	4,386.92
6,000 -	7,000	6,500	$26.34	2581	16,776,500	67,985.60	142	923,000	3,740.39
7,000 -	8,000	7,500	$29.47	2438	18,285,000	71,848.84	134	1,005,000	3,949.03
8,000 -	9,000	8,500	$32.60	2295	19,507,500	74,817.00	126	1,071,000	4,107.60
9,000 -	10,000	9,500	$35.73	2151	20,434,500	76,854.37	118	1,121,000	4,216.09
10,000 -	11,000	10,500	$38.73	1864	19,572,000	72,190.48	103	1,081,500	3,989.07
11,000 -	12,000	11,500	$41.60	1291	14,846,500	53,702.50	71	816,500	2,953.43
12,000 -	13,000	12,500	$44.47	1147	14,337,500	51,002.96	63	787,500	2,801.38
13,000 -	14,000	13,500	$47.34	574	7,749,000	27,170.40	32	432,000	1,514.73
14,000 -	15,000	14,500	$50.20	373	5,408,500	18,726.09	21	304,500	1,054.28
15,000 -	16,000	15,500	$53.07	344	5,332,000	18,257.04	19	294,500	1,008.38
16,000 -	17,000	16,500	$55.94	315	5,197,500	17,621.60	17	280,500	951.01
17,000 -	18,000	17,500	$58.81	287	5,022,500	16,878.58	16	280,000	940.97
18,000 -	19,000	18,500	$61.68	272	5,032,000	16,776.74	15	277,500	925.19
19,000 -	20,000	19,500	$64.55	186	3,627,000	12,005.93	10	195,000	645.48
20,000 -	25,000	22,500	$73.15	172	3,870,000	12,582.56	9	202,500	658.39
25,000 -	30,000	27,500	$87.50	157	4,317,500	13,737.25	9	247,500	787.49
30,000 -	35,000	32,500	$101.84	143	4,647,500	14,563.46	8	260,000	814.74
35,000 -	40,000	37,500	$116.19	105	3,937,500	12,199.57	6	225,000	697.12
40,000 -	45,000	42,500	$130.53	96	4,080,000	12,530.92	5	212,500	652.65
45,000 -	50,000	47,500	$144.87	72	3,420,000	10,430.96	4	190,000	579.50
50,000 -	60,000	55,000	$166.39	58	3,190,000	9,650.64	3	165,000	499.17
60,000 -	70,000	65,000	$195.08	52	3,380,000	10,144.08	3	195,000	585.24
70,000 -	80,000	75,000	$223.77	23	1,725,000	5,146.63	1	75,000	223.77
80,000 -	90,000	85,000	$252.45	20	1,700,000	5,049.09	1	85,000	252.45
90,000	100,000	95,000	$281.14	14	1,330,000	3,935.99	3	285,000	843.43
Sub-total				61,488	289,512,500	$1,257,823.53	3,428	16,137,500	$70,106.43
LARGE USERS									
Users >100,000 G/mo		200,000	$582.37	0	0	$0.00	283	56,600,000	$164,809.69
		300,000	$869.25	0	0	0.00	80	24,000,000	$69,539.71
		400,000	$975.26	0	0	0.00	75	30,000,000	$73,144.50
		500,000	$1,217.26	0	0	0.00	7	3,500,000	$8,520.82
		600,000	$1,459.26	0	0	0.00	3	1,800,000	$4,377.78
Sub-total				0	0	$0.00	448	115,900,000	$320,392.50
TOTAL FOR EX. USERS				61,488	289,512,500	$1,257,824	3,876	132,037,500	$390,498.93
Grand Total All Users							65364	421,550,000	$1,648,322.47

