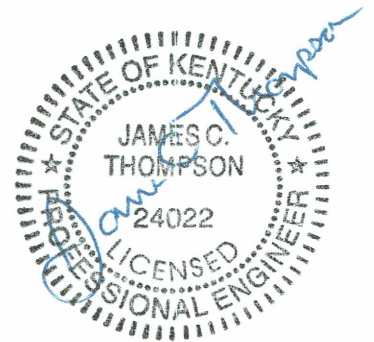
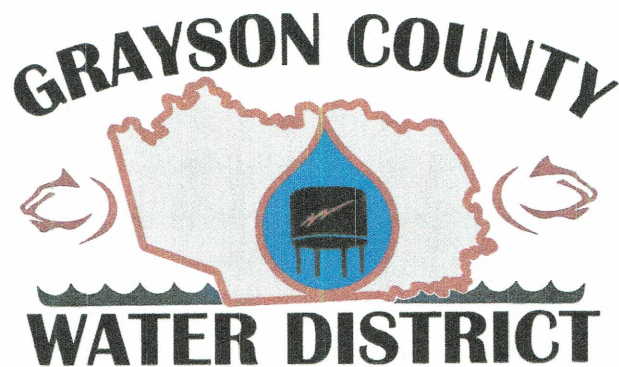


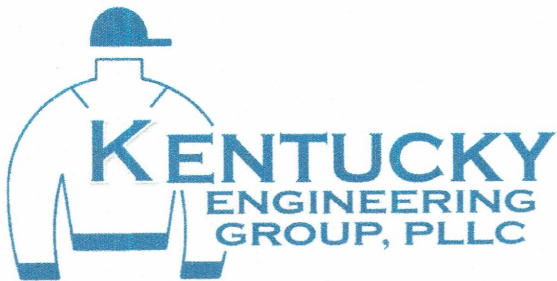
FINAL ENGINEERING REPORT

East – West Interconnect Project Phase 2 – Contracts 5, 6, & 7



Grayson County Water District

Leitchfield, Kentucky



Kentucky Engineering Group, PLLC

P.O. Box 1034

Versailles, Kentucky 40383

February 2023

KEG Project No. 20016

**GRAYSON COUNTY WATER DISTRICT
FINAL ENGINEERING REPORT
EAST/WEST INTERCONNECT PROJECT – PHASE 2**

I. GENERAL

The Grayson County Water District (GCWD) was formed by a group of visionaries with the idea of safe affordable drinking water for the rural areas of Grayson County in 1969. Fiscal Court passed a resolution officially creating the Grayson County Water District and in 1974 the district began providing water to the county.

The early stages of the District were more centered on the nucleolus of the City of Leitchfield which was where the District purchased the water it delivered to its customers. The first lines had been placed east of Leitchfield to Clarkson and towards Big Clifty, west towards Millwood and south towards Shrewsbury. Early records show that at the close of the year 1976 the District had 357 services, and 22 miles of line. The average customer used an average of 2,449 gallons of water each month at a cost of \$9.82. The Water District had assets of \$576,390.00 and annual sales of \$51,554.

Today the Water District has over 6,900 services, 563 miles of main water line, approximately 44 miles of service line, eight water storage tanks, seven booster pump stations, and 14 pressure regulator stations. The average residential customer usage is now 3,150 gallons per month at a cost of \$34.32. The Water District now has assets of \$22,882,081 and annual sales of \$3,460,578.00.

For more than thirty years the Water District purchased all its water from Leitchfield Utilities, with rapid growth and expansion it became necessary for the Water District to secure a larger water source and the decision was made to build a water treatment plant of their own. In early 2000, the Board began plans for a water plant and in July 2002 they began treating approximately 60% of the water needed for the customers of the Grayson County Water District. Contracts are still in place today with Leitchfield Utilities for up to 950,000 gallons of water per day, and the Water District can treat up to 2,100,000 gallons of water per day for a total available 3,050,000 gallons per day.

Today purchased water from Leitchfield Utilities serves GCWD's customers in the eastern part of Grayson County, Brandenburg Rd, and Annetta Rd. areas. The remaining areas of the County are served by its own plant. The Water District has an average daily consumption of 1,100,000 gallons per day and peak daily consumption of 1,800,000. The Water District also has connections with Butler County, Edmonson County, Ohio County and Hardin County Water District 2, for emergency back-up use. Approximately half of the current consumption, 550,000 to

900,000 gallons per day, is purchased from the Leitchfield Utilities and the rest is served by the District's own Water Treatment Plant.

