

**PRELIMINARY ENGINEERING REPORT**

**for**

**NEW KELAT STORAGE TANK PROJECT**

**for the**

**HARRISON COUNTY WATER ASSOCIATION  
HARRISON COUNTY, KENTUCKY**

**May 2015**



*Andrew Esarey*  
*5/7/2017*

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## 1. Purpose of Report

This report describes the scope of the proposed project and presents the general background data used in its planning and development. Design criteria and financial data are presented and discussed.

## 2. General Background Data

In March 2014, Strand Associates, Inc. was authorized by the Harrison County Water Associates (HCWA) to investigate the feasibility of constructing a 198,000 gallon standpipe tank located in the Kelat/U.S. 27 Pressure Zone of Harrison County, Kentucky. Exhibit 1 of the appendix shows the existing Kelat Tank location, the proposed New Kelat Tank location, and respective pressure zone characteristics. Water demand in the Kelat pressure zone has increased since its construction in the 1970's. Customers in the Kelat pressure zone currently used an average of 190,000 gallons per day in 2013. The existing Kelat storage tank has a capacity of 106,000 gallons which is approximately half the daily water usage in the Kelat zone and is therefore undersized for the demand in the tank's service area. The New Kelat Tank project will improve water supply to the pressure zone and will also increase water pressure for approximately 1,200 customers within Harrison County.

The project was submitted for Kentucky State Clearinghouse comments on September 3, 2014. No conflicts with the State's goals, plans, or objectives are anticipated. The proposed project was reviewed by the Bluegrass Area Development District (BGADD) and appear to be consistent with the BGADD Comprehensive Plan. The HCWA is applying for a USDA Rural Utilities Service (RUS) Water and Waste Loan and Grant to cover the full project cost of \$625,500. Exhibit 1 of the appendix shows the location of the proposed storage tank.

## 3. Existing Systems

HCWA was first formed as the Harrison County Water District in the early 1960's. In December of 1965, the District entered into a twenty-year water purchase agreement with the City of Cynthiana. This water purchase agreement was amended in November 1968, allowing for a twenty-year extension of services without notice. The agreement was further amended in June 1969, extending the contract life to sixty years beginning March 1, 1969 and transferred rights from the Harrison County Water District to the HCWA. An amendment effective October 21, 1987, was negotiated by Cynthiana in order to improve its water supply system. This amendment increased the water purchase rates and extended the contract life for a period of sixty years. The most recent amendment effective May 26, 1999, was negotiated by Cynthiana in order to further improve its water supply system and included another increase in water purchase rates.

Since its beginning in the middle 1960's, the HCWA has developed into one of the largest and most efficiently operated rural water suppliers in the State. During the 1970's, the HCWA undertook three major expansion projects that resulted in 120-miles of water mains being constructed. In addition to the water mains, the projects included the construction of five standpipe storage tanks, five booster pump stations, and a telemetry control system. Throughout the following twenty-five years, the HCWA continued to undertake projects that would further extend its service area to those without a reliable source of potable water service. Following are descriptions of those projects:

- Phase 4 (1984/85) – Added 37-miles of water main; Project funded by Rural Development (RD, formerly FmHA)
- Phase 5 (1988/89) – Added 24-miles of water main; Project funded by RD

- Phase 6 (1992/93) – Added 42-miles of water main, two new pump stations, one pump station upgrade, a 107,000 gallon storage tank, and a telemetry control system upgrade; Project funded by HUD-CDBG, RD, and HCWA
- Phase 7 (1993/94) – Added 24 miles of water main, a 112,000 gallon storage tank, an altitude valve, and a radio telemetry control system; Project funded by RD
- Phase 8 (1996/97) – Added a 110,000 gallon storage tank and one pump station; Project funded by HUD-CDBG and RD
- Phase 9 (2001/02) – Added approximately 50-miles of water main, a 192,000 gallon standpipe, two booster pump stations, 250 gpm and 150 gpm each, and a radio telemetry control system.
- Phase 10 (2010/11) – Added approximately 27-miles of water main and two booster pump stations; Project funded by USDA Rural Utilities Service Water and Waste Loan and Grant and a Kentucky Infrastructure Authority Grant.

The HCWA presently operates and maintains more than 412-miles of 2” through 10” water distribution mains.

#### 4. **Scope of Project**

The HCWA New Kelat Storage Tank Project consists of constructing a 198,000 gallon water storage tank and related appurtenances in Harrison County, Kentucky in order to improve pressure and supply to an estimated 1,200 underserved customers.

#### 5. **Estimated Water Usage**

Presently, the HCWA serves approximately 5,653 customers of which the large majority are residential. The average annual water usage as determined by billings for the 12-month period between January 2013 and December 2013 was 394,001,940 gallons (64 gpcpd). Average monthly demand per customer calculates to 5,827 gallons.

HCWA currently has water purchase contracts with the City of Cynthiana (no set limit), the Kentucky-American Water Company (3,000,000 gallons per month limit), the Nicholas County Water District (500,000 gallons per month limit), the City of Paris (500,000 gallons per month limit), and the City of Millersburg (600,000 gallons per month limit).

This project will be served by potable water purchased from the City of Cynthiana, which has a raw water intake, high-service pump station, and a raw water transmission main that enables it to pump water from the main fork of the Licking River. The City of Cynthiana operates a water treatment plant rated for a 24-hour capacity of 6 million gallons per day (MGD).

#### 6. **Design Criteria**

##### **a. Hydraulic Considerations**

Distribution system modeling indicates the U.S. 27 North Pump Station provides adequate tank turnover under a 2013 average day demand scenario, allowing the New Kelat Tank to turnover once in less than 72 hours with both pumps in operation. With one pump in operation at the U.S. 27 North Pump Station, distribution system modeling indicates tank turnover occurs once in approximately 90

hours. Constructing the New Kelat Tank increases water pressure and water supply for users in the Kelat/U.S. 27 North Pressure Zone.

