

DORSEY, KING, GRAY, NORMENT & HOPGOOD
ATTORNEYS-AT-LAW

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HENDERSON, KENTUCKY 42420

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June 22, 2005

RECEIVED

JUN 23 2005

PUBLIC SERVICE
COMMISSION

Ms. Elizabeth O'Donnell
Executive Director
Public Service Commission of Kentucky
211 Sower Boulevard
Frankfort, Kentucky 40601

Case No. 2005-00238

Re: In the Matter of the Application of Henderson County
Water District for Issuance of Certificate of
Convenience and Necessity

Dear Ms. O'Donnell:

Enclosed for filing in the above matter please find the original and 10 copies of the application. You are requested to receipt stamp the attached cover page and return to the undersigned. Please provide me with the case number when it is known.

We request the Commission's expedited approval of this filing so that construction can be completed during the construction season this year.

Your assistance in this matter is appreciated.

Very truly yours,

DORSEY, KING, GRAY, NORMENT & HOPGOOD

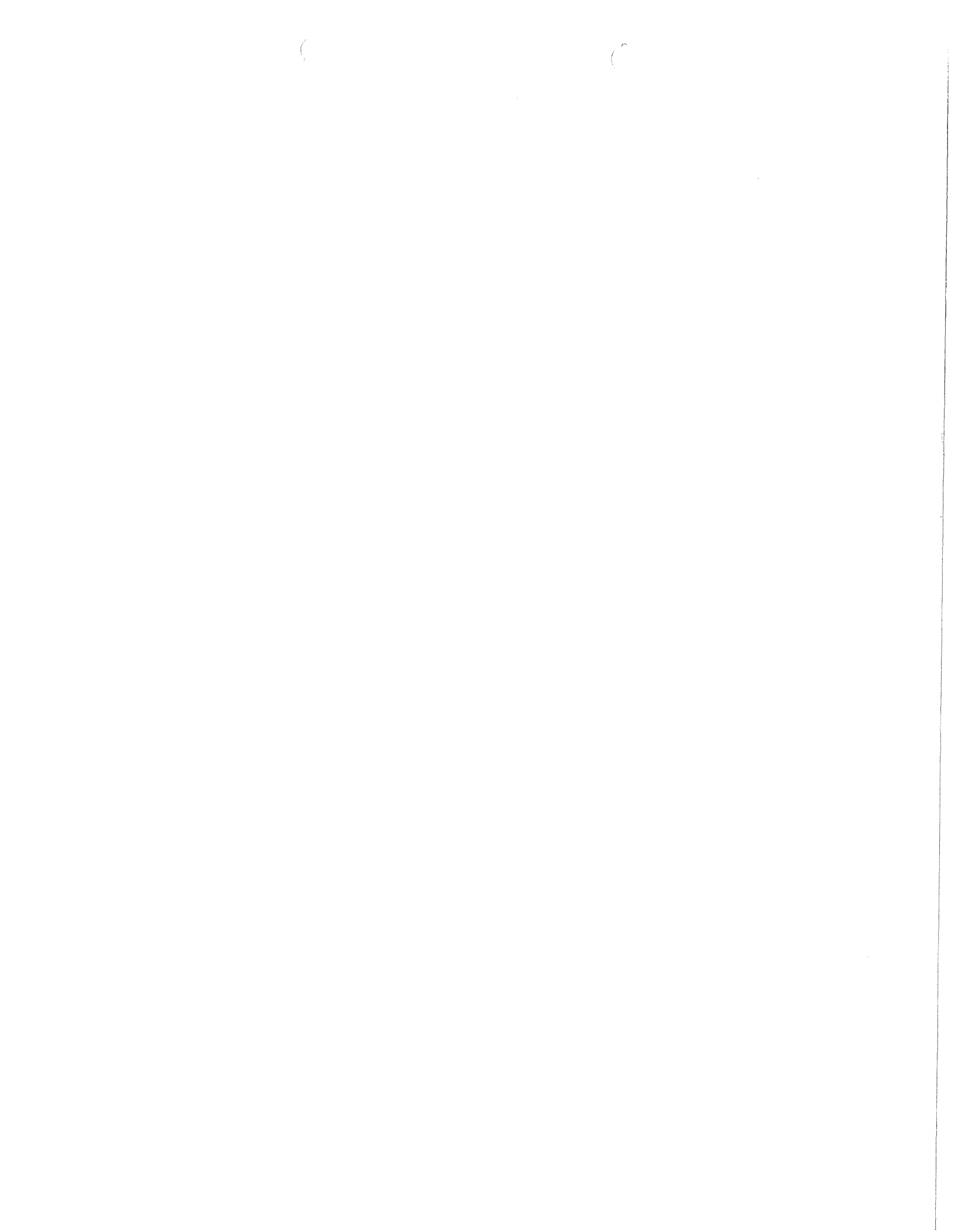
By


Frank N. King, Jr.

FNKJr/cds

Encls.

COPY/w/encls.: Henderson County Water District
Quest Engineers, Inc.