II. PROJECT PLANNING AREA

A. Location

The GCWD is in west central Kentucky in Grayson County. Except for the City of Leitchfield, the GCWD serves the majority of Grayson County. A map of the GCWD's service area is located at the end of this report.

"Grayson County occupies an upland area that includes parts of the Mississippian Plateaus Region west of the Dripping Springs Escarpment and the eastern edge of the Western Kentucky Coal Field. Much of the area is characterized by flat-topped, sandstone-capped ridges. This flat appearance is broken by occasional knobs and ridges rising above the general plateau level and valleys incised 150 to 200 feet into the upland. Karst features such as sinking streams, sinkholes, and springs are present locally in the eastern part of the county.

The highest elevations are found in the eastern part of the county, and the elevations of the upland ridges gradually decline to the west. The highest point in the county is on Buzzard Ridge, about 3 1/2 miles southwest of Millerstown, where an elevation of 963 feet is recorded. Slopes between streams and the adjacent plateau in the head waters areas are generally steep, in some places precipitous, reflecting resistant rock units capping the uplands.

The Rough River and its tributaries form the northern boundary of Grayson County. The lowest elevation is approximately 395 feet, at the point where the Rough River leaves the county. Rough River Lake, a flood-control facility on the Rough River, has a normal pool elevation of 495 feet and a flood-pool elevation of 524 feet.

Nolin Lake on the Nolin River marks part of the southern border of the county. It has a normal pool elevation of 515 feet and a flood-pool elevation of 560 feet. Leitchfield, the county seat, has an elevation at the courthouse of approximately 750 feet. The elevations of other communities are Big Clifty, 752 feet; Caneyville, 490 feet; Clarkson, 730 feet; Millerstown, 589 feet; Millwood, 673 feet; Peonia, 778 feet; Shrewsbury, 660 feet; and Spring Lick, 460 feet." *Information sourced from <http://www.uky.edu/KGS/water/library/gwatlas/Grayson/Topography.htm>*

B. Environmental Resources

The major components of this project involve improvements to the water treatment plant, replacing existing lines and looping of lines and extending one new line. Since much of the project is at the water treatment plant and on existing facilities few adverse environmental impacts are anticipated. No known historic sites are noted at this time in the planning area.

C. Growth Areas and Population Trends

A quick review of the census information shows a consistent increase in the population over the last forty years. Since the establishment of the GCWD, the population of Grayson County has continued to grow at roughly 1.12% per year, with the largest growth in the 1970s and 1990s. The GCWD has outpaced population growth with an average growth of 7.9% over roughly the same period. In large part by expanding the service area of the District through capital improvement projects. The population projections for Grayson County are shown below.

Population:

1970	1980	1990	2000	2010	2020* Est
16,445	20,854	21,050	24,053	25,746	28,800

III. EXISTING FACILITIES

A. Location Map

A map of the county showing the extent of the water system is located at the end of this report.

B. History

The GCWD system was originally formed in the mid 1970's. Originally GCWD purchased all its water from the City of Leitchfield, Kentucky. Numerous water line extension and infrastructure projects have been developed over the past 40 years to establish the current GCWD customer base which serves approximately 98% of Grayson County. This includes the construction of GCWD's own Water Treatment Plant facility capable of producing 2.1 MGD of treated water to its customers.

C. Condition of Facilities

GCWD currently purchases an average of 550,000 to 900,000 gallons a day from the Leitchfield Utilities. However, recent water quality issues with purchased water have been unsatisfactory and unacceptable. This has forced GCWD to investigate and pursue options on improving distribution of water from its own plant. The WTP has ample capacity to replace purchased water with the construction of key East/West interconnects with GCWD's system.

D. Financial Status

As with most utilities across the country, the GCWD continues to see operating expenses rise. Major contributing factors include fuel, pension, and health insurance expenses. These tend to be the expenses that have seen the largest

increase over recent years. Because the GCWD covers a vast geographic area, the fuel cost has had a tremendous impact on cash flow.

