

THE AUTOMATION & PIPELINE CONVERSION OF THE RIDGE CANAL

APPLICANT:

KANSAS BOSTWICK IRRIGATION DISTRICT
528 MAIN STREET
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**Letter of Support from Kansas Water Office
Letter of Support from Bostwick Irrigation District in Nebraska
Letter of Support from Irrigator Dennis Lauritzen**

Appendix #4

Rubicon Quote

Appendix #5

MOA #18AG630082 w/ Attachment B

Executive summary

Date: October 30th, 2024 **Applicant Name:** Kansas Bostwick Irrigation District
City: Courtland **County:** Republic **State:** Kansas

Kansas Bostwick Irrigation District (KBID), a **Category A applicant**, headquartered in Courtland, KS will install automated gate structures on the initial 3.9 miles of the Ridge Canal, and convert the final 2.1 miles of this earthen canal to polyvinyl chloride pipe (PVC). This project will address seepage, evapotranspiration, and operational spill losses, along with more precise control of overall canal flow resulting in better service to irrigators. The project is expected to realize annual water savings of **865 acre-feet** and result in higher elevations and capacity stored in Lovewell Reservoir and Harlan County Reservoir each year. This project is expected to take 2 years to complete with a conclusion date of June 1st, 2027. The proposed project takes place within the boundaries of KBID which is a Bureau of Reclamation Irrigation District.

Project Location

The Ridge Canal headgates are located in Jewell County, Kansas and are approximately 3.8 miles east of Webber, KS. The project latitude is 39°56'N and longitude is 97°57'W. The first automated structure on the site will be located at Station 16+00 on the Ridge Canal or approximately 0.3 miles downstream of the headgates. The proposed location of the initiation point of the new pipeline will be located at Station 206+28.50 on the Ridge Canal or approximately 3.9 miles downstream of the headgates.



Project Description

This will be a combination Canal Piping & Supervisory Control and Data Acquisition and Automation (SCADA) project that will compliment a previous Small-Scale WaterSMART grant project completed in 2021 in which the Ridge Canal headgates were automated. This previous automation project involved the installation of two Rubicon SlipMeters that have proven very reliable with accurate flow measurement and ease of use over the past several irrigation seasons. This project will continue the automation of the remaining open portion of the Ridge Canal with the installation of automated gates at eight check structures, real time operational spill measurement and the installation of 11,000 feet of pipe.

Supervisory Control and Data Acquisition and Automation (SCADA) piece

At each of the eight existing check structure locations, Rubicon FlumeGates will be installed. The FlumeGate is a combined flow measurement and control gate designed specifically for open canal application such as the Ridge Canal. The FlumeGates will provide precise level and flow control at each site with the power supply and radio telecommunications fully integrated. Some civil modifications to the existing check structures will be required at each site to accommodate the FlumeGates. These modifications include extending the concrete wingwalls at each site between 12" & 27". Some additional minor concrete work will be required to allow for the installation of the control pedestals needed at each site for local control and monitoring as well as communication needs. All of the needed civil modifications will be done by KBID's field crew. KBID staff and excavator operators will also assist Rubicon field technicians during the Flume Gate installation itself. In addition to the eight FlumeGate installs, remote operational spill measurement equipment will be installed at the new terminal end of the open portion of the canal at the same location the pipeline will begin. The operational spills will be tracked and transmitted in real-time using Rubicon's FlumeLink monitoring pedestal, OpenAir sensor and boom assembly.

Canal Piping piece

The canal to pipeline conversion portion of this project will commence at initiation point 206+28.5 on the Ridge Canal. This will result in the last 11,000 feet of the currently open and troublesome open canal being eliminated.

Project site preparation will include bull dozer and patrol work to prepare the alignment of the proposed buried line and excavator work to remove existing structures. Removed structures will be broken with the KBID crane and wrecking ball if they are too large to load and haul. Structures will be loaded with the KBID loaders into dump trucks and taken to an established scrap yard. The stockpiling of materials and pipe needed for the project will also take place during this phase of the project. Each of these tasks are expected to occur as soon as possible after January 1st, 2026.

At the initiation point of the pipeline, or just downstream of the new remotely monitored waste-way, three 30" x 20' perforated aeration screens will be installed to screen water entering the pipeline.

The KBID Hydromaxx 2700 trencher, equipped with laser grade control, will be used to trench the line for the pipe installation. An excavator with a sling will be used to swing the pipe into the trench box. After pipe alignment within the trench box, the pipe will then be pushed together with the custom plunger and hydraulic cylinder built into the trench box. Following pipe installation and ensuring proper alignment a bull dozer will be used to accurately backfill the trench-line and cover the pipe providing a minimum of 3 to 4 feet of coverage.

All pipe used in this project will be Plastic Irrigation Pipe (PIP), rated for 80 PSI and installed to manufacturer criteria. This project will initiate with 27" PIP for the first 1620' of the line. The remaining 9,385' of the pipeline will be sized with 21" PIP.

All angle fittings to accommodate elevation and course changes, T-fittings, and couplers needed to hook up to pre-existing piped laterals and field turnouts will consist of those of solvent weld design and rated at 100 PSI. Vacuum and air relief venting will be installed along the pipeline where needed per engineer recommendation. The pipeline portion of this project will encompass the delivery of water to 18 specific field turnouts providing water to 1,443.7 acres.

With the previous experience completing these types of projects, and the skill of the KBID staff, along with owning the full line of equipment required, none of the project tasks will require any outside labor or machinery support.

After all the pipe and turnout infrastructure needs are installed, the KBID crew will begin removing any and all scrap or excess material remaining at the site. Any remaining portion of the open lateral will be re-shaped during this time-frame of the project. KBID will leave the project area in a manner that the further earthwork can be done by the landowner if so desired.

Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (25 points)

- 1) Describe the amount of estimated water savings.** For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

This project is expected to conserve **865 acre-feet** of water annually. 363 acre-feet of those savings will come from the decrease in seepage and evaporative losses from the piping of 2.1 miles of the Ridge Canal. An additional 502 acre-feet will be saved through the installation of 8 automated gates at check structures and the ability to monitor operational spills 24/7 through a SCADA system with alerts and alarms allowing for immediate adjustments to diversions.

Seepage / Evaporation Savings Calculations

1.92 acre-feet/mile/day x 2.1 miles x 90-day irrigation season = **363 acre-feet**

Operational Spill Savings Calculations

Observed: 6.58 acre-feet/day x 90-day irrigation season = 592 acre-feet

Expected: 1.0 acre-feet/day x 90-day irrigation season = 90 acre-feet

Annual Water Savings: 592 acre-feet – 90 acre-feet = **502 acre-feet**

OVERALL WATER SAVINGS	
Item	Acre-Feet Saved
Canal Piping	363.0
Gate Automation - Remote Spill Monitoring	502.0
TOTAL	865.0

- 2) **Describe current losses.** Please explain where the water that will be conserved is currently going and how it is being used. Consider the following: Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?
- If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?
 - Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?

Water is currently being lost on the Ridge Canal due to seepage & evaporation, as well as operational spills at the terminal end, or “waste-way” of the canal. The water lost due to seepage travels through the soil profile under and adjacent to the canal, with no method to reclaim it. The operational spills lost at the terminal end of the Ridge Canal are returned to the Republican River through creeks and drainages. Once the water is spilled, it can no longer be recaptured for beneficial use within the irrigation district.

- 3) **Describe the support/documentation of estimated water savings.** Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.
- 4) **Please address the following questions according to the type of infrastructure improvement you are proposing for funding.** See *Appendix A: Benefit Quantification* and Performance Measure Guidance for additional guidance on quantifying water savings

The supporting documentation of estimated water savings was compiled over the last three irrigation seasons in which a significant inflow-outflow test was conducted. The specific data points tracked included daily diversions, daily deliveries, daily operational spills (waste), and daily canal loss. Excel spreadsheets were used to calculate daily and annual averages for each of these four data points over time. The product was a total of 279 daily measurements over the four statistics being recorded, resulting in a total of 1,116 data points. The daily average canal loss due to seepage and evaporation was arrived at by taking daily diversions and subtracting daily deliveries and daily

operational spills. The data collected showed an average of 1.92 acre-feet of water was lost per mile of canal, per day. Extrapolating this daily loss per mile figure over the 2.1 miles that will be piped and then multiplying this over a typical 90-day irrigation season, it was observed that 363 acre-feet of water could be saved annually, solely from piping this 2.1-mile portion of the Ridge Canal. Following the project there is an expectation of no seepage and evaporative losses in the section to be piped.

RIDGE CANAL SEEPAGE / EVAP DATA	
Irrigation Season	LOSS PER MILE / DAY
2022	1.63
2023	1.95
2024	2.17
TOTAL	5.74
3-year Average	1.92

Seepage / Evaporation Savings Calculations

1.92 acre-feet/mile/day x 2.1 miles x 90-day irrigation season = **363 acre-feet**

The second aspect of water savings that will be realized through this project will come from check structure gate automation and more importantly, the real-time remote transmission of operational spill data. The estimated average annual water savings for this piece was determined by analyzing operational spill data also collected daily over the last three irrigation seasons. Daily manual measurements made over this time by canal operators resulted in 279 data points, recorded and subsequently tracked in a spreadsheet. Accurate observed spill figures were determined by canal operators referencing the Bureau of Reclamation's Water Measurement Manual (Table 8 – "Discharge of standard contracted rectangular weirs in second-feet" – pg. 245).