Hydraulic calculations are based on the Hazen-Williams formula with a “C” value of 130 for PVC mains. The economy of polyvinyl chloride (PVC) pipe has caused it to be the predominant material for rural water system pipelines. The relatively high flow coefficient of C = 130 is a common value for PVC water systems and is, therefore, used in the design of this system.

**b. Construction Considerations**

The new storage tank will be constructed on the site identified in Exhibit 1 of the appendix. This site has already been acquired by HCWA. The site location was selected after analyzing three possible tank locations, see Exhibit 2 of the appendix, and discussing them with HCWA. The site location was selected based on elevation, proximity to the existing tank, accessibility, and minimum required site excavation.

Harrison County is underlain by limestone rock formations. Based on previous construction projects and the HCWA’s construction experience, the determination was made that rock removal would not present unusual problems at the proposed construction sites. Rock layers near the ground surface are weathered and fragmented.

**7. Financial**

**a. Construction and Project Costs**

Construction and project cost estimates are presented in Table 1. The estimated construction cost for the proposed project is \$625,500.00, which is based on an estimate prepared by Strand Associates, Inc.

**Table 1 – Total Project Cost Estimate**

<u>Construction Cost Estimate</u>		
New Kelat Water Storage Tank		\$350,000
Tank Piping Improvements		\$10,000
Land Acquisition		\$50,000
Total Construction		\$410,000
Contingencies		\$104,250
Administrative and Legal		\$10,000
Land and Easements		\$5,000
Engineering Fees <sup>1</sup>		\$63,700
Project Inspection Fees		<u>\$32,550</u>
<b>TOTAL PROJECT COST ESTIMATE</b>		<b>\$625,500</b>
<sup>1</sup> Engineering Fees:	Preliminary Services	\$20,000
	Basic Services	<u>\$43,700</u>
		\$63,700

**b. Project Budget**

A summary of the proposed project funding is as follows:

RUS Loan	\$437,850
RUS Grant	<u>\$187,650</u>
<b>TOTAL ESTIMATED PROJECT FUNDING</b>	<b>\$625,500</b>

**c. Rate Analysis**

A rate analysis with the existing and proposed operation and maintenance costs and debt service requirements are attached in the Summary Addendum in Exhibit 3 of the appendix. This analysis includes a statement regarding the income necessary to meet the estimated obligation for both the existing and proposed systems.

This rate analysis also makes a comparison of the current and future operating budgets with and without depreciation included. According to this, the HCWA is showing a profit prior to including depreciation, but a loss after depreciation. The HCWA understands that depreciation is a real expense that must be accounted for and covered by their annual income.

**8. Summary and Conclusions**

The HCWA New Kelat Storage Tank Project consists of constructing a 198,000 gallon water storage tank and related appurtenances in Harrison County, Kentucky in order to improve pressure and supply to approximately 1,200 underserved customers.

Funding for this project will be covered completely by USDA RUS Water and Waste Loan and Grant.

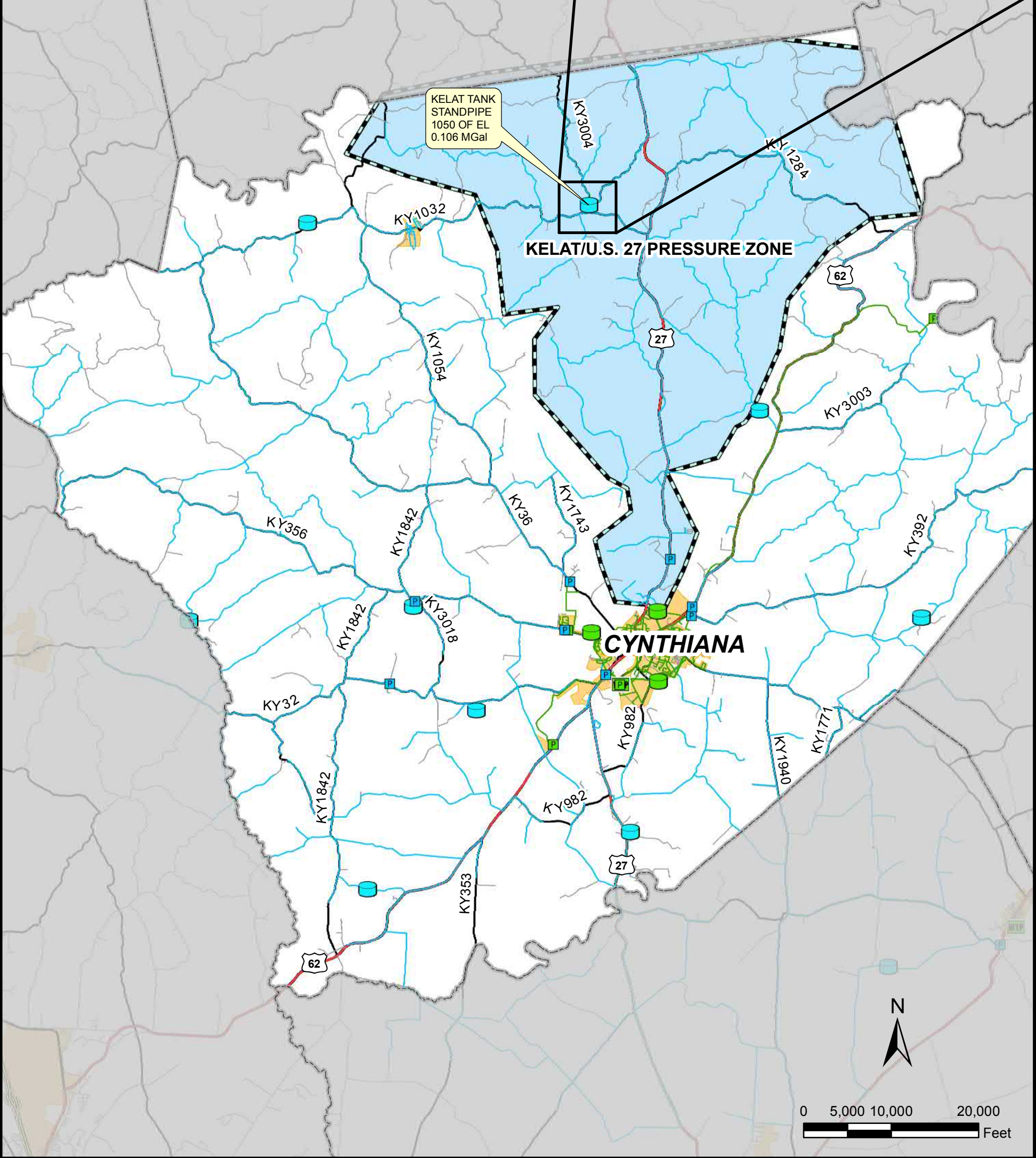
Signed:   
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, Kentucky 40202

By:  
Andrew Esarey, P.E.