IV. NEED FOR THE PROJECT

A. Health and Safety

The proposed project consists of:

- Add UV to the WTP for Crypto removal
- Upgrade high service pumps
- Add a 3rd GAC vessel
- The 40% of its customer base that relies on water from the City of Leitchfield will be changed over to water from the GCWD WTP. This will eliminate the chronic problem with THM's with the City's water.
- Water lines will be replaced or constructed on: Salt River Road – due to the existing line being too small for the demand; KY 259 North – necessary to make connection with GCWD water source; Duff Road – due to the existing line being too small for the demand; Bypass – new line to serve currently unserved area; and cross country – new line to make connection to the GCWD water source.
- Looping of water lines to improve water quality on KY 259, Bypass, and cross country from KY 259 North to KY 54.
- Installation of security fencing at the WTP and installation of security cameras and a radio intercom at the WTP.
- SCADA will be installed as part of the UV installation at the WTP.

B. System O&M

The proposed project will enable the GCWD to move all its customers over to its water instead of purchasing water from Leitchfield which has had THM problems that have not been resolved. The water lines to be replaced and looped are necessary to make connections with the GCWD water connection, replace too small line for demand and improve water quality.

V. ALTERNATIVES CONSIDERED

The only alternative for the interconnect project Phase 2 is no change to the current distribution system. There are approximately 40 percent of the GCWD customer base that are currently served by Leitchfield Utilities. These improvements are needed to move them to the GCWD WTP source.

VI. PROPOSED ALTERNATIVE

The proposed project consists of:

- Add UV to the WTP for Crypto removal
- Upgrade high service pumps
- Add a 3rd GAC vessel
- Change over the remaining 40 percent of the customers to GCWD water.
- Water lines will be replaced or constructed on: Salt River Road, KY 259 North, Duff Road and cross country from KY 259 North to KY 54.
- Installation of security fencing at the WTP and installation of security cameras and a radio intercom at the WTP.
- SCADA will be installed as part of the UV installation at the WTP.

Mapping of these locations are included on attached exhibits to this report.

The total project cost is shown on the detailed Preliminary Project Cost Estimate located at the end of the report.

It is expected that the GCWA will institute a rate increase with this project.

VII. PROJECT BUDGET AND FINANCING

The project was advertised for construction bids on December 23, 2022 with a bid opening for Contracts 5 and 6 of January 19, 2023 and February 1, 2023 for Contract No. 7. There were seven bidders on Contract 5 – Water Storage Tank Rehabilitation Project, five bidders on Contract 6 – Water Distribution System Improvements Project, and five bidders on Contract 7 – Water Treatment Plant Improvements Project.

The low/responsive/responsible bidder on Contract 5 – Water Storage Tank Rehabilitation was Currens Construction Services of Harrodsburg, Kentucky with a low bid of \$695,600. There was a lower bid by Preferred Sandblasting and Painting of Shelbyville TN; however, they did not quote the specified coating system and references were not favorable. Therefore, Kentucky Engineering Group, PLLC recommends to the District that it go to the second low bidder which is Currens. Kentucky Engineering has worked with Currens and has found them to be a responsible and responsive bidder and contractor. Therefore, a letter of recommendation was provided to the District.

The low bidder on Contract 6 – Water Distribution System Improvements – was Cleary Construction of Tompkinsville, Kentucky with a bid of \$8,584,309.50. This was after BP Pipeline withdrew their bid; stating that they made several errors in their bid. Kentucky Engineering Group, PLLC has worked with Cleary Construction and has found them to be a responsible and responsive bidder and contractor. Therefore, a letter of recommendation was provided to the District.

The low bidder on Contract 7 – Water Treatment Plant Improvements – was Scott & Ritter of Bowling Green, Kentucky with a bid of \$1,631,780. Kentucky Engineering Group, PLLC has worked with Scott & Ritter and has found them to be a responsible and responsive bidder and contractor. Therefore, a letter of recommendation was provided to the District.

All three Contracts were above the engineers estimate for the project, however, the District has obtained additional funding for the project through a Drinking Water State Revolving Loan therefore the District will proceed with the project and accept the bids as recommended by Kentucky Engineering Group.

The funding available for the project consists of the following source:

Rural Development	\$6,530,000
Drinking Water SRF	<u>\$7,231,000</u>
Total:	\$13,761,000

The revised budget for the project is as follows:

Legal and Administrative	\$80,000
Land and Rights	\$250,000
Preliminary Engineering Report	\$20,000
Basic Engineering Services	\$404,000
Construction Inspection	\$235,000
Additional Services	\$70,000
Construction – Contract 5	\$695,600
Construction – Contract 6	\$8,584,310
Construction – Contract 7	\$1,631,780
Miscellaneous	\$699,141
Contingencies	<u>\$1,091,169</u>
Total	\$13,761,000

It is the recommendation of Kentucky Engineering Group, PLLC to proceed to the construction phase of this project after submittal of Rural Development post bid documents and proceed with the pre-closing and pre-construction conferences.

