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**PRELIMINARY ENGINEERING REPORT  
SOUTH LOGAN WATER ASSOCIATION  
2003 SYSTEM EXTENSION PROJECT**

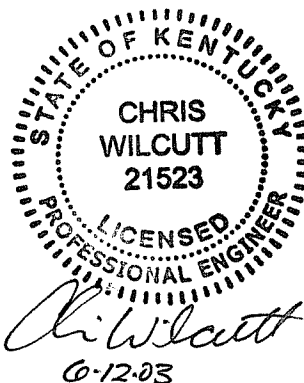
Logan County, Kentucky

prepared for the:

South Logan Water Association  
P.O. Box 277  
Adairville, KY 42202

prepared by:

*McGhee Engineering, Inc.*  
202 Ewing Street  
P.O. Box 267  
Guthrie, KY 42234  
(270) 483-9985



June 2003

**Preliminary Engineering Report**  
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## 1.0 INTRODUCTION

The South Logan Water Association (SLWA) was chartered in 1971 to supply potable water to residents of southern Logan County, Kentucky. The Association consists of six board members, and it is regulated by the Kentucky Public Service Commission. South Logan has authority to plan, design, finance, construct, operate, replace and maintain the distribution facilities within its service area.

The South Logan water system is comprised of over 180 miles of water distribution lines and four water storage tanks with a total capacity of 736,000 gallons, all of which serves approximately 1,540 customers in southern Logan County. As of the end of March 2003, the South Logan Water Association began to purchase all of their treated water from the recently completed water system of the Logan Todd Regional Water Commission (LTRWC). The Commission's water treatment facility is rated at 10 million gallons per day, and their distribution system consists of nearly 85 miles of pipeline and three storage tanks totaling 3,500,000 gallons in capacity. Since going online with the Commission, the average daily usage within the South Logan system has ranged from 330,000 to 460,000 gallons per day. South Logan has two meter stations with the Commission, one located in Russellville and the other near the Mortimer community.

The Association is a relatively large water system covering nearly a third of the Logan County area. Almost all roads within the Association boundary have water service, with only short extensions needed from time to time to accommodate new development.

The main problems that have plagued the Association were its long-term supply of treated water, low pressure in certain areas of the system, extending water service to unserved areas, and installing lines for improved hydraulic performance. The water supply issue has been resolved with their transition to the Logan Todd Regional system. The remaining problems will be alleviated by the intended system extension project.

The proposed project involves construction of nearly 19.4 miles of water line on eleven rural roadways. Some of these lines are being planned primarily to serve new customers in need of a safe supply of drinking water, while others are being built to improve hydraulic performance of the existing distribution system. The Schochoh area of southwestern Logan County experiences low pressure during high demand periods. Also, since the Association has gone online with the Commission, residents east of Adairville have experienced a drop in pressure because they are now being fed through undersized lines rather than directly off the nearby Adairville system. This problem will be corrected by the construction of a new 200,000-gallon elevated water tank. Other low-pressure areas will be assisted by building interconnecting lines to complete hydraulic circuits or "loops". The loops will also improve the water quality by cutting down on the stagnant water in dead-end lines. Also included in the project are the placement of master meter stations and an up-to-date telemetry system to allow for the monitoring and control of the system in greater detail. The total estimated cost of the proposed project is \$1,300,000.

## 2.0 PROJECT PLANNING AREA

### 2.1 Location

The waterline construction of the South Logan Water Association's project will be spread out along various rural roadways. Nearly 20 miles of new waterline construction or upgrade are proposed for 11 different roadways. The affected roadways are listed in Table 1.

Table 1  
Waterline Information

Map I.D.	PRIMARY ROUTES ROAD NAME	Length (miles)	Line Size (inches)
A	Watermelon Road	1.0	4
B	Barren Plains Road	1.0	4
C	Schochoh Road	3.5	8
D	Trimble Road	1.3	3
E	Halls Store Road (664)	4.0	6
F	Ornduff Mill Road	3.0	6
G	Wash Gun Road	0.5	3
H	Spring Valley Road	0.7	4
I	Johnson Young Road	1.7	3
J	Riggins Road	1.5	4
K	Paul Young Road	1.2	3
	SUBTOTAL	19.4	
	<b>ALTERNATE ROUTES</b>		
1a	Corinth Oakville Road	0.5	3
2a	Penrod Road	1.2	4
3a	Kaler Road	0.8	4
4a	Ben Fugate - Ed Smith Road	1.8	3
	SUBTOTAL	4.3	
	<b>TOTAL</b>	<b>23.7</b>	

The tank portion of the project involves the construction of a 200,000-gallon elevated water storage tank. The tank's proposed location is within the heart of the small Logan County community known as Schochoh. South Logan has secured an option for a piece of land in this area, and the topography of the area will allow for a suitable tank height to produce the stable pressures desired. The proposed overflow of the tank will be 800', which will produce adequate pressure for the deficient area. A telemetry system and booster pumping station or electronic control valve mechanism will be used to fill the new tank, and its operation and system pressure will be maintained by the tank's water level.

The proposed project is illustrated on a county highway map and labeled as Exhibit 1.

## 2.2 Land Use and Environmental Resources Present

As stated earlier, the line portion of the project is spread out along nearly 20 miles of roadway, all within rural areas of southern Logan County. The line work is proposed to be constructed within utility easements that will be acquired by the South Logan Water Association. The project will affect four main resources during construction: residential, agriculture, grazing and transportation. The general construction effect to the resources is the disturbances associated with building the facilities. Industrial, commercial, residential and agriculture resources in the entire Association will be affected upon completion of the project by providing improved pressure and abundant storage capacity.

An archeological investigation was required of the possible tank sites to determine if the proposed tank site affects historical and archeological resources that may be eligible for listing in the National Register for Historical Places. Dr. Jack Schock, of Arrow Enterprises, conducted a review of the site on February 3, 2003. His report concluded that no historical resource would be affected by the proposed project and the State Historical Preservation Officer confirmed his assessment by letter on April 2, 2003.

The following exhibits indicate the environmental resources present within the project planning area:

- A topographic map of each proposed water line and proposed tank site, indicating the areas to be affected and the surrounding area, are attached as Exhibits 2 thru 12. The base maps are USGS 7.5' quadrangles images.
- Waterlines that are near or traverse through defined FEMA floodplain zones are illustrated in Exhibits 13 thru 16.
- Soil survey data from the Soil Conservation Service is shown as Exhibit 17.

## 2.3 Growth Areas and Population Trends

The population history of Logan County is an important element in determining the growth patterns over the last 50 years. Analysis of the population history will assist in forming a reliable estimate of the future water needs of the project area.

According to historical records, Logan County's population was 20,896 in 1960, which represents its lowest census year during the last 60 years. Steady growth has been the trend in Logan County since the 1960's. Table 2 provides the population history and projections of the county based on data obtained from the U.S. Bureau of the Census.

Table 2  
*Population History and Projections*

YEAR	Historical							Projections					
	1	1	1	1	1	1	2	2	2	2	2	2	2
	9	9	9	9	9	9	0	0	0	0	0	0	0
	4	5	6	7	8	9	0	0	1	1	2	2	3
	0	0	0	0	0	0	0	5	0	5	0	5	0
L Adairville	784	800	848	973	1,105	906	920	969	1,017	1,065	1,113	1,158	1,200
O Auburn	955	994	1,013	1,160	1,467	1,273	1,444	1,521	1,596	1,671	1,747	1,817	1,883
G Lewisburg	524	496	512	651	972	772	903	951	998	1,045	1,092	1,137	1,177
A Russellville	3,986	4,529	5,861	6,456	7,520	7,454	7,149	7,531	7,899	8,274	8,646	8,999	9,319
N Rural Areas	17,096	15,516	12,662	12,553	13,074	14,011	16,157	17,021	17,852	18,699	19,542	20,339	21,064
N Logan County	23,345	22,335	20,896	21,793	24,138	24,416	26,573	27,993	29,362	30,754	32,140	33,450	34,643
% Change		-4.3%	-6.4%	4.3%	10.8%	1.2%	8.8%	5.3%	4.9%	4.7%	4.5%	4.1%	3.6%
<b>Notes to Table 1:</b>		1. Shaded areas have been calculated based on census and projection data.											
<b>Sources to Table 1:</b>		1. Historical & Projections provided by the KY State Data Center and Census Bureau University of Louisville, State Data Center ( <a href="http://cbpa.louisville.edu/ksdc/">http://cbpa.louisville.edu/ksdc/</a> )											

Analyzing Table 2 from 1940 to 2000 shows that the cities in Logan County have grown overall with some fluctuations. Most of the cities' gains came at the expense of the rural populations in Logan County. However, based on census data, the rural population should continue to grow and surpass the 1940 population figures. Therefore, the population of the South Logan Water Association should experience similar growth based upon these projections.

Several factors influence the growth of a community, some of which include accessibility, technology, education, water infrastructure, sewer facilities, and jobs. The community is just beginning to experience the benefit of a new four-lane highway, which has increased the areas access to larger Kentucky cities such as Hopkinsville and Bowling Green plus improved access to Interstates 24 and 65. High speed internet and wireless technology is gradually entering the communities, creating greater and easier contact to the rest of the world. The local school system is strong and provides a quality education. Recent census figures reveal that over two thirds of the county's population are high school graduates, which is near the state average. Over the last five years, the Association and other communities within the county have worked together to secure a reliable source of potable water for the next thirty years as the county goes online with the recently completed Logan Todd Regional Water Commission.

Further analysis of these projections indicates Logan County's population is projected to grow 3% or add 8,070 persons by 2030. While this growth rate is higher than historical, the projections, when compared with estimates by area development districts, universities, etc., are sound. It should be noted that population would be impacted by the availability or unavailability of water supply. An ample supply of water will promote growth while the lack thereof will limit growth. These factors must be considered when reviewing this report since many assumptions are dependent on these projections.

### 3.0 EXISTING FACILITIES

#### 3.1 History and Assets

The South Logan Water Association (SLWA) was formed by Logan County Court order in the early 1970's to supply potable water to residents within the southern portions of Logan County, Kentucky, between the cities of Adairville and Russellville. The water system is comprised of approximately 180 miles of water line and a total water storage capacity of 736,000 gallons. The existing distribution system consists of 8", 6", 4", 3" and 2" PVC lines. The general service area is depicted in Exhibit 1, which illustrates the general distribution layout. The existing transmission and distribution lines generally radiate from Adairville, its former water supplier, and from the Association's water storage tanks south of Russellville. The system is well laid out with many loops. However, there are some dead end and low-flow lines within the system that require frequent flushing.

SLWA has four water storage structures to serve the water system and one primary pumping station that has recently been removed from service. Three ground level tanks are located just south of Russellville, and the tanks have a total capacity of 636,000 gallons and an overflow elevation of 842 feet. The fourth tank is located in the Mortimer area. The Mortimer tank is an elevated water storage tank, and it has a capacity of 100,000 gallons and an overflow elevation of 746 feet

The Logan Todd Regional system initially supplies water to the SLWA system in two locations. The larger feed point is located at the base of the Association's ground level tanks in Russellville while the other is located near the Red River along US Highway 431 to serve the Mortimer tank. Flow through each of these metering points is controlled by the LTRWC SCADA system, and pressure is regulated as flow enters to match the existing tank overflows. System pressures are normally maintained by the level in the respective storage tanks.

#### 3.2 Regulatory Compliance

According to the Division of Water's remarks within the Clearinghouse Comments, the South Logan water system is currently in compliance with appropriate regulatory agencies. No other remarks were given to suggest that the water system was in or near a noncompliance status. The comments of the Division of Water and other agencies are included in Appendix A.

#### 3.3 Existing Financial Charges and Status

##### 3.3.1 Existing Rate Schedule (pending PSC ordered final rate tariff)

Meter Size 5/8" Inch :

First	<u>2,000</u>	Gallons @	<u>\$ 10.88</u>	Minimum
Next	<u>2,000</u>	Gallons @	<u>\$ 4.94</u>	per 1,000 Gallons
Next	<u>2,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons



Meter Size 3/4" Inch :

First	<u>3,000</u>	Gallons @	<u>\$ 15.82</u>	Minimum
Next	<u>1,000</u>	Gallons @	<u>\$ 4.94</u>	per 1,000 Gallons
Next	<u>2,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 1" Inch :

First	<u>5,000</u>	Gallons @	<u>\$ 24.70</u>	Minimum
Next	<u>1,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 1-1/2 Inch :

First	<u>25,000</u>	Gallons @	<u>\$ 77.00</u>	Minimum
All Over	<u>25,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 2" Inch :

First	<u>50,000</u>	Gallons @	<u>\$ 138.00</u>	Minimum
All Over	<u>50,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

*3.3.2 Pending PSC Approved Rate Schedule*

Anticipated Effective Date: Late June 2003 per May 14, 2003 Order

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.65
1" Meter:	\$5.94
1-1/2" Meter:	\$9.59
2" Meter:	\$16.89
3" Meter:	\$24.19

Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 6.70</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.44</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.18</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 5.93</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.67</u>	per 1,000 Gallons

### 3.3.3 O&M Costs (FYE 12/31/02)

Item No.	Expense Item	Amount
1	Purchased Water	\$ 289,318.00
2	Reconnections	\$ 4,280.00
3	Salaries and wages	\$ 11,212.00
4	Utilities	\$ 20,864.00
5	Operating supplies & expenses	\$ 5,204.00
6	Professional feels	\$ 8,040.00
7	Repairs & maintenance	\$ 50,084.00
8	Management fees	\$ 60,076.00
9	Insurance	\$ 4,019.00
10	Taxes & licenses	\$ 2,430.00
11	Bad Debts	\$ 1,432.00
12	Meeting expenses	\$ 876.00
13	Meter testing	\$ 272.00
14	Miscellaneous Expense	\$ 786.00
<b>Total Utility Expense</b>		<b>\$ 458,893.00</b>

### 3.3.4 Long Term Debts (as of 12/31/02)

Date of Issue	Bond/Note Holder	Principal Balance	Payment Date	Bond Type	Amount on Deposit in Reserve *
1965 Issue	GE Capital	\$ 17,000.00	2005	Water	\$ 46,687.00
1993 Issue	FmHA	\$ 384,201.00	2033	Water	
1998 Issue	FmHA	\$ 563,994.00	2038	Water	

### 3.3.5 Short Term Debts (as of 12/31/02)

Lender or Lessor	Date of Issue (Mo. & Year)	Principal Balance	Purpose	Payment Date	Principal & Interest Payment (P&I)	Date to Be Paid In Full
Union Planters Bank	18-Jun-98	\$ 10,018	Water	Quarterly	*	18-Jun-03
Union Planters Bank	17-May-01	\$ 33,740	Water	Quarterly	*	17-May-03

## 4.0 NEED FOR PROJECT

### 4.1 Health and Safety

As stated earlier, the South Logan Water Association has many areas with dead end lines or areas of waterlines served with only one feeder line. Nearly half of the planned water line extensions are proposed as connectors or upgrades to loop areas of the distribution system to improve water quality, reduce the need for frequent flushing or eliminate known maintenance problems. The other water lines are proposed to bring water service to nearly 20 residents that currently rely on groundwater sources or hauled water. Providing water to these potential residences is consistent with Logan County's approved Water Supply Plan as well as Governor Paul Patton's initiative to provide adequate and potable water to all homes by the year 2020.

The proposed elevated water storage tank will relieve the low pressure concerns experienced in the Schochoh community, located in the southeastern portion of the Association. This particular area is a fertile and prosperous agriculture district with many large farming operations that could easily be characterized on a corporate scale. The major farm operations in the area use a significant but seasonal amount of water for livestock, poultry, pork and row cropping applications. During the especially high demand events, residential pressures in this area drop to and below 30 psi, which is a minimum requirement according to the Ten State Standards. A new tank will place an ample amount of water storage at the point of these high demands, thus reducing the large head loss values which are currently creating the inadequate pressures.

#### 4.2 System O&M

There are two primary reasons for the Association's proposed project. The first is to provide a reliable and potable water source to approximately 17 total residences as described in the preceding section. The second reason is to improve the operation and maintenance of the system. As previously stated, the water system consists of many dead end or low flow lines. Many of the proposed line extensions will connect dead end lines to loop water flow, which reduces the need for frequent flushing to rid stagnant water. Also, several areas of the system, particularly east of Adairville, consist of several miles of small (4" and 3") waterlines that are primarily fed with only one or two waterlines of the same size. During peak demand periods within these type areas, the feeder lines are incapable of providing adequate flows resulting in unacceptable pressures. In particular, the area east of Adairville is still being fed from the City of Adairville because their tanks' proximity and transmission line sizes are currently better suited to maintain ideal hydraulic conditions in the affected area. Consequently, the proposed Trimble Road and Riggins Road extensions as well as the tank addition in Schochoh will provide more entry points of flow and volume into this area east of Adairville plus eliminate the dependency of the Adairville system.

The project will also upgrade a known problem along the Schochoh Road. Based upon operator accounts, several leaks have been observed and fixed over the last few years. These problems have shown not only to be a nuisance to the maintenance crews in non-ideal conditions but also very costly to the Association's finances due to material needs, overtime pay, and equipment costs. Therefore, the proposed Schochoh Road upgrade should improve the operation and maintenance of this particular area.

#### 4.3 Growth

As mentioned earlier, the population of Logan County and the rural areas should grow by an average of 5% every five years over the next 30 years based upon reliable census records and expected growth. The proposed project is necessary to provide water service to 17 new residences. Overall, the proposed project is being designed to ultimately improve water service to their existing 1,540 customers. The new infrastructure will insure the Association's ability to properly serve the existing customer base plus future growth in the area.

## 5.0 ALTERNATIVES CONSIDERED

A resolution to the problems faced by the South Logan Water Association is a relatively simple project with two alternatives.

### 5.1 Alternative 1

The first obvious alternative is to do nothing or a smaller variation of the project. However, the Association would continue their current endurance of operation, maintenance and water quality problems plus approximately 17 residences would remain unserved. Therefore, the 'do nothing' alternative is not a viable option as it would only prolong the inevitable.

### 5.2 Alternative 2

The second alternative is one that offers several advantages and resolves the three critical deficiencies in the water system. The alternative provides water service to unserved residences; eliminates dead end lines that suffer with water quality problems and require frequent flushing; and provides a water storage structure in a high demand community, which will stabilize pressure conditions. The project adheres with the Commonwealth's drive to provide a reliable and potable water source to all families by the year 2020. Also, the project provides a solution to South Logan's inability to provide at least 30-psi pressure during all demand times.

#### 5.2.1 *Description*

The project involves construction of 19.4 miles of water line on eleven rural roads in southern Logan County. Some of these lines are being built primarily to serve new customers in need of a safe supply of drinking water, while others are being built to improve the hydraulic performance of the existing distribution system. The Schochoh area of southeastern Logan County experiences low pressure during high demand periods. This will be corrected by the construction of a 200,000-gallon water storage tank (O.F. = ~800') and a booster pumping station or control valve vault. Other low-pressure areas can be corrected by building interconnecting lines to complete hydraulic circuits or "loops". These loops will also improve the water quality by cutting down on the stagnant water in dead-end lines.

In a further attempt to improve service to customers, South Logan is also proposing to install a number of master metering stations and an up-to-date telemetry system to allow the operators to monitor the performance of the system in greater detail, and to identify problems earlier. The alternative is illustrated in Exhibit 1.

#### 5.2.2 *Environmental Impacts and Land Requirements*

The alternative has little to no impact upon the environment and land resources because the proposed construction will be done along existing

easements and highways. The line extensions and upgrades are proposed for construction in existing pipeline easements where possible or in county/state right-of-way and easements as necessary. South Logan has secured a land option in the Schochoh community that can be reasonably purchased for the proposed elevated water tank. As mentioned earlier, the project will affect four main land resources during construction: residential, agriculture, grazing and transportation. The general construction effect to the resources is the disturbances associated with building the facilities. No other effect to the resources is expected after construction of the facilities is complete.

### 5.2.3 *Construction Problems*

There are no severe construction problems foreseen for the project. The South Logan area is known for its ideal soil conditions with only sporadic instances of rock outcrops. The entire pipeline route and proposed tank site are very accessible, and there is little to no evidence of a high water table. However, mobilization will be significant during the project since all of the proposed water lines are spread out throughout the vast service area. Also, several of the waterline extensions will require creek crossings, but none of which should be unmanageable or costly.

### 5.2.4 *Cost Estimates*

The South Logan Water Association's 2003 System Extension Project is estimated to have a total cost of \$1,300,000. The project cost consists of construction, non-construction and contingency costs, which are \$987,200, \$213,800 and \$99,000 respectively. The project is anticipated to be funded in part by a \$520,000 grant and \$780,000 loan from Rural Development

## 6.0 PROPOSED PROJECT

### 6.1 Project Design

#### 6.1.1 *Water Supply*

The Logan Todd Regional Water Commission's plant will serve the proposed project. Based upon figures from LTRWC, the newly completed plant is producing approximately 4,000,000 gallons per day, which is approximately 40% of the design capacity. Therefore, sufficient capacity exists to serve the South Logan project since the estimated 17 new customers should, based on average usage, only add an additional 4,000 gallon per day total demand.