**Appendix, Exhibit 1 - Project Location Map**

**Legend**

<b>Pump Station</b>	<b>Water Main</b>
CMWW PS	CMWW Main
HCWA PS	HCWA Main
WTPs	Local Road
<b>Water Tank</b>	I
CMWW Tank	US
HCWA Tank	KY
	City



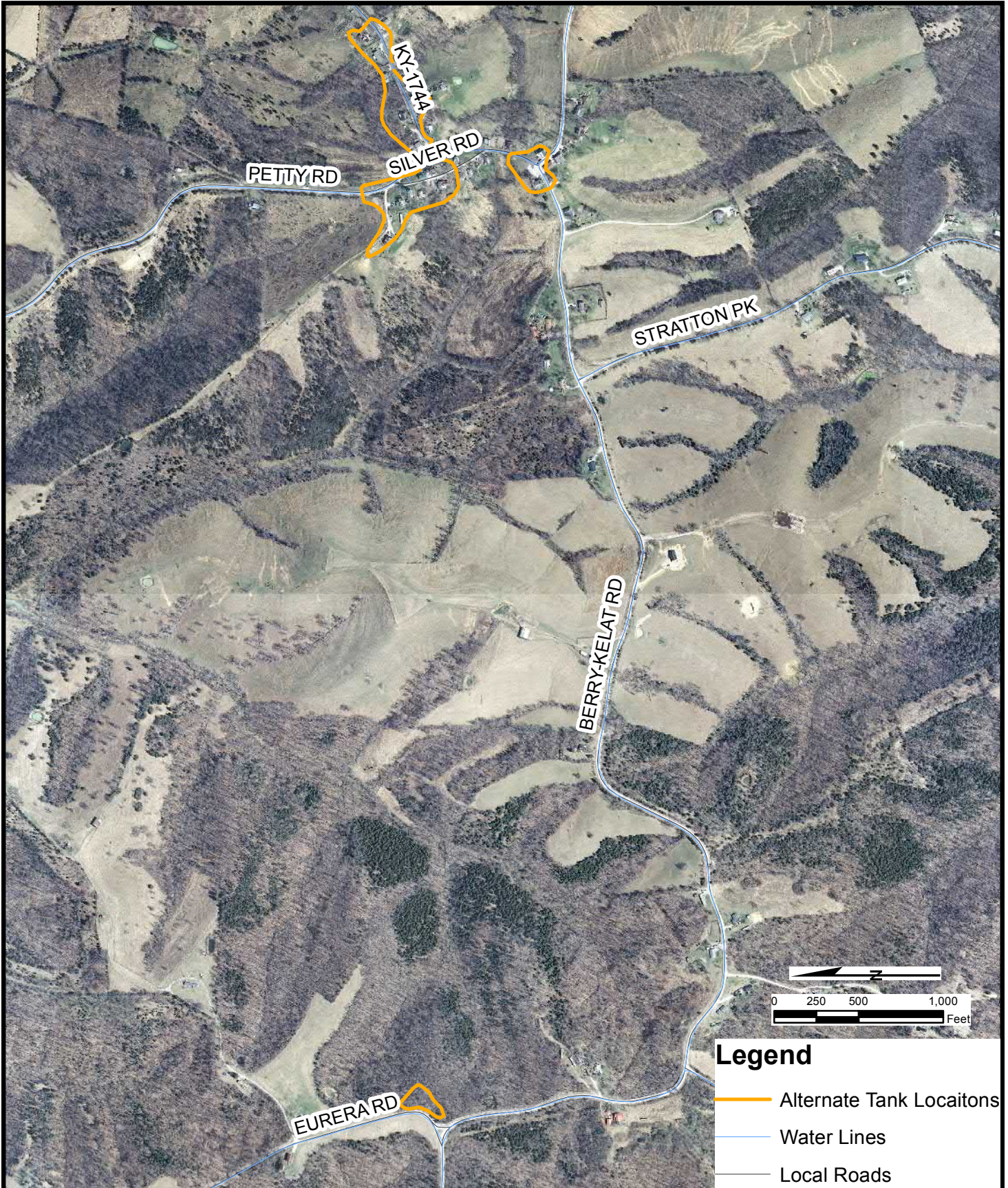
**PROJECT LOCATION**

**NEW KELAT STORAGE TANK PROJECT  
HARRISON COUNTY WATER ASSOCIATION  
HARRISON COUNTY, KENTUCKY**

**STRAND ASSOCIATES**  
EXHIBIT 1  
5224.248



**Appendix, Exhibit 2 – Possible New Kelat Tank Locations**



**Legend**

- Alternate Tank Locations
- Water Lines
- Local Roads

**ALTERNATE PROJECT LOCATIONS**

**NEW KELAT STORAGE TANK PROJECT  
HARRISON COUNTY WATER ASSOCIATION  
HARRISON COUNTY, KENTUCKY**



**EXHIBIT 2  
5224.248**

**Appendix, Exhibit 3 – Summary Addendum to the Preliminary Engineering Report**

SUMMARY ADDENDUM  
TO  
PRELIMINARY ENGINEERING REPORT

DATED May 2015

FOR

Harrison County Water Association – New Kelat Storage Tank  
(Name of Project)