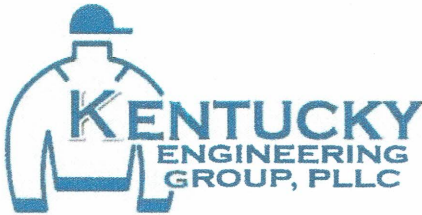
III. PROPOSED PROJECT SCHEDULE

The proposed project schedule is:

1. Contract Award – February 15, 2023
2. Initiate Construction – April 1, 2023
3. Substantial Completion
 - Contract 5 – 3/1/2024
 - Contract 6 – 5/30/2024
 - Contract 7 – 3/31/2024
4. Final Completion/Initiation of Operation – 5/30/2024

ATTACHMENTS:

1. Letter of Recommendations w/ Bid Tabulations – Contracts 5, 6, 7
2. Revised Project Budget



February 8, 2023

Mr. Jeremy Woosley, General Manager
Grayson County Water District
21 Shull White Road
Leitchfield, Kentucky 42754

Re: East - West Interconnect Project - Phase 2
Contract No. 5 - Water Storage Tank Rehabilitation Project
Contract No. 6 - Water Distribution System Improvements Project
Contract No. 7 - Water Treatment Plant Improvements Project
Grayson County Water District
Leitchfield, Kentucky
KEG Project No. 20016 & 20020

Dear Mr. Woosley:

The bid opening for Contract No. 5 and Contract No. 6 was held Thursday, January 19, 2023 and Contract No. 7 was held on Wednesday, February 1, 2023 at the offices of the Grayson County Water District at 11:00-am local time. Based on information received related to the bidding contractors we are making the following recommendation for award of the construction contracts.

Contract No. 5 - Currans Construction Services, LLC in the amount of \$695,600.00
Contract No. 6 - Cleary Construction, Inc. in the amount of \$8,584,309.50
Contract No. 7 - Scott & Ritter, Inc. in the amount of \$1,631,780.00

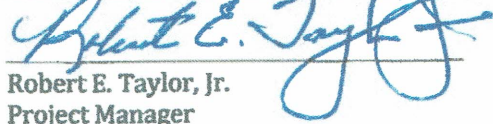
We have worked previously with these contractors, checked their references and prior experience and feel they are qualified to complete the construction contracts.

We will be scheduling the contract signing and pre-construction meetings for each contract once we receive approval from KIA and Rural Development.

If you have questions or need additional information, please contact me at our office at (859) 251-4127 or (859) 608-8927.

Sincerely,

KENTUCKY ENGINEERING GROUP, PLLC


Robert E. Taylor, Jr.
Project Manager

Pc:
Currans Construction Services, LLC
Cleary Construction, Inc.
Scott & Ritter, Inc.
Jeffrey Schuhmann, Rural Developmen

P.O. Box 1034
Versailles, Kentucky 40383
Phone: (859) 251.4127
Fax: (859) 251.4137
Email: info@kyengr.com
www.kyengr.com



BID TABULATION
 Contract No. 5 - Water Storage Tank Rehabilitation
 Grayson County Water District
 Grayson County, Kentucky
 REG Project No. 20020
 BID OPENING: January 19, 2023, 11:00 am local time