#### 6.1.2 *Storage*

The proposed project will involve the construction of a new 200,000-gallon elevated storage tank (OF = ~800'). This new tank will be constructed in the Schochoh community, which experiences periods

of unacceptable low pressure during seasonal high demands. The new tank will place a sufficient water storage supply at the primary problem point producing a steady pressure environment of at least 50 psi in the higher elevations of the community. Overall, the water system's total storage capacity will increase to 936,000 gallons or nearly three times the current daily demand. The proposed tank site is illustrated in Exhibit 1.

### 6.1.3 *Distribution Layout*

The waterline construction of the South Logan Water Association's system extension project will be spread out along nearly 20 miles of rural roadways. The affected roadways are not clustered together as typical in most system upgrades, but they are rather "fill-in" lines to serve new customers and hydraulic improvements for water quality and flow. The line portion of the project involves the new construction of approximately 25,000 LF of 3" PVC treated water line, 22,100 LF of 4" PVC treated water line, 37,000 LF of 6" PVC treated water line, and 18,500 LF of 8" PVC treated water line. In addition to the waterlines, a booster pumping station and/or control valve vault will be constructed to control the filling of the proposed water tank. Also, in an attempt to improve service to customers, South Logan is proposing to install a number of master metering stations and an up-to-date telemetry system to allow the operators to monitor the performance of the entire system in greater detail, and to identify problems earlier.

The proposed line extension and proposed booster pump station is illustrated in Exhibit 1.

### 6.1.4 *Regulatory Compliance*

The proposed project has been submitted to the Kentucky State Clearinghouse for their comments. The clearinghouse comments are included in Appendix A. The clearinghouse review of the proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Furthermore, no notices have been received and none are expected to suggest that the water system is in or near a noncompliance status.

### 6.1.5 *Hydraulic Calculations*

For preliminary planning purposes, the computer hydraulic simulator, KYPIPE 2000, was used to construct a system wide model to determine the hydraulic characteristics of the South Logan Water Association, as it currently exists. The proposed extension project is a relatively simple project from a hydraulic standpoint since many of the line extensions connect dead ends; terrain of the area is moderately flat without points of low pressure concern, and the proposed tank is "downhill" of the existing tanks in Russellville with a 40 foot lower overflow elevation. However, the model has been useful recently as

the Association has studied the most feasible method to serve the area east of Adairville. Currently, this area has remained connected to the City's system with Logan Todd's flow passing through the City's infrastructure to the area. This temporary arrangement is necessary because the lack of enough properly sized feeder lines to the area provides insufficient pressure to the residences along KY Highway 591.

In April 2003, an analysis was performed to illustrate the effect that the Trimble Road, Riggins Road and/or Kaler Road extensions would have on this so area so that the Association would not be dependent upon the City. Different scenarios were modeled so that the Board of Directors could decide if any of these extensions should be constructed prior to the start of the proposed project, but a decision has not yet been made.

The correspondence and model results mentioned in the preceding paragraph are included in Appendix B.

## 6.2 Cost Estimate

The proposed itemized cost estimate of the South Logan Water Association's 2003 System Extension Project is shown in Table 3.

Table 3  
Project Cost Estimate

<b>Construction</b>		
<b>No.</b>	<b>Item</b>	<b>Total</b>
1	Watermelon Road	\$ 17,000
2	Barren Plains Road	\$ 17,000
3	Schochoh Road	\$ 118,500
4	Trimble Road	\$ 16,500
5	Halls Store Road (664)	\$ 99,700
6	Ornduff Mill Road	\$ 76,000
7	Wash Gun Road	\$ 6,300
8	Spring Valley Road	\$ 11,800
9	Johnson Young Road	\$ 21,500
10	Riggins Road	\$ 25,300
11	Paul Young Road	\$ 15,600
12	SCADA System	\$ 125,000
13	200,000 Elevated Water Storage Tank	\$ 350,000
14	Booster Pump Station	\$ 40,000
15	Master Meter Stations	\$ 40,000
16	Add Valves in Existing Lines	\$ 7,000
	<b>Subtotal - Construction</b>	<b>\$987,200.00</b>
<b>Non-Construction</b>		
1	Land & Right-of-Way	\$15,000.00
2	Legal Costs	\$27,000.00
3	Preliminary Engineering & Environmental Services	\$18,300.00
4	Geotechnical Engineering and Testing Services	\$8,000.00
5	Design Engineering	\$56,000.00
6	Construction Phase Engineering Services	\$24,000.00
7	Construction Inspection	\$45,500.00
8	Financing Costs	\$20,000.00
	<b>Subtotal - Nonconstruction</b>	<b>\$213,800.00</b>
	Contingency	\$99,000.00
	<b>TOTAL ESTIMATED PROJECT COST</b>	<b>\$1,300,000.00</b>



### 6.3 Annual Operating Budget

The proposed annual operating budget for the South Logan Water Association's 2003 System Extension Project is shown in Table 4.

Table 4  
Proposed Operating Budget

Operating Income	Existing <sup>(1)</sup>	Extension Only	Future
Water Sales	\$550,410.00	\$8,280.00 <sup>(2)</sup>	\$910,000.00 <sup>(5)</sup>
Late Charges & Reconnection Fees	\$17,645.00	\$265.00 <sup>(3)</sup>	\$17,910.00
Other Income	\$7,156.00	\$107.00 <sup>(3)</sup>	\$7,263.00
<b>Total Operating Income</b>	<b>\$575,211.00</b>	<b>\$8,652.00</b>	<b>\$935,173.00</b>
<b>Operating and Maintenance Expense</b>			
Purchased Water	\$289,318.00	\$3,550.00	\$425,000.00 <sup>(6)</sup>
Reconnections	\$4,280.00	\$64.00 <sup>(3)</sup>	\$4,344.00
Salaries & Wages	\$11,212.00	\$0.00	\$45,000.00 <sup>(7)</sup>
Utility Expense	\$20,864.00	\$0.00	\$500.00 <sup>(7)</sup>
Operating Supplies & Expense	\$5,204.00	\$0.00	\$10,000.00 <sup>(7)</sup>
Professional Fees	\$8,040.00	\$0.00	\$10,000.00 <sup>(7)</sup>
Repairs & Maintenance	\$50,084.00	\$0.00	\$60,000.00 <sup>(7)</sup>
Management Fees	\$60,076.00	\$0.00	\$75,000.00 <sup>(7)</sup>
Insurance	\$4,019.00	\$60.00 <sup>(3)</sup>	\$4,079.00
Taxes & Licenses	\$2,430.00	\$36.00 <sup>(3)</sup>	\$2,466.00
Bad Debts	\$1,432.00	\$21.00 <sup>(3)</sup>	\$1,453.00
Meeting Expense	\$876.00	\$13.00 <sup>(3)</sup>	\$889.00
Water Tests	\$272.00	\$4.00 <sup>(3)</sup>	\$276.00
Miscellaneous	\$555.00	\$8.00 <sup>(3)</sup>	\$563.00
Equipment Rental	\$231.00	\$3.00 <sup>(3)</sup>	\$234.00
<b>Total Operating Expenses</b>	<b>\$458,893.00</b>	<b>\$3,759.00</b>	<b>\$639,804.00</b>
<b>Net Operating Income</b>	<b>\$116,318.00</b>	<b>\$4,893.00</b>	<b>\$295,369.00</b>
<b>Non-Operating Income (Expense)</b>			
Interest Income	\$602.00	\$0.00	\$602.00
LT RUS Interest	(\$46,142.00)	(\$37,050.00) <sup>(4)</sup>	(\$83,192.00) <sup>(8)</sup>
LT RUS Principal & Reserve	(\$20,419.00)	(\$12,150.00) <sup>(4)</sup>	(\$32,569.00) <sup>(8)</sup>
LT Non-RUS Interest	(\$413.00)	\$0.00	(\$413.00) <sup>(8)</sup>
LT Non-RUS Principal	(\$5,000.00)	\$0.00	(\$5,000.00) <sup>(8)</sup>
<b>Total Non-Operating Income</b>	<b>(\$71,372.00)</b>	<b>(\$49,200.00)</b>	<b>(\$120,572.00)</b>
<b>Net for Coverage &amp; Depreciation</b>	<b>\$44,946.00</b>	<b>(\$44,307.00)</b>	<b>\$174,797.00</b>

**Notes:**

1. Based on the 2002 Financial Statement
2. Based on 17 new customers, 6,000 gallons/month average usage & current PSC rates.
3. Based on a 1.5% increase in water sales.
4. Based on a \$520,000 RUS Grant and \$780,000 RUS Loan at 4.75% & 38 year term with 10% reserve.
5. Estimated Water Sales per Forecast with Existing Customer Base, 2002 Usage & PSC rates.
6. Estimated Purchased Water Cost via LTRWC (Current Avg Cost = ~\$35,400/month)
7. Estimated Expense Adjustments due to management change & pump decommission.
8. Estimated Debt Service for 2004.

Aside from the proposed project, Table 4 illustrates multiple changes for South Logan's future financial statements. Based on 2002 water usage and customer breakdown, water revenue will increase nearly 65% as a result of the pending PSC rate increase, which will produce an approximate 50% rate increase to the typical 4,000-gallon user. Also, the cost of purchase water to the Association will increase approximately 47% since they'll adjust from the \$1.60/1,000 gallon Adairville rate to the Logan Todd rate of \$2.91. Furthermore, as of April 30, 2003, the Association's day-to-day operations are no longer being provided by the City of Adairville, and Hanks Construction Co, who also provides the same service to the East Logan Water District, is handling these operations on an interim basis. Figures for the future operation and management expenses are estimates without a long test period for analysis.

Based on these projections and assumptions, the commitment of a \$520,000 Rural Development Grant and added revenues from the PSC approved rates are expected to produce an adequate fund for coverage and depreciation, which is suitably higher than previous fiscal years. Without securing the referenced grant, it is estimated that an additional 5% increase to the PSC rates would be required to offset the increase in debt service and maintain the equivalent fund for coverage and depreciation.

Table 5 illustrates the project's rate schedule with the requested RUS Grant, and Table 6 shows the necessary rate schedule if the project is undertaken without the requested RUS Grant and funded entirely with RUS loan money.

Table 5  
Project Rate Schedule with RUS Grant

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.65
1" Meter:	\$5.94
1-1/2" Meter:	\$9.59
2" Meter:	\$16.89
3" Meter:	\$24.19

Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 6.70</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.44</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.18</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 5.93</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.67</u>	per 1,000 Gallons

Table 6  
Project Rate Schedule without RUS Grant

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.88
1" Meter:	\$6.24
1-1/2" Meter:	\$10.07
2" Meter:	\$17.73
3" Meter:	\$25.40

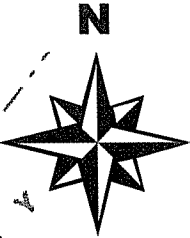
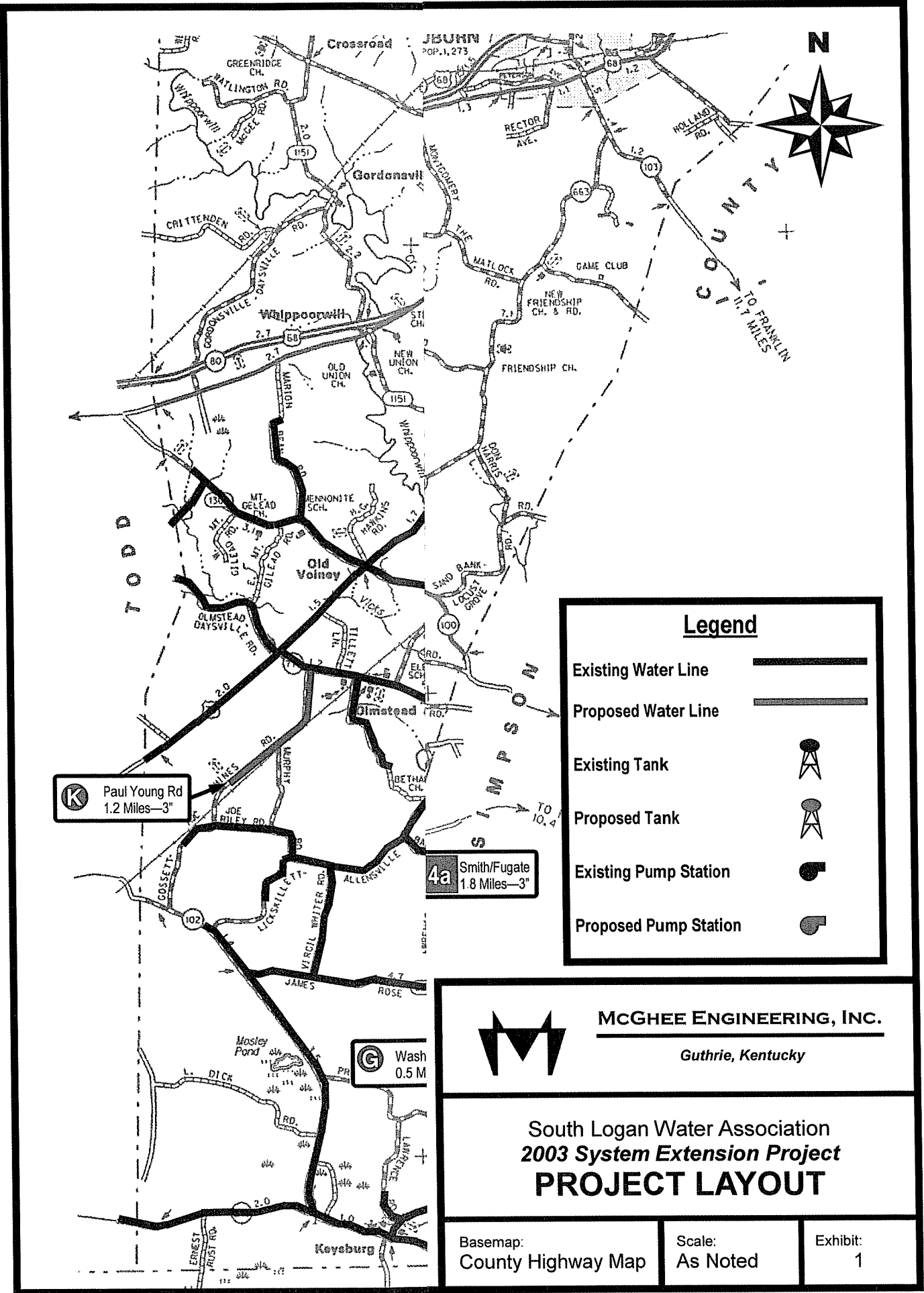
Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 7.04</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.76</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.49</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.95</u>	per 1,000 Gallons

## 7.0 RECOMMENDED SOLUTION

In order to address the problems and needs of the water system, the South Logan Water Association should do the following:

- Construct a 200,000-gallon elevated water storage tank (OF = ~800') to serve the Schochoh community.
- Construct approximately 20 miles of new waterline to serve an estimated 17 residences plus improve the system's hydraulics and water quality.
- Construct a booster pumping station and/or electronic control valve vault to control the flow and filling of the proposed Schochoh tank.
- Continue the application process for \$520,000 in grant and \$780,000 in loan from Rural Development.
- Conduct any required geotechnical investigations to insure the proposed tank site is suitable for a cost feasible foundation.
- Initiate discussion among the District's Board of Directors concerning public awareness and implementation of raising water rates to fund the project if grant funds are unavailable.
- Continue pursuing different means of financing through other available agencies and methods.









COUNTY  
TO FRANKLIN  
11.7 MILES

TODD

IMPSON  
TO 10.4

**Legend**

- Existing Water Line 
- Proposed Water Line 
- Existing Tank 
- Proposed Tank 
- Existing Pump Station 
- Proposed Pump Station 

**K** Paul Young Rd  
1.2 Miles—3"

**4a** Smith/Fugate  
1.8 Miles—3"

**G** Wash  
0.5 M



**MCGHEE ENGINEERING, INC.**

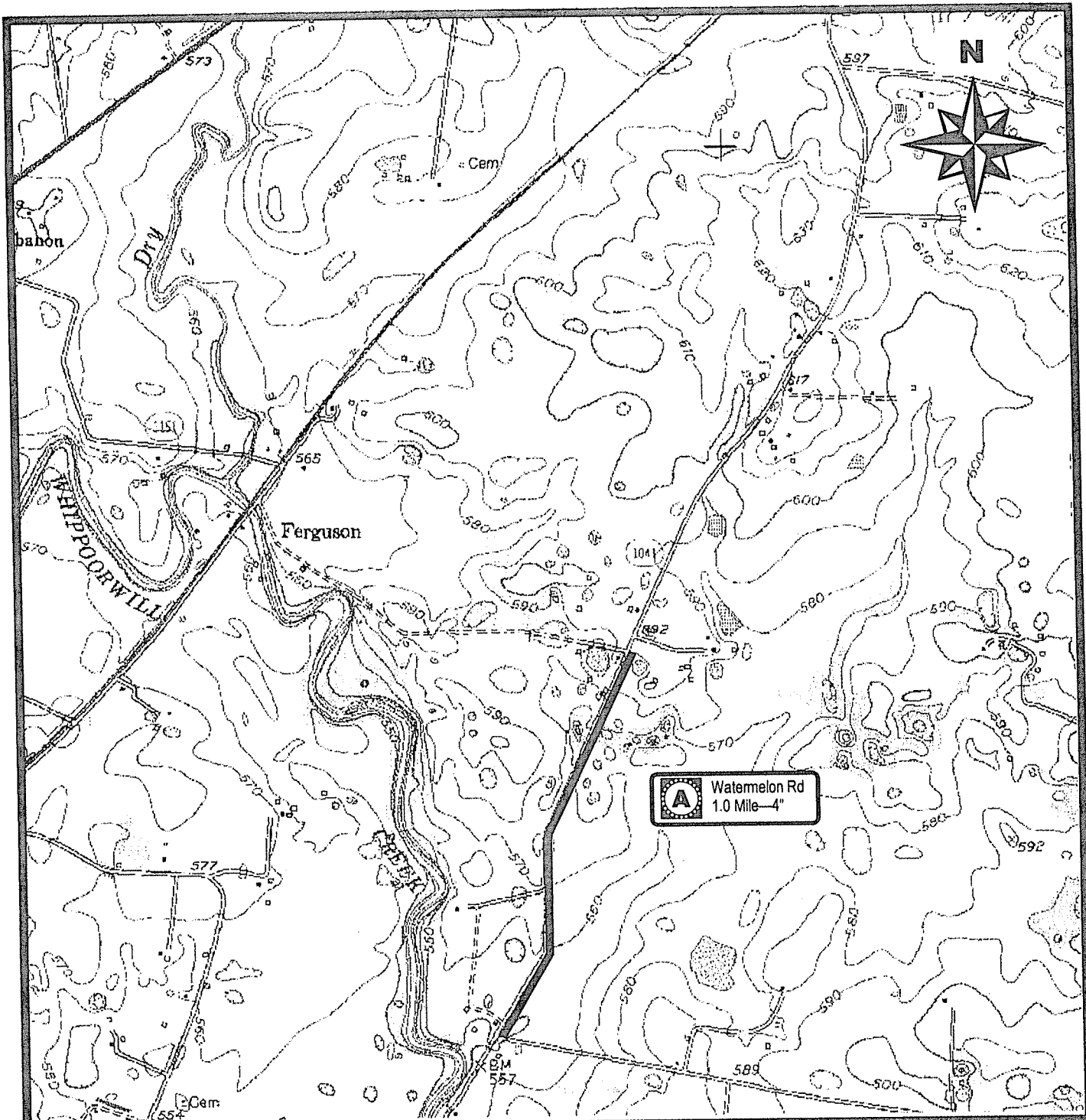
Guthrie, Kentucky

South Logan Water Association  
2003 System Extension Project  
**PROJECT LAYOUT**