XIII. FACILITY CHARACTERISTICS OF PROPOSED SEWER SYSTEM

A. Sewage Treatment:

1. Type _____

2. Method of Sludge Disposal _____

_____

3. Cost per 1,000 gallons if sewage treatment is contracted:

$ _____

B. Treatment Capacity of Sewage Treatment Plant _____

C. Type of Sewage Collector System (Describe) _____

_____

_____

D. Number and Capacity of Sewage Lift Stations _____

_____

E. Sewage Collection System:

Lineal Feet of Collector Lines, by size 6" _____ *8"* _____

10" _____ *12"* _____*, Larger* _____

XIV. LAND AND RIGHTS - PROPOSED SEWER SYSTEM

Number of Treatment Plant Sites _____

Number of Pump Sites _____

Number of Other Sites _____

Total Acreage _____ *Acres*

Purchase Price *$* _____

XV. FACILITY CHARACTERISTICS OF PROPOSED WATER SYSTEM

A. Water Source: Describe adequacy of source (quality and quantity). Include an explanation of raw water source, raw water intake structure, treatment plant capacity, and current level of production (WTP). Also describe the adequacy of Water Purchase Contract if applicable.
Development of Laurel Lake as new source and expanding the WTP capacity to meet new demands and service area growth potential.

B. Water Storage:

Type: Ground Storage Tank _____ Elevated Tank _____

Standpipe _____ Other _____

Number of Storage Structures _____

Total Storage Volume Capacity _____

C. Water Distribution System:

Pipe Material PVC/DIP

Miles of Pipe: 3" Diameter _____ 4" _____

6" _____ 8" _____

10" _____ 12" _____

Number and Capacity of Pump Station(s) Raw Water pump station and Laurel Lake intake facility @ 2 MGD.

XVI. LAND AND RIGHTS - PROPOSED WATER SYSTEM

Number of Treatment Plant Sites	1
Number of Pump Sites	1
Number of Other Sites	
Total Acreage	1 Acres
Purchase Price	$ 30,000

XVII. NUMBER OF NEW SEWER USERS

*Residential (In Town)** _____

*Residential (Out of Town)** _____

Non-Residential (In Town) _____

Non-Residential (Out of Town) _____

Total _____

Number to Total Potential Users in the Service Area _____

**Note:* *Residential Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residences.*

XVIII. PROPOSED SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	*Connection Fee*
5/8" x 3/4"	$
1 Inch	$
1½ Inch	$
2 Inch	$
3 Inch	$
4 Inch	$
5 Inch	$
6 Inch	$

XIX. NUMBER OF NEW WATER USERS

Residential (In Town)*	0
Residential (Out of Town)*	
Non-Residential (In Town)	
Non-Residential (Out of Town)	
Total	0
Number to Total Potential Users in the Service Area	

*Note: Residential Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residences.

XX. PROPOSED WATER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION **No Change.**

Meter Size	Connection Fee
5/8" x 3/4"	$ 500
1 Inch	$ Actual Cost
1½ Inch	$ Actual Cost
2 Inch	$ Actual Cost
3 Inch	$ Actual Cost
4 Inch	$ Actual Cost
5 Inch	$ Actual Cost
6 Inch	$ Actual Cost

XXI. SEWER RATES - PROPOSED

A. Proposed Rate Schedule without RUS Grant:

Percentage of Water Bill _____ *%* *Minimum Charge* *$* _____

Other: (If Charge Not Based on Water Bill) _____

_____

Proposed Rate Schedule: (Without RUS Grant)

First	_____	*Gallons*	*@*	*$* _____	*Minimum*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
All Over	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

Percentage of Water Bill _____ *%* *Minimum Charge* *$* _____

Other: (If Charge Not Based on Water Bill) _____

_____

Recommended Rate Schedule: (With RUS Grant)

First	_____	*Gallons*	*@*	*$* _____	*Minimum*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
Next	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*
All Over	_____	*Gallons*	*@*	*$* _____	*per 1,000 Gallons.*

If more than one rate, use additional sheets.

XXII. WATER RATES - PROPOSED **See attached.**

A. Proposed Rate Schedule without RUS Grant:

First	_____	Gallons	@	$ _____	Minimum.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
All Over	_____	Gallons	@	$ _____	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First	_____	Gallons	@	$ _____	Minimum.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
Next	_____	Gallons	@	$ _____	per 1,000 Gallons.
All Over	_____	Gallons	@	$ _____	per 1,000 Gallons.