RECEIVED

COMMONWEALTH OF KENTUCKY
Before the Public Service Commission

JUN 23 2005

PUBLIC SERVICE
COMMISSION

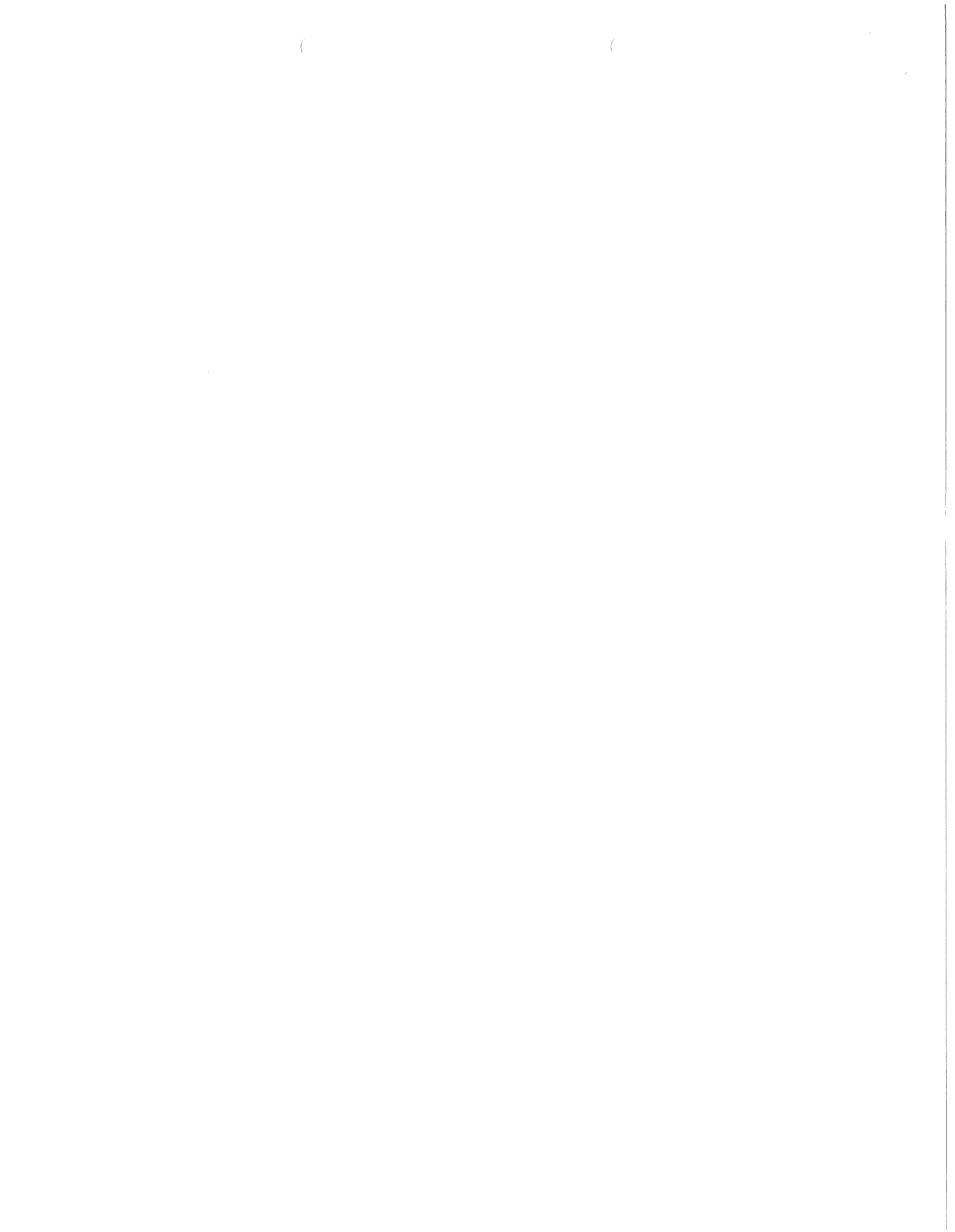
IN THE MATTER OF THE APPLICATION OF)
HENDERSON COUNTY WATER DISTRICT FOR)
ISSUANCE OF CERTIFICATE OF CONVENIENCE)
AND NECESSITY)

No. 2005-00238

APPLICATION

The application of **HENDERSON COUNTY WATER DISTRICT** respectfully shows:

(a) Applicant is a water district of Henderson and Webster Counties, Kentucky, created and existing under and by virtue of Chapter 74 of the Kentucky Revised Statutes, pursuant to a judgment of the County Court of Henderson County, Kentucky, duly entered on February 19, 1965. The borders of said Water District have been extended to include additional territories in Henderson County by order of Henderson County Court entered February 8, 1966, and in Webster County by order of the Webster County Court entered on February 14, 1966. Such judgment and order were previously filed with the Commission in Case No. 4696. Said water district includes the incorporated city of Corydon, Kentucky.



(b) The post office address of the applicant is Henderson County Water District, c/o Mr. David C. House, Chairman, Post Office Box 655, Henderson, Kentucky 42419-0655.

(c) The applicant seeks a certificate of convenience and necessity permitting it to construct water system improvements consisting of additions and improvements to its water works system (the "2005 Water System Improvements"). This construction project will cover approximately 27 miles with new or improved water lines and initially will provide water service to approximately 100 additional customers, with the potential of providing service to approximately 540 additional new customers after full build-out. New or improved water lines will be constructed along 24 different roads or highways in Henderson County. The homes and businesses in the new areas to be served are presently served only by private wells, cisterns and tank water with no treatment facilities. There is no public water supply available for domestic consumption or fire protection in said new areas, and existing water services are completely inadequate to serve present needs. The 2005 Water System Improvements project is needed to enable the applicant to maintain adequate pressure and reinforce the basic system. The proposed construction of new and improved water lines is in the best interest of the applicant, its present customers and potentially new customers. The applicant relies upon the foregoing

facts to show that the proposed new construction is or will be required by public convenience or necessity. 807 KAR 5:001, Section 9(2)(a).

(d) Applicant has entered into an agreement with Quest Engineers, Inc. (“Quest Engineers”) to provide engineering services for the 2005 Water System Improvements project. The construction work has been divided into two parts, “Package A” and “Package B.” Advertisements for sealed bids were duly published and upon bids being received, Quest Engineers has recommended awarding contracts to the following low bidders: J. S. Pipeline, Inc. for the Package A contract in the amount of \$574,151.40 and Ernie Davis and Sons Mechanical, Inc. for the Package B contract in the amount of \$628,584.80, for a total of \$1,202,736.20 for both contracts. Attached as “Exhibit 1” is Quest Engineers’ Recommendation of Award (bid tabulation not included). Applicant has approved this recommendation, subject to the Commission's approval herein. The Engineering Report for this project is attached as “Exhibit 2.”

(e) Franchises are not required for the proposed new construction or extension. A copy of the approval letter from the Kentucky Department for Environmental Protection, Division of Water, is attached as “Exhibit 3.” (This letter references “2003/2004 Water System Improvements;” however, the project is now referred to as 2005 Water System Improvements.) Application has been made for encroachment permits from the Kentucky Department of Transportation and CSX Railroad, but such permits have not yet been

received by applicant. Applicant has been assured that such permits will be duly issued, and upon request same will be forwarded to the Commission for filing herein after receipt by applicant. 807 KAR 5:001, Section 9(2)(b).

(f) A full description of the proposed location, route or routes of the new construction or extension including a description of the manner in which same will be constructed is set forth on the three (3) maps of suitable scale submitted herewith as “Exhibit 4.” Specifications are included as “Exhibit 5.” There are no public utilities, corporations or persons with whom the proposed new construction or extension is likely to compete, nor are there like facilities owned by others located anywhere within the map area. 807 KAR 5:001, Section 9(2)(c) and (d).

(g) The new construction or extension will be financed with grant awards from the Commonwealth of Kentucky, acting through the Kentucky Infrastructure Authority, which result from coal severance tax allocations. Since 2003 applicant has received grant awards totaling \$1,830,243.00 that are being applied to the subject construction project. This amount exceeds the estimated total project cost which is shown on page 3 of the Engineering Report, attached hereto as “Exhibit 2.” 807 KAR 5:001, Section 9(2)(e).