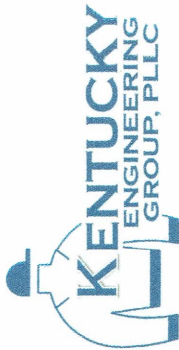
Item	Description	Quantity	Unit	Engineer's Estimate		Preferred Sandblasting & Painting, LLC		Currens Construction Services, LLC Harrodsburg, KY		Maguire Iron, Inc. Shuck Falls, SD		Tank Pro, Inc. Tuscaloosa, AL		Classic Protective Coatings, Inc. Columbus, KY		Viking Painting, LLC Harrodsburg, KY		Tankless, Inc. Fort Worth, TX		Average Bid Prices		
				\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit	Bid Amount	\$ / Unit
1	Rehabilitation of Invention Center Tank	1	LS	\$ 400,000.00	\$ 400,000.00	\$ 423,000.00	\$ 423,000.00	\$ 448,200.00	\$ 448,200.00	\$ 419,250.00	\$ 419,250.00	\$ 584,965.00	\$ 584,965.00	\$ 551,250.00	\$ 551,250.00	\$ 698,200.00	\$ 698,200.00			\$ 520,810.83	\$ 520,810.83	
2	Rehabilitation of Gascon Tank	1	LS	\$ 200,000.00	\$ 200,000.00	\$ 235,400.00	\$ 235,400.00	\$ 247,400.00	\$ 247,400.00	\$ 279,750.00	\$ 279,750.00	\$ 352,275.00	\$ 352,275.00	\$ 393,300.00	\$ 393,300.00	\$ 451,400.00	\$ 451,400.00			\$ 326,587.50	\$ 326,587.50	
	ACKNOWLEDGE ADDENDUM No. 1					YES	YES	YES	YES	YES	YES	YES	YES	YES	YES							
	ACKNOWLEDGE ADDENDUM No. 2					YES	YES	YES	YES	YES	YES	YES	YES	YES	YES							
	ACKNOWLEDGE ADDENDUM No. 3					YES	YES	YES	YES	YES	YES	YES	YES	YES	YES							
TOTAL CALCULATED BID AMOUNT					\$ 600,000.00		\$ 658,800.00		\$ 695,600.00		\$ 699,000.00		\$ 937,240.00		\$ 944,550.00		\$ 1,149,600.00				\$ 847,396.33	\$ 847,396.33

*Numbers in Red indicate errors in Contractor's Bid Amount Calculations

I certify that this is true and accurate tabulation of the bids.

The above is a true and complete tabulation of the bids received at 11:00 a.m. local time, Thursday, January 19, 2023 at the office of the Grayson County Water District, Leitchfield, Kentucky.

KENTUCKY ENGINEERING GROUP, PLLC
 By: *[Signature]*
 Robert E Taylor Jr.
 Project Manager



BID TABULATION
 Contract 7 - Water Treatment Plant Improvements
 Grayson County Water District
 Grayson County, KY
 KEG Project No. 20016

BID OPENING: Wednesday, February 1, 2023, 11:00 am CST

Item No.	Description	Quantity	Unit	Bid Amount	
1	Base Bid Contract Price	1	LS	\$ 1,631,780.00	\$ 2,436,000.00
TOTAL CALCULATED BASE BID AMOUNT				\$ 1,631,780.00	\$ 2,436,000.00
				Scott & Ritter, Inc. Bowling Green, KY	Smith Contractors, Inc. Lawrenceburg, KY
				PACE Contracting, LLC Louisville, KY	Herrick Company, Inc. Lawrenceburg, KY
				CJ Mahan Construction Comp Grove City, OH	Smith Contractors, Inc. Lawrenceburg, KY

KENTUCKY ENGINEERING GROUP, PLLC

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Ryan Carr

By: _____

Ryan Carr, PE

Grayson County Water District East-West Interconnect Phase 2

Non-construction cost

	Contract 5	Contract 6-7	Total
Planning		\$ 20,000.00	\$ 20,000.00
Design	\$ 47,000.00	\$ 340,000.00	\$ 387,000.00
bidding	\$ 5,000.00		\$ 5,000.00
Construction	\$ 12,000.00		\$ 12,000.00
Inspection	\$ 35,000.00	\$ 200,000.00	\$ 235,000.00
Other		\$ 70,000.00	\$ 70,000.00
	<u>\$ 99,000.00</u>	<u>\$ 630,000.00</u>	<u>\$ 729,000.00</u>
Land			\$ 250,000.00
Legal			\$ 60,000.00
Interim Financing			\$ 44,000.00
			<u>\$ 354,000.00</u>
			\$ 1,083,000.00
Construction Cost - As bid			
Contract 5			\$ 695,600.00
Contract 6			\$ 8,584,309.50
Contract 7			\$ 1,631,780.00
			<u>\$ 10,911,689.50</u>
Contingency	10%		\$ 1,091,168.95
Total Project Cost			\$ 13,085,858.45
KIA Loan			\$ 7,231,000.00
RD Financing			\$ 6,530,000.00
Total Funding Available			\$ 13,761,000.00
		Over/(Under)	\$ 675,141.55