If more than one rate, use additional sheets.

EXHIBIT 9
LAUREL COUNTY WATER DISTRICT NO. 2
Schedule of Rates

1.30

5/8" x 3/4" Meters

RATE BLOCK		EXISTING	PROPOSED	INCREASE
First	1,000 Gallons	$6.20	$8.08	30%
Next	4,000 Gallons	$2.60	$3.39	30%
Next	5,000 Gallons	$2.40	$3.13	30%
Over	10,000 Gallons	$2.20	$2.87	30%

1" Meters

RATE BLOCK		EXISTING	PROPOSED	INCREASE
First	5,000 Gallons	$16.60	$21.65	30%
Next	5,000 Gallons	$2.40	$3.13	30%
Over	10,000 Gallons	$2.20	$2.87	30%

1-1/2" Meters

RATE BLOCK		EXISTING	PROPOSED	INCREASE
First	10,000 Gallons	$28.60	$37.29	30%
Over	10,000 Gallons	$2.20	$2.87	30%

2" Meters

RATE BLOCK		EXISTING	PROPOSED	INCREASE
First	20,000 Gallons	$50.60	$65.98	30%
Over	20,000 Gallons	$2.20	$2.87	30%

Larger Meters

RATE BLOCK		EXISTING	PROPOSED	INCREASE
3" Meters	30,000 Gal Minimum	$59.05	$94.67	60%
4" Meters	50,000 Gal Minimum	$94.05	$152.05	62%
6" Meters	100,000 Gal Minimum	$181.55	$295.49	63%
All Over Minimum		$2.20	$2.87	30%

XXIII. FORECAST OF SEWER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS

*Meter Size**	*Monthly Sewer Usage*	*Average*	*Average Rate*	*Residential*			*Non-Residential*		
				*No. of Users***	*Usage (1000)*	*Income*	*No. of Users*	*Usage (1000)*	*Income*
	0 - 2,000 Gallons	*1,000*	____	____	____	____	____	____	____
	2,000 - 3,000 Gallons	*2,500*	____	____	____	____	____	____	____
	3,000 - 4,000 Gallons	*3,500*	____	____	____	____	____	____	____
	4,000 - 5,000 Gallons	*4,500*	____	____	____	____	____	____	____
	5,000 - 6,000 Gallons	*5,500*	____	____	____	____	____	____	____
	6,000 - 7,000 Gallons	*6,500*	____	____	____	____	____	____	____
	7,000 - 8,000 Gallons	*7,500*	____	____	____	____	____	____	____
	8,000 - 9,000 Gallons	*8,500*	____	____	____	____	____	____	____
	9,000 - 10,000 Gallons	*9,500*	____	____	____	____	____	____	____
	10,000 - 11,000 Gallons	*10,500*	____	____	____	____	____	____	____
5/8 x 3/4 Inch	*11,000 - 12,000 Gallons*	*11,500*	____	____	____	____	____	____	____
	12,000 - 13,000 Gallons	*12,500*	____	____	____	____	____	____	____
	13,000 - 14,000 Gallons	*13,500*	____	____	____	____	____	____	____
	14,000 - 15,000 Gallons	*14,500*	____	____	____	____	____	____	____
	15,000 - 16,000 Gallons	*15,500*	____	____	____	____	____	____	____
	16,000 - 17,000 Gallons	*16,500*	____	____	____	____	____	____	____
	17,000 - 18,000 Gallons	*17,500*	____	____	____	____	____	____	____
	18,000 - 19,000 Gallons	*18,500*	____	____	____	____	____	____	____
	19,000 - 20,000 Gallons	*19,500*	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
		Sub-Total		( )	( )	( )	( )	( )	( )
		Average Monthly Rate	( )						
		Average Monthly Usage			( )			( )	

- ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

1 Inch	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
1½ Inch	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
2 Inch	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
3 Inch	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
4 Inch	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	_____ - _____ *Gallons*	_____	_____	_____	_____	_____	_____	_____	_____
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)

- ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
5 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
6 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
		TOTALS			(____)	(____)	(____)	(____)	(____)	(____)		

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	*Number of Units*	*Number of Meters*	*Revenue Calculations*

- ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

XXIV. FORECAST OF SEWER USAGE - INCOME - NEW USERS - EXTENSION ONLY

Meter Size*	Monthly Sewer Usage	Average	Average Rate	Residential			Non-Residential		
				No. of Users**	Usage (1000)	Income	No. of Users	Usage (1000)	Income
5/8 x 3/4 Inch	0 - 2,000 Gallons	1,000	____	____	____	____	____	____	____
	2,000 - 3,000 Gallons	2,500	____	____	____	____	____	____	____
	3,000 - 4,000 Gallons	3,500	____	____	____	____	____	____	____
	4,000 - 5,000 Gallons	4,500	____	____	____	____	____	____	____
	5,000 - 6,000 Gallons	5,500	____	____	____	____	____	____	____
	6,000 - 7,000 Gallons	6,500	____	____	____	____	____	____	____
	7,000 - 8,000 Gallons	7,500	____	____	____	____	____	____	____
	8,000 - 9,000 Gallons	8,500	____	____	____	____	____	____	____
	9,000 - 10,000 Gallons	9,500	____	____	____	____	____	____	____
	10,000 - 11,000 Gallons	10,500	____	____	____	____	____	____	____
	11,000 - 12,000 Gallons	11,500	____	____	____	____	____	____	____
	12,000 - 13,000 Gallons	12,500	____	____	____	____	____	____	____
	13,000 - 14,000 Gallons	13,500	____	____	____	____	____	____	____
	14,000 - 15,000 Gallons	14,500	____	____	____	____	____	____	____
	15,000 - 16,000 Gallons	15,500	____	____	____	____	____	____	____
	16,000 - 17,000 Gallons	16,500	____	____	____	____	____	____	____
	17,000 - 18,000 Gallons	17,500	____	____	____	____	____	____	____
	18,000 - 19,000 Gallons	18,500	____	____	____	____	____	____	____
	19,000 - 20,000 Gallons	19,500	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
		Sub-Total		( )	( )	( )	( )	( )	( )
		Average Monthly Rate	( )						
		Average Monthly Usage			( )			( )	

- *Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.*

** *Number of users should reflect the actual number of "meter settings".*

	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
1 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
1½	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
2 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
3 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
4 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		

- ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
5 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
6 Inch	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
	____ - ____	*Gallons*	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
		TOTALS			(____)	(____)	(____)	(____)	(____)	(____)		

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	*Number of Units*	*Number of Meters*	*Revenue Calculations*

- ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

XXV. FORECAST OF WATER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS

See attached.

Meter Size*	Monthly Sewer Usage	Average	Average Rate	Residential			Non-Residential		
				No. of Users**	Usage (1000)	Income	No. of Users	Usage (1000)	Income
5/8 x 3/4 Inch	0 - 2,000 Gallons	1,000	____	____	____	____	____	____	____
	2,000 - 3,000 Gallons	2,500	____	____	____	____	____	____	____
	3,000 - 4,000 Gallons	3,500	____	____	____	____	____	____	____
	4,000 - 5,000 Gallons	4,500	____	____	____	____	____	____	____
	5,000 - 6,000 Gallons	5,500	____	____	____	____	____	____	____
	6,000 - 7,000 Gallons	6,500	____	____	____	____	____	____	____
	7,000 - 8,000 Gallons	7,500	____	____	____	____	____	____	____
	8,000 - 9,000 Gallons	8,500	____	____	____	____	____	____	____
	9,000 - 10,000 Gallons	9,500	____	____	____	____	____	____	____
	10,000 - 11,000 Gallons	10,500	____	____	____	____	____	____	____
	11,000 - 12,000 Gallons	11,500	____	____	____	____	____	____	____
	12,000 - 13,000 Gallons	12,500	____	____	____	____	____	____	____
	13,000 - 14,000 Gallons	13,500	____	____	____	____	____	____	____
	14,000 - 15,000 Gallons	14,500	____	____	____	____	____	____	____
	15,000 - 16,000 Gallons	15,500	____	____	____	____	____	____	____
	16,000 - 17,000 Gallons	16,500	____	____	____	____	____	____	____
	17,000 - 18,000 Gallons	17,500	____	____	____	____	____	____	____
	18,000 - 19,000 Gallons	18,500	____	____	____	____	____	____	____
	19,000 - 20,000 Gallons	19,500	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
		Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)
		Average Monthly Rate	(____)						
		Average Monthly Usage			(____)			(____)	

- Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
1 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
1½	____ - ____	Gallons	____	____	____	____	____	____	____	____		
Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
2 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
3 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
4 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		

- Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
5 Inch	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
6 Inch	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
	_____ - _____	Gallons	_____	_____	_____	_____	_____	_____	_____	_____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
		TOTALS			(____)	(____)	(____)	(____)	(____)	(____)		

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	Number of Units	Number of Meters	Revenue Calculations

- Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

EXHIBIT 13
LAUREL COUNTY WATER DISTRICT NO. 2
Existing Billing Analysis

Monthly Water Usage	Average Usage	Average Rate	Residential No. of Bills	Residential Usage	Residential Income	Non-Residential / Commercial No. of Bills	Non-Residential / Commercial Usage	Non-Residential / Commercial Income
0 - 1,000	500	$6.20	17210	8,605,000	$106,702.00	990	495,000	6,138.00
1,000 - 2,000	1,500	7.50	8031	12,046,500	60,232.50	442	663,000	3,315.00
2,000 - 3,000	2,500	10.10	6310	15,775,000	63,731.00	347	867,500	3,504.70
3,000 - 4,000	3,500	12.70	5163	18,070,500	65,570.10	284	994,000	3,606.80
4,000 - 5,000	4,500	15.30	4302	19,359,000	65,820.60	237	1,066,500	3,626.10
5,000 - 6,000	5,500	17.80	3442	18,931,000	61,267.60	189	1,039,500	3,364.20
6,000 - 7,000	6,500	20.20	2581	16,776,500	52,136.20	142	923,000	2,868.40
7,000 - 8,000	7,500	22.60	2438	18,285,000	55,098.80	134	1,005,000	3,028.40
8,000 - 9,000	8,500	25.00	2295	19,507,500	57,375.00	126	1,071,000	3,150.00
9,000 - 10,000	9,500	27.40	2151	20,434,500	58,937.40	118	1,121,000	3,233.20
10,000 - 11,000	10,500	29.70	1864	19,572,000	55,360.80	103	1,081,500	3,059.10
11,000 - 12,000	11,500	31.90	1291	14,846,500	41,182.90	71	816,500	2,264.90
12,000 - 13,000	12,500	34.10	1147	14,337,500	39,112.70	63	787,500	2,148.30
13,000 - 14,000	13,500	36.30	574	7,749,000	20,836.20	32	432,000	1,161.60
14,000 - 15,000	14,500	38.50	373	5,408,500	14,360.50	21	304,500	808.50
15,000 - 16,000	15,500	40.70	344	5,332,000	14,000.80	19	294,500	773.30
16,000 - 17,000	16,500	42.90	315	5,197,500	13,513.50	17	280,500	729.30
17,000 - 18,000	17,500	45.10	287	5,022,500	12,943.70	16	280,000	721.60
18,000 - 19,000	18,500	47.30	272	5,032,000	12,865.60	15	277,500	709.50
19,000 - 20,000	19,500	49.50	186	3,627,000	9,207.00	10	195,000	495.00
20,000 - 25,000	22,500	56.10	172	3,870,000	9,649.20	9	202,500	504.90
25,000 - 30,000	27,500	67.10	157	4,317,500	10,534.70	9	247,500	603.90
30,000 - 35,000	32,500	78.10	143	4,647,500	11,168.30	8	260,000	624.80
35,000 - 40,000	37,500	89.10	105	3,937,500	9,355.50	6	225,000	534.60
40,000 - 45,000	42,500	100.10	96	4,080,000	9,609.60	5	212,500	500.50
45,000 - 50,000	47,500	111.10	72	3,420,000	7,999.20	4	190,000	444.40
50,000 - 60,000	55,000	127.60	58	3,190,000	7,400.80	3	165,000	382.80
60,000 - 70,000	65,000	149.60	52	3,380,000	7,779.20	3	195,000	448.80
70,000 - 80,000	75,000	171.60	23	1,725,000	3,946.80	1	75,000	171.60
80,000 - 90,000	85,000	193.60	20	1,700,000	3,872.00	1	85,000	193.60
90,000 100,000	95,000	215.60	14	1,330,000	3,018.40	3	285,000	646.80
Sub-total	5124		61,488	289,512,500	$964,588.60	3,428	16,137,500	$53,763
LARGE USERS								
Users >100,000 G/mo	200,000	$446.60	0	0	$0.00	283	56,600,000	$126,387.80
	300,000	666.60	0	0	0.00	80	24,000,000	53,328.00
	400,000	886.60	0	0	0.00	75	30,000,000	66,495.00
	500,000	1,106.60	0	0	0.00	7	3,500,000	7,746.20
	600,000	1,326.60	0	0	0.00	3	1,800,000	3,979.80
Sub-total	0		0	0	$0.00	448	115,900,000	$257,936.80
TOTAL FOR ALL USI	5,124		61,488	289,512,500	$964,588.60	3876	132,037,500	$311,699.40
Grand Total All Users						65364	421,550,000	$1,276,288.00