(h) Applicant’s cost of operation will be essentially the same after the proposed facilities are completed, as compared to its pre construction cost of operation. For

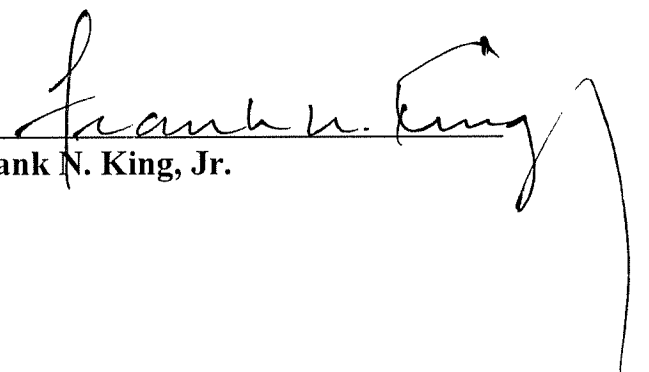
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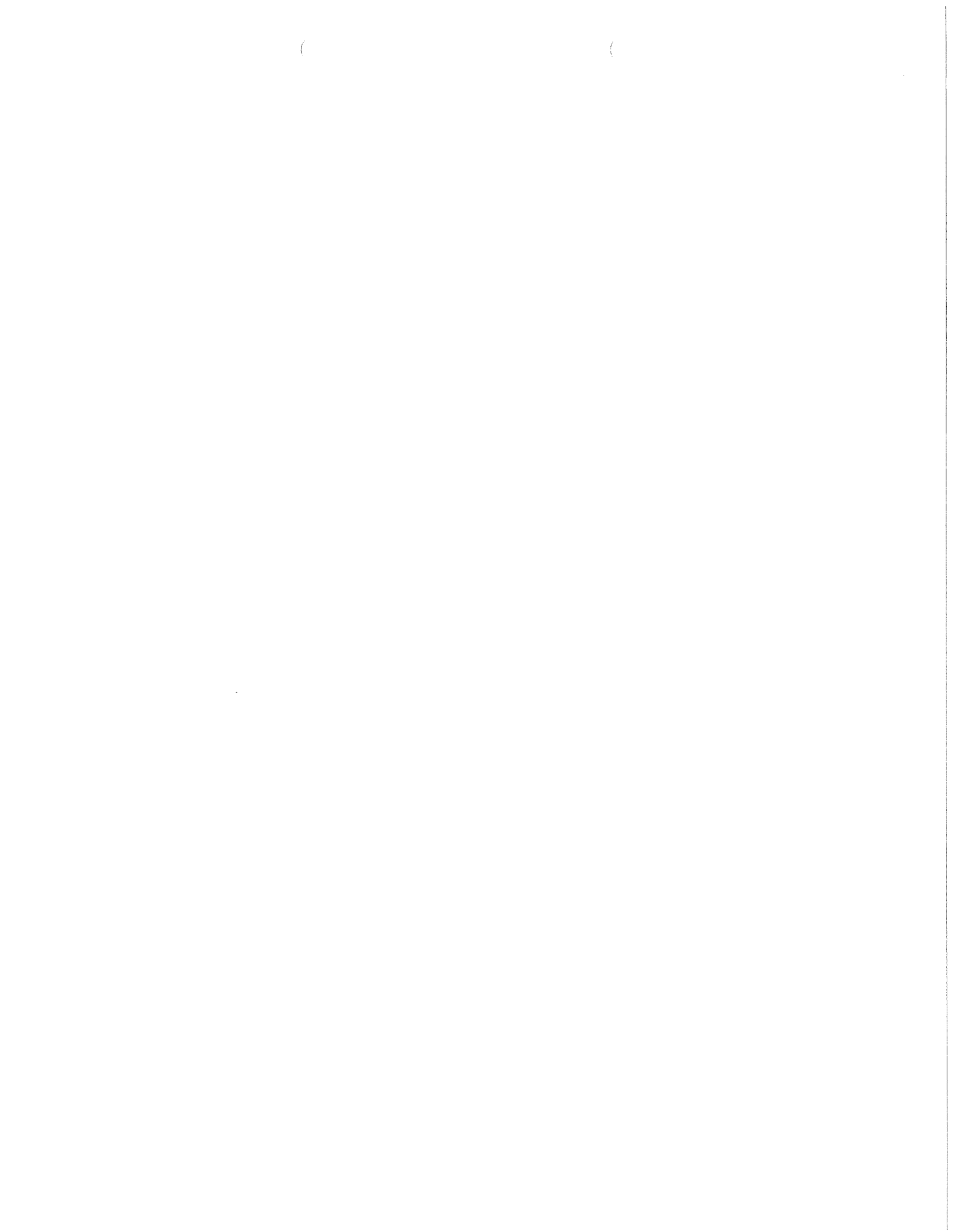
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instance, meter reading will require additional time, but applicant believes any actual increase in cost for this will be negligible. Certainly any increase in cost of operation will not result in any increased charges to applicant's customers. 807 KAR 5:001, Section 9(2)(f).

WHEREFORE the applicant, **HENDERSON COUNTY WATER DISTRICT**, respectfully requests issuance of a certificate of convenience and necessity for construction of the 2005 Water System Improvements and further requests all proper relief.

DORSEY, KING, GRAY, NORMENT & HOPGOOD
318 Second Street
Henderson, Kentucky 42420
Telephone 270 - 826-3965
Telefax 270 - 826-6672
Attorneys for Henderson County Water District

By .
Frank N. King, Jr.





May 31, 2005

Mr. Allan VanMeter, Superintendent
Henderson County Water District
655 South Main Street
Henderson, KY 42419

Re : Recommendation of Award
FY 2005 Water System Improvements

Dear Allan:

Quest Engineers, Inc.

• Lexington
2517 Sir Barton Way
Lexington, KY 40509
859-223-3755
859-223-3150 (Fax)

• Louisville
One Riverfront Plaza
401 West Main Street
Suite 500
Louisville, KY 40202
502-584-4118
502-589-3009 (Fax)

• Cincinnati
1251 Kemper Meadow Drive
Suite 600
Cincinnati, OH 45240
513-851-9774
513-851-9207 (Fax)

As you know, bids were received and opened publicly on May 26, 2005 for the referenced project. The project was broken in to two base bid components (Package A and Package B) which consisted of the installation of waterlines and appurtenances in the following areas:

Bid Package "A"

Ky 136
Burbank Road
KY 268
McDonald Landing Road
US 60 West
Jonesburg Road
Diamond Island Road
Center Street
Cairo Dixie Road

Bid Package "B"

Tscharner Road
Green River Road #2
KY 811
US 60 East
Peters Road/New Road
Reed Bluff City Road
Paul Haynes Road
Holloway Rucker Road
Zion-LaRue Road
Barren Church Road
Smith Denton Road
Royster Road Area/KY 283

Seven companies presented responsive bids for one or both of the packages detailed above. Nine math errors were present on the bids which were submitted. One of these errors was present on the low bid for Package "A". However, it did not change the bid results. Details of each of the corrected bids are included in the attached bid tabulation and the low bidders are identified below.

| <i>Item</i> | <i>Low Bidder</i> | <i>Amount</i> | <i>Number of Bids</i> |
|----------------------|--------------------|-----------------------|-----------------------|
| Bid Package A | JS Pipeline | \$574,151.40* | 7 |
| Bid Package B | Ernie Davis & Sons | \$628,584.80 | 5 |
| Total of Bids | | \$1,202,736.20 | |

* Notes Corrected Amount

EXHIBIT

tabbles

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We have checked the references of both the low bidders. JS Pipeline is a relatively new company and much of their previous work has been on subcontract. However, they have completed at least 2 projects as the prime contractor. All of the references we contacted indicated that their work was performed in an acceptable manner. Ernie Davis and Sons has worked previously with Quest. Their performance has been considered to be acceptable. Therefore, we have no reason to believe that either of the low bidders is not capable of completing the work. As such, we recommend the packages be awarded to each of the low bidders.