Analyzing this data showed an average of 6.58 acre-feet lost per day on the Ridge Canal to operational spills. Through examination of case studies of similar projects expectations are that operational spills on the Ridge Canal can be decreased to 1.0 acre-feet per day.

RIDGE CANAL OPERATIONAL SPILL DATA	
Irrigation Season	Average Acre-Feet Spilled / Day
2022	6.5
2023	7.4
2024	5.9
TOTAL	19.7
3-year Average	6.58

Operational Spill Savings Calculations

Observed: 6.58 acre-feet/day x 90-day irrigation season = 592 acre-feet

Expected: 1.0 acre-feet/day x 90-day irrigation season = 90 acre-feet

Annual Water Savings: 592 acre-feet – 90 acre-feet = **502 acre-feet**

(1) Canal Lining/Piping: Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address:

- a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.
- b. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.
- c. What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?
- d. What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?
- e. How will actual canal loss seepage reductions be verified?
- f. Include a detailed description of the materials being used.

Canal Piping piece

The annual seepage and evaporation water savings estimate resulting from this project was determined by using the data collected from the inflow-outflow tests over the last three irrigation seasons. Excel spreadsheets with pre-entered formulas were used to calculate averages for each of these data points over time (diversions, deliveries, operational spills, canal loss.) The product was a total of 279 daily measurements over the four statistics being recorded, resulting in a total of 1,116 data points. The daily average canal loss due to seepage and evaporation was arrived at by taking daily diversions and subtracting daily deliveries and daily operational spills collected over the past three irrigations seasons. The data examined shows that an average of 1.92 acre-feet of water was lost per mile of canal, per day. Extrapolating this daily loss per mile figure over the 2.1 miles that will be piped and then multiplying this over a typical 90-day irrigation season, one arrives at a water savings of 363 acre-feet annually, solely from piping this 2.1-mile portion of the Ridge Canal. Expected canal losses due to seepage and evaporation following this project for this section of the Ridge Canal will be zero as the water will all be in large diameter PVC pipe going forward.

RIDGE CANAL SEEPAGE / EVAP DATA	
Irrigation Season	LOSS PER MILE / DAY
2022	1.63
2023	1.95
2024	2.17
TOTAL	5.74
3-year Average	1.92

Seepage / Evaporation Savings Calculations

1.92 acre-feet/mile/day x 2.1 miles x 90-day irrigation season = **363 acre-feet**

The water savings for this aspect of the project will be verified post-completion by analyzing the same data collected over the last three irrigation season and used in these pre-project calculations.

All pipe used in this project will be Plastic Irrigation Pipe (PIP), rated for 80 PSI and installed to manufacturer criteria. This project will initiate with 27" PIP for the first 1620' of the line. The remaining 9,385' of the pipeline will be sized with 21" PIP.

All angle fittings to accommodate elevation and course changes, T-fittings, and couplers needed to hook up to pre-existing piped laterals and field turnouts will consist of those of solvent weld design and rated at 100 PSI. Vacuum and air relief venting will be installed along the pipeline where needed per engineer recommendation. The pipeline portion of this project will encompass the delivery of water to 18 specific field turnouts providing water to 1,443.7 acres.

(3) Irrigation Flow Measurement: Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing municipal metering projects should address:

- How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.
- Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.
- Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?
- Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.
- Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?
- How will actual water savings be verified upon completion of the project?

Supervisory Control and Data Acquisition and Automation (SCADA) piece

The second aspect of water savings that will be realized through this project will come from check structure gate automation and real-time operational spill remote monitoring.

The average annual water savings estimates were determined by analyzing operational spill data collected daily over the last three irrigation seasons and reviewing case studies to determine an expectation for post-project efficiency improvements.

Over the past three irrigation seasons, daily operational spill measurements were made by canal operators at the Ridge Canal waste-way. This resulted in 279 measurements taken manually, recorded and subsequently tracked in a spreadsheet. Accurate observed spill figures were determined by canal operators referencing the Bureau of Reclamation's Water Measurement Manual (Table 8 – "Discharge of standard contracted rectangular weirs in second-feet" – pg. 245).

Analyzing this data showed an average of 6.58 acre-feet lost per day on the Ridge Canal to operational spills. Through examination of case studies of similar projects expectations are that operational spills on the Ridge Canal can be decreased to 1.0 acre-feet per day.

RIDGE OPERATIONAL SPILL DATA	
Irrigation Season	Average Acre-Feet Spilled / Day
2022	6.5
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TOTAL	19.7
3-year Average	6.58

Operational Spill Savings Calculations

Observed: 6.58 acre-feet/day x 90-day irrigation season = 592 acre-feet

Expected: 1.0 acre-feet/day x 90-day irrigation season = 90 acre-feet

Annual Water Savings: 592 acre-feet – 90 acre-feet = **502 acre-feet**

There are eight check structures currently equipped with log slots and check boards to adjust the canal manually to maintain designed water surface. Presently, to determine flow at each check structure, manual weir measurements have to take place along with reference to the Bureau of Reclamation's Water Measurement Manual. With the installation of Rubicon's automated FlumeGates at each check structure, not only will designed water surface elevation be maintained in each canal bay automatically, but real-time flow measurement will also be automatically measured at each check and be viewable through Rubicon's NeuroFlo online network control module. Along with the eight check structures to be automated with Rubicon's FlumeGates, terminal end operational spills will be measured and transmitted through the NueroFlo system by way of a Rubicon FlumeLink, monitoring pedestal with OpenAir sensor and booms assembly installed at the waste-way.

At each site a power and communication pedestal will be also be installed so the data can be collected and transmitted remotely through SCADA. Equipped with alarms and alerts, this facet of the project will allow canal operators or base station administrators

within the KBID office, to make immediate diversion adjustments to eliminate the spills as quickly as possible, thus saving water. The water saved through these diversion adjustments will then stay in the Courtland Canal and continue downstream to Lovewell Reservoir for storage there and future use.

The 502 acre-feet of water savings estimated will be verified upon completion of the project by comparing historical operational spill data with actual data collected by the to-be-installed measurement devices and recorded in KBID daily records.

E.1.2. Evaluation Criterion B—Renewable Energy (20 points)

E.1.2.1. Subcriterion B.1 - Implementing Renewable Energy Projects Related to Water Management and Delivery

Due to the remote and rural location of the Ridge Canal, electrical power for all automation and measurement sites will be provided by renewable solar resources. No non-renewable energy resources will be required for the project.

AND/OR

E.1.2.2. Subcriterion B.2 - Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

- If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.
- How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.
- If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?
- Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.
- Does the calculation include any energy required to treat the water, if applicable?
- Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.
- Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

Current manual spill measurement, operation and management of water delivery from the Ridge Canal requires frequent trips to and along the canal by KBID operators using light trucks. While the project will not eliminate human presence, the ability to remotely monitor, adjust canal gate settings, and read operational spills, will significantly reduce the frequency of vehicle use and miles driven. This facet will have a corresponding decrease in the use of fossil fuels and hydrocarbon /greenhouse gas emissions. The Ridge Canal is located 14 miles from the KBID headquarters in Courtland, meaning a drive of 28 miles round-trip for the ditchrider to manually measure the spills and make adjustments. As is currently the case, the ditchrider responsible for the Ridge Canal makes adjustments twice a day: first thing in the morning at 7am and the second time around 2pm. Through this project with all canal levels and operational spill measurement being visible remotely, the second afternoon check will no longer be

required; thus cutting 28 miles driven per day out of the equation. By multiplying this mileage savings over a 90-day irrigation season, KBID expects a reduction in 2,520 miles driven annually following this project.

Per EPA, a passenger vehicle emits 4.6 metric tons of carbon dioxide annually. Assuming 7,910 miles driven per year is typical for KBID canal operators, the reduction in greenhouse gas emissions would be 2,520/7,910 or 31.8%. The calculated reduction in greenhouse gas emissions is 4.6 metric tons X 31.8% or 1.46 metric tons of CO₂ reduction.

Additionally, all 8 of the automated gates, as well as the ultrasonic sensor reading operational spills as a part of KBID's SCADA system will be powered by small-scale solar means.