APPLICANT CONTACT PERSON William R. Toadvine

APPLICANT PHONE NUMBER (859) 234-4284

APPLICANT TAX IDENTIFICATION NUMBER (TIN) 61-0904390

***ITEMS IN BOLD ITALIC PRINT ARE APPLICABLE TO SEWER SYSTEMS.***

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

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

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

**I. GENERAL**

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

The Harrison County Water Association (HCWA) New Kelat Tank project consists of constructing a new standpipe tank in the Kelat pressure zone of the HCWA system to replace the existing Kelat tank. Water use in the Kelat pressure zone has increased since it's construction in the 1970's and HCWA has difficulty keeping the tank full during high demand periods. The existing Kelat tank is a 106,000 gallon capacity standpipe and the Kelat tank pressure zone uses an average of approximately 190,000 gallons per day with peak demands exceeding 250,000 gallons per day. The New Kelat tank will have a capacity of 198,000 gallons to meet current and future demands and an increased overflow elevation of 1059 feet to provide reliable pressure to customers in the Kelat pressure zone.

Exhibit 1 to the appendix of the Preliminary Engineering Report shows the locations of the proposed improvements.

**II. FACILITY CHARACTERISTICS OF EXISTING SEWER SYSTEM**

- A. *Sewage Treatment: N/A*

*1. Type* \_\_\_\_\_

*2. Method of Sludge Disposal* \_\_\_\_\_

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

*4. Date Constructed* \_\_\_\_\_

B. *Treatment Capacity of Sewage Treatment Plant* N/A

C. *Type of Sewage Collector System (Describe)* N/A

D. *Number and Capacity of Sewage Lift Stations* N/A

E. **Sewage Collection System:** *N/A*

**Lineal Feet of Collector Lines, by Size**      6" \_\_\_\_\_ 8" \_\_\_\_\_

10" \_\_\_\_\_ 12" \_\_\_\_\_ Larger \_\_\_\_\_

**Date(s) Constructed** \_\_\_\_\_

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

*N/A*

### III. FACILITY CHARACTERISTICS OF EXISTING WATER SYSTEM

1. **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 HCWA purchases treated water from the City of Cynthiana, the Kentucky American Water Company (KAWC), the Nicholas County Water District (NCWD), the City of Paris, and the City of Millersburg. Between 2010 and 2013, HCWA purchased an average of 1.11 MGD from all suppliers. Peak demand occurred in August 2012 which had an average daily usage of 1.44 MGD.

The City of Cynthiana has a raw water intake, a high-service pump station, and a raw water transmission main that enables it to pump water from the main fork of the Licking River. The City of Cynthiana also operates a water treatment plant rated for a 24-hour capacity of 6 MGD. HCWA currently purchases an average of 0.93 MGD from Cynthiana and has approximately 35-years left on its water purchase agreement. The agreement with Cynthiana has no set limit on the volume of potable water that may be purchased by HCWA each month.

The KAWC has two raw water intakes on the Kentucky River and three treatment plants with a capacity of 40 MGD, 25 MGD, and 20 MGD. HCWA currently purchases an average of 0.09 MGD from KAWC and has approximately 30-years left on its water purchase agreement. The agreement with KAWC limits the volume of potable water that may be purchased by HCWA to 3,000,000 gallons per month.

The HCWA currently purchases an average of 0.06 MGD, 0.009 MGD, and 0.02 MGD from NCWD, Paris, and Millersburg, respectively. The agreements with NCWD and Paris limit the volume of potable water that may be purchased by HCWA to 500,000 gallons per month, while the agreement with Millersburg permits sales up to 600,000 gallons per month.

If the applicant purchases water:

Seller(s):

1. The City of Cynthiana
2. Kentucky – American Water Company
3. Nicholas County Water District
4. The City of Paris
5. The City of Millersburg

Price/1,000 gallons:

1. \$1.85 per 1,000 gallons rate for the City of Cynthiana
2. \$2.88 per 1,000 gallons rate for the Kentucky-American Water Co.
3. \$2.10 per 1,000 gallons rate for the Nicholas County Water District
4. \$2.25 per 1,000 gallons rate for the City of Paris
5. \$2.25 per 1,000 gallons rate for the City of Millersburg

Present Estimated Market Value of Existing System: \$12,641,206\*

**\*Note:** Market value as of 12/31/13 per financial audit report by Ray, Foley, Hensley & Company, PLLC

2. Water Storage:

Type:	Ground Storage Tank	<u>11</u>	Elevated Tank	<u>11</u>
	Standpipe	<u>11</u>	Other	<u>11</u>
Number of Storage Structures				<u>11</u>
Total Storage Volume Capacity				<u>1,315,000 gallons</u>
Date Storage Tank(s) Constructed				<u>1969 to present</u>

3. Water Distribution System:

Pipe Material	PVC, Ductile Iron, & AC (Transite)			
Lineal Feet of Pipe:	2" Diameter	<u>5,586</u>	3"	<u>35,124</u>
	4"	<u>800,386</u>	6"	<u>1,262,480</u>
	8"	<u>67,188</u>	10"	<u>8,556</u>
Dates(s) Water Lines Constructed	<u>1969 to present.</u>			
Number and Capacity of Pump Station(s)	<u>3 – 250 gpm PS's, 1 - 200 gpm PS,</u>			
	<u>2 – 150 gpm PS's, 1 – 125 gpm PS, 2 - 85 gpm PS's, 1 - 75 gpm PS</u>			

4. Condition of Existing Water System:

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

The existing system is in fairly good condition and is well maintained. Future maintenance could include water tank and pump station upgrades and a repainting of structures.

5. Percentage of Water Loss Existing System: The percent loss for January 2013 through December 2013 was approximately 5.6%.