If the District agrees with our recommendation, we will notify the contractors and prepare the contract documents for execution. If you have any questions about this matter, please feel free to call me at (859) 223-3755.

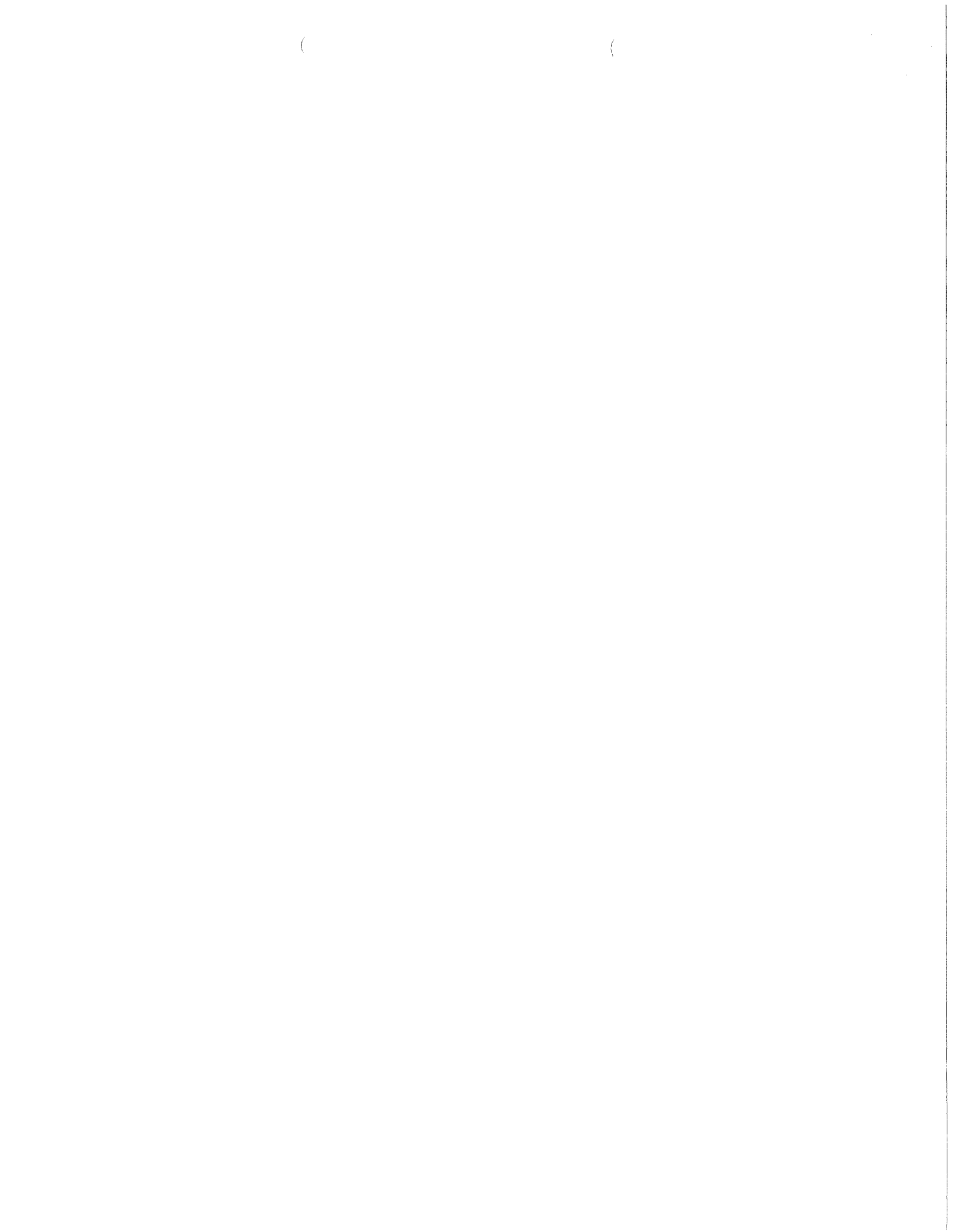
Kindest regards,

A handwritten signature in black ink, appearing to read 'Brent A. Tippey'. The signature is stylized with a large, looping 'B' and a horizontal line extending to the right.

