

CAWOOD WATER DISTRICT

**RESPONSE TO COMMISSON STAFF'S FIRST REQUEST
FOR INFORMATION TO CAWOOD WATER DISTRICT**

CASE NO. 2021-00150

QUESTION NO. 1

Responding Witness: Kenneth D. Taylor, PE

Q-1. Referring to the Order entered on December 13, 2022, ordering paragraph two, and the informal conference memorandum filed on September 20, 2019 [sic 2021], explain the circumstances that have caused the Water Loss Reduction Plan by Kenvirons to not be filed.

Response:

We have been in continuing discussions with Cawood Water District regarding the Water Loss Reduction Plan, planned major capital improvements and the continuing actions they are taking outside the surcharge capital improvements to be funded since the Informal conference and are just now finalizing a plan of action.

RESPONSE TO COMMISSON STAFF'S FIRST REQUEST
FOR INFORMATION TO CAWOOD WATER DISTRICT
CASE NO. 2021-00150
QUESTION NO. 2

Responding Witness: Kenneth D. Taylor, PE

**Q-2. PROVIDE A DATE BY WHICH THE WATER LOSS REDUCTION PLAN BY
KENVIRONS WILL BE FILED WITH THE COMMISSION.**

Response:

2. The Water Loss Reduction Plan will be included with this response on December 8,
2023

INFRASTRUCTURE IMPROVEMENT PLAN

**CAWOOD WATER DISTRICT
54 PLANT ROAD
P. O. BOX 429
CAWOOD, KENTUCKY 40815**

Prepared by

Kenvirons

DECEMBER 2023

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ATTACHMENTS

Attachment A – Boundary Map and WRIS Systems Maps

Attachment B – Cawood System Map

1.0 Introduction

Purpose and Background

The primary purpose of this document is to layout a plan of action with a goal of reducing the Cawood Water District's (CWD) water loss to an acceptable level hopefully below the industry standard of 15%.

In September 2020 CWD filed an Alternative Rate Filing application for a rate adjustment pursuant to 807 KAR 5:076 (Case No. 2020-00311). Due to CWD's unacceptably high unaccounted for water loss, in its final order under that case the Public Service Commission (PSC) authorized CWD to assess a monthly Water Loss Reduction Surcharge of \$1.12 per meter per month for 48 months to help fund its unaccounted-for water loss reduction efforts. Also as part of that case the PSC ordered CWD to file with the PSC a qualified infrastructure improvement plan.

CWD's water system started operations in 1988 with the construction of the water treatment plant and distribution system serving primarily the community of Cawood and immediately surrounding area. Shortly thereafter the water treatment plant was expanded and since then the distribution system has been extended multiple times to include almost all of southern Harlan County. Connections have also been made to the Harlan Municipal Water Works and Pineville Water System. The Harlan Municipal Water Works connection is used to supply water on an emergency basis when there are issues with the Cawood system and the Pineville Water System connection is used to supply water to the Pathfork area on the southwest side of the county. The Pathfork system functions as a separate distribution system and is not interconnected with the Cawood system. Included in Attachment A are a map of Harlan County with CWD's boundary indicated and maps with the Cawood and Pathfork distribution systems indicated. Include in Attachment B is a larger more detailed map of the Cawood distribution system. Currently the Cawood system serves 1,429 customers and the Pathfork system serves 150.

The bulk of the unaccounted for water loss occurs in the Cawood system both from a percentage and quantity perspective. The unaccounted water loss in the Pathfork system has historically been near or below 15%, hence this plan will focus mainly on the Cawood system.

General Facilities Information

The Cawood system consists of a 300 gpm water treatment plant, five (5) storage tanks, three (3) booster pump stations, one (1) emergency master meter, and approximately 440,000 linear feet of distribution mains varying in size from

two (2) inch to 12 inch. A hydraulic model map of the Cawood system is included herein in Attachment B.