IV. EXISTING LONG-TERM INDEBTEDNESS

I. List of Bonds and Notes:

Date of Issue	Bond/Note Holder	Principal Balance	Payment Date	Bond Type Water/Sewer*	Amount on Deposit in Reserve Account
19 95 Issue	FmHA	\$ 472,132	See Note	100 %	%
20 03 Issue	FmHA	\$ 257,981	See Note	100 %	%
20 10 Issue	FmHA	\$ 883,982	See Note	100 %	%

**Note:** The principal payments are due at various times during the year. The principal balances shown above are as of 12/31/13 per financial audit report by Ray, Foley, Hensley & Company, PLLC.

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

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

Date of Issue	Bond/Note Holder	Payment Year 2014	Payment Year 2015	Payment Year 2016	Principal Payment	Interest Payment
19 95 Issue	FmHA					
20 03 Issue	FmHA					
20 10 Issue	FmHA					
All Issue		\$ 32,992	\$ 60,877	\$ 34,328	\$ 59,541	\$ 35,721
			\$ 58,148			



V. EXISTING SHORT-TERM INDEBTEDNESS

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

<u>Lender or Lessor</u>	<u>Date of Issue (Month &amp; Year)</u>	<u>Principal Balance</u>	<u>Purpose (Water and/ or Sewer)</u>	<u>Payment Date</u>	<u>Principal &amp; Interest Payment (P &amp; I)</u>	<u>Date to Be Paid In Full</u>

VI. LAND AND RIGHTS - EXISTING SYSTEM(S)

Number of Treatment Plant Sites:	Water	<u>0</u>	<i>Sewer</i>	<u>N/A</u>
Number of Storage Tank Sites:	Water	<u>11</u>	<i>Sewer</i>	<u>N/A</u>
Number of Pump Stations:	Water	<u>10</u>	<i>Sewer</i>	<u>N/A</u>
Total Acreage:	Water	<u>Unknown</u>	<i>Sewer</i>	<u>N/A</u>
Purchase Price:	Water	<u>Unknown</u>	<i>Sewer</i>	<u>N/A</u>

VII. NUMBER OF EXISTING USERS

	<b>Water</b>	<b>Sewer</b>
Residential (In Town)		<i>N/A</i>
Residential (Out of Town)	<u>5,522</u>	<i>N/A</i>
Non-Residential (In Town)		<i>N/A</i>
Non-Residential (Out of Town)	<u>131</u>	<i>N/A</i>
Total	<u>5,653</u>	<i>N/A</i>

Number of Total Potential Users Living in the Service Area unknown

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

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

<u>Meter Size</u>	<u>Water Connection Fee</u>	<u>Sewer Connection Fee</u>
<u>5/8" x 3/4"</u>	<u>\$ 600</u>	<u>\$ N/A</u>
<u>3/4" - Inch</u>	<u>\$ N/A</u>	<u>\$ N/A</u>
<u>1" - Inch</u>	<u>\$ 800</u>	<u>\$ N/A</u>
<u>1" - 1/2 Inch</u>	<u>\$ 1,100</u>	<u>\$ N/A</u>
<u>2" - Inch</u>	<u>\$ 1,210</u>	<u>\$ N/A</u>
<u>3" - Inch</u>	<u>\$ N/A</u>	<u>\$ N/A</u>
<u>4" - Inch</u>	<u>\$ N/A</u>	<u>\$ N/A</u>
<u>6" - Inch</u>	<u>\$ N/A</u>	<u>\$ N/A</u>

IX. SEWER RATES - EXISTING SYSTEM

*Percentage of Water Bill*     N/A     % *Minimum Charge*     N/A      
*Other: (If Charge Not Based on Water Bill)*     N/A    

X. WATER RATES - EXISTING SYSTEM (See Attached Sheets 7A & 7B)

XI. ANALYSIS OF ACTUAL SEWER USAGE – EXISTING SYSTEM – 12 MONTH PERIOD     N/A    

XII. ANALYSIS OF ACTUAL WATER USAGE – EXISTING SYSTEM – 12 MONTH PERIOD (See Attached Sheet 7C)

XIII. FACILITY CHARACTERISTICS OF PROPOSED SEWER SYSTEM     N/A    

- A. *Sewage Treatment*     N/A
1. *Type*     N/A
  2. *Method of Sludge Disposal*     N/A
  3. *Cost per 1,000 gallons if sewage is contracted:*  
    \$ N/A
  4. *Date Constructed*     N/A

**B. Treatment Capacity of Sewage Treatment Plant** N/A

**C. Type of Sewage Collector System (Describe)** N/A

**D. Number and Capacity of Sewage Lift Stations** N/A

**E. Sewage Collection System:**

<b>Lineal Feet of Collector Lines, by Size</b>		<b>6"</b>	<b>N/A</b>	<b>8"</b>	<b>N/A</b>
<b>10"</b>	<b>N/A</b>	<b>12"</b>	<b>N/A</b>	<b>Larger</b>	<b>N/A</b>

**XIV. LAND AND RIGHTS - PROPOSED SEWER SYSTEM**

**Number of Treatment Plant Sites** N/A

**Number of Pump Sites** N/A

**Number of Other Sites** N/A

**Total Acreage** N/A  
*Acres*

**Purchase Price** \$ N/A

XV. FACILITY CHARACTERISTICS OF PROPOSED WATER SYSTEM

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

The New Kelat tank will be located in the service area that is supplied by the City of Cynthiana. The City of Cynthiana has a raw water intake, a high-service pump station, and a raw water transmission main that enables it to pump water from the main fork of the Licking River. The City of Cynthiana also operates a water treatment plant rated for a 24-hour capacity of 6 MGD. HCWA currently purchases an average of 0.93 MGD from Cynthiana and has approximately 35-years left on its water purchase agreement. The agreement with Cynthiana has no set limit on the volume of potable water that may be purchased by HCWA each month. This project does not result in any additional demand, therefore the existing water purchase agreement with Cynthiana should be sufficient for the proposed project.