Brent A. Tippey, P.E.
Project Manager

c: Sheryl Chino, GRADD

Attachments

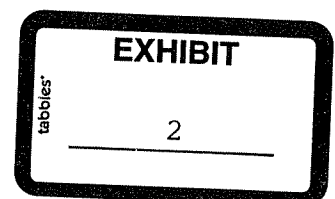


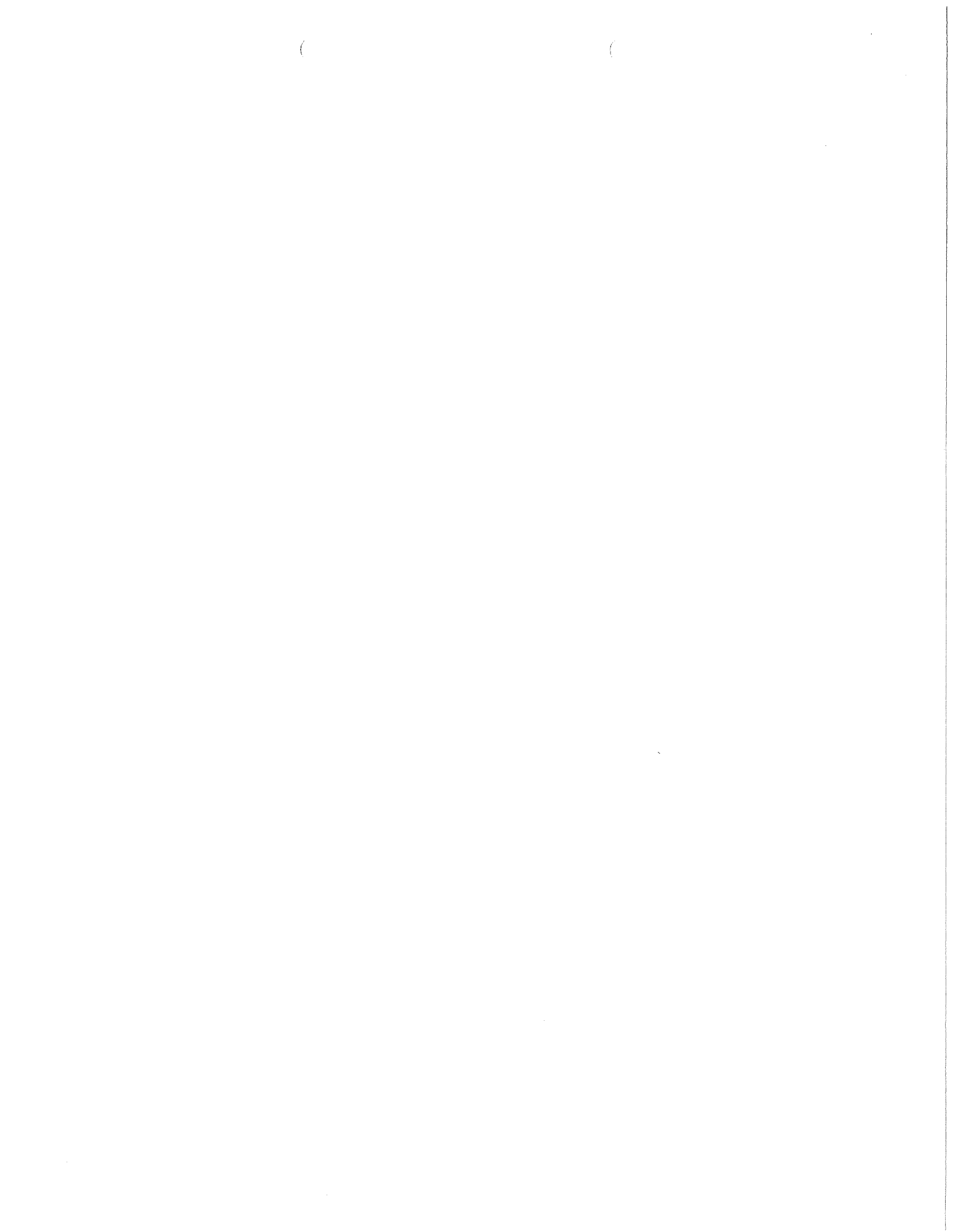
Engineering Report
2005 Water System Improvements
Henderson County Water District
Henderson, Kentucky

June 2005

Prepared by:

Quest Engineers, Inc.
401 W. Main Street, Suite 500
Louisville, Kentucky 40202
(502) 584-4118





Engineering Report

2005 Water System Improvements

Henderson, Kentucky

General Information

The Henderson County Water District, created under KRS Chapter 74 on October 24, 1964, serves all of Henderson County (outside the City of Henderson) and serves a small area in the northern portion of Webster County.

Existing Water System

Construction of water facilities for the Henderson County Water District (the "District") was completed in 1967 with service to the populated communities in Henderson County and portion of Webster County, Kentucky.

The District's latest water system improvements project was completed in 2004. This project consisted of the new installation and replacement of approximately 142,500 linear feet (26 miles) of 4-inch through 8-inch water main, with the potential to add 100 new customers.

Water Supply

The District's supply is from the Henderson Water Utility (HWU), which is overseen by the Henderson Water and Sewer Commission. The source of supply is from the Ohio River and water is treated at the North Plant in the central part of the city and the South Plant in the southeastern part of Henderson County. Water supply to the District is from seven master metering points around the city and spreading out to serve the entire District.

The District has a water purchase agreement with HWU to purchase up to 2.5 million gallons per day (MGD).

Pressure System/Storage

The District's system is made up of several pressure systems. The main pressure system (overflow elevation 635.0) provides flow and pressure to about 70 percent of the District's customers. Distribution storage is provided in four elevated water storage tanks and one standpipe, for a total storage of 1.2 million gallons. Supply to this system is provided through five booster pump stations at various locations around the city. The Reed pressure system employs a pressure-reducing valve from the main system to provide flow to the flat area on the east side of Green River. The west pressure system (overflow elevation 828.0)

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provides flow and pressure to about 20 percent of the District's customers. Distribution storage is provided by two elevated water storage tanks, for a total of 350,000 gallons. Other system operate directly on pressure from the City of Henderson.

Distribution System

The District's distribution system consists of approximately 325 miles of 2-inch through 12-inch AC, PVC, HDPE and DI water mains. The system consists of looped areas and dead end lines.

2005 Water System Improvements

The proposed Package A improvements consist of:

- Replacement of approximately 20,500 linear feet (3.9 miles) of existing 2-inch and 3-inch water mains with new 4-inch through 8-inch water lines.
- New installations into unserved areas of approximately 48,280 (9.1 miles) linear feet of 4-inch through 8-inch water lines.
- Installation of gate valves, flushing hydrants and fire hydrants.
- Multiple grid ties to the system to improve hydraulic, water quality and system reliability.

The proposed Package B improvements consist of:

- Replacement of approximately 4,400 linear feet of existing 2-inch to 3-inch water mains with new 4-inch through 8-inch water lines.
- New installation into unserved areas of approximately 70,890 linear feet (13.4 miles) of 4-inch through 8-inch water lines.
- Installation of gate valves, flushing hydrants and fire hydrants.
- Multiple grid ties to the system to improve hydraulic water quality and system reliability.

Projected Water Demand

Using a build-out density of 20 customers per mile, the projected number of new customers for the 27 miles is approximately 540. Using 300 gallons per day (gpd) per customer, the projected average day demand (ADD) at full build-out is 162,000 gpd. This equates to an 10.8 percent increase to the District's current

ADD of 1.5 MGD which is less than the 2.5 MGD capacity the District may purchase from the City of Henderson.

Hydraulic Modeling

Flow and pressure field data was collected in each of the improvement areas. The field testing consisted of obtaining flow and pressure (static and residual) readings at existing hydrants near the proposed improvements. This data, along with elevation information, was used to provide variable pressure supply points for the hydraulic model in each of the improvement areas.

PIPE2000 hydraulic modeling software was utilized to develop a pipe network for the improvement areas and run scenarios for peak hour demand and flushing demand. Peak hour demands were calculated by taking 10 times the square root of the number of customers ($Q_{\text{peak}} = 10 \times (\text{no. customers})^{1/2}$). Flushing demands to generate a flushing velocity of 2.5 feet per second were set at the end of the lines.

Results of the hydraulic analysis are include in the Kentucky Division of Water submittal (see attached).

Project Cost

The bid results and total project costs are summarized as follows:

| | |
|------------------------------|--------------------|
| Construction - Bid Package A | \$574,151 |
| Construction - Bid Package B | \$628,584 |
| Engineering | \$86,750 |
| Inspection | \$72,000 |
| Legal | \$10,000 |
| Administrative | \$10,000 |
| Priority Acquisition | \$10,000 |
| Contingency | <u>\$139,150</u> |
| TOTAL PROJECT COSTS | \$1,530,635 |

Financial

The District has received grant monies from Coal Development Funds which are in excess of the bid prices. No new debt service will be encumbered for this project and no new rate increases will be required.