The automated gates are powered by a 12V DC Solar panel power supply, which computes to:

$$0.096\text{KW} = 12 \times 8 / 1000$$

This project proposes eight (8) gates, all equipped with a solar power source, as listed above. For more information, see *Appendix 4 [Rubicon quote], FlumeGate Section - specifications (pg.3), power supply options.*

E.1.3. Evaluation Criterion C—Other Project Benefits (15 points)

Resilience and Sustainability Benefits. Will the project address a specific water and/or energy sustainability concern? Please address the following:

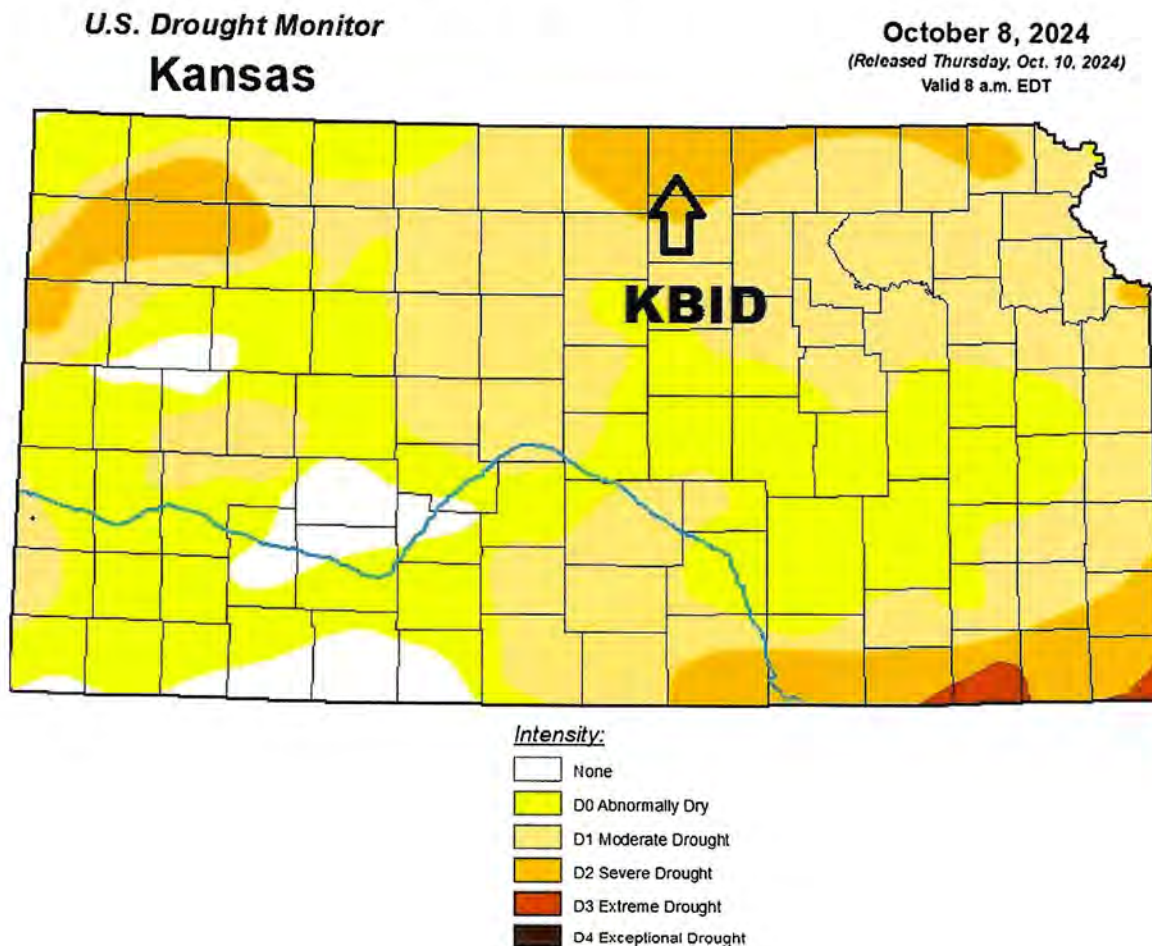
- Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:
 - Describe recent, existing, or potential drought or water scarcity conditions in the project area.
 - Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?
 - Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate informed analysis, if available).
- Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.
- Please describe how the project will directly address the concern(s) stated above.
- Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?
- Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.
 - Indicate the quantity of conserved water that will be used for the intended purpose(s).
 - Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.
- Will the project assist States and water users in complying with interstate compacts?

- Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

For years the Republican River Basin has been battling several significant challenges related to water scarcity and annual supplies. The Republican River is the water source for not only Kansas Bostwick Irrigation District, but also, multiple other Bureau of Reclamation Irrigation Districts, including Frenchman-Cambridge Irrigation District and Nebraska Bostwick Irrigation District.

The basin and KBID are presently suffering through a multi-year drought. Records kept for over 50 years for the National Weather Service show annual average precipitation within the district boundaries to be 28.49 inches. In looking at measured precipitation amounts since 2020, KBID has averaged only 21.93" per year. Therefore, over the last 4-year period, KBID is behind its average precipitation by a total of 26.23". This alone shows the importance for KBID to continue implementing projects like the one outlined in this application to conserve and make efficient use of every drop of water available.

While the entire basin is suffering dry conditions, the Kansas Drought Monitor Maps shows just how severe thing currently are right over KBID and the counties it serves of Republic & Jewell counties in north central KS.



A water conserving project like this one will directly allow KBID to more efficiently manage its annual water supplies. With the 865 acre-feet water savings through this project, it will result in less water being released from KBID's most upstream reservoir, Harlan County Lake. Any amount of water conserved and allowed to remain in the reservoir longer each season will and less overall diversions, result in great flexibility to water managers and users within the district, along with providing ancillary benefits to recreational users of the Harlan County Lake itself. Recreationalists, including outdoorsmen, pleasure boaters and water-skiers at both Harlan County Reservoir and Lovewell Reservoir will benefit as both lakes will remain at higher elevations later into each summer when the lakes typically, and under current conditions, experience significant draw-down due to releases made for irrigation and subsequent re-filling needed after the irrigation season. Higher lake elevations, later into each season, will also have a positive impact on the local communities of Alma, NE and Webber, KS whom both have several businesses including local Marinas and restaurants reliant on lake enthusiasts.

The water savings through this project will also provide a benefit to the three states that are parties to the Republican River Compact: Kansas, Nebraska and Colorado, and help all remain in compliance of the compact.

An important piece to ensuring that the state of Nebraska remains compliant with the Republican River Compact is through ensuring the state of Kansas receives its allotted apportionment of Republican River Flows. A specific trigger within state-to-state compliance is ensuring that KBID has a supply of 68,000 acre-feet in Harlan County Reservoir each year by June 1st. If this amount is not reached it triggers stricter 2-year averaging requirements for the state of Nebraska. When this occurs the state of Nebraska often restricts surface water users in Nebraska such as KBID's Nebraska counterpart and Reclamation districts of Frenchman-Cambridge Irrigation District and Nebraska Bostwick Irrigation District. Any amount of extra water that could remain in Harlan County Reservoir, like the 865 acre-feet saved through this project, will aid in the 68,000 acre-feet amount being reached year in and year out. These details and other positive aspects are further outline in Appendix #5 (MOA #18AG630082 w/ Attachment B).

The project will also have some very beneficial long-term results for other Kansas users of Republican River water downstream of the Kansas-Nebraska state line.

Groundwater depletions and overuse by upstream users within the Republican River Basin significantly impacted not only KBID's available water supply, but all Kansas users of Republican River water in previous years. For many years the Republican River Basin remained embroiled in controversy over groundwater depletion of river flows; so much so that the matter ended up in litigation at the United States Supreme Court. As a result of the 2015 United States Supreme Court Settlement concerning the Republican River, in the case of The State of Kansas, Plaintiff v. The State of Nebraska and The State of Colorado, the Court ordered that the State of Kansas be awarded a settlement amount of \$5.5 million from the State of Nebraska, for Nebraska's overuse of

compact flows. The ruling also ordered the upstream states to comply with the compact by ensuring that the State of Kansas is supplied with its prescribed apportionment of Republican River flows going forward. With water saving projects like the one outlined in this application, it will allow for KBID's users to have more reliability to irrigate, even in times of shorter water supply which will certainly lessen tensions between Republican River Compact states.

While KBID is the most upstream and the most significantly impacted user of Republican River flows in Kansas, there still remains many downstream users of this water. As KBID has become more efficient over the years through other conservation projects such as the piping of laterals and the lining of main canals, the district has made huge strides in becoming able to operate off of lesser water supply. When taking projects like this one into consideration, along with all past improvements to the district's efficiency measures, there is the possibility that the State of Kansas will have access to more water than needed at certain times in the future to simply meet the needs of the district on an annual basis. Therefore, any "excess" water apportioned for the State of Kansas could be available to downstream users. As KBID is the only Kansas agent with the ability to contract water supply with the Bureau of Reclamation, the possibility exists for KBID to acquire a Warren Act contract to hold this "excess" water in Harlan County Reservoir. Then, should circumstances present themselves that KBID's full allotment and needs are met, the excess water held under the Warren Act contract could be brokered to users downstream of KBID within the state of KS. While the majority of use downstream of KBID would be other agricultural water users, the City of Clay Center, KS relies on flows of the Republican River which ultimately impact the city's ability to provide water to their citizens.

Ecological Benefits. In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that result in ecological benefits, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will provide ecosystem benefits, including the following:

- Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).
- Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels, recreational benefits, etc.).
- Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?
- Please describe any other ecosystem benefits as a direct result of the project.

This project has the potential to benefit multiple sectors, facets and species of the environment, well into the future, reliant on steady flows on the Republican River and downstream locations. With less diversion volumes from the Republican River by KBID, increased flows will be available to downstream tributaries on the Republican River

including areas along the Kaw River where certain State Threatened and Federally Endangered species such as the Topeka Shiner minnow exists. (see <https://ecos.fws.gov/ecp/species/4122>)

Any amount of water conserved and allowed to remain in the reservoir and stream longer each season will provide benefits to recreational users of the Harlan County Lake itself. Recreationalists, including outdoorsmen, pleasure boaters and water-skiers at both Harlan County Reservoir and Lovewell Reservoir will benefit as both lakes will remain at higher elevations later into each summer when the lakes typically, and under current conditions, experience significant draw-down due to releases made for irrigation and subsequent re-filling needed after the irrigation season. Harlan County Reservoir also attracts many species that utilize the lake and surrounding areas when elevations are at normal levels. These species include Bald Eagles, American White Pelicans, Sandhill Cranes, the occasional small group of Whooping Crane and various waterfowl species. (see

<https://birdtrail.outdoornebraska.gov/harlancounty/#:~:text=It%20attracts%20large%20q,uantities%20of,Cranes%20during%20spring%20and%20fall.>)

Climate Change: E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity.

- Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?
- Does the project seek to improve ecological resiliency to climate change?
- Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?
- Does the proposed project include green or sustainable infrastructure to improve community climate resilience?
- Does the proposed project contribute to climate change resiliency in other ways not described above?

The most notable way that this project will address climate change and increase resiliency will come from less emissions from internal combustion engines and cleaner air. Current manual spill measurement, operation and management of water delivery from the Ridge Canal requires frequent trips to and along the canal by KBID operators using light trucks. While the project will not eliminate human presence, the ability to remotely monitor, adjust canal gate settings, and read operational spills, will significantly reduce the frequency of vehicle use and miles driven. This facet will have a corresponding decrease in the use of fossil fuels and hydrocarbon /greenhouse gas emissions. The Ridge Canal is located 14 miles from the KBID headquarters in Courtland, meaning a drive of 28 miles round-trip for the ditchrider to manually measure the spills and make adjustments. As is currently the case, the ditchrider responsible for the Ridge Canal makes adjustments twice a day: first thing in the morning at 7am and the second time around 2pm. Through this project with all canal levels and operational spill measurement being visible remotely, the second afternoon check will no longer be required; thus cutting 28 miles driven per day out of the equation. By multiplying this

mileage savings over a 90-day irrigation season, KBID expects a reduction in 2,520 miles driven annually following this project.

Per EPA, a passenger vehicle emits 4.6 metric tons of carbon dioxide annually. Assuming 7,910 miles driven per year is typical for KBID canal operators, the reduction in greenhouse gas emissions would be 2,520/7,910 or 31.8%. The calculated reduction in greenhouse gas emissions is 4.6 metric tons X 31.8% or 1.46 metric tons of CO₂ reduction.

E.1.4 Evaluation Criterion D—Disadvantaged Communities, Insular Areas, and Tribal Benefits (15 points)

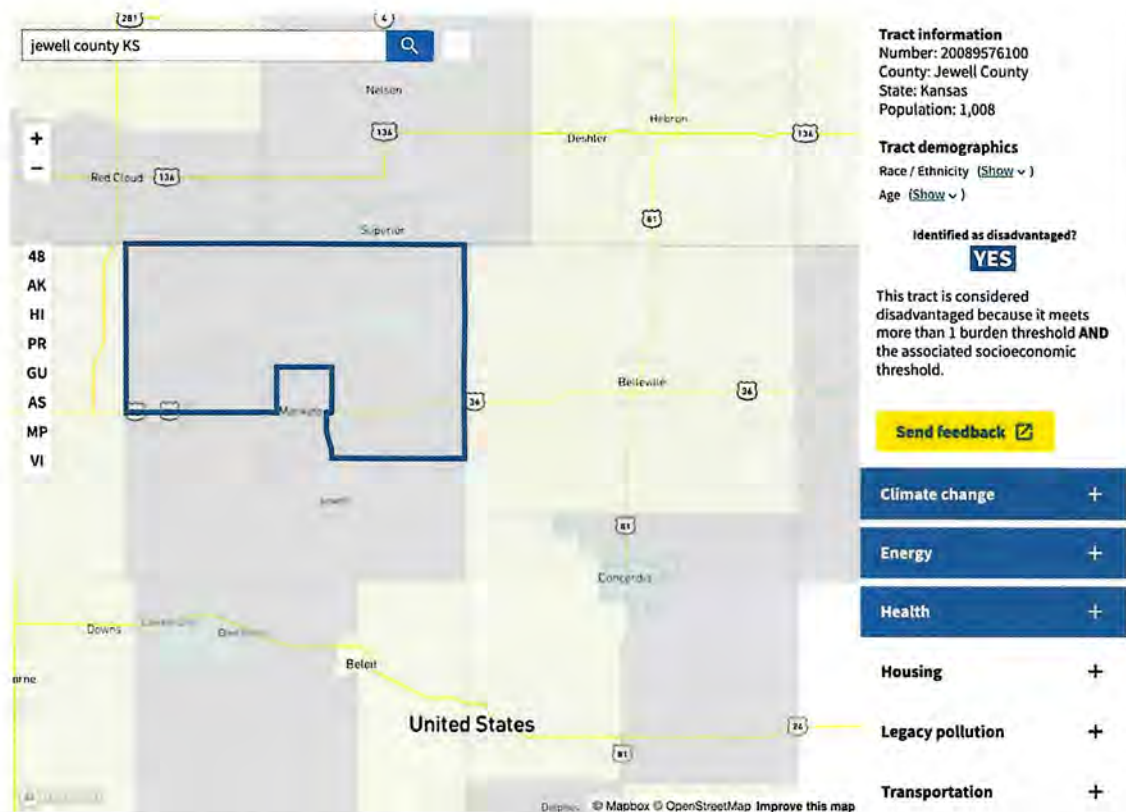
Up to **15 points** may be awarded based on the extent that the project demonstrates support for the Biden-Harris Administration's priorities, including E.O. 14008: *Tackling the Climate Crisis at Home and Abroad* and the President's memorandum, *Tribal Consultation and Strengthening Nation-to-Nation Relationships*.

Please address only those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the application.

E.1.4.1 Subcriterion D.1. Disadvantaged Communities

E.O. 14008 affirms the advancement of environmental justice for all through the development and funding of programs to invest in disadvantaged communities. This criterion, which is used to identify projects that advance the Justice 40 Initiative, includes all Federally recognized Tribes and Tribal entities, and any disadvantaged communities in insular areas (American Samoa, Guam, the Northern Mariana Islands, or the Virgin Islands) identified pursuant to the following criteria.

- Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST includes the lands of Federally recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally recognized Tribe has land, all Federally recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.
- If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?



Using the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening tool, it exhibits that northern Jewell County KS, where KBID has canals, pipeline and one of its two holding reservoirs, is identified as a Disadvantaged area due to this area meeting more than 1 burden threshold and the associate socioeconomic threshold. As irrigated agriculture is the primary driver of the local economy in this area, it's vital to implement water saving projects like this one to increase the area's overall reliability of water supply, and provide economic growth opportunities. Any water saved through projects like this one will leave more water in KBID's water supply reservoirs later into each summer which will improve and expand the public's access to recreation at this bodies of water.

E.1.4.2 Subcriterion D.2. Tribal Benefits

The Department is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum, *Tribal Consultation and Strengthening Nation-to-Nation Relationships*, asserts the importance of honoring the Federal Government's commitments to Tribal nations. Address the following, if applicable:

- Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?
- Does the proposed project support Tribal led conservation and restoration priorities, and/or incorporate or benefit indigenous traditional knowledge and practices?
- Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through

water quality improvements, new water supplies, increased renewable energy, or economic growth opportunities? Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

The answer to each of these items is no. However, the proposed project will not limit access to any ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

E.1.5 Evaluation Criterion E—Complementing On-Farm Irrigation Improvements (8 points)

Up to **8 points** may be awarded for projects that describe in detail how they will complement on-farm irrigation improvements eligible for NRCS financial or technical assistance.

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.
 - Provide a detailed description of the on-farm efficiency improvements.
 - Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?
 - If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.
 - Applicants should provide letters of intent from farmers/ranchers in the affected project areas.
 - Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.
 - Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installing a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.
- OR**
- Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?
 - Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.
 - Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.
 - Please provide a map of your water service area boundaries. If your project is selected for funding under this NOFO, this information will help NRCS identify the irrigated lands that may be approved for NRCS funding and technical assistance to complement funded WaterSMART projects.

Pipeline / Canal automation projects like the one described in this application certainly compliment and incentivize on-farm irrigation improvements. On farm improvements and investments made by landowners over the last several decades currently show that

approximately 70% of the District is irrigated through the use of center pivots with the remaining 30% being irrigated through gated pipe. The majority of these improvements made by landowners were incentivized by the installation of previous pipeline burial projects.

The pressure of the water through a pipeline will increase and the quality of water reaching the field turnouts through a pipeline will be much improved over the present scenario, primarily because of the use and ability of the aeration screens to filter debris from the irrigation water. The aeration screens allow fish, crayfish and other aquatic organisms to stay in the main canals and not be abandoned in the agriculture fields. For these reasons projects like this one greatly incentivize landowners to install and implement center pivot and/or drip-irrigation technology. The aeration screens filter the water sufficiently enough to prevent other organic matter debris from plugging pivot nozzles or gated pipe orifices allowing for a constant application of irrigation water.

One landowner currently served by the Ridge Canal has shown interest in installing a center pivot on his acres that are currently gravity irrigated and inefficient in the NW¼ of Section 28-1-5 in Republic County, KS. This pivot would be fed from the section of canal that, through this project, would be served through the pipeline to be installed resulting in increased pressure and reliability. With the installation of this pipeline the likelihood that this landowner carries through with the installation of the pivot greatly increases as would his plans to apply for technical and financial assistance from NRCS through the EQIP program. Without the installation of this pipeline, it remains unlikely that he will make the on-farm investment (**See the landowner's Letter of Support within APPENDIX #3 – Pg.3**) Historically, this farm averaged 10 to 15 inches of water applied for every acre under gravity methods. With the installation of a center pivot, that figure would never be expected to exceed 10 inches per acre, even during a very dry season.