Basemap:  
County Highway Map

Scale:  
As Noted

Exhibit:  
1



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**WATERMELON ROAD**

Basemap:  
 Russellville 7.5' Quad

Scale:  
 As Noted

Exhibit:  
 2



**B** Barren Plains Road  
1.0 Mile—4"

**Legend**

Proposed Water Line 

Proposed Tank 

Proposed Pump Station/Valve Vault 



**MCGHEE ENGINEERING, INC.**

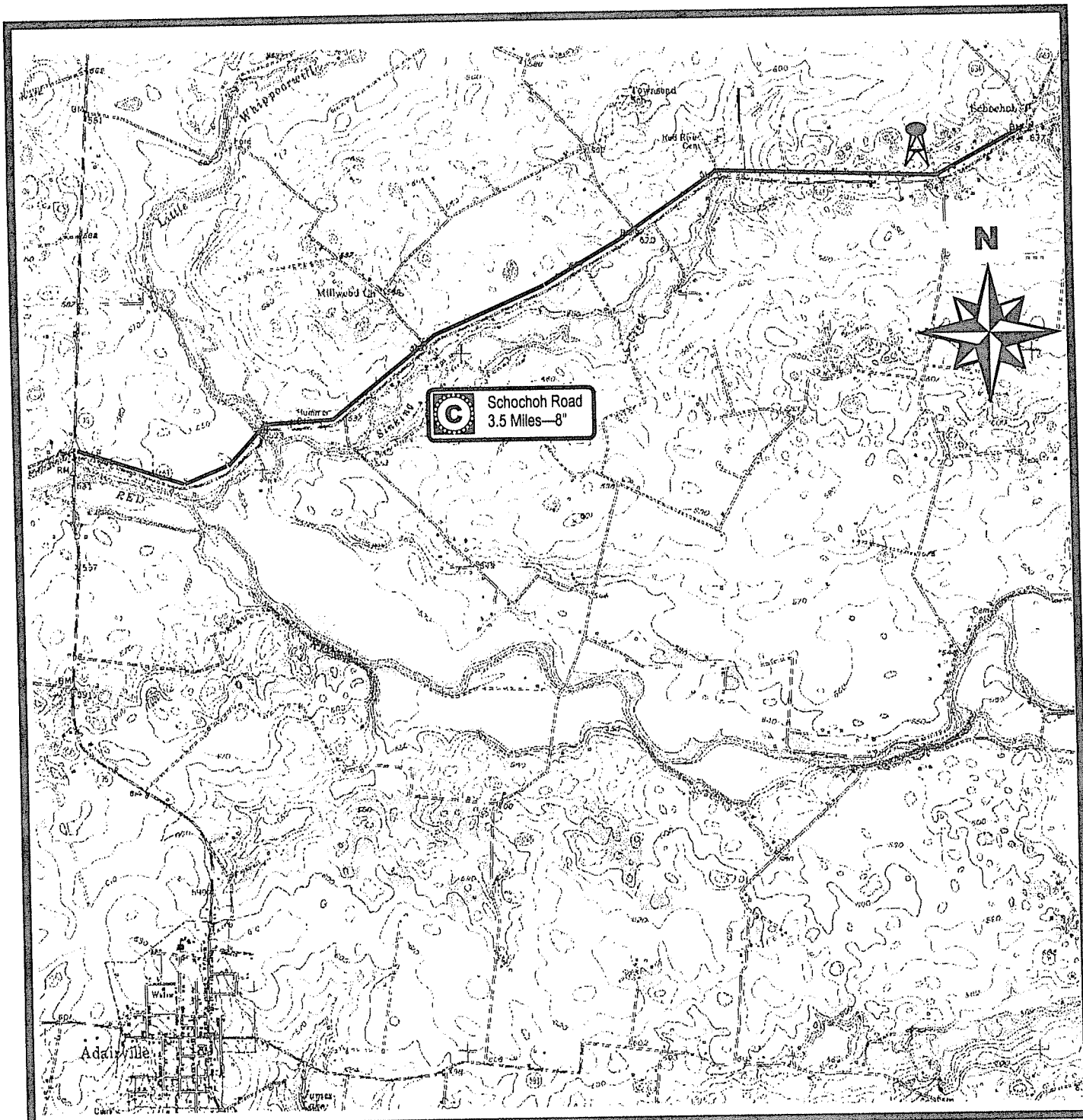
*Guthrie, Kentucky*

South Logan Water Association  
2003 System Extension Project  
**BARREN PLAINS ROAD**

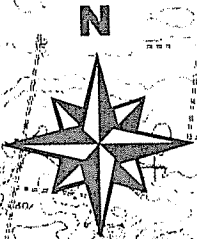
Basemap:  
Dot Quadrangle

Scale:  
As Noted

Exhibit:  
3



**Schochoh Road**  
3.5 Miles - 8"



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

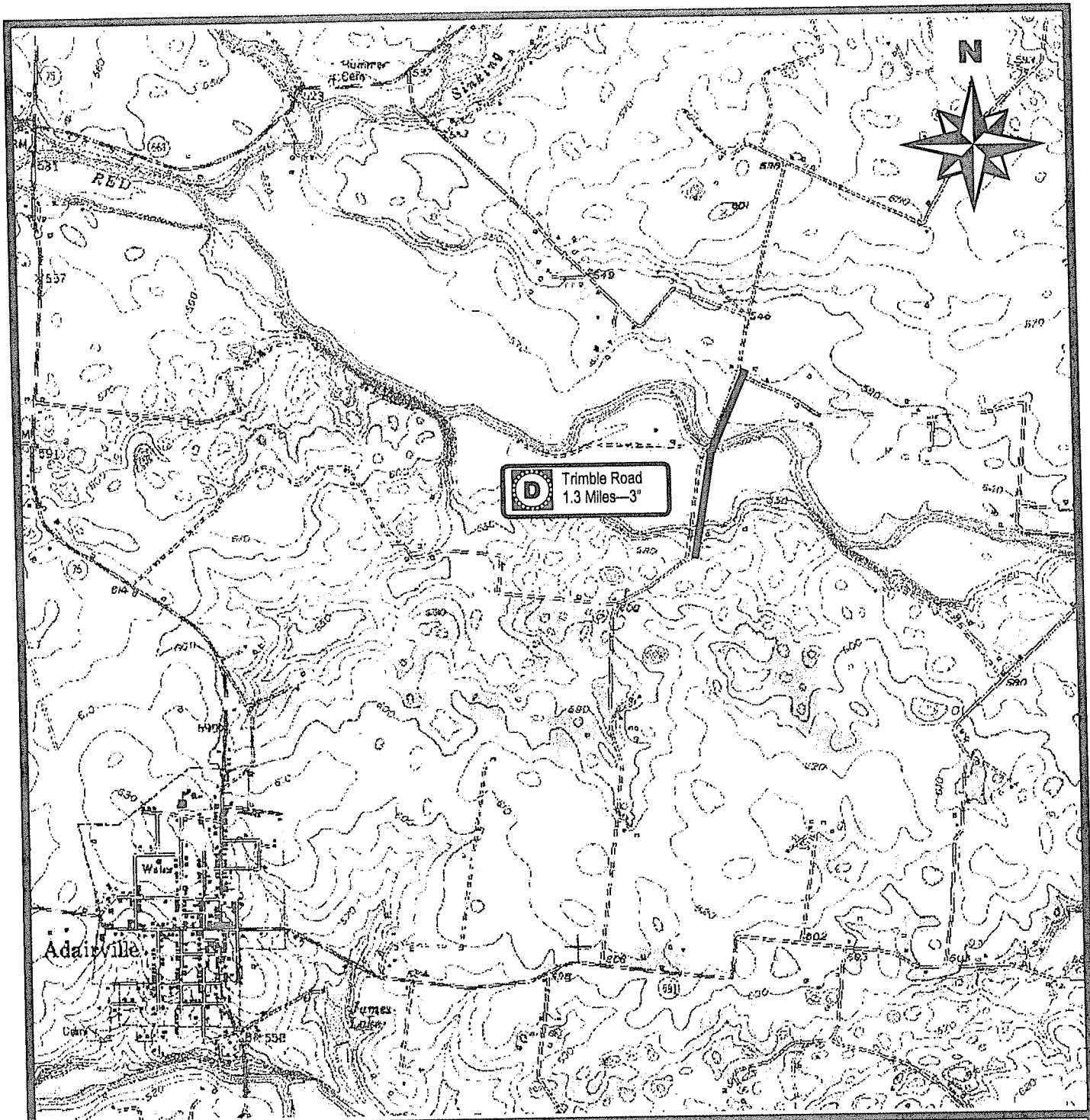
*Guthrie, Kentucky*

South Logan Water Association  
2003 System Extension Project  
**SCHOCHOH ROAD**

Basemap:  
Adairville 7.5' Quad

Scale:  
As Noted

Exhibit:  
4



**D** Trimble Road  
1.3 Miles = 3"

**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

*Guthrie, Kentucky*

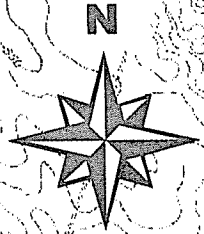
South Logan Water Association  
2003 System Extension Project  
**TRIMBLE ROAD**

Basemap:  
Adairville 7.5' Quad

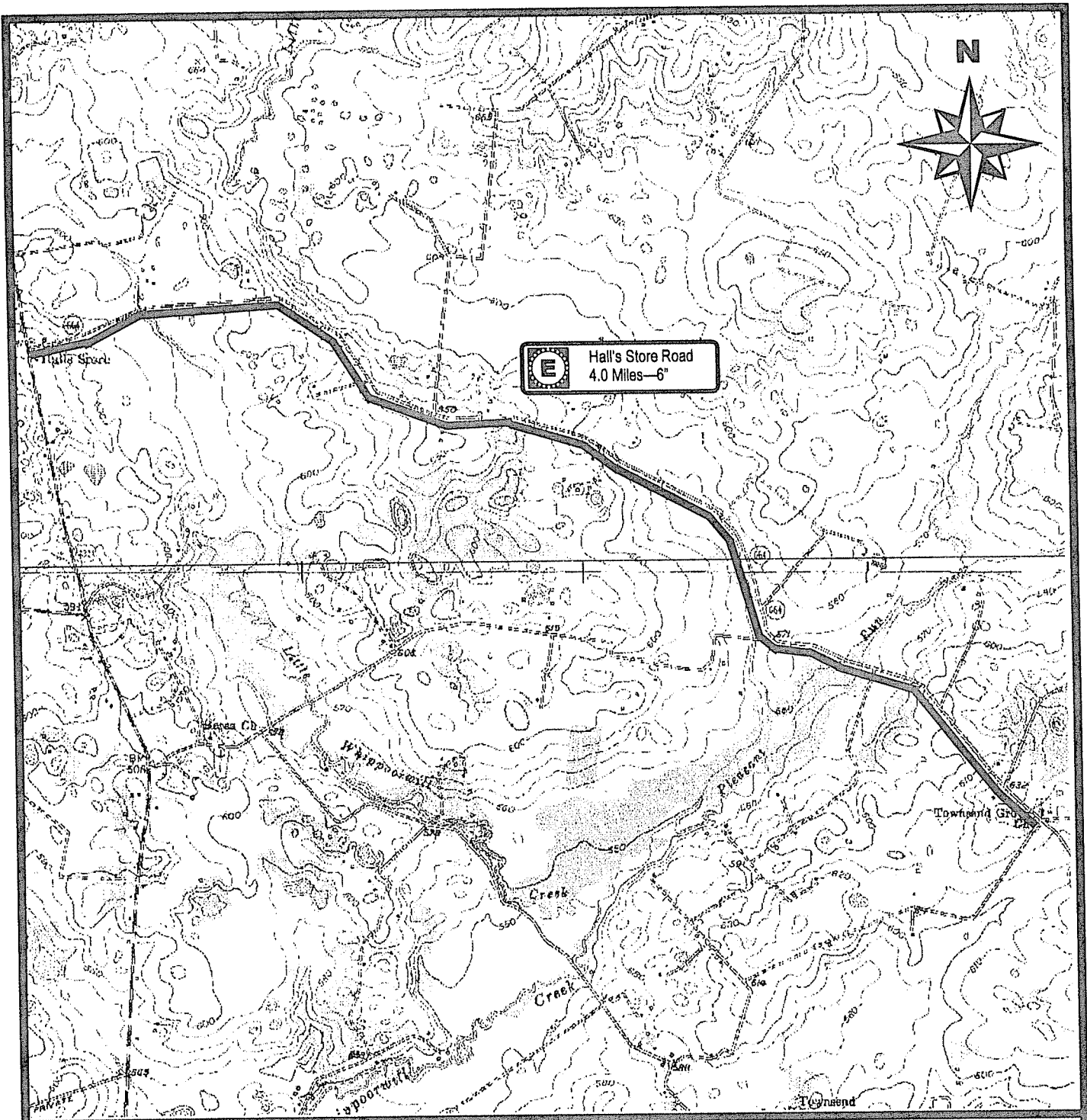
Scale:  
As Noted

Exhibit:  
5






**E** Hall's Store Road  
4.0 Miles—6"



**Legend**

Proposed Water Line 

Proposed Tank 

Proposed Pump Station/Valve Vault 



**MCGHEE ENGINEERING, INC.**

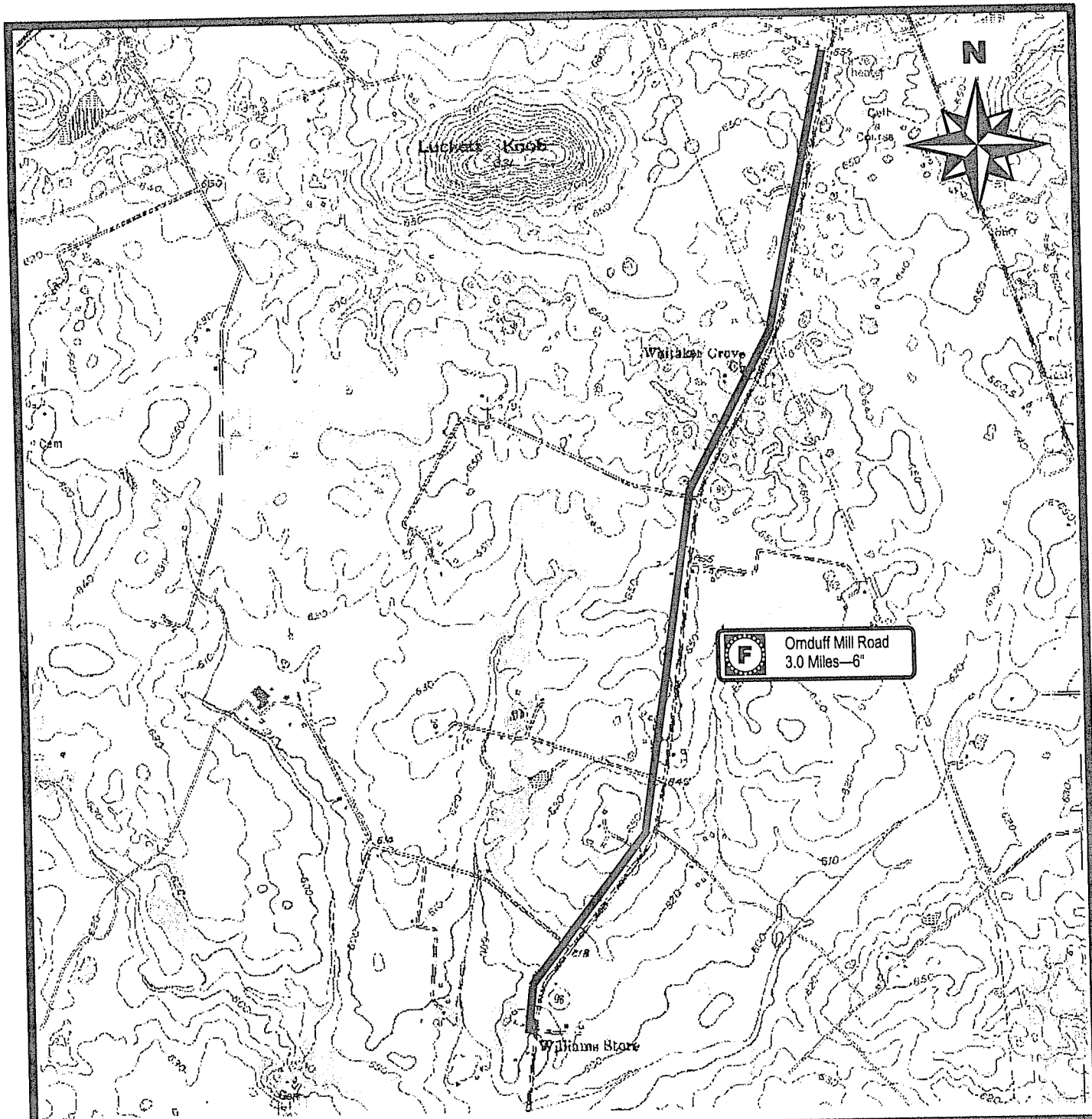
*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**HALL'S STORE ROAD**

Basemap:  
Adairville & Dennis Quads

Scale:  
As Noted

Exhibit:  
6



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

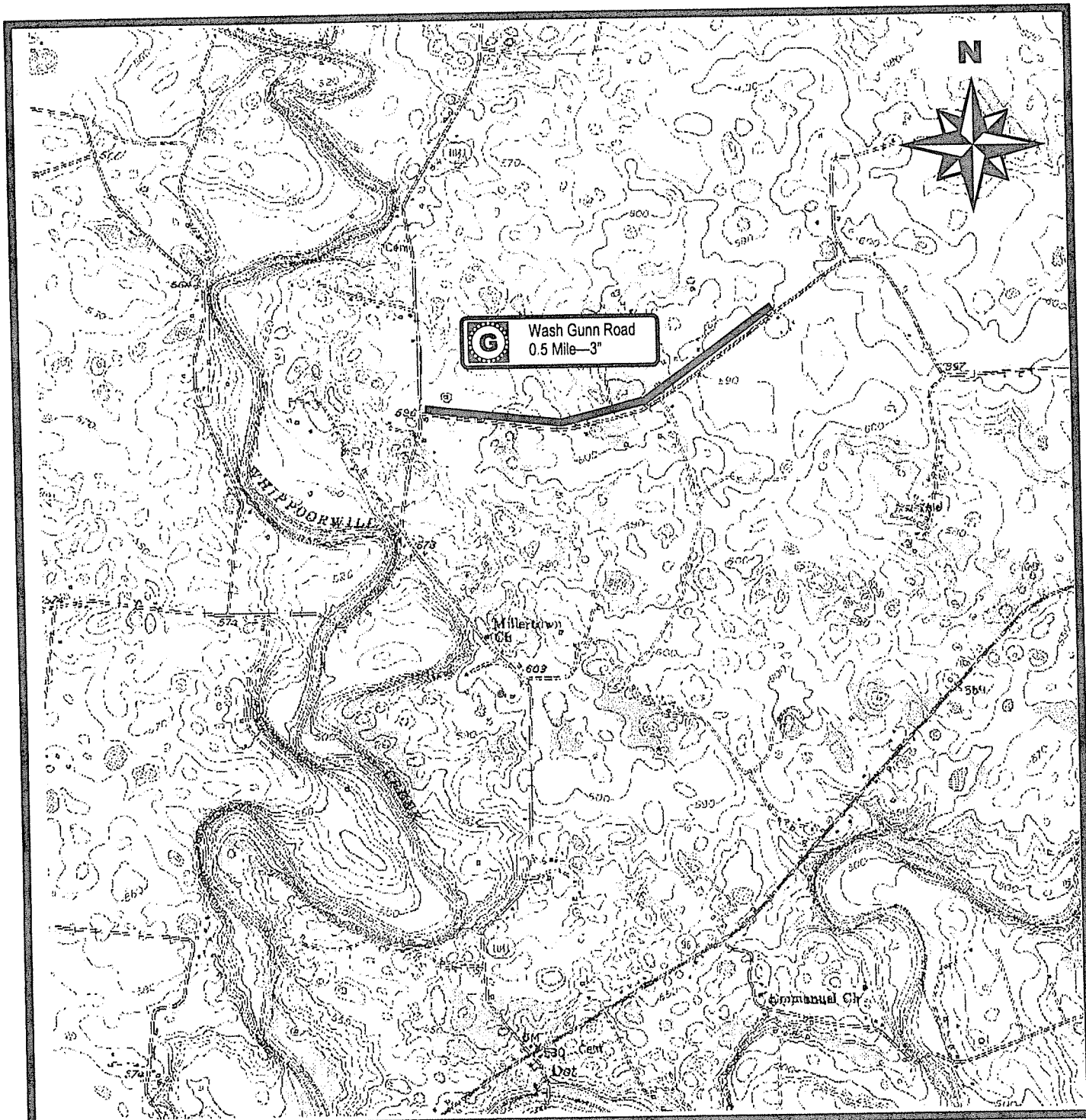
*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**ORNDUFF MILL ROAD**

Basemap:  
 Russellville Quad

Scale:  
 As Noted

Exhibit:  
 7



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

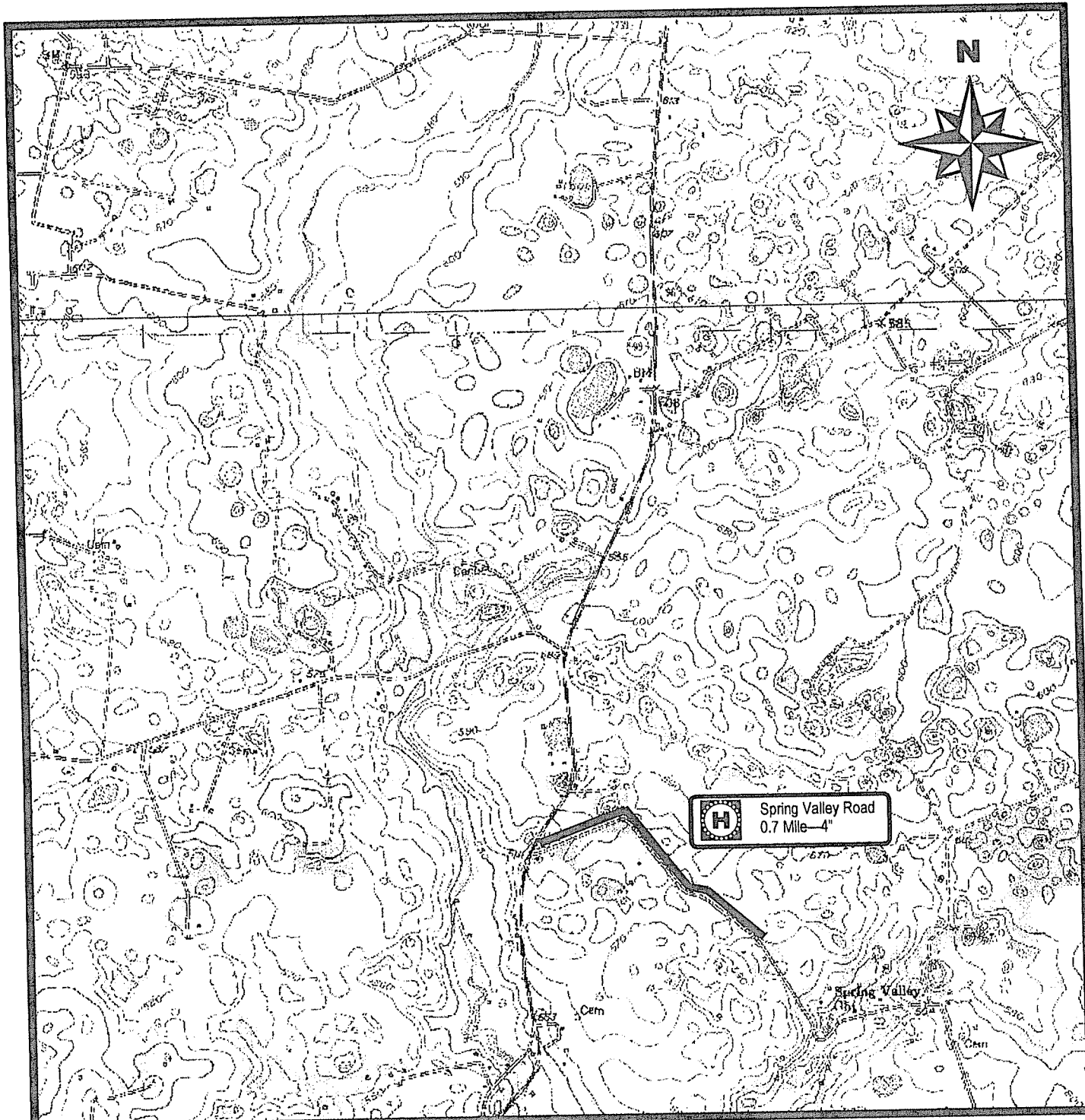
*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**WASH GUNN ROAD**