Recommendations

The foregoing engineering report has been prepared for use by the District, the Kentucky Division of Water, and the Public Service Commission for review and approval. The proposed improvements are needed to:

- Protect the public health and welfare of the residents of Henderson County.
- Improve distribution system hydraulics of the District.
- Provide potable water service to unserved areas of Henderson County.

It is recommended that the District proceed forward with this project and arrange for financing.

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ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

14 REILLY ROAD

FRANKFORT, KENTUCKY 40601-1190

www.kentucky.gov

February 9, 2005

LAJUANA S. WILCHER
SECRETARY

Mr. Allan VanMeter, Superintendent
Henderson County Water District
PO Box 655
655 S Main St
Henderson, KY 42419-0655

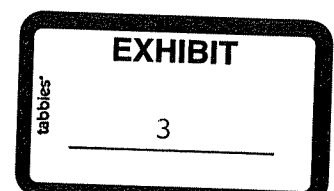
RE: Henderson County Water District, PWS--33919
DW #0510189-04-001
2003/2004 Water System Improvements
Activity ID # APE20040001
Henderson County

Dear Mr. VanMeter:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 40 feet of 2-inch PVC water line, 11,615 feet of 3-inch PVC water line, 46,845 feet of 4-inch PVC water line, 2,545 feet of 4-inch DI water line, 500 feet of 4-inch HDPE water line, 68,845 feet of 6-inch PVC water line, 1,855 feet of 6-inch DI water line, 272 feet of 6-inch HDPE water line, 17,750 feet of 8-inch PVC water line, and 440 feet of 8-inch HDPE water line. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the enclosed major construction permit.

Notwithstanding this approval, the section of water line along Tscharner Road between US 60 and Dr. Hodges Road has been designated as UNDERSERVED (due to maximum modeled flushing velocities in the proposed 6-inch line on the road being below 2.5 ft per second). Consequently, future line extensions from this section of Tscharner Road may be denied unless improvements are made to the existing infrastructure.


Additionally, please take extra care concerning water turnover/water quality in the proposed Burbank Road, McDonald Landing Road and US 60 (near the Daviess County line) water lines. The water lines in these areas are not looped and may have a small number of customers. Resulting low turnover of water in the lines could cause operational problems in your distribution system. As a result, the water quality in the referenced line extensions will require monitoring on a regular basis. See the enclosed major construction permit for additional details.



2003/2004 Water Sys. Improvements
DW #0510189-04-001
February 9, 2005
Page 2

Also, note that some minor changes and clarifications have been made to the submitted plans. These changes and clarifications have been made to improve sanitary features of the design and are indicated in red ink. If you have any questions regarding this correspondence, please contact Keith Metzker at 502/564-2225, extension 557.

Sincerely,

for 
Donna Marlin, Branch Manager
Drinking Water Branch
Division of Water

DM:MR:KM

C: Kevin J. Brian, Quest Engineers, Inc.
Henderson County H.D.
Webster County H.D.
Division of Plumbing
Madisonville Regional Office
Water Quality
Water Resources
Drinking Water Files

| | | |
|-------|-------------|---|
| PORT2 | Water Lines | 40 ft of 2" PVC, 11,615 ft of 3" PVC, 46,845 ft of 4" DI, 500 ft of 4" HDPE, 68,845 ft of 6" PVC, 1,855 ft of 6" DI, 272 ft of 6" HDPE, 17,750 ft of 8" PVC and 440 ft of 8" HDPE |
|-------|-------------|---|

Subject Item Groups:

| ID | Description | Components |
|-------|---|---|
| GACT2 | 40 ft of 2" PVC, 11,615 ft of 3" PVC, 46,845 ft of 4" DI, 500 ft of 4" HDPE, 68,845 ft of 6" PVC, 1,855 ft of 6" DI, 272 ft of 6" HDPE, 17,750 ft of 8" PVC and 440 ft of 8" HDPE | PORT2 40 ft of 2" PVC, 11,615 ft of 3" PVC, 46,845 ft of 4" DI, 500 ft of 4" HDPE, 68,845 ft of 6" PVC, 1,855 ft of 6" DI, 272 ft of 6" HDPE, 17,750 ft of 8" PVC and 440 ft of 8" HDPE |

| | |
|------------------|--------------------------|
| KEY | |
| ACTV = Activity | AIOO = Agency Interest |
| AREA = Area | COMB = Combustion |
| EQPT = Equipment | MONPT = Monitoring Point |
| PERS = Personnel | PORT = Transport |
| STOR = Storage | STRC = Structure |
| TRMT = Treatment | |

be implemented without the prior written approval of the Cabinet. [401 KAR 8:100 Section 1(8)]

S-3 The person who presented the plans shall submit the professional engineer's certification: Due when construction is complete to the Division of Water. The certification shall be signed by a registered professional engineer and state that the water project has been constructed and tested in accordance with the approved plans, specifications, and requirements. [401 KAR 8:100 Section 1(8)]

Distribution-Major Construction
Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Narrative Requirements:

Additional Limitations:

| Condition No. | Condition |
|---------------|--|
| T-1 | Additional Limitations: Chlorinated water resulting from disinfection of project components shall be disposed in a manner which will not violate 401 KAR 5:031. [401 KAR 8:020 Section 2(20)] |

| Condition No. | Condition |
|---------------|---|
| T-2 | This project has been permitted under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies. Further, this permit does not address the authority of the permittee to provide service to the area to be served. [401 KAR 8:100 Section 1(7)] |
| T-3 | Unless construction of this project is begun within 1 year from the issuance date of this permit, the permit shall expire. If requested prior to the permit expiration, an official extension from the Division of Water may be granted. If this permit expires, the original plans and specifications may be resubmitted for a new comprehensive review. If you have any questions concerning this project, please contact the Drinking Water Branch at 502/564-3410. [401 KAR 8:100 Section 1(9)] |
| T-4 | During construction, a set of approved plans and specification shall be available at the job site at all times. All work shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 1(7)(a)] |

Distribution-Major Construction

Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Page 3 of 8

PORT2 (Water Lines) 40 ft of 2" PVC, 11,615 ft of 3" PVC, 46,845 ft of 4" PVC, 2,545 ft of 4" DI, 500 ft of 4" HDPE, 68,845 ft of 6" PVC, 1,855 ft of 6" DI, 272 ft of 6" HDPE, 17,750 ft of 8" PVC and 440 ft of 8" HDPE:

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|--|
| L-1 | Depth | A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a Depth ≥ 6 in below the bottom of the pipe. [Recommended Standards for Water Works 8.5.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable. |
| L-2 | Depth | All water lines shall be covered to a Depth ≥ 30 in to prevent freezing. [Recommended Standards for Water Works 8.5.3, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |
| L-3 | Diameter | Except for the reconnection of the existing water line on KY 268 near McDonald Landing Road, all water lines shall have Diameter ≥ 3 in. [Recommended Standards for Water Works 8.1.4] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |
| L-4 | Diameter | Water lines with Diameter < 6 in shall not have fire hydrants. [Recommended Standards for Water Works 8.1.5] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |
| L-5 | Diameter | All new and existing water lines serving fire hydrants or where fire protection is provided shall have Diameter ≥ 6 in. [Recommended Standards for Water Works 8.1.2] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |
| L-6 | Distance | Water lines shall have a sufficient quantity of valves so that inconvenience and sanitary hazards will be minimized during repairs. A valve spacing Distance ≤ 1.0 mi should be utilized. [Recommended Standards for Water Works 8.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable. |
| L-7 | Distance | Hydrant drains shall not be connected to sanitary sewers or storm drains and shall be located a Distance > 10 ft from sanitary sewers and storm drains. [Recommended Standards for Water Works 8.3.4] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable. |

Distribution-Major Construction

Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| L-8 | Distance | <p>Except when not practical, water lines shall be laid a horizontal Distance ≥ 10 ft from any existing or proposed sewer. The distance shall be measured edge to edge.</p> <p>In cases where it is not practical to maintain a 10 foot separation, water lines may be installed closer to a sewer provided that the water lines shall be laid in a separate trench or on an undisturbed shelf located on one side of the sewer at such an elevation that the bottom of the water line is at least 18 inches above the top of the sewer. [Recommended Standards for Water Works 8.6.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p> |
| L-9 | Distance | <p>When water lines and sewers cross,</p> <ol style="list-style-type: none">1) water lines shall be laid such that the bottom of the water line is a vertical Distance ≥ 18 in above the top of the sewer line,2) 1 full length of the water pipe shall be located so that both joints of the water pipe will be as far from the sewer as possible, and3) special structural support for the water and sewer pipes may be required. [Recommended Standards for Water Works 8.6.3] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable. |
| L-10 | Distance | <p>The open end of an air relief pipe from automatic valves shall be extended a Distance ≥ 1.0 ft above grade and provided with a screened, downward-facing elbow. The pipe from a manually operated valve shall be extended to the top of the pit. Use of manual air relief valves is recommended wherever possible. [Recommended Standards for Water Works 8.4.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p> |
| L-11 | Pressure | <p>Pipes shall not be installed unless all points of the distribution system remain designed for ground level Pressure ≥ 20 psi under all conditions of flow. [Recommended Standards for Water Works 8.1.1] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p> |
| L-12 | Pressure | <p>Pressure ≥ 30 psi must be available on the discharge side of all meters. [401 KAR 8:100 Section 4(2)] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.</p> |

Distribution-Major Construction

Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Limitation Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------------------|---|
| L-13 | Residual Disinfection | New or relocated water lines shall be thoroughly disinfected (in accordance with AWWA Standard C651) upon completion of construction and before being placed into service. To disinfect the new or relocated lines use chlorine or chlorine compounds in such amounts as to produce an initial disinfectant concentration of at least 50 ppm and a Residual Disinfection \geq 25 ppm at the end of 24 hours. Follow the line disinfection with thorough flushing and place the lines into service if, and only if, Coliform monitoring applicable to the line does not show the presence of Coliform. If Coliform is detected, repeat flushing of the line and Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the line has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [401 KAR 8:150 Section 4(1), Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |
| L-14 | Velocity | Except in underserved areas, each fire or flush hydrant shall be sized so that Velocity \geq 2.5 ft/sec can be achieved in the water main served by the hydrant during flushing. Based on the hydraulic analysis/data submitted, the area between US 60 and Dr. Hodges Road along Tscharnier Road is considered to be underserved. This designation indicates that without improvements to the existing infrastructure, future extensions may not be able to provide the required minimum pressure of 30 psi on the discharge side of customers' meters. Without improvements to the infrastructure, future extensions may be denied. The underserved designation may be used to help prioritize areas under the Governor's 2020 plan for funding future infrastructure improvements. [Recommended Standards for Water Works 8.1.6.b, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum. |

Monitoring Requirements:

| Condition No. | Parameter | Condition |
|---------------|-----------|---|
| M-1 | leaks | The presence or absence of leaks monitored by physical testing as needed shall be determined in all types of installed pipe. Pressure testing and leakage testing shall be in accordance with the latest edition of AWWA Standard C600. [Recommended Standards for Water Works 8.5.5] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination. |

Distribution-Major Construction

Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Narrative Requirements:

Asbestos (Friable):

| Condition No. | Condition |
|---------------|--|
| T-1 | <p>Asbestos (Friable): If the existing water line to be tapped is asbestos concrete, then the contractor shall conform to OSHA regulations governing the handling of hazardous waste during the process of tapping the asbestos concrete line. Pieces of asbestos concrete resulting from the tap shall be double bagged, placed in a rigid container and disposed of in an approved landfill. [401 KAR 8:100 Section 1(7)]</p> |

Additional Limitations:

| Condition No. | Condition |
|---------------|---|
| T-2 | <p>Additional Limitations: Water line installation shall be in accordance with AWWA standards or manufacturer recommendations. [Recommended Standards for Water Works 8.5.1]</p> |
| T-3 | <p>Additional Limitations: Pipes, fittings, valves and fire hydrants shall conform to the latest standards issued by the AWWA or NSF (if such standards exist). PVC and PE piping used must be certified to ANSI/NSF Standard 61. [Recommended Standards for Water Works 8.0.1]</p> |
| T-4 | <p>Additional Limitations: At high points in water lines, where air can accumulate, provisions shall be made to remove the air by means of hydrants or air relief valves. Automatic air relief valves shall not be used in situations where manhole or chamber flooding may occur. [Recommended Standards for Water Works 8.4.1]</p> |
| T-5 | <p>Additional Limitations: All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.5.4]</p> |
| T-6 | <p>Additional Limitations: For lines that dead end, a fire hydrant shall be required at the end of each 6 inch or larger diameter line and a flush hydrant shall be required at the end of each line that is less than 6 inches in diameter. [Recommended Standards for Water Works 8.1.6]</p> |
| T-7 | <p>Additional Limitations: For each fire or flush hydrant, auxiliary valves shall be installed in the hydrant lead pipe. [Recommended Standards for Water Works 8.3.3]</p> |

Distribution-Major Construction
Henderson Co Water District
Facility Requirements

Activity ID No.: APE20040001

Narrative Requirements:

Additional Limitations:

| Condition No. | Condition |
|---------------|---|
| T-8 | <p>Additional Limitations: No flushing device, blow-off, or air relief valve shall be directly connected to any sewer. Chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any storm drain or sanitary sewer. Such chambers, pits or manholes shall be drained to absorptions pits underground or to the surface of the ground where they are not subject to flooding by surface water. [Recommended Standards for Water Works 8.1.6, Recommended Standards for Water Works 8.4.3]</p> |
| T-9 | <p>Additional Limitations: If water lines are installed or replaced in areas of organic contamination or in areas within 200 ft of underground or petroleum storage tanks, ductile iron or other nonpermeable materials shall be used in all portions of the water line installation or replacement. [401 KAR 8:100 Section 1(5)(d)6, Recommended Standards for Water Works 8.0.2]</p> |
| T-10 | <p>Additional Limitations: No water pipe shall pass through or come in contact with any part of a sewer manhole. [Recommended Standards for Water Works 8.6.6]</p> |
| T-11 | <p>Additional Limitations: If a fire sprinkler system is to be installed, a double check detector assembly approved for backflow prevention shall be utilized. The double check detector assembly of the system shall be accessible for testing. [401 KAR 8:100 Section 1(7)]</p> |
| T-12 | <p>Additional Limitations: If water lines cross a stream or wetland, the provisions in the attached Water Quality Certification shall apply. If you have any questions please contact the Water Quality Certification Supervisor at 502-564-3410. [401 KAR 8:100 Section 1(7)]</p> |
| T-13 | <p>Additional Limitations: Since the proposed water lines along Burbank Road, McDonald Landing Road, and US 60 (near the Daviess County line) may have a small number of customers, water turnover/water quality problems may result. Therefore, the water quality in these line extensions shall be monitored on a regular basis and appropriate corrective action, including but not limited to flushing at 2.5 feet per second, shall be taken as required. [401 KAR 8:100 Section 1(7)]</p> |

Distribution-Major Construction
Henderson Co Water District
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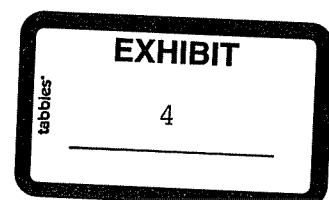
Narrative Requirements:

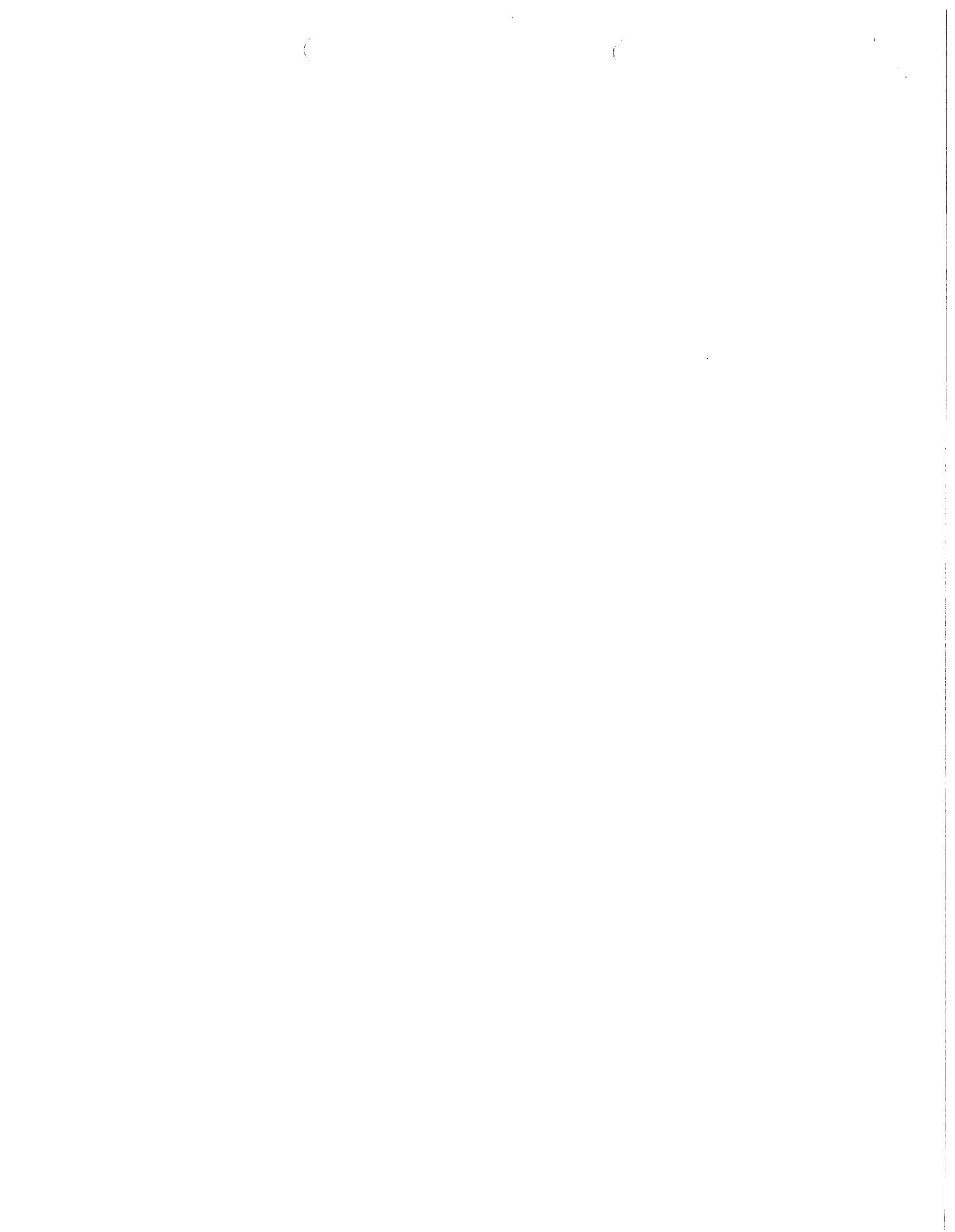
Subfluvial Pipe Crossings:

| Condition No. | Condition |
|---------------|--|
| T-14 | <p>Subfluvial Pipe Crossings: For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met.</p> <ol style="list-style-type: none">1) No material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings.2) Crossing trenches shall be backfilled as closely as possible to the original contour.3) All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain.4) For erodible channels, there shall be at least 30 inches of backfill on top of all pipe or conduit points in the crossing.5) For nonerodible channels, pipes or conduits in the crossing shall be encased on all sides by at least 6 inches of concrete with all pipe or conduit points in the crossing at least 6 inches below the original contour of the channel. [401 KAR 8:100 Section 1(7)] |
| T-15 | <p>Subfluvial Pipe Crossings: For subfluvial pipe crossings greater than 15 feet in width,</p> <ol style="list-style-type: none">1) the pipe shall be of special construction, having flexible, restrained, or welded watertight joints, and2) valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair. <p>Valves shall</p> <ol style="list-style-type: none">a) be easily accessible,b) not be subject to flooding, andc) if closest to the supply source, be in a manhole with permanent taps made on each side of the valve to allow insertion of a small meter to determine leakage and for sampling purposes. [Recommended Standards for Water Works 8.7.2] |

HENDERSON COUNTY WATER DISTRICT
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Exhibit 4 contains three (3) copies of 2005 Water System Improvements maps.
Because of size Exhibit 4 is filed herewith separately.





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Exhibit 5 contains three (3) copies of Specifications for 2005 Water System Improvements project. Because of size Exhibit 5 is filed herewith separately.