This project proposal will also result in eliminating erosion and drainage problems that often accompany open canal systems with waste ways that spill into open drainage on or near actively farmed acres. In addition, the soil adjacent to the currently open canal will no longer be as saturated from seepage from the open canal allowing for more precipitation to be absorbed into the soil profile and resulting in less runoff.

E.1.6 Evaluation Criterion F—Readiness to Proceed (8 points)

Up to **8 points** may be awarded for this criterion.

- Identify and provide a summary description of the major tasks necessary to complete the project.
Note: Do not repeat the more detailed technical project description provided in Section D.2.2.2 Application Content. This section should focus on a summary of the major tasks to be accomplished as part of the project.
- Describe any permits that will be required, along with the process for obtaining such permits.
- Identify and describe any engineering or design work performed specifically in support of the proposed project.
- Describe any new policies or administrative actions required to implement the project.

- Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.
- Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

KBID currently has the financial, management, labor and equipment resources necessary to complete this project with assistance from Rubicon field technicians for the automation and operational spill monitoring piece.

The installation of the automated gates and operational spill monitoring site along with supporting SCADA and control system will commence in January of 2026. This first task undertaken for this project will be the concrete prep at existing check structure to be automated. The expectation is that this portion of the project would be completed in its entirety prior to the 2027 irrigation season when all items for this piece will be operational.

The second piece of this project will be the burial of the pipeline to be installed. Pipeline route prep, pipeline installation, turnout plumbing and site cleanup will also take place within the non-irrigation season window from the end of the 2025 irrigation season to the beginning of the 2027 irrigation season. In other words, this aspect of the project is expected to start in January of 2026 and be completed by June of 2027.

No permits will be required for this project.

There are no new policies or administrative actions needed to implement the project.

All engineering and design work for this project has already been completed by Larry Schmidt, P.E., with Diamond Plastic Inc. and reviewed by engineers in the local Reclamation Area Office. No additional design work will be needed to complete the project.

In working with the local Reclamation Area Office on past projects, environmental and cultural compliance will be discussed further for this project and is expected to be a smooth quick process.

Milestone / Task / Activity	Planned Start Date	Planned Completion Date
Complete environmental & cultural resource compliance	November 1, 2025	January 1, 2026
Prep Structures for FlumeGate installs	January 1, 2026	May 1, 2026
FlumeGate/Remote Monitoring installs	June 1, 2026	June 1, 2027
Pipeline site prep	January 1, 2026	September 1, 2027
Pipeline install	October 1, 2026	May 1, 2027
Final earthwork & site cleanup	May 1, 2027	June 1, 2027

E.1.7 Evaluation Criterion G—Collaboration (5 points)

Up to **5 points** may be awarded for projects that promote and encourage collaboration among parties in a way that helps increase the sustainability of the water supply.

Please describe how the project promotes and encourages collaboration. Consider the following:

- Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?
- What is the significance of the collaboration/support?
- Will this project increase the possibility/likelihood of future water conservation improvements by other water users?
- Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?
- Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

With many water users within the basin, this project certainly promotes and encourages collaboration among multiple parties and will help increase the reliability for all water users within the Republican River Basin.

Most understandably, as both KBID and Bostwick Irrigation District in Nebraska (NBID), are reliant on the natural flows of the Republican River and the total water supply in Harlan County Reservoir, both districts would experience a positive impact.

As stated earlier, many other users in Kansas including the municipality of Clay Center, KS, reliant on flow of the Republican River, could see very beneficial long-term benefits from this project. When the 2015 United States Supreme Court case was settled, many ideas were proposed that would potentially help downstream Kansas users and not just KBID. The Kansas Water Office (KWO) has coordinated with other agricultural users downstream of KBID to form the Lower Republican Access District (LRAD). As projects like this one create the potential for more water to remain in the stream and/or held in upstream

reservoirs, it increases the chances of viability for further beneficial uses of water like that of the LRAD.

There is widespread support for this project from other upstream users of the Republican River, including NBID, as well as other state agencies and private individuals. Letters of support for the project can be found in the appendix materials to this application.

E.1.8 Evaluation Criterion H—Nexus to Reclamation (4 points)

Up to **4 points** may be awarded if the proposed project is connected to a Reclamation project or Reclamation activity. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

Describe the nexus between the proposed project and a Reclamation project or Reclamation activity. Please consider:

- Does the applicant have a water service, repayment, or operations and maintenance (O&M) contract with Reclamation?
- If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?
- Will the proposed work benefit a Reclamation project area or activity?
- Is the applicant a Tribe?

Kansas Bostwick Irrigation District (KBID) is a Pick-Sloan Project headquartered in Courtland, Kansas. KBID is a Bureau of Reclamation irrigation district served by and lying within the Bureau of Reclamation's Nebraska-Kansas Project Area headquartered in McCook, Nebraska. KBID has a contract with Reclamation for water service, repayment as well as O&M. Water storage for the district is within the Corps of Engineers Harlan County Reservoir in Nebraska and in the Bureau of Reclamation's Lovewell Reservoir in Kansas, both of which are in the same basin of the Republican River. This project will not only benefit KBID, but other Reclamation projects in the basin including Nebraska Bostwick Irrigation District and Frenchman-Cambridge Irrigation District. The applicant is not a tribe.

Performance Measures

Quantifying actual benefits upon completion of the project will be straight-forward. Just as in the collection of data from inflow-outflow testing prior to the project, KBID will collect the same data post-project. Daily measurements of diversions, deliveries, operational spills will be collected and recorded within a spreadsheet to validate actual canal losses post-project to prove and verify water savings as a result of the piping portion of the project. Over an average 90-day irrigation season this will result in 360 data points to look at. Accurate observed operational spill figures post-project will also be compared against pre-project spill figures to verify resulting water savings from the SCADA portion of the project including real-time operational spill values that will be logged within Rubicon's NeuroFlo Network Control system for review.

Budget Narrative

Jared "Pete" Gile is the Superintendent of KBID and will be the Project Manager. He will be in charge of the day-to-day operations of the project and will be assisted by an on-site Team Lead. Office Manager, Ashleigh Brandenburgh will be in charge of tracking specific figures and costs as the project unfolds. Both individual's roles are considered normal day to day costs for KBID and within their regular daily scope of duties as employees of the district, so their salaries, specifically applicable to this project will not be included as a project cost.

The total labor and equipment costs for this project were estimated by reviewing actual labor and machinery hours collected during projects of similar size and scope. Past actual project numbers for this in-depth data is held within spreadsheets precisely for the reason of making accurate estimates for similar projects and project planning purposes.

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL LABOR COST	\$94,291.13
TOTAL EQUIPMENT COST	\$104,369.08
TOTAL MATERIALS COST	\$759,186.77
TOTAL CONTRACTOR COST	\$35,100.00
TOTAL PROJECT COST	\$992,946.99

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL PROJECT COST	\$992,946.99
FEDERAL SHARE	\$496,473.49
NON-FEDERAL SHARE REQUIRED	\$496,473.49

Labor Costs

KBID staff hours and the subsequent associated salary and fringe benefit figures were pulled from current and actual figures provided by KBID's Office Manager with supporting documentation.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	S/UNIT	QUANTITY		
Salaries and Wages				
Excav. Optr. (TA)	\$21.68	309.63	HOURS	\$6,712.78
Trencher Optr. (DD)	\$24.27	309.63	HOURS	\$7,514.72
Excav Optr. (WF)	\$22.67	309.63	HOURS	\$7,019.31
Laborer (FH)	\$20.47	309.63	HOURS	\$6,338.13
Laborer (TJ)	\$25.17	309.63	HOURS	\$7,793.39
Laborer (BR)	\$19.76	309.63	HOURS	\$6,118.29
Laborer (RS)	\$19.45	309.63	HOURS	\$6,022.30
Foreman (AS)	\$25.48	309.63	HOURS	\$7,889.37
Laborer (RW)	\$22.70	309.63	HOURS	\$7,028.60
Fringe Benefits				
Excav. Optr. (TA)	\$14.84	309.63	HOURS	\$4,593.54
Trencher Optr. (DD)	\$11.20	309.63	HOURS	\$3,469.11
Excav Optr. (WF)	\$7.40	309.63	HOURS	\$2,291.60
Laborer (FH)	\$11.06	309.63	HOURS	\$3,424.89
Laborer (TJ)	\$15.21	309.63	HOURS	\$4,710.63
Laborer (BR)	\$6.34	309.63	HOURS	\$1,963.49
Laborer (RS)	\$6.38	309.63	HOURS	\$1,974.52
Foreman (AS)	\$15.64	309.63	HOURS	\$4,841.43
Laborer (RW)	\$14.81	309.63	HOURS	\$4,585.02

Equipment Costs

KBID owns all the necessary equipment and machinery that will be required for this project; none will have to be rented. KBID established hourly rates for this application by using rates established by the United States Army Corps of Engineers within their Hourly Equipment Ownership and Operating Expense Manual.