Basemap:  
 Dot Quadrangle

Scale:  
 As Noted

Exhibit:  
 8



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

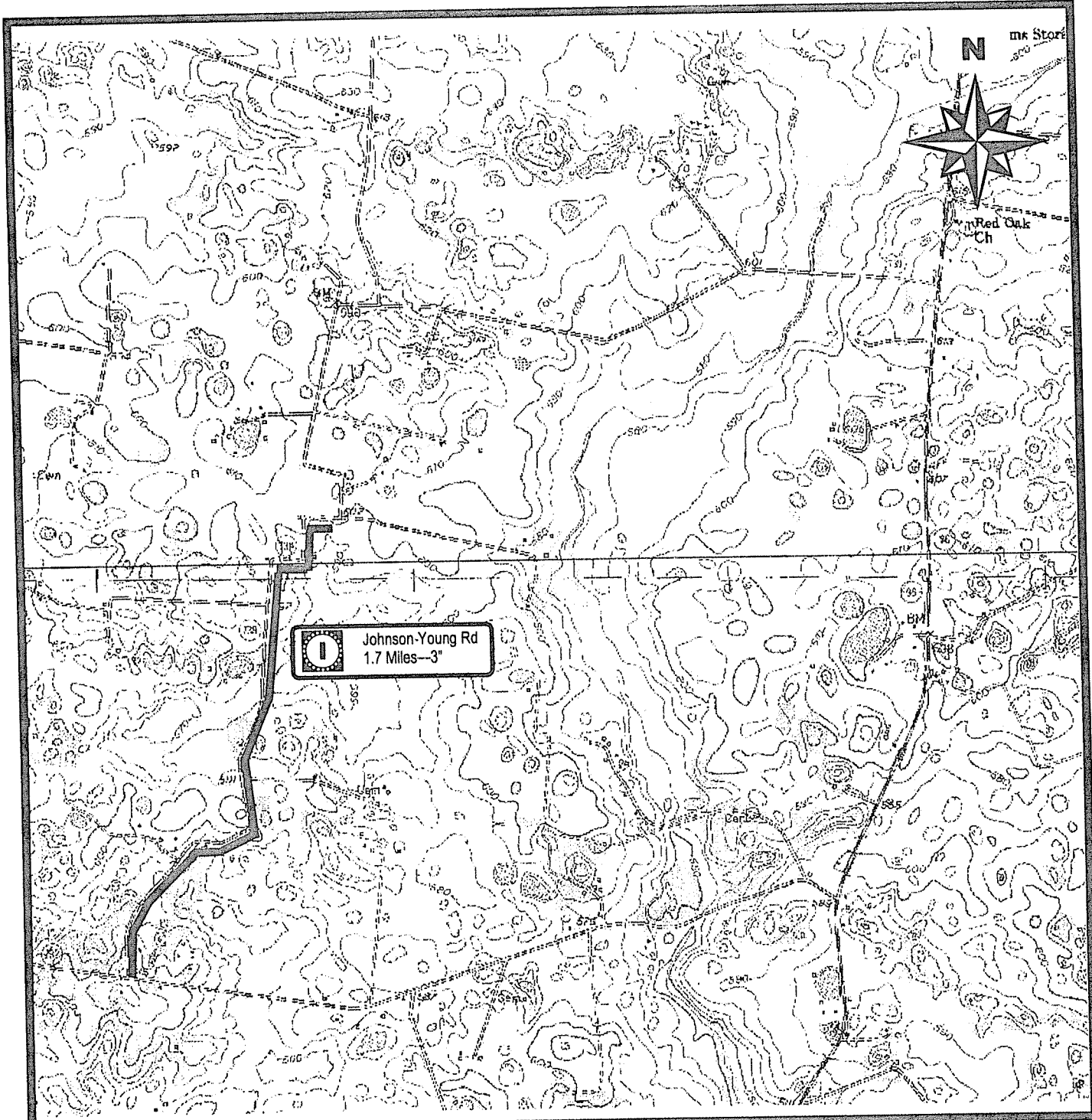
*Guthrie, Kentucky*

South Logan Water Association  
 2003 System Extension Project  
**SPRING VALLEY ROAD**




Basemap:  
 Russellville & Dot Quads

Scale:  
 As Noted

Exhibit:  
 9



**Legend**

- Proposed Water Line 
- Proposed Tank 
- Proposed Pump Station/Valve Vault 



**MCGHEE ENGINEERING, INC.**

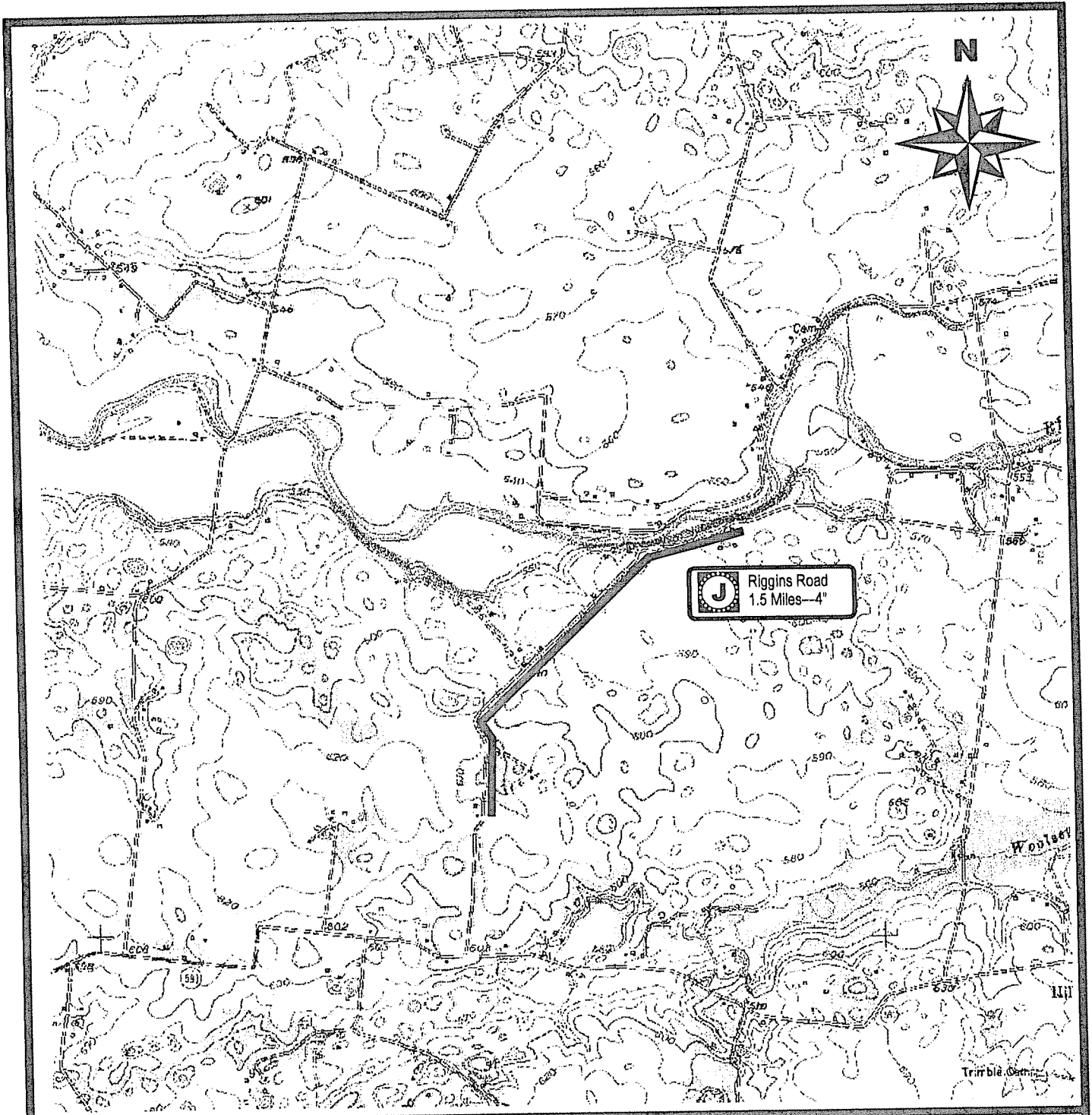
*Guthrie, Kentucky*

South Logan Water Association  
 2003 System Extension Project  
**JOHNSON-YOUNG ROAD**

Basemap:  
 Russellville & Dot Quads

Scale:  
 As Noted

Exhibit:  
 10



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

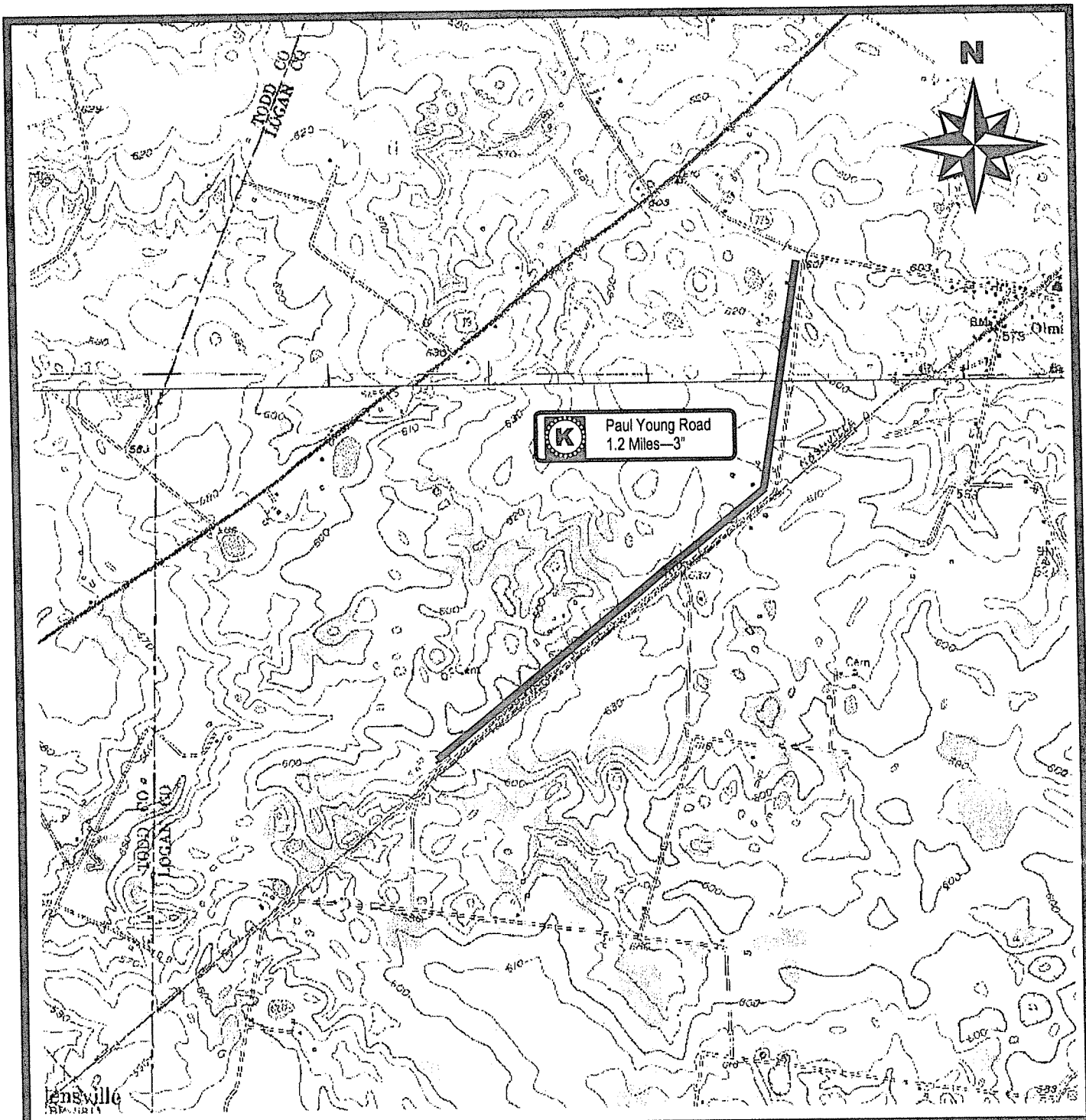
*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**RIGGINS ROAD**

Basemap:  
 Adairville 7.5' Quad

Scale:  
 As Noted

Exhibit:  
 11



**K** Paul Young Road  
1.2 Miles - 3"

**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

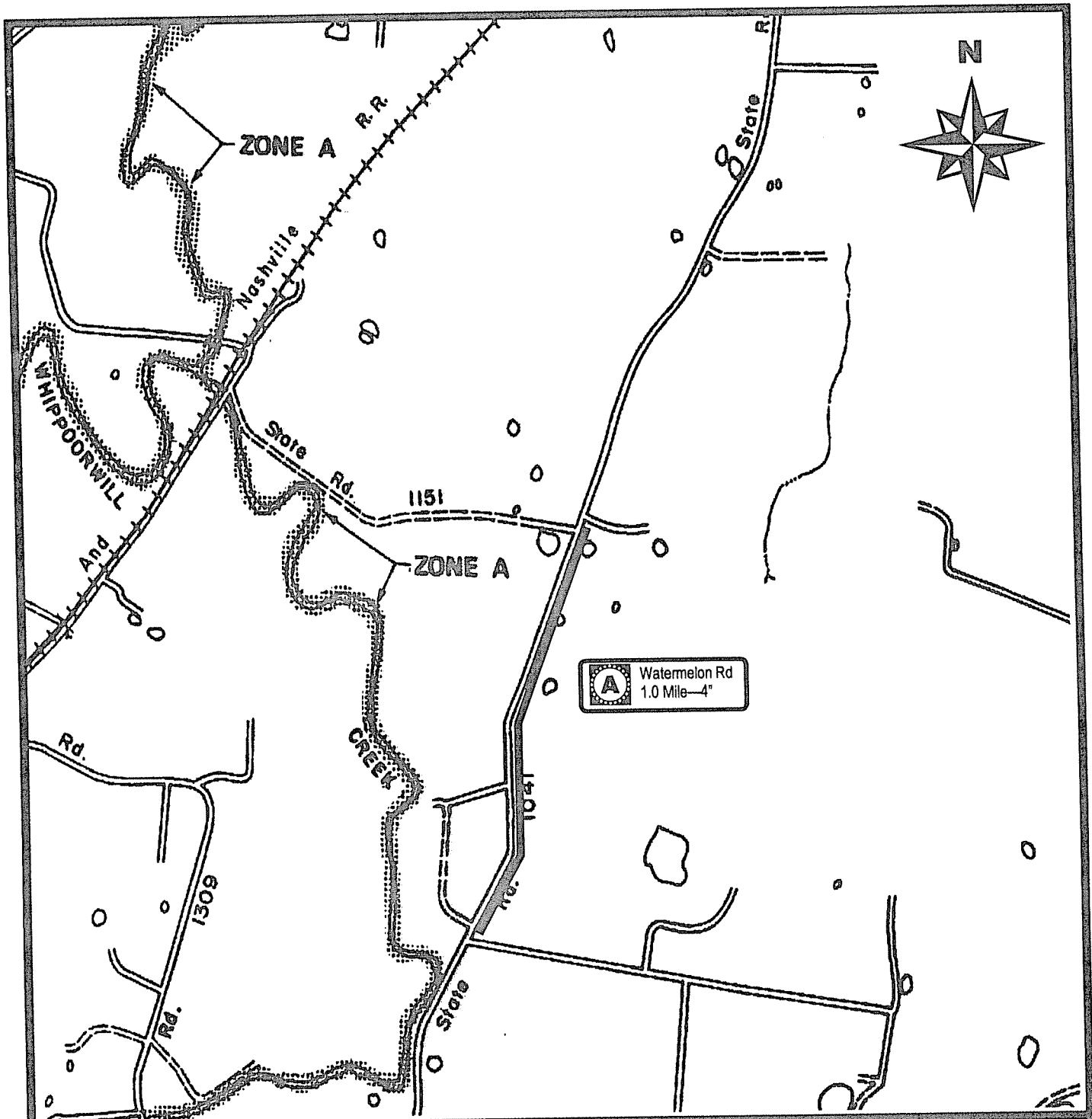
*Guthrie, Kentucky*

South Logan Water Association  
2003 System Extension Project  
**PAUL YOUNG ROAD**

Basemap:  
Olmstead & Allensville Quads

Scale:  
As Noted

Exhibit:  
12



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

*Guthrie, Kentucky*

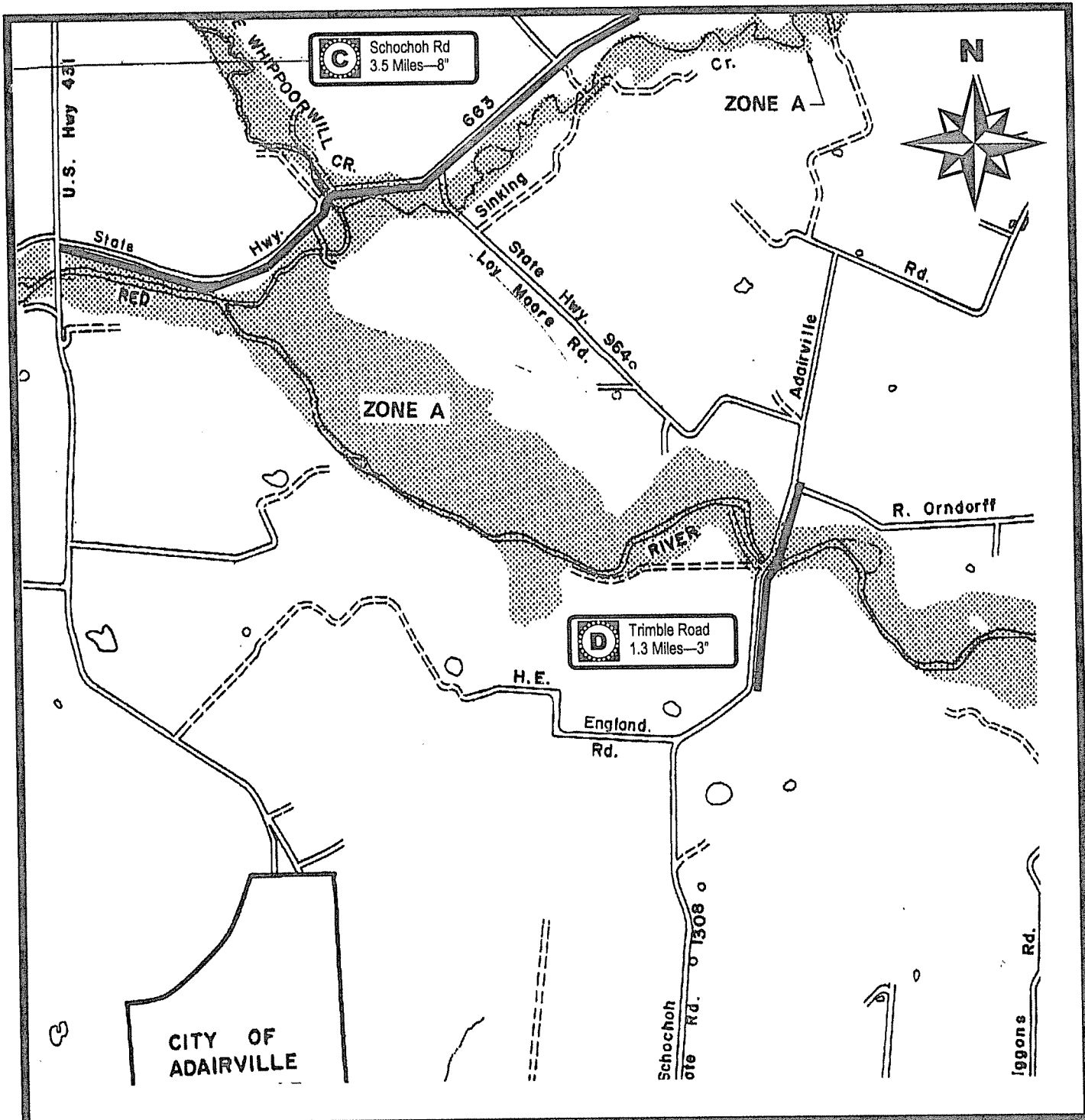
**South Logan Water Association  
2003 System Extension Project  
FLOOD ZONE VICINITY MAP  
Watermelon Road**