XXVI. FORECAST OF WATER USAGE - INCOME - NEW USERS - EXTENSION ONLY

No new users.

Meter Size*	Monthly Sewer Usage	Average	Average Rate	Residential			Non-Residential		
				No. of Users**	Usage (1000)	Income	No. of Users	Usage (1000)	Income
5/8 x 3/4 Inch	0 - 2,000 Gallons	1,000	____	____	____	____	____	____	____
	2,000 - 3,000 Gallons	2,500	____	____	____	____	____	____	____
	3,000 - 4,000 Gallons	3,500	____	____	____	____	____	____	____
	4,000 - 5,000 Gallons	4,500	____	____	____	____	____	____	____
	5,000 - 6,000 Gallons	5,500	____	____	____	____	____	____	____
	6,000 - 7,000 Gallons	6,500	____	____	____	____	____	____	____
	7,000 - 8,000 Gallons	7,500	____	____	____	____	____	____	____
	8,000 - 9,000 Gallons	8,500	____	____	____	____	____	____	____
	9,000 - 10,000 Gallons	9,500	____	____	____	____	____	____	____
	10,000 - 11,000 Gallons	10,500	____	____	____	____	____	____	____
	11,000 - 12,000 Gallons	11,500	____	____	____	____	____	____	____
	12,000 - 13,000 Gallons	12,500	____	____	____	____	____	____	____
	13,000 - 14,000 Gallons	13,500	____	____	____	____	____	____	____
	14,000 - 15,000 Gallons	14,500	____	____	____	____	____	____	____
	15,000 - 16,000 Gallons	15,500	____	____	____	____	____	____	____
	16,000 - 17,000 Gallons	16,500	____	____	____	____	____	____	____
	17,000 - 18,000 Gallons	17,500	____	____	____	____	____	____	____
	18,000 - 19,000 Gallons	18,500	____	____	____	____	____	____	____
	19,000 - 20,000 Gallons	19,500	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
		Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)

Average Monthly Rate (____)

Average Monthly Usage (____) (____)

- Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
1 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
1½	____ - ____	Gallons	____	____	____	____	____	____	____	____		
Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
2 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
3 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
4 Inch	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
	____ - ____	Gallons	____	____	____	____	____	____	____	____		
		Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)		

- Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

5 Inch	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	Sub-Total			( )	( )	( )	( )	( )	( )
6 Inch	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	____ - ____ Gallons	____	____	____	____	____	____	____	____
	Sub-Total			( )	( )	( )	( )	( )	( )
	TOTALS			( )	( )	( )	( )	( )	( )

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	Number of Units	Number of Meters	Revenue Calculations

- Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

XXVII. CURRENT OPERATING BUDGET - (SEWER SYSTEM)

_____(As of the last full operating year.)

A. Operating Income:

Sewer Revenue	*$* _____
Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	*$* _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Operation Expense	*$* _____
Maintenance Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating and Maintenance Expenses	*$* _____
Net Operating Income	*$* _____

C. Non-Operating Income:

Interest on Deposits	*$* _____
Other (Identify)	_____
Total Non-Operating Income	*$* _____

D. Net Income *$* _____

E. Debt Repayment:

RUS Interest	*$* _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	*$* _____

F. Balance Available for Coverage *$* _____

XXVIII. ***PROPOSED OPERATING BUDGET - (SEWER SYSTEM) - EXISTING SYSTEM AND NEW USERS*** *(1st Full Year of Operation)* *Year Ending* _____

A. Operating Income:

Sewer Revenue	*$* _____
Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	*$* _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Operation Expense	*$* _____
Maintenance Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating and Maintenance Expenses	*$* _____
Net Operating Income	*$* _____

C. Non-Operating Income:

Interest on Deposits	*$* _____
Other (Identify)	_____
Total Non-Operating Income	*$* _____

D. Net Income *$* _____

E. Debt Repayment:

RUS Interest	*$* _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	*$* _____

F. Balance Available for Coverage *$* _____

XXIX. ***PROPOSED OPERATING BUDGET - (SEWER SYSTEM) - NEW USERS - EXTENSION ONLY*** *(1st Full Year of Operation)* *Year Ending* _____

A. Operating Income:

Sewer Revenue	$ _____
Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	$ _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Operation Expense	$ _____
Maintenance Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating and Maintenance Expenses	$ _____
Net Operating Income	$ _____

C. Non-Operating Income:

Interest on Deposits	$ _____
Other (Identify)	_____
Total Non-Operating Income	$ _____

D. Net Income $ _____

E. Debt Repayment:

RUS Interest	$ _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	$ _____

F. Balance Available for Coverage $ _____

XXX. CURRENT OPERATING BUDGET - (WATER SYSTEM)

(As of the last full operating year.)

See attached.

A. Operating Income:

Sewer Revenue	$ _____
Disconnect/Reconnect/Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	$ _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Source of Supply Expense	$ _____
Pumping Expense	_____
Water Treatment Expense	_____
Transmission and Distribution Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating Expenses	$ _____
Net Operating Income	$ _____

C. Non-Operating Income:

Interest on Deposits	$ _____
Other (Identify)	_____
Total Non-Operating Income	$ _____

D. Net Income $ _____

E. Debt Repayment:

RUS Interest	$ _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	$ _____

F. Balance Available for Coverage $ _____

XXXI. PROPOSED OPERATING BUDGET - (WATER SYSTEM) - EXISTING SYSTEM AND NEW USERS (1st Full Year of Operation) Year Ending _____

A. Operating Income:

Sewer Revenue	$ _____
Disconnect/Reconnect/Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	$ _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Source of Supply Expense	$ _____
Pumping Expense	_____
Water Treatment Expense	_____
Transmission and Distribution Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating Expenses	$ _____
Net Operating Income	$ _____

C. Non-Operating Income:

Interest on Deposits	$ _____
Other (Identify)	_____
Total Non-Operating Income	$ _____

D. Net Income $ _____

E. Debt Repayment:

RUS Interest	$ _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	$ _____

F. Balance Available for Coverage $ _____

XXXII. PROPOSED OPERATING BUDGET - (WATER SYSTEM) - NEW USERS - EXTENSION ONLY (1st Full Year of Operation) Year Ending _____