All of the equipment and materials needs details are listed within The Budget Narrative Attachment Form downloaded from Grants.gov as directed for this application.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Equipment				
JCB Excavator (Equivalent - 47,400#, 153 HP)	\$71.58	129.92	HOURS	\$9,299.58
CAT 323 Excavator (Equivalent - 47,400#, 153 HP)	\$71.58	133.59	HOURS	\$9,562.09
CAT 314 Long-reach Excavator (Equivalent - 128 HP, Long-reach)	\$87.89	95.71	HOURS	\$8,411.58
CAT D7 Dozer (Not exact D7, but CAT D7 nonetheless)	\$181.45	130.95	HOURS	\$23,760.62
IHC TD-15 Dozer (Equivalent - 145 HP)	\$119.22	76.94	HOURS	\$9,172.95
Fiat-Allis 14C Dozer (Equivalent 155 HP)	\$119.22	125.60	HOURS	\$14,973.80
Linkbelt Is-78 Crane (Equivalent - crawler-30 ton - 33'-80' boom)	\$124.74	6.03	HOURS	\$752.02
Skid Steer (Equivalent 60" bucket, 67 HP)	\$23.62	3.44	HOURS	\$81.29
Motorgrader (Equivalent - 179 HP)	\$78.66	36.78	HOURS	\$2,892.73
Hough International 540 Loader #1 (Equivalent - 208 HP)	\$74.12	29.52	HOURS	\$2,187.69
Komatsu 540 Loader #2 (Equivalent - 208 HP)	\$74.12	49.91	HOURS	\$3,699.53
Forklift (Equivalent - 8,000#, 74HP)	\$29.18	1.26	HOURS	\$36.65
2700 Hydramaxx Port Industries Trencher (Equivalent)	\$210.78	62.72	HOURS	\$13,220.90
T-35 Peterbilt Regular Bed Dump Truck #1(Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-37 Peterbilt Rock Bed Dump Truck #2 (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-32 IHC Little Blue Dump Truck #3 (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-40 Green Army American General Dump Truck (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-39 Peterbilt Semi Truck (Equivalent 75,000# GVW)	\$9.35	10.00	HOURS	\$93.50
Load King Lowboy Trailer (Equivalent - 40 Ton)	\$46.38	10.00	HOURS	\$463.80
JLG 1255 Telehandler (Equivalent)	\$47.16	88.25	HOURS	\$4,161.64
New Holland E35B Mini-Excavator(Equivalent)	\$14.71	7.79	HOURS	\$114.55

Materials Costs

The materials needed for this project are itemized by major category and by unit price, quantity and purpose. All costs were derived from a recent quotes or actual recent purchases from suppliers.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Supplies and Materials				
CONCRETE - PORTLAND CEMENT	20.99	100	50# BAGS	\$2,099.00
27" PVC PIPE	\$47.45	1620	FEET	\$76,869.00
21" PVC PIPE	\$29.33	9385	FEET	\$275,262.05
27 x 15 T	\$996.07	1	FITTING	\$996.07
27 x 10 T	\$951.11	3	FITTING	\$2,853.32
27 45° ELBOW	\$1,230.79	2	FITTING	\$2,461.58
27 x 21 REDUCER	\$797.76	1	FITTING	\$797.76
21 X 15 T	\$665.38	3	FITTING	\$1,996.15
21 X 12 T	\$572.65	3	FITTING	\$1,717.96
21 x 10 T	\$567.22	2	FITTING	\$1,134.44
21 90° ELBOW	\$813.68	2	FITTING	\$1,627.37
16" BUTTERFLY VAVLE	\$1,163.16	2	VALVE	\$2,326.32
16" X 15" VAN STONE FLANGES	\$655.59	4	FLANGE	\$2,622.36
15" VALVE EXT STEMS - 48"	\$875.00	4	STEM	\$3,500.00
15" 90° ELBOW	\$338.88	6	FITTING	\$2,033.28
15" 45° ELBOW	\$157.67	2	FITTING	\$315.35
15" 30° ELBOW	\$157.67	2	FITTING	\$315.34
15" 22.5° ELBOW	\$128.65	2	FITTING	\$257.30
15" COUPLER	\$94.20	6	FITTING	\$565.20
12" SILVER ARCHER VALVE	\$582.58	1	VALVE	\$582.58
12" VAN STONE FLANGES	\$249.00	2	FLANGE	\$498.00
10" SILVER ARCHER VALVE	\$435.34	3	VALVE	\$1,306.01
10" VAN STONE FLANGES	\$233.76	6	FLANGE	\$1,402.56
8" SILVER ARCHER VALVE	\$296.24	1	VALVE	\$296.24
8" VAN STONE FLANGES	\$144.00	2	FLANGE	\$288.00
8"- 12" VALVE EXT STEMS - 48"	\$229.56	7	STEM	\$1,606.92
10" METER TUBE WITH BELL END	\$395.25	1	TUBE	\$395.25
10" METER TUBE WITH ROLLED END	\$395.25	1	TUBE	\$395.25
10" 90° ELBOWS	\$179.12	10	FITTING	\$1,791.24
10" FLOW METERS	\$2,010.00	2	METER	\$4,020.00
8" FLOW METERS	\$1,657.84	1	METER	\$1,657.84
21" BUTTERFLY VALVE OR KNIFE VALVE	\$9,013.68	1	VALVE	\$9,013.68
21" VAN STONE FLANGES	\$2,221.66	2	FLANGE	\$4,443.32
Check #1 - FGB-1050-1804	\$41,450.00	2	GATE	\$82,900.00
Check #2 - FGB-1485-1587	\$38,650.00	1	GATE	\$38,650.00
Check #3 - FGB-1675-1587	\$39,980.00	1	GATE	\$39,980.00
Check #4 - FGB-1370-1437	\$33,800.00	1	GATE	\$33,800.00
Check #5 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #6 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #7 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #8 - FGB-1050-1077	\$28,720.00	1	GATE	\$28,720.00
Rubicon FlumeLink - Open Air Sensor	\$11,950.00	1	SENSOR	\$11,950.00
Walkways	\$1,996.67	9	WALKWAY	\$17,970.03

Contractor Costs

Rubicon, as the supplier of the items and materials needed for the automation piece of this project has additional Installation & Commission, and Communication Commissioning (SiteConnect) costs within their quote for the project which are identified below.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Other				
Installation & Commission	\$2,900.00	9	CONTRACTOR	\$26,100.00
SiteConnect - Installation & Commission	\$1,000.00	9	CONTRACTOR	\$9,000.00

Past projects of similar type on KBID's facilities and infrastructure did not have any Environmental and Cultural Resources impacts so no costs have been added for that aspect. As in past projects, the Project Manager for KBID will remain in close contact with the Nebraska-Kanas Area Office prior to and throughout the project.

Kansas Bostwick's contribution to the project funding will come partially from the irrigation district's conservation reserve funds as well as O&M funds raised on annual basis through assessments. The Board of Directors also charges each irrigator receiving a benefit from every project a fee for that benefit. It is Board Policy that anyone receiving a benefit should in some way participate in the cost of the improvement to the system.

As stated earlier in this application, for many years the Republican River Basin remained embroiled in controversy over groundwater depletion of river flows; so much so that the matter ended up in litigation at the United States Supreme Court. As a result of the 2015 United States Supreme Court Settlement concerning the Republican River, in the case of The State of Kansas, Plaintiff v. The State of Nebraska and The State of Colorado, the Court ordered that the State of Kansas be awarded a settlement amount of \$5.5 million from the State of Nebraska. This led to significant collaboration between many users on the Republican River. Through the action of several individuals representing multiple agencies within the State of Kansas and key state legislators, \$3.5 million of the award was secured to be used for water conservation projects in the Republican River Basin in Kansas. Of the \$3.5 million, KBID subsequently signed a contract with the Kansas Water Office (KWO) for \$2.5 million of these non-Federal funds (see KWO Contract No. 16-115 in the appendix). The KWO is the agency who is charged with holding these funds for dispersal to KBID. Therefore, the KWO will be an integral partner with KBID on projects like the one described within this application. This contract outlines that the \$2.5 million earmarked for KBID be used to fund materials purchases for various projects outlined within the contract; all of which are projects to convert open irrigation canals to buried pipe systems. The Ridge Canal is one of the many projects identified within the contract with the KWO.

If successful, Kansas Bostwick will contribute \$198,660.21 to the project by way of providing the equipment and labor. KBID will utilize Supreme Court Settlement Funds held by the Kansas Water Office in the amount of \$297,813.29 for a portion of the materials needed. WaterSMART grant award funding in the amount of \$496,473.49 will

be used to cover the cost of the Installation & Commissioning of the Rubicon Automation Items and the remaining costs of materials needed. Therefore, total project costs would come to \$992,946.99, with KBID providing 50% of the total, and Federal Award Funding comprising the remaining 50%.

RIDGE AUTOMATION - PIPING PROJECT	
SOURCE	AMOUNT
FEDERAL FUNDING - WaterSMART Grant	\$496,473.49
IN KIND COSTS - Applicant	\$198,660.21
Supreme Court Settlement Funding - Held for Applicant by KS Water Office	\$297,813.29

Environmental and Cultural Resource Considerations

Construction of Kansas Bostwick Irrigation District was done in several phases. The first phase of the project, or Block I, was completed in 1957. The final phase of the project, or Block IV, was completed in 1969. As one can imagine, the construction of approximately 250 miles of canals and water delivery structures through previously unirrigated land caused a significant impact to the local environments where the construction originally took place.