B. Water Storage:

Type:	Ground Storage Tank _____	Elevated Tank _____
	Standpipe _____ 1	Other _____
Number of Storage Structures	1	
Total Storage Volume Capacity	198,000 gallons	

C. Water Distribution System:

Pipe Material	PVC, Ductile Iron			
Lineal Feet of Pipe:	3" Diameter	0	4"	0
	6"	0	8"	0
	10"	0	12"	0
Number and Capacity of Pump Station(s)	_____			

XVI. LAND AND RIGHTS- PROPOSED WATER SYSTEM

Number of Treatment Plant Sites	0
Number of Pump Sites	0
Number of Other Sites	1
Total Acreage	N/A
Purchase Price	N/A

XVII. NUMBER OF NEW SEWER USERS N/A

<i>Residential (In Town) *</i>	N/A
<i>Residential (Out of Town) *</i>	N/A
<i>Non-Residential (In Town)</i>	N/A
<i>Non-Residential (Out of Town)</i>	N/A
<i>Total</i>	N/A
<i>Number to Total Potential Users Living in the Service Area</i>	N/A

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

XVIII. PROPOSED SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION N/A

<u>Meter Size</u>	<u>Connection Fee</u>
<u>5/8" x 3/4"</u>	N/A
<u>1 - Inch</u>	N/A
<u>1 - 1/2 Inch</u>	N/A
<u>2 - Inch</u>	N/A
<u>3 - Inch</u>	N/A
<u>4 - Inch</u>	N/A
<u>5 - Inch</u>	N/A

XIX. NUMBER OF NEW WATER USERS

Residential (In Town)	0
Residential (Out of Town)	0
Non-Residential (In Town)	0
Non-Residential (Out of Town)	0
Total	0
Number to Total Potential Users Living in the Service Area	<i>unknown</i>

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

XX. PROPOSED WATER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION:

<u>Meter Size</u>	<u>Water Connection Fee</u>	<u>Sewer Connection Fee</u>
<u>5/8" x 3/4"</u>	\$ <u>600</u>	\$ <u>N/A</u>
<u>3/4" - Inch</u>	\$ <u>N/A</u>	\$ <u>N/A</u>
<u>1" - Inch</u>	\$ <u>800</u>	\$ <u>N/A</u>
<u>1" - 1/2 Inch</u>	\$ <u>1,100</u>	\$ <u>N/A</u>
<u>2" - Inch</u>	\$ <u>1,210</u>	\$ <u>N/A</u>
<u>3" - Inch</u>	\$ <u>N/A</u>	\$ <u>N/A</u>
<u>4" - Inch</u>	\$ <u>N/A</u>	\$ <u>N/A</u>
<u>6" - Inch</u>	\$ <u>N/A</u>	\$ <u>N/A</u>

**XXI. SEWER RATES - PROPOSED N/A**

**A. Proposed Rate Schedule with RD Grant:**

Percentage of Water Bill \_\_\_\_\_ % \$ \_\_\_\_\_  
 Other: (If Charge Not Based on Water Bill) \_\_\_\_\_

**B. Proposed Rate Schedule: (Without RD Grant)**

<i>First</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>Minimum.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>All Over</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>

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

**C. Recommended Rate Schedule with RD Grant:**

Percentage of Water Bill \_\_\_\_\_ % \$ \_\_\_\_\_  
 Other: (If Charge Not Based on Water Bill) \_\_\_\_\_

**D. Recommended Rate Schedule: (With RD Grant)**

<i>First</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>Minimum.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>Next</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>
<i>All Over</i>	_____	<i>Gallons @</i>	<i>\$</i>	_____	<i>per 1,000 Gallons.</i>

XXII. WATER RATES- PROPOSED (No Rate Change, See Section X. Water Rates – Existing System, Pages 7a & 7b)

A. Proposed Rate Schedule without RD Grant: **\$625,500 RD Loan**

B. Proposed Rate Schedule with RD Grant: **\$437,850 RD Loan**

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

**XXIII. FORECAST OF SEWER USAGE – INCOME – EXISTING SYSTEM – EXISTING USERS (12 MONTH PERIOD FROM 1/1/13 THROUGH 12/31/13) N/A**

**XXIV. FORECAST OF SEWER USAGE – INCOME – NEW USERS – EXTENSION ONLY (12 MONTH PERIOD FROM 1/1/13 THROUGH 12/31/13) N/A**

**XXV. FORECAST OF WATER USAGE – INCOME – EXISTING SYSTEM – EXISTING USERS (12 MONTH PERIOD FROM 1/1/16 THROUGH 12/31/16) SEE ATTACHED SHEETS 13A, 13B, & 13C**

**XXVI. FORECAST OF WATER USAGE – INCOME – NEW IMPROVEMENTS (12 MONTH PERIOD FROM 1/1/16 THROUGH 12/31/16) SEE ATTACHED SHEETS 13D, 13E, & 13F**



**XXXVII. ESTIMATED PROJECT COST – SEWER N/A**

	<u>Collection</u>	<u>Treatment</u>	<u>Total</u>
<i>Development</i>	_____	_____	_____
<i>Land and Rights</i>	_____	_____	_____
<i>Land and Rights</i>	_____	_____	_____
<i>Legal</i>	_____	_____	_____
<i>Engineering</i>	_____	_____	_____
<i>Interest</i>	_____	_____	_____
<i>Contingencies</i>	_____	_____	_____
<i>Initial Operating and Maintenance</i>	_____	_____	_____
<i>Other</i>	_____	_____	_____
<b>TOTAL</b>	_____	_____	_____

**XXXVIII. PROPOSED PROJECT FUNDING – SEWER N/A**

	<u>Collection</u>	<u>Treatment</u>	<u>Total</u>
<i>Applicant - User Contribution Fees</i>	_____	_____	_____
<i>Other - Applicant Contribution</i>	_____	_____	_____
<i>RD Loan</i>	_____	_____	_____
<i>RD Grant</i>	_____	_____	_____
<i>ARC Grant (If applicable)</i>	_____	_____	_____
<i>CDBG (If applicable)</i>	_____	_____	_____
<i>Other (Specify)</i>	_____	_____	_____
<i>Other (Specify)</i>	_____	_____	_____