The Pathfork system consists of a master meter, one (1) booster pump station, one (1) standpipe storage tank and approximately 31,000 linear feet of distribution mains varying in size from three (3) inch to six (6) inch.

2.0 Water Loss Prevention and Leak Detection Program

IN-PLACE ROUTINE PROCEDURES-ACTIVITIES

1. **METER TESTING AND REPLACEMENT:** Customer meters are replaced and or tested on the following schedule or sooner:
 - A. 5/8" x3/4" and 1" meters – every 10 years.
 - B. 2" meters – every 3 years.
 - C. 3" meters – every 2 years.
 - D. 4" and larger meters and the Pathfork master meter – every year.All faulty meters are replaced as soon as possible.
2. **METER READING:** To the extent possible, all customer meters are read at approximately the same time each month to ensure that any inconsistencies are identified. This can prevent staff from searching for leaks in the District's distribution lines that do not exist. This is also a customer courtesy/service.
3. **PATHFORK MASTER METER:** The Pathfork master meter is read at approximately the same time each day, the daily usage determined and recorded in a log book and then compared to previous readings to catch any inconsistencies. (The Pathfork master meter is connected to the District's SCADA system.)
4. **RECORDING DATA:** Daily and monthly records are kept and reviewed for the following:
 - A. Pump station run times,
 - B. Storage tank turnover, and
 - C. Estimated water losses from line breaks, tank overflows, known theft, hydrant usage and other un-metered water usage such as system flushing.
5. **MONTHLY MEETINGS:** The District's manager conducts monthly meetings with all personnel to discuss the seriousness of water loss and potential measures to reduce water loss. The District's manager discusses water loss with the District's board of commissioners each month at their regular meeting.
6. **FIELD PERSONNEL RESPONSIBILITIES:** All field personnel immediately report to the manager any suspected water leaks, tank overflows, telemetry problems, or other concerns that are presently, or could result in water loss. Appropriate actions are then directed by the manager to address the issue.

7. **OFFICE/PLANT PERSONNEL RESPONSIBILITIES:** All office/treatment plant personnel immediately report any public reported leaks, tank overflows, pressure issues, or other issues to the manager. Appropriate actions are then directed by the manager to address the issue.
8. **REPLACEMENT OF SERVICE LINES:** The service lines in the initial Cawood system have been problematic from day one and are being replaced (not just repaired) on an individual basis as issues are found.
9. **INSERTION OF MAIN LINE VALVES:** When main lines are severed to repair leaks in areas that do not have enough operable valves, as part of the repair valves are inserted into the main. As of December 2023 seven (7) valves have been placed in the system under this scenario: three on KY 3001, two (2) on KY 1137, one (1) on Nola Street and one (1) on Plant Road. These valves were purchased thru the District's normal operating funds.
10. **LEAK DETECTION:** As normal system operations permit, district personnel are assigned to after-hours (11:00 p.m. to 3:00 a.m.) leak detection shifts when customer usage is minimal. This allows personnel to go valve to valve with a listening device and to by-pass meters to detect abnormal flows.
11. **OUTSIDE CONSULTANTS:** As circumstances dictate outside consultants such as the Kentucky Rural Water Association are utilized to assist with leak detection.

3.0 Surcharge Funded Capital Improvements

The following plan of action is subject to change as funding and conditions warrant. Potential revisions might include the purchase of a portable flow meter or a listening device.

1. **GATE VALVE REPLACEMENT:** Almost all of the gate valves in the initial Cawood distribution system are non-functional as are some in the rest of the system and need to be replaced. Initially approximately six (6) of the valves will be prioritized to be replaced with Inserta Valves in the original Cawood system at an average estimated cost of \$8,000 each. The gate valve replacements including installation are estimated to range from a low of \$1,000 each to a high of \$8,500 depending on the size of the valve and the installation method. On the low end would be a 3" valve installed in conjunction with a leak repair and the high end would be for an 8" Inserta Valve. The installation of the initial six valves is planned for completion by March 31, 2024 and will take approximately half of the

funds anticipated from the surcharge. Additional conventional valves maybe purchased for insertion into the system as part of leak repairs.