HUD Flood Map:  
Panel 210341-0005 A




Scale:  
As Noted

Exhibit:  
13





**Legend**

- Proposed Water Line 
- Proposed Tank 
- Proposed Pump Station/Valve Vault 



**MCGHEE ENGINEERING, INC.**

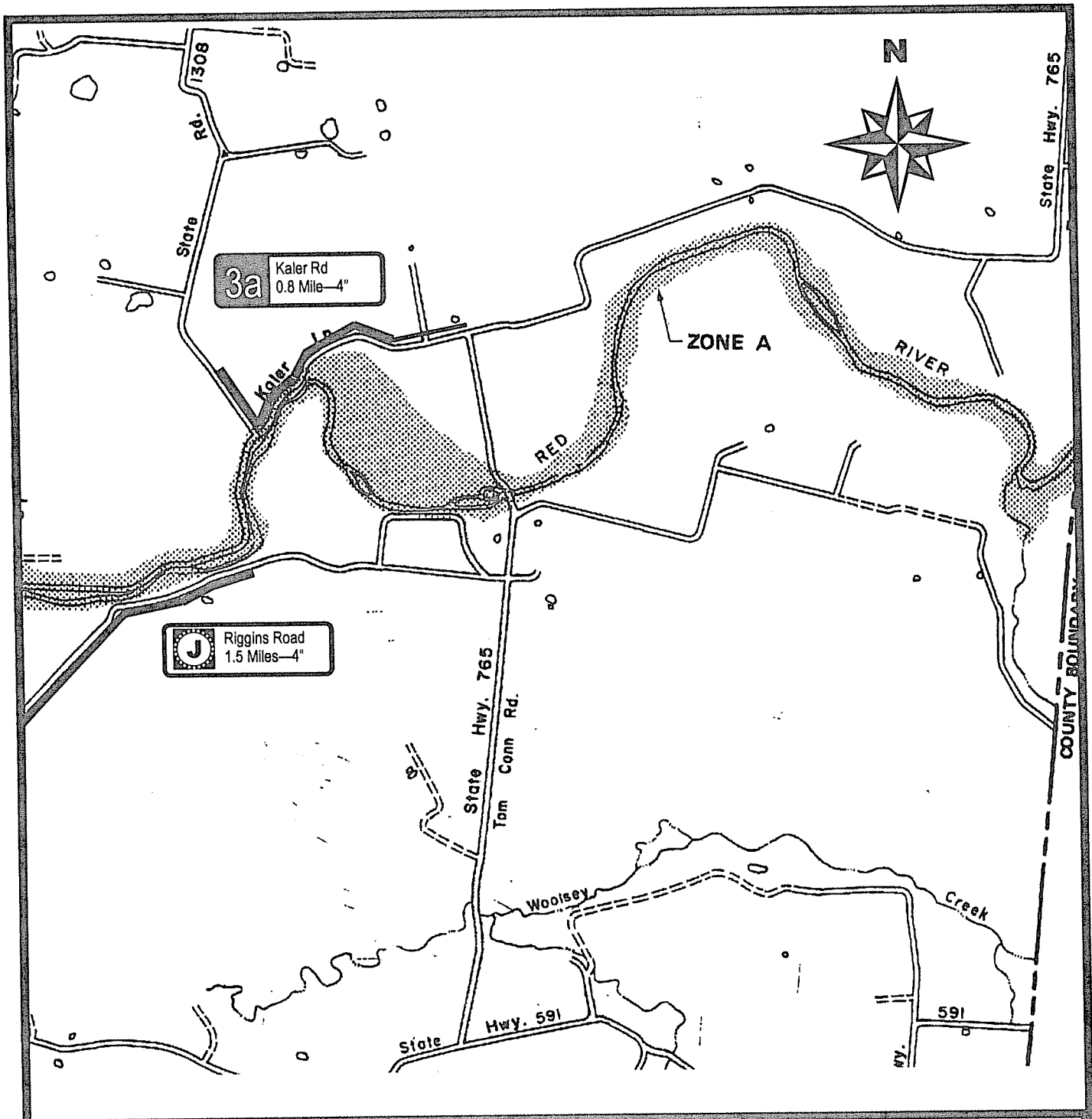
Guthrie, Kentucky

South Logan Water Association  
 2003 System Extension Project  
**FLOOD ZONE VICINITY MAP**  
**Schochoh Rd (Partial) & Trimble Rd**

HUD Flood Map:  
 Panel 210341-0008 A

Scale:  
 As Noted

Exhibit:  
 14



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

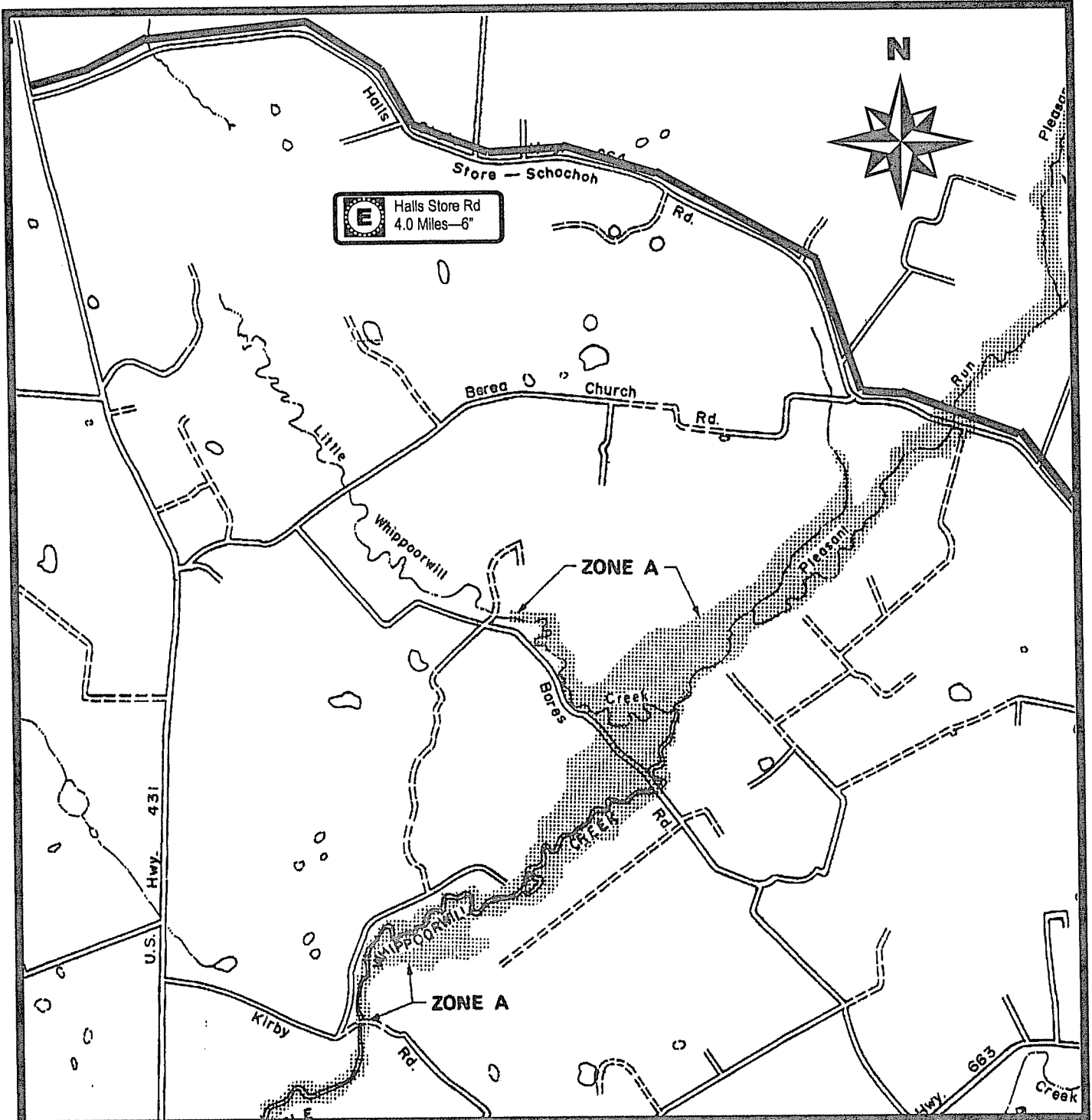
*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**FLOOD ZONE VICINITY MAP**  
**Riggins Rd (Partial) & Kaler (Alt) Rd**

HUD Flood Map:  
 Panel 210341-0008 A

Scale:  
 As Noted

Exhibit:  
 15



**Legend**

Proposed Water Line



Proposed Tank



Proposed Pump Station/Valve Vault



**MCGHEE ENGINEERING, INC.**

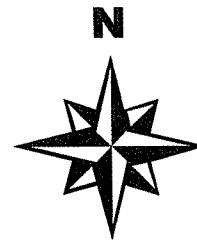
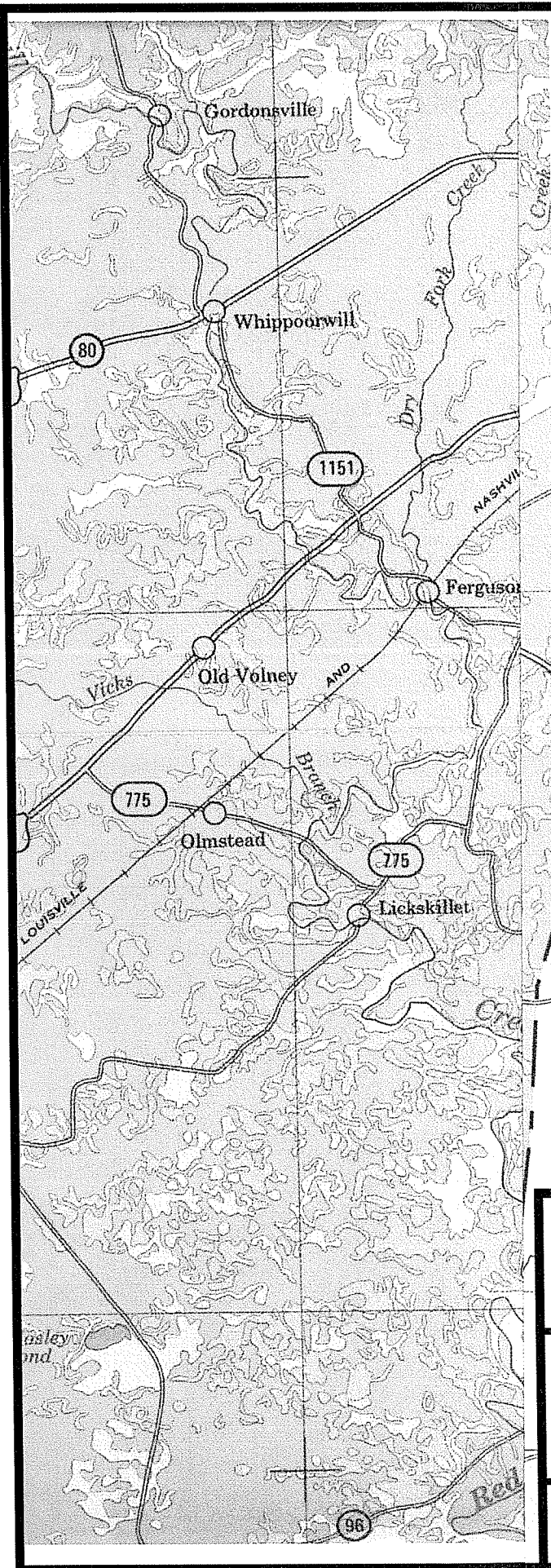
Guthrie, Kentucky

South Logan Water Association  
**2003 System Extension Project**  
**FLOOD ZONE VICINITY MAP**  
**Halls Store Rd**








HUD Flood Map:  
 Panel 210341-0006 A

Scale:  
 As Noted

Exhibit:  
 16



**LEGEND**

-  Prime farmland  
Total acres - 194,000
-  Unique farmland, other than prime  
Total acres - none reported
-  Additional farmland of statewide importance  
Total acres - 53,000
-  Additional farmland of local importance  
Total acres - none reported
-  Other land
-  Water areas
-  Approximate limits of urban growth



**MCGHEE ENGINEERING, INC.**

*Guthrie, Kentucky*

South Logan Water Association  
**2003 System Extension Project**  
**IMPORTANT FARMLANDS**  
**South Logan Area**

Basemap:  
 USDA: Logan County

Scale:  
 As Noted

Exhibit:  
 17

**Appendix A**

*Kentucky State Clearinghouse Comments – Original 01-09-03  
Kentucky Heritage Council Archaeological Survey Waiver*



PAUL E. PATTON  
GOVERNOR

COMMONWEALTH OF KENTUCKY  
OFFICE OF THE GOVERNOR  
**DEPARTMENT FOR LOCAL GOVERNMENT**  
1024 CAPITAL CENTER DRIVE, SUITE 340  
FRANKFORT, KENTUCKY 40601-8204  
(502) 573-2382



JODY A. LASSITER  
COMMISSIONER

January 9, 2003

Mr. Michael McGhee  
McGhee Engineering, Inc.  
202 Ewing Street, PO Box 267  
Guthrie, Kentucky 42234

**RE: South Logan Water Association 2003 System Extension Project**  
CFDA# 10.760  
SAI# KY20020826-1529

Dear Mr. McGhee:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of the above referenced proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state or federal agency.

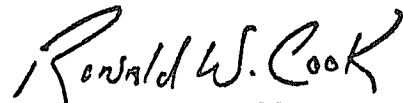


Page Two

**The results of this review are valid for one year from the date of this letter.** Continuation or renewal applications must be submitted to the State Clearinghouse annually. An application not submitted to the funding agency, or not approved within one year after completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at 502-573-2382.

Sincerely,

A handwritten signature in black ink that reads "Ronald W. Cook". The signature is written in a cursive style with a large initial "R".

Ronald W. Cook, Manager  
Kentucky State Clearinghouse

Attachments

cc: Barren River ADD  
Mr. Vernon Brown

The Kentucky Heritage Council and State Historic Preservation Officer has made the following comments pertaining to State Application Identifier Number **KY20020826-1529**

The proposed **water lines** do not require an archaeological survey, however, the **water storage tank tracts and access roads** must be surveyed by a professional archaeologist to determine if sites eligible for listing in the National Register for Historic Places will be affected by the undertaking. Where a given project area or portions thereof have been disturbed by prior construction, the applicant may file documentation of that disturbance with the State Historic Preservation Officer and may request an opinion concerning the need of an archaeological survey. The State Historic Preservation Officer must review and approve the survey report.

The applicant must ensure compliance with the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36 CFR, Part 800) pursuant to the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and Executive Order 11593.



The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number **KY20020826-1529**

Prevailing Wage Rates May Apply - Contact the Kentucky Labor Cabinet at 502-564-2784.

May impact Kentucky OSH regulations and standards.

2002  
**NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET  
 KENTUCKY INTERGOVERNMENTAL REVIEW PROCESS  
 TRACKING FORM**

**1529**

**EW/C**

**Review by:**

**Comment:**

- |  |      |
|--|------|
| <input checked="" type="checkbox"/> Water            | EW/C |
| <input checked="" type="checkbox"/> Waste Management | EW/C |
| <input type="checkbox"/> Air Quality                 |      |
| <input type="checkbox"/> Forestry                    |      |
| <input checked="" type="checkbox"/> Nature Preserves | EW/C |
| <input checked="" type="checkbox"/> Conservation     | E    |

**Project Number:** KY 020826 - 1529

**Clearinghouse Due Date:** 10/1/2002

**Due to DEP:** 9/27/2002

**Title:** SOUTH LOGAN WATER ASSOCIATION

**Description:** WATER LINE EXTENSION/17 FAMILIES/LOGAN COUNTY

**City:** ADAIRVILLE

**County:** LOGAN

**Primary Funding Source:** USDA-RURAL DEVELOPMENT

**Other Funding Source(s):** NONE

**Funding Amount:** \$ 1,300,000

**Overall Comment:** EW/C

**Date Sent To Clearinghouse:** 1/8/2003

**NE Lifted? (If Applicable):**  YES  NO

**Date NE Lifted:**

**NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET  
FEDERAL ASSISTANCE REVIEW**

**January 7, 2003**

Division of Water

Project Number: KY 0208261529 .

Project Title: Logan County: Water Distribution Lines, Storage Tank

**PRIOR APPROVAL**

The proposed project is subject to Division of Water jurisdiction because the following are involved:

- Water distribution lines and appurtenances.

Prior approval must be obtained from the Division of Water before construction can begin on the above matters. The applicant must cite this State Application Identifier (SAI) when submitting plans and specifications to the Division. It is beneficial if applicants make prior contact with the Division before submitting plans and specifications.

Division of Water forms can be downloaded from <http://water.nr.state.ky.us/dow>.

**WATER SUPPLY  
In General**

The application is by and for the benefit of the water distribution system of the South Logan Water Association (SLWA). The SLWA is served by the water treatment plants of the Cities of Adairville and Russellville.

The applicant (SLWA) must share, if it has not already done so, this application with its existing potable water sources (Adairville and Russellville). This is necessary so the sources can adequately plan finished water demand.

The Division of Water requests regarding the storage tank that any grounding well be sealed from the bottom to the top to prevent downward migration of surface contaminants and interconnection of underground aquifers.

Regarding the extended service, a hydraulic analysis needs to be done for the proposed new water distribution lines.

The Division of Water suggests that the application budget include funds for the sealing of wells abandoned when connections are made to the proposed new water distribution lines.

The Division of Water suggests regarding rural service the SLWA make having a wastewater system approved by the Barren River District Health Department (Logan) as a condition for tapping on the proposed water distribution lines.

**Treatment Plant Capacities**

<b>Name</b>	<b>Design (in gallons per day [GPD])</b>	<b>Production (in GPD)</b>	<b>Percent of Design</b>
Adairville	1,050,000	748,000	71.2
Russellville	2,590,000	1,715,000	66.2

**Water Resources**

Logan County received funding under KRS 151.118 to develop a long range water supply plan pursuant to KRS 151.114. Phases I and II of the Logan County Water Supply Plans (LCWSP) have been approved. The proposed water distribution lines and storage tank are consistent with the LCWSP.

**STORMWATER MANAGEMENT  
Karstic Region**

From the Division of Water data and application map, the Division finds that there are numerous sinkholes in the area of the proposed storage tank site. As the Division interprets the application, the storage tank site is adjacent to or on a sinkhole. The presence of sinkholes and a review of the geology of the area indicate that the proposed sites are located in a karst region. Karst topography is characterized by thin soil mantles, sinks, and fractured and solutioned limestone. As a consequence, this type of subterranean can have extreme transmissivity. "Percolation" can be swift. Groundwater flows are usually measured in feet per day instead of the normal rate of inches per year. (Groundwater flows in Kentucky have been recorded as high as 2,500 feet per hour.)

The applicant is advised that activities in and around the storage tank site have the potential to pollute groundwater through the sinkhole. The applicant needs to utilize a karst hydrogeologist in designing this facility. The site contains active karstic development.

*TK*

**Timothy Kuryla**

**FAR Coordinator, Division of Water**

The Kentucky Natural Resources & Environmental Protection Cabinet, Division of Waste Management, has made the following advisory comments pertaining to State Application Identifier # **020826 - 1529**

All solid waste generated by this project must be disposed at a permitted facility.

During projects such as this asbestos, lead paint, and other contaminants may be encountered. If this occurs, whatever is encountered must be properly addressed.

If UST's are encountered they must be properly addressed.

The Kentucky Natural Resources & Environmental Protection Cabinet, Kentucky Nature Preserves Commission, has made the following advisory comments pertaining to State Application Identifier # **020826- 1529**

RE: Project No. KY 020826-1529 (Water line extensions in Logan Co.)

KSNPC has reviewed the project summary and notes that because of the presence of several rare aquatic species, the strictest of erosion and sediment control measures should be utilized during construction activities to assure that the water quality of streams within the project area (most notably Pleasant Run, Little Whipporwill Creek, and the Red River) is not negatively impacted.



Education, Arts and Humanities Cabinet

**KENTUCKY HERITAGE COUNCIL**

The State Historic Preservation Office

**Paul E. Patton**  
Governor  
**Marlene M. Helm**  
Cabinet Secretary

**David L. Morgan**  
Executive Director and  
SHPO

April 2, 2003

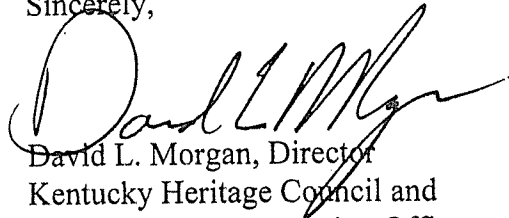
Mr. Chris Wilcutt, PE  
Design Engineer  
McGhee Engineering, Inc.  
202 Ewing Street  
P. O. Box 267  
Guthrie, Kentucky 42234

Dear Mr. Wilcutt:

The State Historic Preservation Office has received for review and approval an archaeological survey report entitled "Archaeological Survey of Two Potential Water Tower Locations in Logan County, Kentucky" by Jack M. Schock.