A. Operating Income:

Sewer Revenue	$ _____
Disconnect/Reconnect/Late Charge Fees	_____
Other (Describe)	_____
Less Allowances and Deductions	(_____)
Total Operating Income	$ _____

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Source of Supply Expense	$ _____
Pumping Expense	_____
Water Treatment Expense	_____
Transmission and Distribution Expense	_____
Customer Accounts Expense	_____
Administrative and General Expense	_____
Total Operating Expenses	$ _____
Net Operating Income	$ _____

C. Non-Operating Income:

Interest on Deposits	$ _____
Other (Identify)	_____
Total Non-Operating Income	$ _____

D. Net Income $ _____

E. Debt Repayment:

RUS Interest	$ _____
RUS Principal	_____
Non-RUS Interest	_____
Non-RUS Principal	_____
Total Debt Repayment	$ _____

F. Balance Available for Coverage $ _____

FmHA Summary / Addendum Tables XXX, XXXI & XXXII
Pages 31, 32 & 33

	Project Operating Budget	Current Operation	Existing & New Users	Extension Only
A.	Operating Income:			
	Water Sales	$1,276,285	$1,648,322	372,037
	Disconnect/Reconnect/Late Charge Fees	64,791	64,791	0
	Other (Describe)	0	0	0
	Less Allowances & Deductions	0	0	0
	Total Operatng Income	$1,341,076	$1,713,113	372,037
B.	Operation and Maintnenace Expenses:			
	Purchased Water	29,497	29,497	0
	Source of Supply	12,516	12,516	0
	Water Treatment	402,112	402,112	0
	Transmission and Distribution	158,739	158,739	0
	Customer Accounts	168,479	168,479	0
	Administrative and General	197,563	197,563	0
	Taxes	37,788	37,788	0
	Total Operating Expenses	$1,006,694	$1,006,694	0
	Net Operating Income	$334,382	$706,419	372,037
C.	Non-Operating Income:			
	Interest on Deposits	6,795	6,795	0
	Other (Identify)			0
	Total Non-Operating Income	6,795	6,795	0
D.	Net Income	$341,177	$713,214	372,037
E.	Debt Repayment:			
	FmHA Interest	23,153	216,202	193,049
	FmHA Principal	7,500	66,091	58,591
	Non-FmHA Interest	45,184	45,184	0
	Non-FmHA Principal	72,503	72,503	0
	Total Debt Repayment	$148,340	$399,980	$251,640
F.	Balance available for Coverage and Depreciation	$192,837	$313,234	120,397
G.	Coverage and Depreciation Requirement:			
	Coverage	14,834	45,967	31,133
	Depreciation	225,497	254,833	29,336
	Total Coverage and Depreciation	$240,331	$300,800	60,469
H.	Balance after Coverage and Depreciation	($47,494)	$12,434	59,928

XXXIII. ESTIMATED PROJECT COST - SEWER

(Round to nearest $100)

	Collection	*Treatment*	*Total*
Development			
Land and Rights			
Legal			
Engineering			
Interest			
Contingencies			
Initial Operating and Maintenance			
Other			
TOTAL			

XXXIV. PROPOSED PROJECT FUNDING - SEWER

	Collection	*Treatment*	*Total*
Applicant - User Contribution Fees			
Other - Applicant Contribution			
RUS Loan			
RUS Grant			
ARC Grant (If applicable)			
CDBG (If applicable)			
Other (Specify)			
Other (Specify)			

XXXV. ESTIMATED PROJECT COST - WATER

Development	$	6,076,000
Land and Rights		30,000
Legal		25,000
Engineering		432,000
Interest		
Contingencies		200,000
Initial Operating and Maintenance/Administration		187,000
Other		50,000
TOTAL	$	7,000,000

XXXVI. PROPOSED PROJECT FUNDING

Applicant - User Connection Fees	$	
Other Applicant Contribution		
RUS Loan		5,500,000
RUS Grant		500,000
ARC Grant (If applicable)		
CDBG (If applicable)		
Other (Specify) KY General Assembly		1,000,000
Other (Specify)		
TOTAL	$	7,000,000