At KBID, we like to think that through the conversion of open canals to buried pipe systems, we are returning the local environment surrounding these projects to the way they existed prior to canal construction, but still with the benefit of irrigation for increased crop production.

The proposed project should have minimal impact on the surrounding environment. The earth-disturbing work that will occur through the project will be to excavate a trench to lower the pipe into. After the pipe is placed in the trench, it will be back-filled by a bull-dozer or patrol. The remaining profile of the open canal will be eliminated by a bull-dozer and along with a patrol, will be used to smooth and feather out the soil that previously made up the canal channel and profile. The only way in which air quality should be affected during the project is through any dust that may be kicked up by tires or tracks of the machines while they are in operation.

The Summary of the Final Environmental Impact Statement for the Republican River Basin in conjunction with the Repayment and Long-Term Water Service Contract Renewals that was published in June of 2000 didn't identify any Threatened or Endangered Species in our area of the basin.

There are no wetlands or surface waters inside the project boundaries that fall under the Clean Water Act jurisdiction as "Waters of the United States" that would potentially be impacted by this project.

There are no known archaeological sites in the proposed project area.

The proposed project will have no effect on low income or minority populations.

The proposed project will not limit access to any ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

No approvals or permits are necessary for this project.

This proposal for consideration under this program does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding source.

No actual or potential conflict of interest exist for this project and funding proposal.

BUDGET NARRATIVE

THE AUTOMATION & PIPELINE CONVERSION OF THE RIDGE CANAL

Personnel

Jared "Pete" Gile is the Superintendent of KBID and will be the Project Manager. He will be in charge of the day-to-day operations of the project and will be assisted by an on-site Team Lead. Office Manager, Ashleigh Brandenburgh will be in charge of tracking specific figures and costs as the project unfolds. Both individual's roles are considered normal day to day costs for KBID and within their regular daily scope of duties as employees of the district, so their salaries, specifically applicable to this project will not be included as a project cost.

The total labor costs for this project were estimated by reviewing actual labor and machinery hours collected during projects of similar size and scope. Using actual records pertaining to previous projects that involved the installation of large diameter pipelines over known distances, a "per-mile man-hour" estimate has been established. Using this per-mile man-hour estimate, with the fact that this project will involve the burial of 2.1 miles of large diameter pipe, it was determined that this project is estimated to take a total of 2,786.7 man-hours. As all nine KBID field crew employees will be onsite for the entirety of the project the extrapolated figures show that each man will put in 309.63 hours from start to finish of this project.

The KBID foreman will assist the project manager by on-site management of all KBID field crew employees and project tasks to be accomplished throughout the entirety of the project. Both Excavator Operators and the Trencher Operator will assist all other general laborers on all other project activities as needed.

Fringe Benefits

All labor and fringe benefit hourly rates are based upon current wages.

2024 KBID PERSONNEL WAGES & BENEFITS PAID BY EMPLOYER										
EMPLOYEE	HOURLY WAGE	MEDICARE		FICA		KPERs		HEALTH INSURANCE		HOURLY FRINGE RATE
		Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	
Excav. Optr (TA)	\$21.68	\$55.07	\$0.31	\$235.47	\$1.34	\$386.92	\$2.20	\$1,933.60	\$10.99	\$14.84
Trencher Optr. (DD)	\$24.27	\$62.67	\$0.36	\$267.98	\$1.52	\$410.86	\$2.33	\$1,230.40	\$6.99	\$11.20
Excav Optr. (WF)	\$22.67	\$58.10	\$0.33	\$248.41	\$1.41	\$383.26	\$2.18	\$612.82	\$3.48	\$7.40
Laborer (FH)	\$20.47	\$53.54	\$0.30	\$228.91	\$1.30	\$348.31	\$1.98	\$1,316.02	\$7.48	\$11.06
Laborer (TJ)	\$25.17	\$62.09	\$0.35	\$265.47	\$1.51	\$416.46	\$2.37	\$1,933.60	\$10.99	\$15.21
Laborer (BR)	\$19.76	\$48.26	\$0.27	\$206.35	\$1.17	\$318.73	\$1.81	\$542.75	\$3.08	\$6.34
Laborer (RS)	\$19.45	\$48.13	\$0.27	\$205.80	\$1.17	\$325.68	\$1.85	\$542.75	\$3.08	\$6.38
Foreman (AS)	\$25.48	\$69.27	\$0.39	\$296.19	\$1.68	\$452.91	\$2.57	\$1,933.60	\$10.99	\$15.64
Laborer (RW)	\$22.70	\$56.87	\$0.32	\$243.16	\$1.38	\$372.59	\$2.12	\$1,933.60	\$10.99	\$14.81

As in the hourly wage estimates, the fringe benefit total costs for the project are reflected by using the 309.63 hour estimate for this 2.1-mile project and detailed information is shown in the spreadsheet below.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Salaries and Wages				
Excav. Optr (TA)	\$21.68	309.63	HOURS	\$6,712.78
Trencher Optr. (DD)	\$24.27	309.63	HOURS	\$7,514.72
Excav Optr. (WF)	\$22.67	309.63	HOURS	\$7,019.31
Laborer (FH)	\$20.47	309.63	HOURS	\$6,338.13
Laborer (TJ)	\$25.17	309.63	HOURS	\$7,793.39
Laborer (BR)	\$19.76	309.63	HOURS	\$6,118.29
Laborer (RS)	\$19.45	309.63	HOURS	\$6,022.30
Foreman (AS)	\$25.48	309.63	HOURS	\$7,889.37
Laborer (RW)	\$22.70	309.63	HOURS	\$7,028.60
Fringe Benefits				
Excav. Optr (TA)	\$14.84	309.63	HOURS	\$4,593.54
Trencher Optr. (DD)	\$11.20	309.63	HOURS	\$3,469.11
Excav Optr. (WF)	\$7.40	309.63	HOURS	\$2,291.60
Laborer (FH)	\$11.06	309.63	HOURS	\$3,424.89
Laborer (TJ)	\$15.21	309.63	HOURS	\$4,710.63
Laborer (BR)	\$6.34	309.63	HOURS	\$1,963.49
Laborer (RS)	\$6.38	309.63	HOURS	\$1,974.52
Foreman (AS)	\$15.64	309.63	HOURS	\$4,841.43
Laborer (RW)	\$14.81	309.63	HOURS	\$4,585.02

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL LABOR & FRINGE BENEFIT COST	\$94,291.13

Travel

Not Applicable

Equipment

Not Applicable

Supplies

Not Applicable

Contractual

Not Applicable

Construction – Equipment Use

KBID owns all the necessary equipment and machinery that will be required for this project; none will have to be rented. KBID established hourly rates for this application by using rates established by the United States Army Corps of Engineers within their 2022 Hourly Equipment Ownership and Operating Expense Manual.

Machinery hours for this project were estimated by reviewing actual labor and machinery hours collected during projects of similar size and scope. Similar to the estimation of man-hour on this project, equipment use costs were determined in much the same was. Using actual records pertaining to previous projects that involved the installation of large diameter pipelines over known distances, a “per-mile machine-hour” estimate for each piece of machinery. Using this per-mile machine-hour estimate for each specific machine in KBID’s fleet, it was determined that total equipment use costs for this project is estimated to be \$104,369.08

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Equipment				
JCB Excavator (Equivalent - 47,400#, 153 HP)	\$71.58	129.92	HOURS	\$9,299.58
CAT 323 Excavator (Equivalent - 47,400#, 153 HP)	\$71.58	133.59	HOURS	\$9,562.09
CAT 314 Long-reach Excavator (Equivalent - 128 HP, Long-reach)	\$87.89	95.71	HOURS	\$8,411.58
CAT D7 Dozer (Not exact D7, but CAT D7 nonetheless)	\$181.45	130.95	HOURS	\$23,760.62
IHC TD-15 Dozer (Equivalent - 145 HP)	\$119.22	76.94	HOURS	\$9,172.95
Fiat-Allis 14C Dozer (Equivalent 155 HP)	\$119.22	125.60	HOURS	\$14,973.80
Linkbelt Is-78 Crane (Equivalent - crawler-30 ton - 33'-80' boom)	\$124.74	6.03	HOURS	\$752.02
Skid Steer (Equivalent 60" bucket, 67 HP)	\$23.62	3.44	HOURS	\$81.29
Motorgrader (Equivalent - 179 HP)	\$78.66	36.78	HOURS	\$2,892.73
Hough International 540 Loader #1 (Equivalent - 208 HP)	\$74.12	29.52	HOURS	\$2,187.69
Komatsu 540 Loader #2 (Equivalent - 208 HP)	\$74.12	49.91	HOURS	\$3,699.53
Forklift (Equivalent - 8,000#, 74HP)	\$29.18	1.26	HOURS	\$36.65
2700 Hydramaxx Port Industries Trencher (Equivalent)	\$210.78	62.72	HOURS	\$13,220.90
T-35 Peterbilt Regular Bed Dump Truck #1(Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-37 Peterbilt Rock Bed Dump Truck #2 (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-32 IHC Little Blue Dump Truck #3 (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-40 Green Army American General Dump Truck (Equivalent)	\$46.38	8.00	HOURS	\$371.04
T-39 Peterbilt Semi Truck (Equivalent 75,000# GVW)	\$9.35	10.00	HOURS	\$93.50
Load King Lowboy Trailer (Equivalent - 40 Ton)	\$46.38	10.00	HOURS	\$463.80
JLG 1255 Telehandler (Equivalent)	\$47.16	88.25	HOURS	\$4,161.64
New Holland E35B Mini-Excavator(Equivalent)	\$14.71	7.79	HOURS	\$114.55