XXXIX. ESTIMATED PROJECT COST - WATER

Development	\$	410,000
Land and Rights		5,000
Legal and Administrative		10,000
Engineering		63,700
Interest		0
Contingencies		104,250
Initial Operating and Maintenance		0
Other		32,550
TOTAL	\$	625,500

XXXX. PROPOSED PROJECT FUNDING - WATER

Applicant - User Contribution Fees	\$	0
Other - Applicant Contribution		0
RD Loan		437,850
RD Grant		187,650
ARC Grant (If applicable)		0
CDBG (If applicable)		0
HB 406		0
SB 409		0
Other		0
TOTAL	\$	625,500

**XII. ANALYSIS OF ACTUAL WATER USAGE - EXISTING SYSTEM - 12 MONTH PERIOD**  
**For Period January 2013 to Decemeber 2013**

<b><u>Sales Category</u></b>	<b><u>Users</u></b>	<b><u>Avg. Daily Usage Per User</u></b>	<b><u>Avg. Monthly Usage (All Users)</u></b>	<b><u>Annual Usage</u></b>	<b><u>Annual Income*</u></b>
Residential	5,522	146.37	24,585,000	295,020,000	\$2,035,973.00
Commercial	130	300.11	1,186,667	14,240,000	\$103,091.00
Bulk Loading Stations	1	849.32	25,833	310,000	\$228.00

**Totals:      5,653                                      25,797,500                                      309,570,000                                      \$2,139,292.00**

\* Note - Annual Income for existing users as provided in 'Kentucky Public Service Commission Report - 2013'

**XXV. FORECAST OF WATER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS**  
**For Period January 2016 to Decemeber 2016**

<b>Sales Category</b>	<b>Users*</b>	<b>Avg. Daily Usage Per User</b>	<b>Avg. Monthly Usage (All Users)</b>	<b>Annual Usage</b>	<b>Annual Income**</b>
Residential	5,522	146.37	24,585,000	295,020,000	\$2,035,973.00
Commercial	130	300.11	1,186,667	14,240,000	\$103,091.00
Bulk Loading Stations	1	849.32	25,833	310,000	\$228.00

**Totals:      5,653    25,797,500    309,570,000    \$2,139,292.00**

\* Note - The New Kelat Storage Tank Project will not result in any new customers nor add any additional water demand.  
 \*\* Note - Annual Income for existing users as provided in 'Kentucky Public Service Commission Report - 2013'

XXV. CURRENT OPERATING BUDGET - (WATER - EXISTING)

(As of last full operating year.)

Year Ending 12/31/2013

A. Operating Income:

Water Sales	<u>\$2,139,292</u>
Late Charges	<u>\$40,715</u>
Other Service	<u>\$8,465</u>
Other Revenue	<u>\$15,784</u>

Less Allowances and Deductions \$0

Total Operating Income . . . . . **\$2,204,256**

B. Operation and Maintenance Expenses:

(Based on Uniform System of Accounts prescribed by  
National Association of Regulatory Utility Commissioners)

Source of Supply Expense	<u>(\$1,008,338)</u>
Pumping Expense	<u>(\$92,306)</u>
Water Treatment Expense	<u>\$0</u>
Transmission and Distribution Expense	<u>(\$36,723)</u>
Customer Accounts Expense	<u>(\$65,780)</u>
Administrative and General Expense	<u>(\$664,053)</u>

Total Operating Expenses . . . . . **(\$1,867,200)**

Net Operating Income . . . . . **\$337,056**

C. Non-Operating Income:

Interest Income	<u>\$23,826</u>
Interest Expense	<u>(\$58,325)</u>

Total Non-Operating Income **(\$34,499)**

D. Net Income . . . . . **\$302,557**

E. Debt Repayment:

RD Interest	<u>(\$60,877)</u>
RD Principal	<u>(\$32,992)</u>
Non-RD Interest	<u>\$0</u>
Non-RD Principal	<u>\$0</u>

Total Debt Repayment . . . . . **(\$93,869)**

F. Balance Available for Coverage  
and Depreciation . . . . . **\$208,688**

G. Required Coverage @ 10% **(\$9,387)**

**H. Surplus (Deficit) \$199,301**

I. Depreciation (\$461,002)

**J. Surplus (Deficit) with Depreciation (\$261,701)**

XXV. FUTURE OPERATING BUDGET - (WATER - EXISTING)  
 (1st Full Year Of Operation)

Year Ending 12/31/2016

A. Operating Income:

Water Sales	<u>\$2,139,292</u>
Late Charges	<u>\$40,700</u>
Other Service	<u>\$8,270</u>
Other Revenue	<u>\$17,250</u>
Less Allowances and Deductions	<u>\$0</u>
Total Operating Income . . . . .	<b><u>\$2,205,512</u></b>

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

Source of Supply Expense	<u>(\$1,008,338)</u>
Pumping Expense	<u>(\$100,865)</u>
Short Lived Assets	<u>\$24,133</u>
Transmission and Distribution Expense	<u>(\$40,128)</u>
Customer Accounts Expense	<u>(\$71,880)</u>
Administrative and General Expense	<u>(\$725,629)</u>
Total Operating Expenses . . . . .	<b><u>(\$1,922,707)</u></b>
Net Operating Income . . . . .	<b><u>\$282,805</u></b>

C. Non-Operating Income:

Interest Income	<u>\$0</u>
Interest Expense	<u>(\$63,733)</u>
Total Non-Operating Income	<b><u>(\$63,733)</u></b>

D. Net Income . . . . . **\$219,072**

E. Debt Repayment:

RD Interest	<u>(\$58,148)</u>
RD Principal	<u>(\$35,721)</u>
Non-RD Interest	<u>\$0</u>
Non-RD Principal	<u>\$0</u>
Total Debt Repayment . . . . .	<b><u>(\$93,869)</u></b>