During the course of the fieldwork, one archaeological site (15Lo208) was recorded in the project area (S.A.I.#KY20020826-1529). This prehistoric lithic scattered is of unknown cultural affiliation and is restricted to the plowzone. Since the site lacks integrity, the author concluded that 15Lo208 was not eligible for listing in the National Register of Historic Places. I concur with the author's findings and recommendations. In accordance with 36CFR Part 800.4 (d) of the Advisory Council's revised regulations our finding is that there are No Historic Properties Present within the undertaking's area of potential impact. Therefore, we have no further comments and the Agency Official's responsibility to consult with the Kentucky State Historic Preservation Officer under the Section 106 review process is fulfilled. Should you have any questions, feel free to contact Charles Hockensmith of my staff at (502) 564-7005.

Sincerely,



David L. Morgan, Director  
Kentucky Heritage Council and  
State Historic Preservation Officer

cc: Dr. Jack M. Schock  
Dr. George Crothers

**Appendix B**

*Hydraulic Calculations: Southeast Portion of the System  
prepared for J.M. Barnes 04-02-03*



# MCGHEE ENGINEERING, INC.

202 Ewing Street, P. O. Box 267  
Guthrie, Kentucky 42234

www.mcgeeengineering.com

Phone: (270) 483-9985  
Fax: (270) 483-9986

## MEMORANDUM

TO: John Mason Barnes - SLWA

FROM: Chris Wilcutt

DATE: April 2, 2003

SUBJECT: South Logan Water Association  
Logan Todd Transition  
**Analysis of effect to Adairville East**

Per your request, I have conducted a general hydraulic analysis of the South Logan Water System as it is placed online with the Logan Todd Regional Water Commission. The entire water system was constructed with approximately 1,520 customers dispersed according to the meter route records throughout the system with a normal demand for each at 0.25 gpm (360 gpd). The main review of the results focused on the pressures expected from two unique scenarios for the nodes east of Adairville and generally south of the Red River (i.e. those eastern nodes presently served by the Adairville tanks via the east master meter). A comparison of the affected nodes under normal demands and full tanks shows an approximate pressure increase of 10 to 15 psi to the area if switched to the Schochoh community pressure zone, which is dictated by the Kirby Road PRV.

Although service appeared to be improved, additional scenarios revealed that a flushing instance or peak demand occurrence would greatly differ in results from the one mentioned above. To illustrate the effect of a pinpointed peak demand and suggested remedies, five other scenarios were modeled:

1. Feed from Adairville, Conn Road valve closed, & a 55 gpm (Flushing demand for a 3" line) placed at the 3" end of Prices Mill Road, near Simpson County.
2. Similar to above, but feed from Schochoh via Conn Road.
3. Same as #2, but construct 4" (4,500 LF) tie in between Conn Road to 4" end on Roy Orndorff along Kahler Road.
4. Same as #2, but construct 3" (1,500 LF) tie in across Red River on Trimble Road.
5. Same as #2, but construct both extensions as described in #3 and #4.

In the first simulation, the results show that node pressures in the area are generally PSC/DOW acceptable (>20 psi) except for the actual node being flushed (Note: This is an entirely different problem ignored for these purposes). However, in the second simulation, a peak demand in the area would result in negative pressures throughout all of Adairville East due to the large flow of water through the 3-inch line on Conn Road.

The last three scenarios depict the improvement to the area if one or two water line extensions were done to better serve the area. The third simulation illustrates the effect of constructing a tie in along Kahler Road between Conn Road and the 4-inch line on Roy Orndorff (Note: As you probably know, this 4-inch line was constructed off the end of a 3-inch line coming from Trimble Road). Pressure results at the affected nodes are improved in comparison to the first simulation, but a negative pressure still exists at the flushing node on Prices Mill.

The fourth simulation illustrates the effect of constructing a tie in on Trimble Road across the Red River. Pressure results are similar to the third, but slightly better as no negative pressures are created. However, the flushing node would still experience an unacceptable result. Therefore, a fifth simulation illustrates the effect of both construction projects. The results of this simulation show that pressures at all the affected nodes in the area would be above 20 psi.

I realize other extensions could be considered, but I have only looked at the two mentioned because they're relatively short. Also, these two extensions appear to be the only two that could readily provide more water flow from Kirby Road to the Prices Mill Road area. Other options could be considered such as upgrading the Conn Road line or a combination of upgrading Trimble Road plus the mentioned extensions.

The node descriptors referenced in the attached results are as follows:

- J-50 Conn Road (3" to 4" transition)
- J-51 Conn & Kahler Intersection
- J-52 Conn & Riggins Intersection
- J-53 Riggins Road 3" end
- J-54 Prices Mill & Conn Intersection
- J-55 Prices Mill @ Hilltop
- J-56 Prices Mill & Riggins Intersection
- J-57 Prices Mill 3" end near Simpson Co.
- J-58 Riggins Road 4" end
- J-59 Prices Mill & Barnes Road intersection
- J-60 Prices Mill & Trimble Road intersection
- J-61 Barnes Road end
- J-62 Prices Mill & Martin intersection
- J-63 Martin Road end
- J-64 Adairville East Master Meter
- J-65 Trimble & England intersection
- J-66 England Road end
- J-67 Trimble Road end; south of the Red River.

If you have any questions or need some additional analysis of the area, please feel free to give me a call. I'll drop a hard copy of the results in the mail, as well.

RESULTS OBTAINED AFTER 9 TRIALS: ACCURACY = 0.00000

S I M U L A T I O N D E S C R I P T I O N ( L A B E L )

South Logan Water Association: The entire service area is modeled as currently served by Logan Todd and the City of Adairville (for the east only). Customers are dispersed according to route records (C~1,520 meters). Demands are normal and equivalent to  $Q=(10 \cdot C^{.5})/C$ . Conn Road pipe closed & KY 591 East meter open.

*Comparison  
w/ Normal Demands*

*Present Conditions w/  
Feed from ADAIRVILLE.*

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
P-55	Pa-002	Pa-003	Plt-003a	Plt-004a

E N D N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	0.75	740.81	590.00	150.81	65.35
J-51	Conn&Kayler	1.25	740.82	574.00	166.82	72.29
J-52	Conn&Riggins	1.25	740.84	566.00	174.84	75.76
J-53	Riggins 3"en	0.25	740.84	590.00	150.84	65.36
J-54	KY591&ConnRd	1.63	740.93	630.00	110.93	48.07
J-55	KY591@Hillto	0.50	740.93	622.00	118.93	51.53
J-56	KY591&Riggin	2.25	741.22	603.00	138.22	59.89
J-57	KY591 3"end	0.38	740.92	620.00	120.92	52.40
J-58	Riggins:4"en	1.13	741.21	610.00	131.21	56.86
J-59	Ky591&Barnes	1.88	741.34	603.00	138.34	59.95
J-60	KY591&Trimbl	1.00	741.95	606.00	135.95	58.91
J-61	Barnes Rd en	1.13	741.33	620.00	121.33	52.58
J-62	KY591&Martin	2.00	742.16	598.00	144.16	62.47
J-63	Martin Rd en	1.00	742.14	580.00	162.14	70.26
J-64	A'ville east	0.88	743.58	575.00	168.58	73.05
J-65	Trimble&Engl	1.13	741.84	600.00	141.84	61.46
J-66	England end	0.38	741.84	565.00	176.84	76.63
J-67	Trible&Red R	0.50	741.83	525.00	216.83	93.96

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	SLR-Tank	17.98
RV-3	129.34	R-1	23.83
J-201	123.68	J-93	32.96

RV-1	122.86	RV-2	34.01
J-172	121.34	RV-2	34.01
J-180	121.22	J-001	40.16
J-178	121.06	J-119	41.35
J-204	120.03	J-97	45.77
J-31	118.30	J-98	47.50
J-179	116.88	J-136	47.60
J-176	115.15	J-118	47.85
J-202	114.50	J-54	48.07
J-74	114.25	T-2	49.83
J-208	114.17	J-90	50.25
J-34	113.45	J-137	51.50

R E G U L A T I N G   V A L V E   R E P O R T

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	122.86	108.00	25.00
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

S U M M A R Y   O F   I N F L O W S   A N D   O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	243.25	
T-2	59.25	Adairville's

NET SYSTEM INFLOW = 2053.75  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2053.75

CHANGES FOR NEXT SIMULATION (Change Number = 1)

The Adairville East meter is closed and the 3" portion of Conn Road is open for feed from Schochoh.

*Proposed Condition  
Normal Demands  
All feed via Schochoh*

JUNCTION DEMANDS CHANGED -- PLEASE SEE RESULTS TABLE

Pipe P-55 is OPENED  
Pipe Pa-004 is CLOSED

RESULTS OBTAINED AFTER 6 TRIALS: ACCURACY = 0.00000

PIPELINE RESULTS

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE #1	NODE #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
Pa-002	Pa-003	Pa-004	Plt-003a	Plt-004a

END NODE RESULTS

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	0.75	774.56	590.00	184.56	79.98
J-51	Conn&Kayler	1.25	770.97	574.00	196.97	85.35
J-52	Conn&Riggins	1.25	769.95	566.00	203.95	88.38
J-53	Riggins 3"en	0.25	769.95	590.00	179.95	77.98
J-54	KY591&ConnRd	1.63	768.46	630.00	138.46	60.00
J-55	KY591@Hillto	0.50	768.46	622.00	146.46	63.46
J-56	KY591&Riggin	2.25	767.22	603.00	164.22	71.16
J-57	KY591 3"end	0.38	768.45	620.00	148.45	64.33
J-58	Riggins:4"en	1.13	767.22	610.00	157.22	68.13
J-59	Ky591&Barnes	1.88	767.08	603.00	164.08	71.10
J-60	KY591&Trimbl	1.00	766.88	606.00	160.88	69.71
J-61	Barnes Rd en	1.13	767.08	620.00	147.08	63.73
J-62	KY591&Martin	2.00	766.86	598.00	168.86	73.17
J-63	Martin Rd en	1.00	766.84	580.00	186.84	80.96
J-64	A'ville east	0.88	766.86	575.00	191.86	83.14
J-65	Trimble&Engl	1.13	766.76	600.00	166.76	72.26
J-66	England end	0.38	766.76	565.00	201.76	87.43
J-67	Trible&Red R	0.50	766.76	525.00	241.76	104.76

MAXIMUM AND MINIMUM VALUES

PRESSURES

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	SLR-Tank	17.98
RV-3	129.34	R-1	23.83
J-201	123.31	J-93	32.96

RV-1	121.34	RV-2	34.01
J-172	120.83	RV-2	34.01
J-180	120.77	J-001	40.11
J-178	120.61	J-119	41.35
J-204	119.73	J-97	45.77
J-31	117.16	J-98	47.50
J-179	116.43	J-136	47.60
J-176	114.70	J-118	47.85
J-202	114.50	T-2	49.83
J-208	113.93	J-90	50.25
J-74	113.91	J-137	51.50
J-34	113.11	J-96	54.44

R E G U L A T I N G   V A L V E   R E P O R T

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	121.34	108.00	44.25
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

S U M M A R Y   O F   I N F L O W S   A N D   O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SIM-Tank	116.25	Mortimer Tan
SLR-Tank	262.50	
T-2	40.00	Adairville's

NET SYSTEM INFLOW = 2053.75  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2053.75

\*\*\*\*\* HYDRAULIC ANALYSIS COMPLETED \*\*\*\*\*

RESULTS OBTAINED AFTER 9 TRIALS: ACCURACY = 0.00000

S I M U L A T I O N D E S C R I P T I O N (L A B E L)

South Logan Water Association: The entire service area is modeled as currently served by Logan Todd and the City of Adairville (for the east only). Customers are dispersed according to route records (C= $\sim$ 1,520 meters). Demands are normal and equivalent to  $Q=(10 \cdot C^{.5})/C$ .  
Conn Road pipe closed & KY 591 East meter open.  
Flushing the far 3" end of Prices Mill.

Flush Scenario #1  
Feed From Adairville.

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
P-55	P-72a	P-81a	Pa-002	Pa-003
Plt-003a	Plt-004a			

E N D N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	0.75	680.41	590.00	90.41	39.18
J-51	Conn&Kayler	1.25	680.42	574.00	106.42	46.11
J-52	Conn&Riggins	1.25	680.44	566.00	114.44	49.59
J-53	Riggins 3"en	0.25	680.43	590.00	90.43	39.19
J-54	KY591&ConnRd	1.63	680.53	630.00	50.53	21.90
J-55	KY591@Hillto	0.50	672.73	622.00	50.73	21.98
J-56	KY591&Riggin	2.25	701.50	603.00	98.50	42.68
J-57	KY591 3"end	<u>55.38</u>	606.01	620.00	-13.99	-6.06
* J-57	KY591 3"end	1.13	701.50	610.00	91.50	39.65
J-58	Riggins:4"en	1.13	705.84	603.00	102.84	44.57
J-59	Ky591&Barnes	1.88	720.03	606.00	114.03	49.41
J-60	KY591&Trimbl	1.00	720.03	606.00	114.03	49.41
J-61	Barnes Rd en	1.13	705.84	620.00	85.84	37.20
J-62	KY591&Martin	2.00	723.44	598.00	125.44	54.36
J-62	KY591&Martin	2.00	723.44	598.00	125.44	54.36
J-63	Martin Rd en	1.00	723.42	580.00	143.42	62.15
J-63	Martin Rd en	1.00	723.42	580.00	143.42	62.15
J-64	A'ville east	0.88	741.89	575.00	166.89	72.32
J-64	A'ville east	0.88	741.89	575.00	166.89	72.32
J-65	Trimble&Engl	1.13	719.91	600.00	119.91	51.96
J-65	Trimble&Engl	1.13	719.91	600.00	119.91	51.96
J-66	England end	0.38	719.91	565.00	154.91	67.13
J-66	England end	0.38	719.91	565.00	154.91	67.13
J-67	Trible&Red R	0.50	719.91	525.00	194.91	84.46

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	J-57	-6.06

RV-3	129.34	SLR-Tank	17.98
J-201	123.68	J-54	21.90
RV-1	122.86	J-55	21.98
J-172	121.34	R-1	23.83
J-180	121.22	J-93	32.96
J-178	121.06	RV-2	34.01
J-204	120.03	RV-2	34.01
J-31	118.30	J-61	37.20
J-179	116.88	J-50	39.18
J-176	115.15	J-53	39.19
J-202	114.50	J-58	39.65
J-74	114.25	J-001	40.16
J-208	114.17	J-119	41.35
J-34	113.45	J-56	42.68

R E G U L A T I N G   V A L V E   R E P O R T

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	122.86	108.00	25.00
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

S U M M A R Y   O F   I N F L O W S   A N D   O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	243.25	
T-2	114.25	Adairville's

NET SYSTEM INFLOW = 2108.75  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2108.75



CHANGES FOR NEXT SIMULATION (Change Number = 1)

The Adairville East meter is closed and the 3" portion of Conn Road is open for feed from Schochoh.

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

Pipe P-55 is OPENED  
Pipe Pa-004 is CLOSED

Flush Scenario #2

RESULTS OBTAINED AFTER 6 TRIALS: ACCURACY = 0.00000

Feed From Schochoh

PIPELINE RESULTS

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
P-72a	P-81a	Pa-002	Pa-003	Pa-004
Plt-003a	Plt-004a			

END NODE RESULTS

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	0.75	525.24	590.00	-64.76	-28.06
J-51	Conn&Kayler	1.25	478.96	574.00	-95.04	-41.18
J-52	Conn&Riggins	1.25	464.62	566.00	-101.38	-43.93
J-53	Riggins 3"en	0.25	464.61	590.00	-125.39	-54.33
J-54	KY591&ConnRd	1.63	440.47	630.00	-189.53	-82.13
J-55	KY591@Hillto	0.50	432.67	622.00	-189.33	-82.04
J-56	KY591&Riggin	2.25	439.23	603.00	-163.77	-70.97
* J-57	KY591 3"end	55.38	365.95	620.00	-254.05	-110.09
J-58	Riggins:4"en	1.13	439.22	610.00	-170.78	-74.00
J-59	Ky591&Barnes	1.88	439.09	603.00	-163.91	-71.03
J-60	KY591&Trimbl	1.00	438.88	606.00	-167.12	-72.42
J-61	Barnes Rd en	1.13	439.08	620.00	-180.92	-78.40
J-62	KY591&Martin	2.00	438.87	598.00	-159.13	-68.96
J-63	Martin Rd en	1.00	438.85	580.00	-141.15	-61.17
J-64	A'ville east	0.88	438.86	575.00	-136.14	-58.99
J-65	Trimble&Engl	1.13	438.77	600.00	-161.23	-69.87
J-66	England end	0.38	438.77	565.00	-126.23	-54.70
J-67	Tribble&Red R	0.50	438.77	525.00	-86.23	-37.37

All Negative

MAXIMUM AND MINIMUM VALUES

PRESSURES

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	J-57	-110.09
RV-3	129.34	J-54	-82.13

J-201	121.73	J-55	-82.04
J-180	118.75	J-61	-78.40
J-172	118.72	J-58	-74.00
J-178	118.61	J-60	-72.42
J-204	118.44	J-59	-71.03
RV-1	115.24	J-56	-70.97
J-202	114.50	J-65	-69.87
J-179	114.41	J-62	-68.96
J-31	113.11	J-63	-61.17
J-208	112.92	J-64	-58.99
J-176	112.70	J-66	-54.70
J-74	112.11	J-53	-54.33
J-34	111.30	J-52	-43.93

REGULATING VALVE REPORT

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	115.24	108.00	99.25
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

SUMMARY OF INFLOWS AND OUTFLOWS

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	317.50	
T-2	40.00	Adairville's

NET SYSTEM INFLOW = 2108.75  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2108.75

CHANGES FOR NEXT SIMULATION (Change Number = 2)

Kahler Road Extension is done to connect Roy Orndorff & Conn Road.

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

Pipe P-81a is OPENED

RESULTS OBTAINED AFTER 6 TRIALS: ACCURACY = 0.00000

Flush Scenario #3  
 Feed From Schochok  
 Do Kahler Road

PIPELINE RESULTS

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
P-72a	Pa-002	Pa-003	Pa-004	Plt-003a
Plt-004a				

END NODE RESULTS

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	1.38 (1.83)	732.59	590.00	142.59	61.79
J-51	Conn&Kayler	1.25	724.22	574.00	150.22	65.09
J-52	Conn&Riggins	1.25	709.87	566.00	143.87	62.35
J-53	Riggins 3"en	0.25	709.87	590.00	119.87	51.94
J-54	KY591&ConnRd	1.63	685.72	630.00	55.72	24.15
J-55	KY591@Hillto	0.50	677.93	622.00	55.93	24.23
J-56	KY591&Riggin	2.25	684.48	603.00	81.48	35.31
* J-57	KY591 3"end	55.38	611.21	620.00	-8.79	-3.81
J-58	Riggins:4"en	1.13	684.48	610.00	74.48	32.27
J-59	Ky591&Barnes	1.88	684.35	603.00	81.35	35.25
J-60	KY591&Trimbl	1.00	684.14	606.00	78.14	33.86
J-61	Barnes Rd en	1.13	684.34	620.00	64.34	27.88
J-62	KY591&Martin	2.00	684.13	598.00	86.13	37.32
J-63	Martin Rd en	1.00	684.11	580.00	104.11	45.11
J-64	A'ville east	0.88	684.12	575.00	109.12	47.29
J-65	Trimble&Engl	1.13	684.03	600.00	84.03	36.41
J-66	England end	0.38	684.03	565.00	119.03	51.58
J-67	Trible&Red R	0.50	684.02	525.00	159.02	68.91

MAXIMUM AND MINIMUM VALUES

PRESSURES

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	J-57	-3.81
RV-3	129.34	SLR-Tank	17.98
J-201	121.68	R-1	23.83
J-180	118.69	J-54	24.15

J-172	118.66	J-55	24.23
J-178	118.55	J-61	27.88
J-204	118.40	J-58	32.27
RV-1	115.07	J-93	32.96
J-202	114.50	J-60	33.86
J-179	114.35	RV-2	34.01
J-31	113.01	RV-2	34.01
J-208	112.89	J-59	35.25
J-176	112.64	J-56	35.31
J-74	112.05	J-65	36.41
J-34	111.25	J-62	37.32

### REGULATING VALVE REPORT

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	115.07	108.00	100.50
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

### SUMMARY OF INFLOWS AND OUTFLOWS

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	318.75	
T-2	40.00	Adairville's
NET SYSTEM INFLOW	= 2110.00	
NET SYSTEM OUTFLOW	= 0.00	
NET SYSTEM DEMAND	= 2110.00	

C H A N G E S F O R N E X T S I M U L A T I O N (Change Number = 3 )

Trimble Road Extension is added to loop Schochoh area to east Adairville.  
No feed via Kahler Road.

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

Pipe P-72a is OPENED  
Pipe P-81a is CLOSED

RESULTS OBTAINED AFTER 6 TRIALS: ACCURACY = 0.00000

Flush Scenario #4  
Feed from Schochoh  
Do Trimble Rd. ext.