2. **INTERNAL MASTER (ZONE) METERS:** Three internal zone meters are planned for the following locations: mouth of Catron Creek, on KY 987 above the water treatment plant and on KY 1137 above Carl Street. The installation of these meters is anticipated to cost approximately \$12,000 each and will be installed after the necessary gate valve installations are completed. A fourth zone meter is planned with the major capital improvement project described in section 4.0 below.
3. **LEAK DETECTION (BY-PASS) METERS:** As funding allows at the end of the surcharge collection, additional leak detection meters will be installed in the distribution system where they do not currently exist on side lines and at stream crossings. These meters will be installed by district personnel with the materials anticipated to cost approximately \$750 each.

4.0 Proposed Major Capital Improvement Project

Project Description

The project will replace the existing eight-inch transmission main along KY 3001 from Curve Road to KY 990 (approximately 3 miles). Appurtenances will include an internal master (zone) meter, pressure reducing station, valves, blow-offs, etc.

Need for Project

Over the years this section of waterline has experienced numerous breaks resulting in an unacceptable number of outages to the customers along and below the area and contributed significantly to the District's water loss.

Cost Estimate

Administrative	\$ 10,000
Engineering and Inspection	\$ 55,800
Construction	\$ 267,000
Contingency	\$ 27,444
Total	\$ 360,244

Anticipated Funding

KIA Cleaner Water Grants	\$ 360,244
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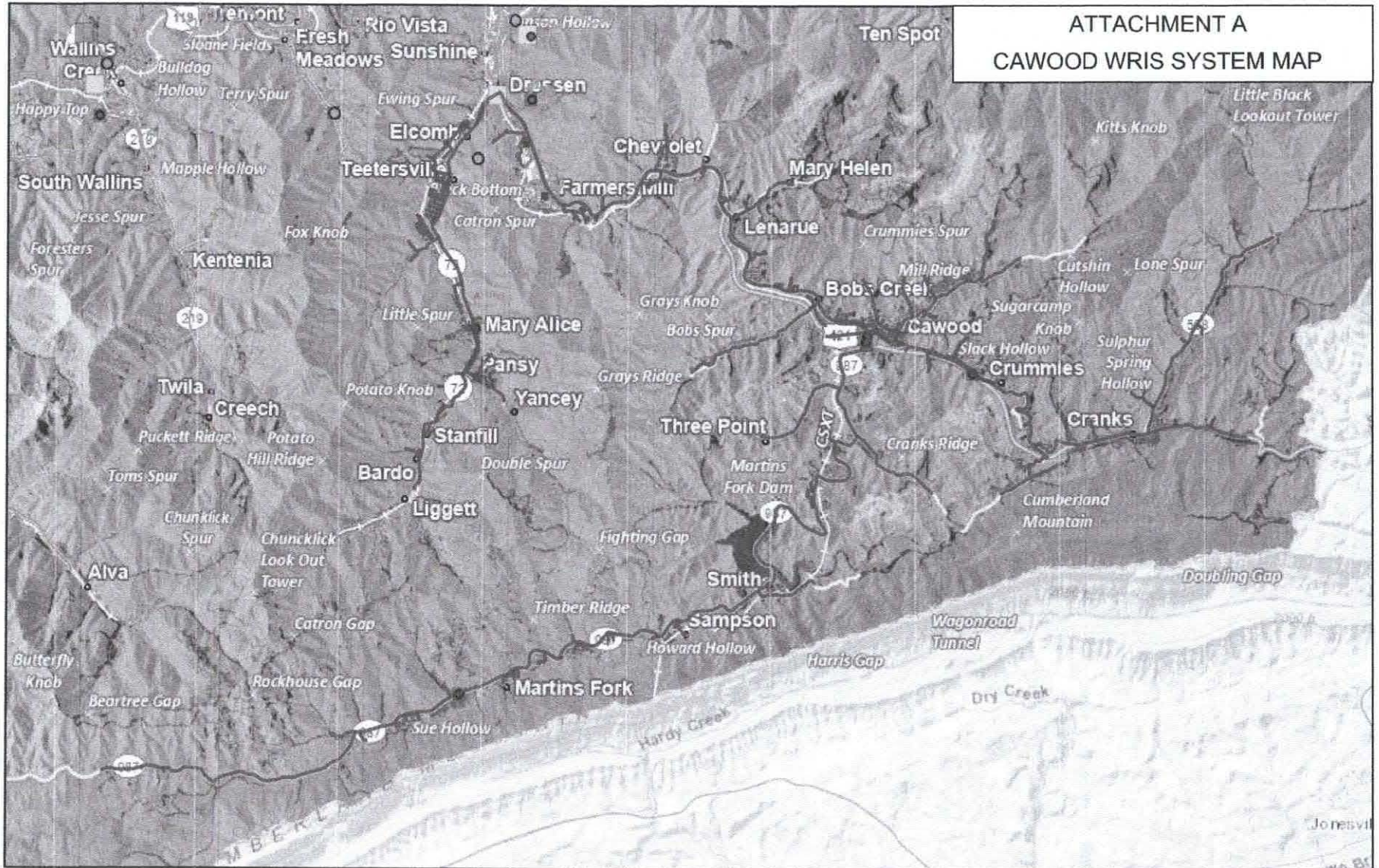
Anticipated Timeline