F. Balance Available for Coverage  
 and Depreciation . . . . . **\$125,203**

G. Required Coverage @ 10% **(\$9,387)**

**H. Surplus (Deficit) \$115,816**

I. Depreciation (\$503,749)

**J. Surplus (Deficit) with Depreciation (\$387,933)**

**XXVI. FORECAST OF WATER USAGE - INCOME - NEW IMPROVEMENTS**  
For Period January 2016 to Decemeber 2016

<u>Sales Category</u>	<u>Users**</u>	<u>Avg. Daily Usage Per User</u>	<u>Avg. Monthly Usage (All Users)</u>	<u>Annual Usage</u>	<u>Annual Income*</u>
Residential - New	0	0.00	0	0	\$0.00
Residential	5,522	146.37	24,585,000	295,020,000	\$2,035,973.00
Commercial	130	300.11	1,186,667	14,240,000	\$103,091.00
Bulk Loading Stations	1	849.32	25,833	310,000	\$228.00

**Totals: 5,653 25,797,500 309,570,000 \$2,139,292.00**

\* Note - Annual Income for new users determined using current rate schedule for 5/8" x 3/4" Meters  
Annual Income for existing users as provided in 'Kentucky Public Service Commission Report - 2013'  
\*\* Note - The New Kelat Storage Tank Project will not alter the existing water usage nor add any additional water demand.

XXVI. FUTURE OPERATING BUDGET - (WATER - IMPROVEMENTS)

(1st Full Year Of Operation)

Year Ending

12/31/2016

A. Operating Income:	<b>No Rate Increase</b>	
	<b>Grants: RD \$0</b>	
	<b>Loans: RD \$625,500 @ 5%</b>	
	<b>Project Does Not Result in Any New Customers</b>	
Water Sales		\$0
Late Charges		\$0
Other Service		\$0
Other Revenue		\$0
		<hr/>
Less Allowances and Deductions		\$0
		<hr/>
Total Operating Income		<b>\$0</b>
		<hr/>
B. Operation and Maintenance Expenses:		
	(Based on Uniform System of Accounts prescribed by	
	National Association of Regulatory Utility Commissioners)	
Source of Supply Expense		\$0
Pumping Expense		\$0
Water Treatment Expense		\$0
Transmission and Distribution Expense		\$0
Customer Accounts Expense		\$0
Administrative and General Expense		\$0
		<hr/>
Total Operating Expenses		<b>\$0</b>
		<hr/>
Net Operating Income		<b>\$0</b>
		<hr/>
C. Non-Operating Income:		
Interest Income		\$0
Interest Expense		\$0
		<hr/>
Total Non-Operating Income		<b>\$0</b>
		<hr/>
D. Net Income		<b>\$0</b>
		<hr/>
E. Debt Repayment:		
RD Interest		(\$31,275)
RD Principal		(\$5,807)
Non-RD Interest		\$0
Non-RD Principal		\$0
		<hr/>
Total Debt Repayment		<b>(\$37,082)</b>
		<hr/>
F. Balance Available for Coverage and Depreciation		<b>(\$37,082)</b>
		<hr/>
G. Required Coverage @ 10%		<b>(\$3,708)</b>
		<hr/>
H. Surplus (Deficit)		<b>(\$40,790)</b>
		<hr/>



XXVI. FUTURE OPERATING BUDGET - (WATER - IMPROVEMENTS)

(1st Full Year Of Operation)

Year Ending

12/31/2016

A. Operating Income:	<b>No Rate Increase</b>	
	<b>Grants: RD \$187,650</b>	
	<b>Loans: RD \$437,850 @ 5%</b>	
	<b>Project Does Not Result in Any New Customers</b>	
Water Sales		\$0
Late Charges		\$0
Other Service		\$0
Other Revenue		\$0
		<hr/>
Less Allowances and Deductions		\$0
		<hr/>
Total Operating Income		<b>\$0</b>
		<hr/>
B. Operation and Maintenance Expenses:		
	(Based on Uniform System of Accounts prescribed by	
	National Association of Regulatory Utility Commissioners)	
Source of Supply Expense		\$0
Pumping Expense		\$0
Water Treatment Expense		\$0
Transmission and Distribution Expense		\$0
Customer Accounts Expense		\$0
Administrative and General Expense		\$0
		<hr/>
Total Operating Expenses		<b>\$0</b>
		<hr/>
Net Operating Income		<b>\$0</b>
		<hr/>
C. Non-Operating Income:		
Interest Income		\$0
Interest Expense		\$0
		<hr/>
Total Non-Operating Income		<b>\$0</b>
		<hr/>
D. Net Income		<b>\$0</b>
		<hr/>
E. Debt Repayment:		
RD Interest		(\$21,892)
RD Principal		(\$4,065)
Non-RD Interest		\$0
Non-RD Principal		\$0
		<hr/>
Total Debt Repayment		<b>(\$25,957)</b>
		<hr/>
F. Balance Available for Coverage and Depreciation		<b>(\$25,957)</b>
		<hr/>
G. Required Coverage @ 10%		<b>(\$2,596)</b>
		<hr/>
H. Surplus (Deficit)		<b>(\$28,553)</b>
		<hr/>



### Replacement Reserves - Short Lived Assets

Type of Reserve	User Description	Replacement Cost	Reserve on Hand	Annual Reserve
1-5 Years	Computer Equipment	$\$4,000 \div 5 =$		\$800
1-5 Years				
1-5 Years				
Subtotal 1-5 Years				<u>\$800</u>
5-10 Years	1 Dump Truck	$\$20,000 \div 10 =$		\$2,000
5-10 Years	1 Backhoe	$\$20,000 / 10 =$		\$2,000
5-10 Years	8 Pickup Trucks	$\$15,000 \times 8 \div 10 =$		\$12,000
Subtotal 5-10 Years				<u>\$16,000</u>
10-15 Years	Tank Cleaning Program	$\$60,000 \div 15$		\$4,000
10-15 Years	Tank Painting Program	$\$50,000 \div 15$		\$3,333
10-15 Years				
Subtotal 10-15 Years				<u>\$7,333</u>
Replacement Reserve - Short Lived Assets				<u>\$24,133</u>

$$\$24,133 \div 12 \text{ months} = \$2,012 / \text{mo}$$