P I P E L I N E R E S U L T S

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149	P-151	P-163	P-36	P-38
P-81a	Pa-002	Pa-003	Pa-004	Plt-003a
Plt-004a				

E N D N O D E R E S U L T S

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	1.38 (1.83)	717.77	590.00	127.77	55.36
J-51	Conn&Kayler	1.25	705.69	574.00	131.69	57.06
J-52	Conn&Riggins	1.25	702.07	566.00	136.07	58.96
J-53	Riggins 3"en	0.25	702.07	590.00	112.07	48.56
J-54	KY591&ConnRd	1.63	696.24	630.00	66.24	28.70
J-55	KY591@Hillto	0.50	688.44	622.00	66.44	28.79
J-56	KY591&Riggin	2.25	700.16	603.00	97.16	42.10
* J-57	KY591 3"end	55.38	621.73	620.00	1.73	0.75
J-58	Riggins:4"en	1.13	700.16	610.00	90.16	39.07
J-59	Ky591&Barnes	1.88	701.09	603.00	98.09	42.51
J-60	KY591&Trimbl	1.00	704.47	606.00	98.47	42.67
J-61	Barnes Rd en	1.13	701.09	620.00	81.09	35.14
J-62	KY591&Martin	2.00	704.45	598.00	106.45	46.13
J-63	Martin Rd en	1.00	704.43	580.00	124.43	53.92
J-64	A'ville east	0.88	704.45	575.00	129.45	56.09
J-65	Trimble&Engl	1.13	728.40	600.00	128.40	55.64
J-66	England end	0.38	728.40	565.00	163.40	70.81
J-67	Tribble&Red R	0.50	741.31	525.00	216.31	93.73

220psi

M A X I M U M A N D M I N I M U M V A L U E S

P R E S S U R E S

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	J-57	0.75
RV-3	129.34	SLR-Tank	17.98

J-201	121.68	R-1	23.83
J-180	118.69	J-54	28.70
J-172	118.66	J-55	28.79
J-178	118.55	J-93	32.96
J-204	118.40	RV-2	34.01
RV-1	115.07	RV-2	34.01
J-202	114.50	J-61	35.14
J-179	114.35	J-58	39.07
J-31	113.01	J-001	39.94
J-208	112.89	J-119	41.35
J-176	112.64	J-56	42.10
J-34	111.10	J-59	42.51
J-188	110.46	J-60	42.67

### REGULATING VALVE REPORT

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	115.07	108.00	100.50
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

### SUMMARY OF INFLOWS AND OUTFLOWS

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	318.75	
T-2	40.00	Adairville's

NET SYSTEM INFLOW = 2110.00  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2110.00

CHANGES FOR NEXT SIMULATION (Change Number = 4)

Modeled with both additions of Trimble Road & Kahler Road.

JUNCTION DEMANDS CHANGED - PLEASE SEE RESULTS TABLE

Pipe P-81a is OPENED

RESULTS OBTAINED AFTER 6 TRIALS: ACCURACY = 0.00000

Flush Scenario #5

Feed From Schochoh

to BOTH Extensions

PIPELINE RESULTS

STATUS CODE: XX -CLOSED PIPE CV -CHECK VALVE

PIPE NAME	NODE NUMBERS #1 #2	FLOWRATE (gpm)	HEAD LOSS (ft)	MINOR LOSS (ft)	LINE VELO. (ft/s)	HL/1000 (ft/ft)
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FOLLOWING ADDITIONAL PIPES ARE CLOSED :

P-149 Pa-002	P-151 Pa-003	P-163 Pa-004	P-36 Plt-003a	P-38 Plt-004a
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END NODE RESULTS

NODE NAME	NODE TITLE	EXTERNAL DEMAND (gpm)	HYDRAULIC GRADE (ft)	NODE ELEVATION (ft)	PRESSURE HEAD (ft)	NODE PRESSURE (psi)
J-50	ConnRd:3"to4	1.38 (1.83)	764.78	590.00	174.78	75.74
J-51	Conn&Kayler	1.25	761.15	574.00	187.15	81.10
J-52	Conn&Riggins	1.25	754.98	566.00	188.98	81.89
J-53	Riggins 3"en	0.25	754.98	590.00	164.98	71.49
J-54	KY591&ConnRd	1.63	744.81	630.00	114.81	49.75
J-55	KY591@Hillto	0.50	737.01	622.00	115.01	49.84
J-56	KY591&Riggin	2.25	746.04	603.00	143.04	61.98
J-57	KY591 3"end	55.38	670.30	620.00	50.30	21.80
J-58	Riggins:4"en	1.13	746.03	610.00	136.03	58.95
J-59	Ky591&Barnes	1.88	746.39	603.00	143.39	62.14
J-60	KY591&Trimbl	1.00	747.82	606.00	141.82	61.46
J-61	Barnes Rd en	1.13	746.38	620.00	126.38	54.77
J-62	KY591&Martin	2.00	747.80	598.00	149.80	64.92
J-63	Martin Rd en	1.00	747.78	580.00	167.78	72.71
J-64	A'ville east	0.88	747.80	575.00	172.80	74.88
J-65	Trimble&Engl	1.13	759.53	600.00	159.53	69.13
J-66	England end	0.38	759.53	565.00	194.53	84.29
J-67	Tribble&Red R	0.50	766.07	525.00	241.07	104.46

All > 20 psi

MAXIMUM AND MINIMUM VALUES

PRESSURES

JUNCTION NUMBER	MAXIMUM PRESSURES (psi)	JUNCTION NUMBER	MINIMUM PRESSURES (psi)
RV-3	129.34	SLR-Tank	17.98
RV-3	129.34	J-57	21.80
J-201	121.68	R-1	23.83
J-180	118.69	J-93	32.96
J-172	118.66	RV-2	34.01

J-178	118.55	RV-2	34.01
J-204	118.40	J-001	39.94
RV-1	115.07	J-119	41.35
J-202	114.50	J-97	45.77
J-179	114.35	J-98	47.50
J-31	113.01	J-136	47.60
J-208	112.89	J-118	47.85
J-176	112.64	J-54	49.75
J-34	111.17	T-2	49.83
J-188	110.46	J-55	49.84

R E G U L A T I N G   V A L V E   R E P O R T

VALVE LABEL	VALVE TYPE	VALVE SETTING (psi or gpm)	VALVE STATUS	UPSTREAM PRESSURE (psi)	DOWNSTREAM PRESSURE (psi)	THROUGH FLOW (gpm)
RV-1	PRV-1	108.00	ACTIVATED	115.07	108.00	100.50
RV-2	FCV-1	450.00	WIDE OPEN	34.01	34.01	0.00
RV-3	FCV-1	150.00	WIDE OPEN	129.34	129.34	0.00

S U M M A R Y   O F   I N F L O W S   A N D   O U T F L O W S

(+) INFLOWS INTO THE SYSTEM FROM SUPPLY NODES  
 (-) OUTFLOWS FROM THE SYSTEM INTO SUPPLY NODES

NODE NAME	FLOWRATE (gpm)	NODE TITLE
R-1	1635.00	Logan Todd
SLM-Tank	116.25	Mortimer Tan
SLR-Tank	318.75	
T-2	40.00	Adairville's

NET SYSTEM INFLOW = 2110.00  
 NET SYSTEM OUTFLOW = 0.00  
 NET SYSTEM DEMAND = 2110.00

\*\*\*\*\* HYDRAULIC ANALYSIS COMPLETED \*\*\*\*\*



**Appendix C**

*FmHA Summary/Addendum (KY Guide 7)*

SUMMARY ADDENDUM

TO

PRELIMINARY ENGINEERING REPORT

Dated June 2003

FOR

South Logan Water Association

2003 System Extension Project

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(Name of Water Facility Project)

Applicant Contact Person Chris Wilcutt, P.E.

Applicant Phone Number (270) 483-9985

In order to avoid unnecessary delays in application processing the applicant and its consulting engineer should prepare a summary of the preliminary engineering report in accordance with this Guide. Feasibility review and grant determinations may be processed more accurately and more rapidly if the Summary/Addendum is submitted simultaneously with the preliminary engineering report, or as soon thereafter as possible.

I. General

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 showing the following:

The South Logan Water Association (SLWA) is comprised of approximately 180 miles of water line and four water storage tanks, totaling 736,000 gallons, serving approximately 1,540 customers in southern Logan County. As of the end of March 2003, the South Logan Water Association began to purchase all of their treated water from the recently completed water system of the Logan Todd Regional Water Commission (LTRWC). Since going online with the Commission, the average daily usage within the South Logan system has ranged from 330,000 to 460,000 gallons per day. The Association is a relatively large water system covering nearly a third of Logan County. Almost all roads within the Association boundary have water service, with only short extensions needed from time to time to accommodate new development. The main problems that have faced the Association are its long-term supply of treated water, low pressure in certain areas of the system, extending water service to unserved areas, and installing lines for improved hydraulic performance. The water supply issue has been resolved by their connection to the Logan Todd system. The remaining problems will be alleviated by a planned system extension project. The proposed project involves construction of nearly 19.4 miles of water line on eleven rural roadways. Some of these lines are being planned primarily to serve new customers in need of a safe supply of drinking water, while others are being built to improve hydraulic performance of the existing distribution system. The Schochoh area of southwestern Logan County experiences low pressure during high demand periods. This problem will be corrected by the construction of a new 200,000-gallon elevated water tank. Other low-pressure areas will be assisted by building interconnecting lines to complete hydraulic circuits or "loops". The loops will also improve the water quality by cutting down on the stagnant water in dead-end lines. Also included in the project are the addition of master meter stations and an up-to-date telemetry system to allow for the monitoring and control of the system in greater detail. The total estimated cost of the proposed project is \$1,300,000.

II. 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.

As of the end of March 2003, the South Logan Water Association began to purchase all of their treated water under an agreement of \$2.91/1,000 gallons from the recently completed water system of the Logan Todd Regional Water Commission (LTRWC). The Commission's water treatment facility is rated at 10 million gallons per day, and their distribution system consists of nearly 85 miles of pipeline and three storage tanks totaling 3,500,000 gallons in capacity. South Logan has two meter stations with the Commission, one located in Russellville and the other near the Mortimer community. The Commission's plant is rated at 10.0 MGD, and raw water for the plant is obtained in Clarksville, Tennessee from the Cumberland River. The plant presently operates at approximately 40%.

If the applicant purchases water:

Sellers: Logan Todd Regional Water Commission

Price/1,000 gallons: \$2.91

Present Estimated Market Value of Existing System \*: \$2,662,869  
\* = Based on Depreciated Value of 2002 Financial Statement

B. Water Storage:

Type: Ground Storage Tank X. Elevated Tank X.  
Standpipe \_\_\_\_\_ Other \_\_\_\_\_

Number of Storage Structures 3 ground, 1 elevated

Total Storage Volume Capacity 736,000 gallons

Date Storage Tank(s) Constructed 1965, 1977, 1994 & 1998

C. Water Distribution System:

Pipe Material PVC

Linear Feet of Pipe: 3" Diameter and smaller: 300,500; 4": 380,000; 6": 236,000;  
8": 58,200; 10" 10,600

Date(s) of Major Water Lines Construction 1977, 1979, 1985, 1993 & 1998

Number, and Capacity of Pump Station(s): 1 - 325 gpm, 1- 100 gpm. (Note: The pump stations were taken out of service in 2003 due to LTRWC feed)

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 water system is generally in good repair with little to no periodic maintenance required. No major renovations are anticipated in the near future. However, as mentioned before, areas of the system suffer low pressure conditions and there are many dead end lines creating low water flow which stagnates the water quality. Adding an elevated tank in the Schochoh community and looping various hydraulic circuits will improve these deficiencies considerably.

E. Percentage of Unaccounted Water Loss in the Existing System: 14% (per 2002 PSC Audit)

III. EXISTING LONG-TERM INDEBTEDNESS

A. List of Bonds and Notes: *per 2002 Financial Statement*

Date of Issue	Bond/Note Holder	Principal Balance	Payment Date	Bond Type	Amount on Deposit in Reserve *
1965 Issue	GE Capital	\$ 17,000	2005	Water	\$ 46,687
1993 Issue	FmHA	\$ 384,201	2033	Water	
1998 Issue	FmHA	\$ 563,994	2038	Water	

\*NOTE: Total of Reserves and Debt Sinking Fund Accounts

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

Date of Issue	Bond/Note Holder	Payment Year 2003*		Payment Year 2004*		Payment Year 2005*	
		Principal Payment	Interest Payment	Principal Payment	Interest Payment	Principal Payment	Interest Payment
1965 Issue	GE Capital	\$ 5,000	\$ 638	\$ 6,000	\$ 450	\$ 6,000	\$ 225
1993 Issue	FmHA	\$ 5,445	\$19,210	\$ 5,717	\$18,938	\$ 6,003	\$18,652
1998 Issue	FmHA	\$ 6,099	\$27,495	\$ 6,397	\$27,197	\$ 6,708	\$26,886

\*NOTE: Approximate – No Amortization Chart readily available.

IV. EXISTING SHORT-TERM INDEBTEDNESS

A. List of All Short Term Debts: *per 2002 Financial Statement*

Lender or Lessor	Date of Issue (Mo. & Year)	Principal Balance *	Purpose	Payment Date	Principal & Interest Payment (P&I)	Date to Be Paid In Full
Union Planters Bank	18-Jun-98	\$10,018	Water	Quarterly	*	18-Jun-03
Union Planters Bank	17-May-01	\$33,740	Water	Quarterly	*	17-May-03

\*NOTE: Variable – See 2002 Financial Statement

V. LAND AND RIGHTS - EXISTING SYSTEM:

Number of Treatment Plant Sites	0
Number of Storage Tank Sites	2
Number of Pump Stations	2
Total Acreage	~2 Ac.
Purchase Price*	\$12,769

\*Land & ROW value per 2002 Audit

VI. NUMBER OF EXISTING USERS

A. Water Users:

Residential Size Meters (In Town)*	-
Residential Size Meters/Farmers (Out of Town)*	1,492
Commercial Users & Resellers (In Town)	-
Commercial Users & Resellers (Out of Town)	50
Total	1,542
Number of Total potential Users in the Service Area	300 (Est.)

\*NOTE: Residential/Farmers Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residence size meters and farmers.

VII. CURRENT CONNECTION FEES FOR EACH SIZE METER CONNECTION

Meter Size	Connection Fee	Minimum Water Usage for Each Size Meter	
5/8 x 3/4"	\$450.00	0	gallons
3/4 Inch	At Cost	0	gallons
1 - Inch	At Cost	0	gallons
1-1/2" Inch	At Cost	0	gallons
2 - Inch	At Cost	0	gallons

VIII. WATER RATES - EXISTING RATE SCHEDULE

**Note: The rates below reflect the current rates as the proposed PSC rates await revised tariff sheet**

Date this rate went into effect: May 11, 2001

Meter Size 5/8" Inch :

First	<u>2,000</u>	Gallons @	<u>\$ 10.88</u>	Minimum
Next	<u>2,000</u>	Gallons @	<u>\$ 4.94</u>	per 1,000 Gallons
Next	<u>2,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 3/4" Inch :

First	<u>3,000</u>	Gallons @	<u>\$ 15.82</u>	Minimum
Next	<u>1,000</u>	Gallons @	<u>\$ 4.94</u>	per 1,000 Gallons
Next	<u>2,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 1" Inch :

First	<u>5,000</u>	Gallons @	<u>\$ 24.70</u>	Minimum
Next	<u>1,000</u>	Gallons @	<u>\$ 3.94</u>	per 1,000 Gallons
Next	<u>4,000</u>	Gallons @	<u>\$ 2.94</u>	per 1,000 Gallons
All Over	<u>10,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 1-1/2 Inch :

First	<u>25,000</u>	Gallons @	<u>\$ 77.00</u>	Minimum
All Over	<u>25,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

Meter Size 2" Inch :

First	<u>50,000</u>	Gallons @	<u>\$ 138.00</u>	Minimum
All Over	<u>50,000</u>	Gallons @	<u>\$ 2.44</u>	per 1,000 Gallons

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

For Period January 1, 2002 to December 31, 2002.

Meter Size	MONTHLY WATER USAGE	Average	Residential/ Farmer		Non-Residential/ Commercial	
			No. of Users	Usage (1000)	No. of Users	Usage (1000)
All Sizes	0 Gal.	0	1,579	0.0	96	0.0
	0 - 2,000 Gal.	1,000	3,427	4,982.4	118	131.0
	2,000 - 3,000 Gal.	2,500	2,179	5,593.8	36	90.8
	3,000 - 4,000 Gal.	3,500	2,285	8,134.0	37	130.1
	4,000 - 5,000 Gal.	4,500	2,135	9,710.9	28	128.2
	5,000 - 6,000 Gal.	5,500	1,692	9,355.0	26	147.4
	6,000 - 7,000 Gal.	6,500	1,110	7,235.0	15	98.3
	7,000 - 8,000 Gal.	7,500	794	5,964.5	14	106.0
	8,000 - 9,000 Gal.	8,500	585	4,975.7	14	119.8
	9,000 - 10,000 Gal.	9,500	379	3,607.0	13	123.5
	10,000 - 11,000 Gal.	10,500	294	3,097.4	5	52.9
	11,000 - 12,000 Gal.	11,500	219	2,520.0	3	34.2
	12,000 - 13,000 Gal.	12,500	153	1,920.9	11	138.5
	13,000 - 14,000 Gal.	13,500	122	1,654.5	4	54.6
	14,000 - 15,000 Gal.	14,500	98	1,426.5	5	73.3
	15,000 - 16,000 Gal.	15,500	89	1,386.1	6	93.1
	16,000 - 17,000 Gal.	16,500	72	1,187.8	4	66.0
	17,000 - 18,000 Gal.	17,500	53	929.0	4	71.9
	18,000 - 19,000 Gal.	18,500	59	1,092.3	8	147.0
	19,000 - 20,000 Gal.	19,500	54	1,054.5	5	98.2
	20,000 - 50,000 Gal.	35,000	370	10,913.9	63	1,888.4
50,000 - 100,000 Gal.	75,000	98	6,813.7	27	1,987.1	
100,000 - 200,000 Gal.	150,000	45	6,276.0	14	2,003.0	
over 200,000 Gal.	574,500	17	7,025.9	20	14,230.3	
over 200,000 Gal. (TCWD only)	668,500			24	16,044.1	
	Sub-Total		<u>17,908</u>	<u>106,856.8</u>	<u>576</u>	<u>38,057.7</u>
	Average Usage (Gallons)			<u>5.967</u>		<u>66,072</u>
		Total	<u>17,908</u>	<u>106,856.8</u>	<u>576</u>	<u>38,057.7</u>
	Total Water Purchased (Gallons)			<u>181,124,000</u>		
	Total Water Sold (Gallons)			<u>144,914,500</u>		

X. 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.

The recommended project is one that offers several advantages and improves the three primary deficiencies in the water system: low pressure in certain areas of the system, extending water service to

unserved areas, and installing lines for improved hydraulic performance. The project will include the construction of an elevated water storage tank (OF = ~800') with a capacity of 200,000-gallons to improve pressure in the higher elevations of the Schochoh community. Also, nearly 20 mile of water line will be installed to bring water service to unserved customers, connect dead end lines, and upgrade existing high-maintenance water lines. The Association will purchase all of its water for the proposed project from the Logan Todd Regional Water Commission, which presently utilizes nearly 40% of its water plant's design capacity of 10.0 MGD.

B. Water Storage:

Type: Ground Storage Tank \_\_\_\_\_ Elevated Tank  X   
 Standpipe \_\_\_\_\_ Other \_\_\_\_\_  
 Number of Storage Structures  1   
 Total Storage Volume Capacity  200,000 gallons

C. Water Distribution System:

Pipe Material  PVC   
 Lineal Feet of Pipe: 3" Diameter:  25,000  ; 4":  22,100  ; 6":  37,000  ;  
 8":  18,500  ; 10": \_\_\_\_\_  
 Number, and Capacity of Pump Station(s):  1 – 100 gpm (Approximate)

XI. LAND AND RIGHTS - PROPOSED WATER SYSTEM(S)

Number of Treatment Plant Sites	<u> 0 </u>
Number of Pump Sites	<u> 1 (Approximate) </u>
Number of Other Sites (Storage Tank)	<u> 1 </u>
Total Acreage	<u> ~1 Ac. </u>
Purchase Price	<u> ~\$15,000 </u>

XII. NUMBER OF NEW USERS

A. Water Users:

Residential Size Meters (In Town)*	<u> - </u>
Residential Size Meters/Farmers (Out of Town)*	<u> 17 </u>
Commercial Users & Resellers (In Town)	<u> - </u>
Commercial Users & Resellers (Out of Town)	<u> - </u>
Total	<u> 17 </u>
Number of Total potential Users in the Service Area	<u> 283 (Est.) </u>

\*NOTE: Residential/Farmers Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residence size meters and farmers.



XIII. PROPOSED CONNECTION FEES FOR EACH SIZE METER CONNECTION

\* NOTE: No connection fee increase is expected as a result of this project.