Design, Permitting, Bidding	March 31, 2024
Construction Start	April 30, 2024
Completion of Construction	August 31, 2024

ATTACHMENT A
BOUNDARY AND WRIS SYSTEM MAPS

ArcGIS Web Map

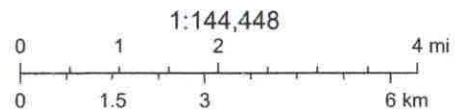
ATTACHMENT A CAWOOD WRIS SYSTEM MAP



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- Water Lines
- Proposed Water Extensions
- Well Sources
- Water Treatment Plants
- Water Tanks
- Pump Stations

INFRASTRUCTURE IMPROVEMENT PLAN CAWOOD WATER DISTRICT HARLAN COUNTY, KENTUCKY

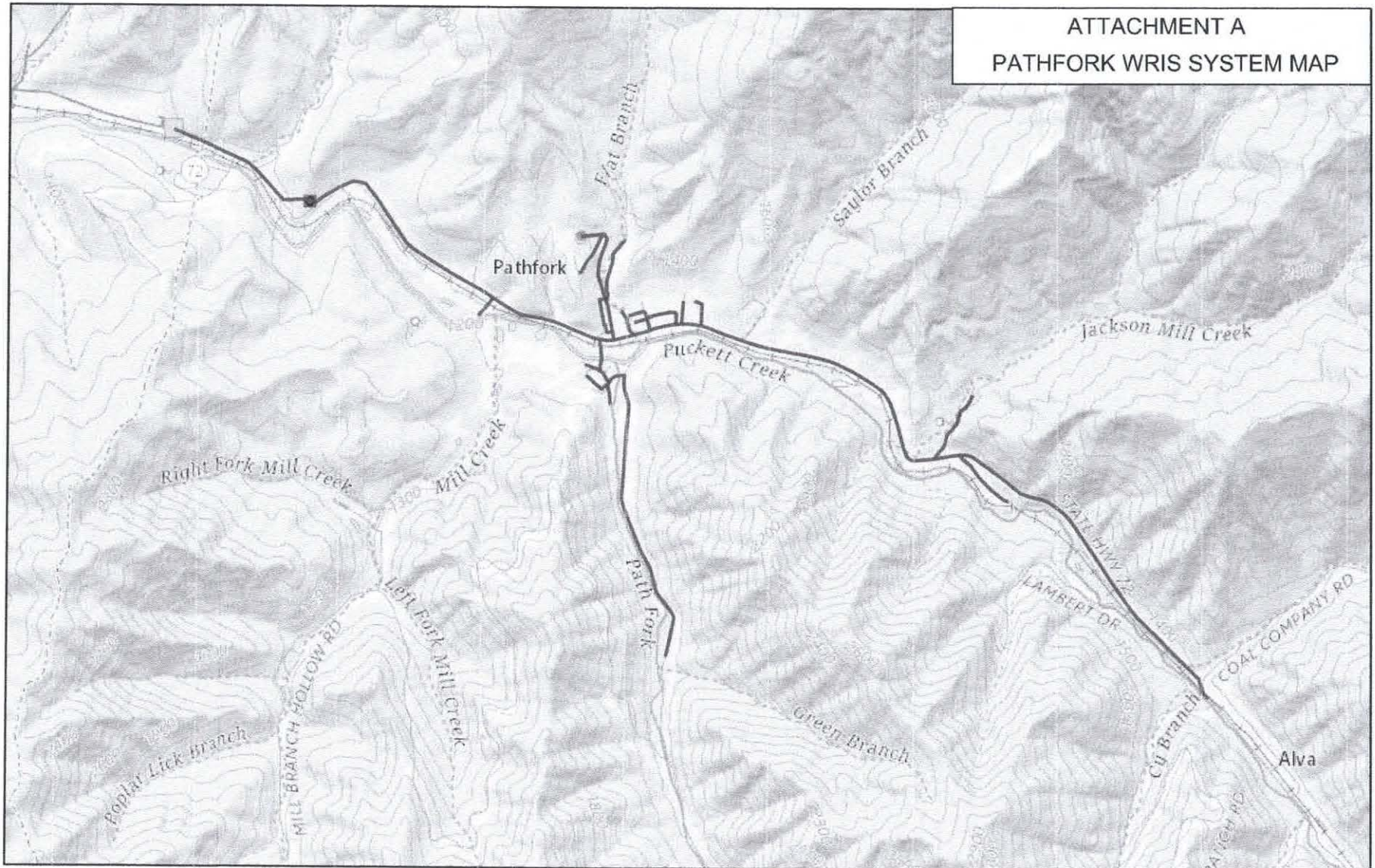


VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS, Kentucky Infrastructure Authority (KIA), Kentucky Division of Geographic Information

Web AppBuilder for ArcGIS

ArcGIS Web Map

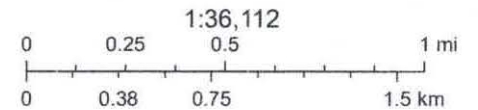
ATTACHMENT A PATHFORK WRIS SYSTEM MAP



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- Water Lines
- Proposed Water Extensions
- Well Sources
- Water Treatment Plants
- Water Tanks
- Pump Stations

INFRASTRUCTURE IMPROVEMENT PLAN CAWOOD WATER DISTRICT HARLAN COUNTY, KENTUCKY



Kentucky Infrastructure Authority (KIA), USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

Web AppBuilder for ArcGIS

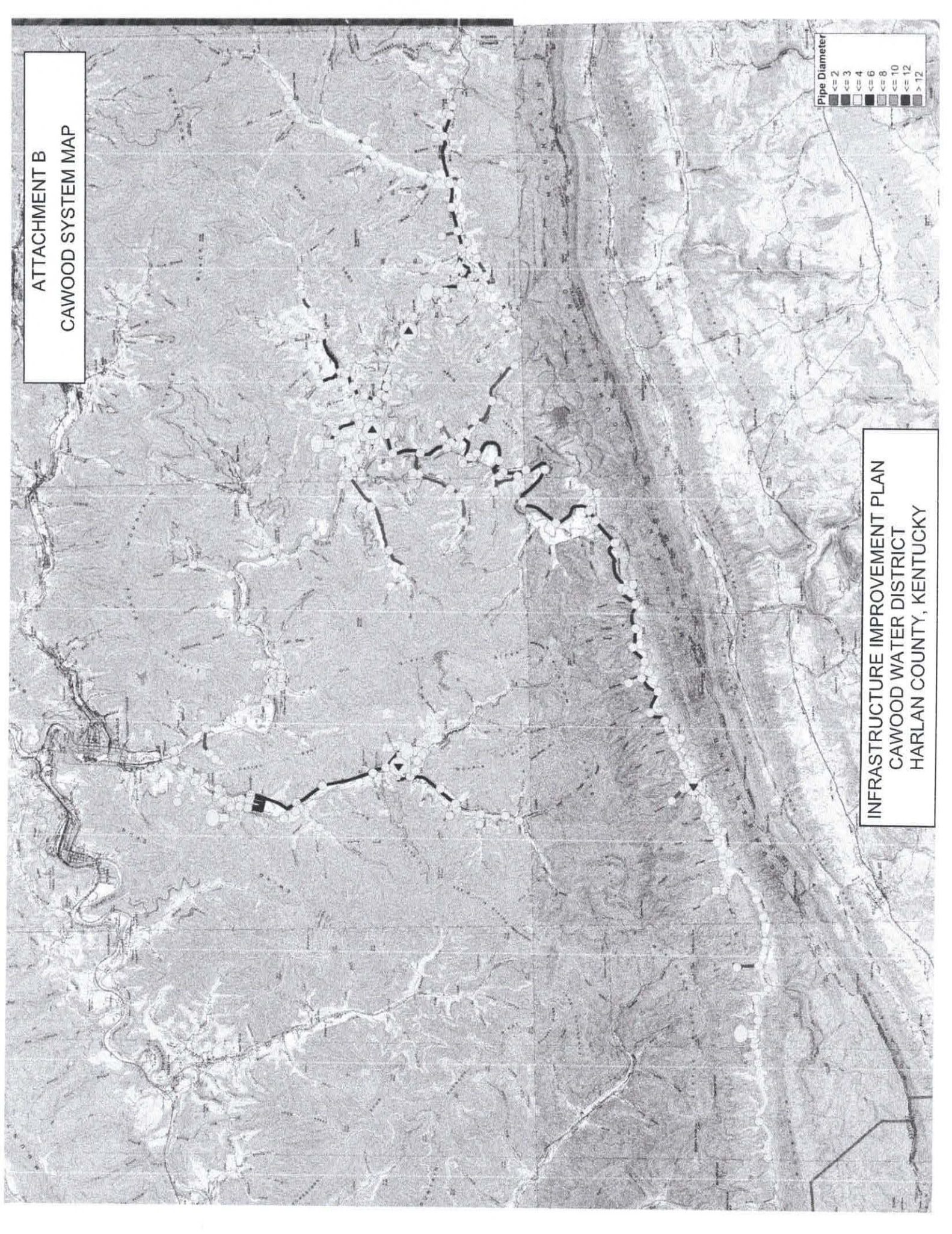
ATTACHMENT B
CAWOOD SYSTEM MAP

ATTACHMENT B
CAWOOD SYSTEM MAP

Pipe Diameter

◼	≤ 2
◼	≤ 3
◼	≤ 4
◼	≤ 6
◼	≤ 8
◼	≤ 10
◼	≤ 12
◼	> 12

INFRASTRUCTURE IMPROVEMENT PLAN
CAWOOD WATER DISTRICT
HARLAN COUNTY, KENTUCKY



VERIFICATION

COMMONWEALTH OF KENTUCKY)

) SS:

COUNTY OF FRANKLIN)

The undersigned, KENNETH D. TAYLOR, P.E., being duly sworn, deposes and states he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and that the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Kenneth D. Taylor, P.E.
KENNETH D. TAYLOR, P.E.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 8th day of December 2023.

Wendy Gombert (Seal)

Notary Public

My Commission Expires: 11-9-27

Notary ID: KYNP 82393