Meter Size	Connection Fee	Minimum Water Usage for Each	
		Size Meter	
5/8 x 3/4"	\$450.00	0	gallons
3/4 Inch	At Cost	0	gallons
1 - Inch	At Cost	0	gallons
1-1/2" Inch	At Cost	0	gallons
2 - Inch	At Cost	0	gallons

XIV. WATER RATES - PROPOSED

A. PSC Approved Rate Schedule for Logan Todd Adjustment: 50% increase (Typical 4,000 gallon user)

Anticipated Effective Date: Late June 2003 per May 14, 2003 Order

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.65	(96.4% customer base)
1" Meter:	\$5.94	(2.5% customer base)
1-1/2" Meter:	\$9.59	(0.5% customer base)
2" Meter:	\$16.89	(0.6% customer base)
3" Meter:	\$24.19	(0.0% customer base)

Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 6.70</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.44</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.18</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 5.93</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.67</u>	per 1,000 Gallons

B. Proposed Rate Schedule without RUS Grant: PSC Rates plus 5%

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.88	(96.4% customer base)
1" Meter:	\$6.24	(2.5% customer base)
1-1/2" Meter:	\$10.07	(0.5% customer base)
2" Meter:	\$17.73	(0.6% customer base)
3" Meter:	\$25.40	(0.0% customer base)

Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 7.04</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.76</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.49</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 6.23</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.95</u>	per 1,000 Gallons

C. Recommended Rate Schedule with RUS Grant: No Additional Increase to PSC rates.

Customer Charges (Minimum Bill):

5/8" x 3/4" Meter:	\$4.65	(96.4% customer base)
1" Meter:	\$5.94	(2.5% customer base)
1-1/2" Meter:	\$9.59	(0.5% customer base)
2" Meter:	\$16.89	(0.6% customer base)
3" Meter:	\$24.19	(0.0% customer base)

Commodity Charge:

First	<u>2,000</u>	Gallons @	<u>\$ 6.70</u>	per 1,000 Gallons
Next	<u>8,000</u>	Gallons @	<u>\$ 6.44</u>	per 1,000 Gallons
Next	<u>40,000</u>	Gallons @	<u>\$ 6.18</u>	per 1,000 Gallons
Next	<u>50,000</u>	Gallons @	<u>\$ 5.93</u>	per 1,000 Gallons
All Over	<u>100,000</u>	Gallons @	<u>\$ 5.67</u>	per 1,000 Gallons

XV. FORECAST OF WATER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS - EXISTING RATES

For Period January 1, 2002 to December 31, 2002.

Notes: 5/8-inch Meter Rate Block is utilized for Forecast of Water Usage.

Meter Size	MONTHLY WATER USAGE	Average	Average Rate	Residential			Non-Residential/Commercial		
				No. of Users	Usage (1,000)	Income	No. of Users	Usage (1,000)	Income
All Sizes	0 Gal.	0	\$ 10.88	1,579	0.0	\$ 17,179.52	96	0.0	\$ 1,044.48
	0 - 2,000 Gal.	1,000	\$ 10.88	3,427	4,982.4	\$ 37,285.76	118	131.0	\$ 1,283.84
	2,000 - 3,000 Gal.	2,500	\$ 13.35	2,179	5,593.8	\$ 29,089.65	36	90.8	\$ 480.60
	3,000 - 4,000 Gal.	3,500	\$ 18.29	2,285	8,134.0	\$ 41,792.65	37	130.1	\$ 676.73
	4,000 - 5,000 Gal.	4,500	\$ 22.73	2,135	9,710.9	\$ 48,528.55	28	128.2	\$ 636.44
	5,000 - 6,000 Gal.	5,500	\$ 26.67	1,692	9,355.0	\$ 45,125.64	26	147.4	\$ 693.42
	6,000 - 7,000 Gal.	6,500	\$ 30.11	1,110	7,235.0	\$ 33,422.10	15	98.3	\$ 451.65
	7,000 - 8,000 Gal.	7,500	\$ 33.05	794	5,964.5	\$ 26,241.70	14	106.0	\$ 462.70
	8,000 - 9,000 Gal.	8,500	\$ 35.99	585	4,975.7	\$ 21,054.15	14	119.8	\$ 503.86
	9,000 - 10,000 Gal.	9,500	\$ 38.93	379	3,607.0	\$ 14,754.47	13	123.5	\$ 506.09
	10,000 - 11,000 Gal.	10,500	\$ 41.62	294	3,097.4	\$ 12,236.28	5	52.9	\$ 208.10
	11,000 - 12,000 Gal.	11,500	\$ 44.06	219	2,520.0	\$ 9,649.14	3	34.2	\$ 132.18
	12,000 - 13,000 Gal.	12,500	\$ 46.50	153	1,920.9	\$ 7,114.50	11	138.5	\$ 511.50
	13,000 - 14,000 Gal.	13,500	\$ 48.94	122	1,654.5	\$ 5,970.68	4	54.6	\$ 195.76
	14,000 - 15,000 Gal.	14,500	\$ 51.38	98	1,426.5	\$ 5,035.24	5	73.3	\$ 256.90
	15,000 - 16,000 Gal.	15,500	\$ 53.82	89	1,386.1	\$ 4,789.98	6	93.1	\$ 322.92
	16,000 - 17,000 Gal.	16,500	\$ 56.26	72	1,187.8	\$ 4,050.72	4	66.0	\$ 225.04
	17,000 - 18,000 Gal.	17,500	\$ 58.70	53	929.0	\$ 3,111.10	4	71.9	\$ 234.80
	18,000 - 19,000 Gal.	18,500	\$ 61.14	59	1,092.3	\$ 3,607.26	8	147.0	\$ 489.12
	19,000 - 20,000 Gal.	19,500	\$ 63.58	54	1,054.5	\$ 3,433.32	5	98.2	\$ 317.90
	20,000 - 50,000 Gal.	35,000	\$ 101.40	370	10,913.9	\$ 37,518.00	63	1,888.4	\$ 6,388.20
	50,000 - 100,000 Gal.	75,000	\$ 199.00	98	6,813.7	\$ 19,502.00	27	1,987.1	\$ 5,373.00
	100,000 - 200,000 Gal.	150,000	\$ 382.00	45	6,276.0	\$ 17,190.00	14	2,003.0	\$ 5,348.00
	over 200,000 Gal.	574,500	\$ 1,417.78	17	7,025.9	\$ 24,102.26	20	14,230.3	\$ 28,355.60
> 200k Gal. (TCWD only)	668,500	\$ 1,647.14	0	0.0	\$ -	24	16,044.1	\$ 39,531.36	
Sub-Total				17,908	106,856.8	\$ 471,784.67	600	38,057.70	\$ 94,630.19
						\$26.34			\$157.72
	Average Monthly Rate						50		
	Avg. Monthly "Meter Setting" Count			1,492					
	Average Monthly Usage				5,970			63,430	

Total Water Sales Generated by Forecast \$ 566,414.86

XVI. FORECAST OF WATER USAGE - INCOME - NEW USERS - EXTENSION ONLY – PSC RATES

Note: Approximately 17 new customers are expected to be served, that are typical 5,000 to 6,000 gallon users (5/8").

Meter Size	MONTHLY WATER USAGE	Average	Average Rate	Residential			Non-Residential/Commercial		
				No. of Users	Usage (1,000)	Income	No. of Users	Usage (1,000)	Income
All Sizes	0 Gal.	0	\$ -						
	0 - 2,000 Gal.	1,000	\$ 6.70						
	2,000 - 3,000 Gal.	2,500	\$ 16.62						
	3,000 - 4,000 Gal.	3,500	\$ 23.06						
	4,000 - 5,000 Gal.	4,500	\$ 29.50						
	5,000 - 6,000 Gal.	5,500	\$ 35.94	204	1,217.9	\$ 7,331.76			
	6,000 - 7,000 Gal.	6,500	\$ 42.38						
	7,000 - 8,000 Gal.	7,500	\$ 48.82						
	8,000 - 9,000 Gal.	8,500	\$ 55.26						
	9,000 - 10,000 Gal.	9,500	\$ 61.70						
	10,000 - 11,000 Gal.	10,500	\$ 68.01						
	11,000 - 12,000 Gal.	11,500	\$ 74.19						
	12,000 - 13,000 Gal.	12,500	\$ 80.37						
	13,000 - 14,000 Gal.	13,500	\$ 86.55						
	14,000 - 15,000 Gal.	14,500	\$ 92.73						
	15,000 - 16,000 Gal.	15,500	\$ 98.91						
	16,000 - 17,000 Gal.	16,500	\$ 105.09						
	17,000 - 18,000 Gal.	17,500	\$ 111.27						
	18,000 - 19,000 Gal.	18,500	\$ 117.45						
	19,000 - 20,000 Gal.	19,500	\$ 123.63						
	20,000 - 50,000 Gal.	35,000	\$ 219.42						
	50,000 - 100,000 Gal.	75,000	\$ 460.37						
	100,000 - 200,000 Gal.	150,000	\$ 892.12						
	over 200,000 Gal.	574,500	\$ 3,299.04						
> 200k Gal. (TCWD only)	668,500	\$ 3,832.02							
Sub-Total				204	1,217.9	\$ 7,331.76			
Average Monthly Rate						\$35.94			
Avg. Monthly "Meter Setting" Count				17					
Average Monthly Usage					5,970				
5/8" x 3/4" Meter Customer Charge				204		\$ 948.60			
1" Meter Customer Charge				-		\$ -			
1-1/2" Meter Customer Charge				-		\$ -			
2" Meter Customer Charge				-		\$ -			
3" Meter Customer Charge				-		\$ -			
Water Sales Generated by Forecast						\$ 7,331.76			
Total Revenue Generated by Forecast						\$ 8,280.36			

XVII. FORECAST OF WATER USAGE - INCOME - EXISTING USERS - PSC APPROVED RATES

Note: Todd County Water District usage & income is not included since they've transitioned to LTRWC.

Meter Size	MONTHLY WATER USAGE	Average	Average Rate	Residential			Non-Residential/Commercial		
				No. of Users	Usage (1,000)	Income	No. of Users	Usage (1,000)	Income
	0 Gal.	0	\$ -	1,579	0.0	\$ -	96	0.0	\$ -
	0 - 2,000 Gal.	1,000	\$ 6.70	3,427	4,982.4	\$ 22,960.90	118	131.0	\$ 790.60
	2,000 - 3,000 Gal.	2,500	\$ 16.62	2,179	5,593.8	\$ 36,214.98	36	90.8	\$ 598.32
	3,000 - 4,000 Gal.	3,500	\$ 23.06	2,285	8,134.0	\$ 52,692.10	37	130.1	\$ 853.22
	4,000 - 5,000 Gal.	4,500	\$ 29.50	2,135	9,710.9	\$ 62,982.50	28	128.2	\$ 826.00
	5,000 - 6,000 Gal.	5,500	\$ 35.94	1,692	9,355.0	\$ 60,810.48	26	147.4	\$ 934.44
	6,000 - 7,000 Gal.	6,500	\$ 42.38	1,110	7,235.0	\$ 47,041.80	15	98.3	\$ 635.70
	7,000 - 8,000 Gal.	7,500	\$ 48.82	794	5,964.5	\$ 38,763.08	14	106.0	\$ 683.48
	8,000 - 9,000 Gal.	8,500	\$ 55.26	585	4,975.7	\$ 32,327.10	14	119.8	\$ 773.64
	9,000 - 10,000 Gal.	9,500	\$ 61.70	379	3,607.0	\$ 23,384.30	13	123.5	\$ 802.10
	10,000 - 11,000 Gal.	10,500	\$ 68.01	294	3,097.4	\$ 19,994.94	5	52.9	\$ 340.05
	11,000 - 12,000 Gal.	11,500	\$ 74.19	219	2,520.0	\$ 16,247.61	3	34.2	\$ 222.57
	12,000 - 13,000 Gal.	12,500	\$ 80.37	153	1,920.9	\$ 12,296.61	11	138.5	\$ 884.07
	13,000 - 14,000 Gal.	13,500	\$ 86.55	122	1,654.5	\$ 10,559.10	4	54.6	\$ 346.20
	14,000 - 15,000 Gal.	14,500	\$ 92.73	98	1,426.5	\$ 9,087.54	5	73.3	\$ 463.65
	15,000 - 16,000 Gal.	15,500	\$ 98.91	89	1,386.1	\$ 8,802.99	6	93.1	\$ 593.46
	16,000 - 17,000 Gal.	16,500	\$ 105.09	72	1,187.8	\$ 7,566.48	4	66.0	\$ 420.36
	17,000 - 18,000 Gal.	17,500	\$ 111.27	53	929.0	\$ 5,897.31	4	71.9	\$ 445.08
	18,000 - 19,000 Gal.	18,500	\$ 117.45	59	1,092.3	\$ 6,929.55	8	147.0	\$ 939.60
	19,000 - 20,000 Gal.	19,500	\$ 123.63	54	1,054.5	\$ 6,676.02	5	98.2	\$ 618.15
	20,000 - 50,000 Gal.	35,000	\$ 219.42	370	10,913.9	\$ 81,185.40	63	1,888.4	\$ 13,823.46
	50,000 - 100,000 Gal.	75,000	\$ 460.37	98	6,813.7	\$ 45,116.26	27	1,987.1	\$ 12,429.99
	100,000 - 200,000 Gal.	150,000	\$ 892.12	45	6,276.0	\$ 40,145.40	14	2,003.0	\$ 12,489.68
	over 200,000 Gal.	574,500	\$ 3,299.04	17	7,025.9	\$ 56,083.68	20	14,230.3	\$ 65,980.80
	> 200k Gal. (TCWD only)	668,500	\$ 3,832.02	0	0.0	\$ -	0	0.0	\$ -
	Sub-Total			17,908	106,856.8	\$ 703,766.13	576	22,013.60	\$ 116,894.62
	Average Monthly Rate					\$39.30			\$202.94
	Avg. Monthly "Meter Setting" Count			1,492			48		
	Average Monthly Usage				5,970			38,220	
	5/8" x 3/4" Meter Customer Charge		\$ 4.65	17,823		\$ 82,876.95			
	1" Meter Customer Charge		\$ 5.94	454		\$ 2,696.76			
	1-1/2" Meter Customer Charge		\$ 9.59	75		\$ 719.25			
	2" Meter Customer Charge		\$ 16.89	132		\$ 2,229.48			
	3" Meter Customer Charge		\$ 24.19	-		\$ -			
	Water Sales Generated by Forecast					\$ 820,660.75			
	Total Revenue Generated by Forecast					\$ 909,183.19			

XVIII. CURRENT OPERATING BUDGET - (As of the last available audit - 2002)

A.	Operating Income	
	Water Sales	<u>\$ 550,410.00</u>
	Discount/Reconnect/Late Charge Fees	<u>\$ 17,645.00</u>
	Other (Describe)	<u>\$ 7,156.00</u>
	Less Allowances and Deductions	( \$ - )
	Total Operating Income	<u>\$ 575,211.00</u>
B.	Operation and Maintenance Expenses: (Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)	
	Source of Supply Expense	<u>\$ 289,318.00</u>
	Pumping Expense	<u>\$ 20,864.00</u>
	Water Treatment Expense	<u>\$ -</u>
	Transmission and Distribution Expense	<u>\$ 120,147.00</u>
	Customer Service Expense	<u>\$ 12,644.00</u>
	Administrative and General Expense	<u>\$ 15,920.00</u>
	Total Operating Expenses	<u>\$ 458,893.00</u>
	Net Operating Income	<u>\$ 116,318.00</u>
C.	Non-Operating Income:	
	Interests on Deposits	<u>\$ 602.00</u>
	Other (Identify)	<u>\$ -</u>
	Total Non-Operating Income	<u>\$ 602.00</u>
D.	Net Income	<u>\$ 116,920.00</u>
E.	Debt Repayment	
	RUS Interest	<u>\$ 46,142.00</u>
	RUS Principal & Reserve	<u>\$ 20,419.00</u>
	Non-RUS Interest	<u>\$ 413.00</u>
	Non-RUS Principal	<u>\$ 5,000.00</u>
	Total Debt Repayment	<u>\$ 71,974.00</u>
F.	Balance Available for Coverage and Depreciation	<u><u>\$ 44,946.00</u></u>

XIX. PROPOSED OPERATING BUDGET - EXISTING & NEW USERS – RECOMMENDED WATER RATES

(1<sup>st</sup> Full Year of Operation) Year Ending 2004.

A.	Operating Income	
	Water Sales	\$ 910,000.00 <sup>(1)</sup>
	Discount/Reconnect/Late Charge Fees	\$ 17,910.00 <sup>(2)</sup>
	Other (Describe)	\$ 7,263.00 <sup>(2)</sup>
	Less Allowances and Deductions	( )
	Total Operating Income	<u>\$ 935,173.00</u>
B.	Operation and Maintenance Expenses: (Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)	
	Source of Supply Expense	\$ 425,000.00 <sup>(3)</sup>
	Pumping Expense	\$ 500.00 <sup>(2)(4)</sup>
	Water Treatment Expense	\$ - <sup>(2)(4)</sup>
	Transmission and Distribution Expense	\$ 149,854.00 <sup>(2)(4)</sup>
	Customer Service Expense	\$ 46,453.00 <sup>(2)(4)</sup>
	Administrative and General Expense	\$ 17,997.00 <sup>(2)(4)</sup>
	Total Operating Expenses	<u>\$ 639,804.00</u>
	Net Operating Income	<u>\$ 295,369.00</u>
C.	Non-Operating Income:	
	Interests on Deposits	\$ 602.00
	Other (Identify)	\$ -
	Total Non-Operating Income	<u>\$ 602.00</u>
D.	Net Income	<u>\$ 295,971.00</u>
E.	Debt Repayment	
	RUS Interest	\$ 83,192.00
	RUS Principal & Reserve	\$ 32,569.00
	Non-RUS Interest	\$ 413.00
	Non-RUS Principal	\$ 5,000.00
	Total Debt Repayment	<u>\$ 121,174.00 <sup>(5)</sup></u>
F.	Balance Available for Coverage and Depreciation	<u>\$ 174,797.00</u>

Notes:

1. Estimated Water Sales per Forecast with Existing Customer Base, 2002 usage & PSC rates.
2. Based on 1.5% increase (equivalent to water sales increase).
3. Estimated Purchased Water Cost via LTRWC (Current Avg. Cost = ~\$35,400/month).
4. Estimated Expense Adjustments due to management change & pump decommission.
5. Estimated Debt Service for 2004.

XX. PROPOSED OPERATING BUDGET - NEW USERS - EXTENSION ONLY

(1<sup>st</sup> Full Year of Operation) Year Ending 2004.

A.	Operating Income	
	Water Sales	\$ 8,280.00 <sup>(1)</sup>
	Discount/Reconnect/Late Charge Fees	\$ 265.00 <sup>(2)</sup>
	Other (Describe)	\$ 107.00 <sup>(2)</sup>
	Less Allowances and Deductions	( )
	Total Operating Income	<u>\$ 8,652.00</u>
B.	Operation and Maintenance Expenses: (Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)	
	Source of Supply Expense	\$ 3,550.00 <sup>(3)</sup>
	Pumping Expense	\$ -
	Water Treatment Expense	\$ -
	Transmission and Distribution Expense	\$ 71.00 <sup>(2)</sup>
	Customer Service Expense	\$ 21.00 <sup>(2)</sup>
	Administrative and General Expense	\$ 117.00 <sup>(2)</sup>
	Total Operating Expenses	<u>\$ 3,759.00</u>
	Net Operating Income	<u>\$ 4,893.00</u>
C.	Non-Operating Income:	
	Interests on Deposits	\$ -
	Other (Identify)	\$ -
	Total Non-Operating Income	<u>\$ -</u>
D.	Net Income	<u>\$ 4,893.00</u>
E.	Debt Repayment	
	RUS Interest	\$ 37,050.00 <sup>(4)</sup>
	RUS Principal & Reserve	\$ 12,150.00 <sup>(4)</sup>
	Non-RUS Interest	\$ -
	Non-RUS Principal	\$ -
	Total Debt Repayment	<u>\$ 49,200.00 <sup>(5)</sup></u>
F.	Balance Available for Coverage and Depreciation	<u>\$ (44,307.00)</u>

Notes:

1. Based on 17 Customers; 6,000 gallons per month usage and PSC rates.
2. Based on 1.5% increase (equivalent to water sales increase).
3. Based on 17 Customers; 6,000 gallons per month usage and \$2.91 per thousand (LTRWC rate)
4. Based on a \$520,000 RUS grant and \$780,000 RUS loan at 4.75% & 38 years with 10% reserve.
5. Estimated Debt Service for 2004.

XXI. ESTIMATED PROJECT COST - WATER

Development	<u>\$ 987,200.00</u>
Land and Rights	<u>\$ 15,000.00</u>
Legal	<u>\$ 27,000.00</u>
Engineering & Inspection	<u>\$ 125,500.00</u>
Interest	<u>\$ 20,000.00</u>
Contingencies	<u>\$ 99,000.00</u>
Initial Operating and Maintenance	<u>                  </u>
Other (PER, EA & Geotech Testing)	<u>\$ 26,300.00</u>
TOTAL	<u>\$ 1,300,000.00</u>

XXII. PROPOSED PROJECT FUNDING

Applicant - User Connection Fees	<u>\$ -</u>
Other Applicant Contribution	<u>\$ -</u>
Rural Development Loan	<u>\$ 780,000.00</u>
Rural Development Grant	<u>\$ 520,000.00</u>
Other (Specify)	<u>\$ -</u>
Other (Specify)	<u>\$ -</u>
Other (Specify)	<u>\$ -</u>
Other (Specify)	<u>\$ -</u>
TOTAL	<u>\$ 1,300,000.00</u>