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL EQUIPMENT USE COST	\$104,369.08

Construction – Materials Costs

The materials needed for this project are itemized by major category and by unit price, quantity and purpose. All costs were derived from a recent quotes or actual recent purchases from suppliers.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Supplies and Materials				
CONCRETE - PORTLAND CEMENT	20.99	100	50# BAGS	\$2,099.00
27" PVC PIPE	\$47.45	1620	FEET	\$76,869.00
21" PVC PIPE	\$29.33	9385	FEET	\$275,262.05
27 x 15 T	\$996.07	1	FITTING	\$996.07
27 x 10 T	\$951.11	3	FITTING	\$2,853.32
27 45° ELBOW	\$1,230.79	2	FITTING	\$2,461.58
27 x 21 REDUCER	\$797.76	1	FITTING	\$797.76
21 X 15 T	\$665.38	3	FITTING	\$1,996.15
21 X 12 T	\$572.65	3	FITTING	\$1,717.96
21 x 10 T	\$567.22	2	FITTING	\$1,134.44
21 90° ELBOW	\$813.68	2	FITTING	\$1,627.37
16" BUTTERFLY VAVLE	\$1,163.16	2	VALVE	\$2,326.32
16" X 15" VAN STONE FLANGES	\$655.59	4	FLANGE	\$2,622.36
15" VALVE EXT STEMS - 48"	\$875.00	4	STEM	\$3,500.00
15" 90° ELBOW	\$338.88	6	FITTING	\$2,033.28
15" 45° ELBOW	\$157.67	2	FITTING	\$315.35
15" 30° ELBOW	\$157.67	2	FITTING	\$315.34
15" 22.5° ELBOW	\$128.65	2	FITTING	\$257.30
15" COUPLER	\$94.20	6	FITTING	\$565.20
12" SILVER ARCHER VALVE	\$582.58	1	VALVE	\$582.58
12" VAN STONE FLANGES	\$249.00	2	FLANGE	\$498.00
10" SILVER ARCHER VALVE	\$435.34	3	VALVE	\$1,306.01
10" VAN STONE FLANGES	\$233.76	6	FLANGE	\$1,402.56
8" SILVER ARCHER VALVE	\$296.24	1	VALVE	\$296.24
8" VAN STONE FLANGES	\$144.00	2	FLANGE	\$288.00
8"- 12" VALVE EXT STEMS - 48"	\$229.56	7	STEM	\$1,606.92
10" METER TUBE WITH BELL END	\$395.25	1	TUBE	\$395.25
10" METER TUBE WITH ROLLED END	\$395.25	1	TUBE	\$395.25
10" 90° ELBOWS	\$179.12	10	FITTING	\$1,791.24
10" FLOW METERS	\$2,010.00	2	METER	\$4,020.00
8" FLOW METERS	\$1,657.84	1	METER	\$1,657.84
21" BUTTERFLY VALVE OR KNIFE VALVE	\$9,013.68	1	VALVE	\$9,013.68
21" VAN STONE FLANGES	\$2,221.66	2	FLANGE	\$4,443.32
Check #1 - FGB-1050-1804	\$41,450.00	2	GATE	\$82,900.00
Check #2 - FGB-1485-1587	\$38,650.00	1	GATE	\$38,650.00
Check #3 - FGB-1675-1587	\$39,980.00	1	GATE	\$39,980.00
Check #4 - FGB-1370-1437	\$33,800.00	1	GATE	\$33,800.00
Check #5 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #6 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #7 - FGB-1180-1437	\$32,590.00	1	GATE	\$32,590.00
Check #8 - FGB-1050-1077	\$28,720.00	1	GATE	\$28,720.00
Rubicon FlumeLink - Open Air Sensor	\$11,950.00	1	SENSOR	\$11,950.00
Walkways	\$1,996.67	9	WALKWAY	\$17,970.03

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL MATERIALS COST	\$759,186.77

Other

Rubicon, as the supplier of the items and materials needed for the automation piece of this project has additional Installation & Commission costs within their quote (Rubicon Quote #Q502083a) for the project which are identified below.

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	\$/UNIT	QUANTITY		
Other				
Installation & Commission	\$2,900.00	9	CONTRACTOR	\$26,100.00
SiteConnect - Installation & Commision	\$1,000.00	9	CONTRACTOR	\$9,000.00

RIDGE AUTOMATION - PIPING PROJECT	
OTHER COST	\$35,100.00

RIDGE AUTOMATION - PIPING PROJECT	
TOTAL LABOR & FRINGE BENEFIT COST	\$94,291.13
TOTAL EQUIPMENT USE COST	\$104,369.08
TOTAL MATERIALS COST	\$759,186.77
OTHER COST	\$35,100.00
TOTAL PROJECT COST	\$992,946.99

ATTACHMENT A
BUDGET DETAIL AND NARRATIVE TEMPLATE

Summary			
6. Budget Object Category	Total Cost	Federal Estimated Amount	Non-Federal Estimated Amount
a. Personnel	\$62,437		
b. Fringe Benefits	\$31,854		
c. Travel	\$0		
d. Equipment	\$0		
e. Supplies	\$0		
f. Contractual	\$0		
g. Construction	\$863,556		
h. Other Direct Costs	\$35,100		
i. Total Direct Costs	\$992,947		
i. Indirect Charges	\$0		
Total Costs	\$992,947	\$496,473	\$496,473
Cost Share Percentage		50%	50%

APPENDIX #1

- Official Board Resolution
- Mandatory Federal Forms

KANASAS BOSTWICK IRRIGATION DISTRICT NO. 2

RESOLUTION NO. 2024-05

Whereas the Republican River Basin is frequented by drought,

Whereas water is the lifeblood of the agricultural community,

Whereas WaterSMART grants provide a source of funding for capital improvements of the District,

Whereas the installation of canal automation products and technology to increase efficiencies within the District are necessary for the District's future viability,

Whereas funding is needed to maintain continuity in the District's efforts to improve efficiency,

Now therefore be it resolved that the Kansas Bostwick Irrigation District No. 2 Board of Directors agrees and authorizes that this application be submitted to the Bureau of Reclamation for the consideration under the **WaterSMART Grants: Water and Efficiency Grants for Fiscal Year 2024 and Fiscal Year 2025, Funding Opportunity Number R24AS00052** grant program for the installation of automated gates and buried pipeline on the Ridge Canal. Superintendent, Jared "Pete" Gile is granted the legal authority to enter into an agreement. If selected, the Board of Directors agree to provide in-kind funding to the project and will work closely with Reclamation to meet all established deadlines.

The foregoing Resolution was considered by the Board of Directors of the Kansas Bostwick Irrigation District No. 2 at a meeting held on 4 October 2024, and unanimously adopted.

BOARD OF DIRECTORS



Gary L. Housholder – President



Brad D. Peterson - Secretary



Monty D. Dahl - Treasurer

APPENDIX #3

- Letters of Support

900 SW Jackson Street, Suite 404
Topeka, KS 66612

Connie Owen, Director



Phone: (785)-296-3185
Fax: (785)-296-0878
www.kwo.ks.gov

Laura Kelly, Governor

October 24, 2024

Dear WaterSMART Grants Selection Committee,

The Kansas Water Office (KWO) is pleased to support the WaterSMART grant application by the Kansas Bostwick Irrigation District (KBID). The KBID intends to use the grant for a combination canal automation/pipeline burial project for the Ridge Canal.

The proposed project will entail the automation of 8 existing check structures with the installation of Rubicon FlumeGates to maintain designed water surface in each bay, regardless of flow rate, as well as the ability to view canal level and flow rate 24 hours a day at each site. The proposed project will also include the conversion of the last 2.1 miles of the Ridge to an underground piped system.

The main benefit of the automation piece of the project includes having real-time monitoring of operational spills allowing for immediate changes to overall diversions into the canal. For example, when the KBID detects water spilling, through alarms and alerts from Rubicon's NueroFlo SCADA system, they will reduce top end diversions.

KWO continues to seek out potential opportunities to collaborate with water conscious entities like the KBID. The KBID lies within the Solomon-Republican Regional Planning Area and water conservation and collaboration are goals of this region's committee. Funding of this grant will positively affect both of these, positively impacting water consumers within the region.

Please let me know if you need further information or clarification in order for funding of this grant to move forward.

Sincerely,

Connie Owen
Director
Kansas Water Office



Bostwick Irrigation District in Nebraska

P.O. Box 446, Red Cloud, Nebraska 68970
Phone/Fax (402) 746-3424

October 24, 2024

To everyone it may concern:

This letter is written on behalf of the management and Board of Directors of the Bostwick Irrigation District in Nebraska (NBID). We would like to wholeheartedly express our full support for the Kansas Bostwick Irrigation District's (KBID) application for a WaterSMART grant to automate the remaining check structure on the Ridge Canal and install 2.1 more miles of pipe. Both districts rely on an ever dwindling supply of our most important resource, water, in the Republican River Valley, to deliver water to our constituents so they might be able to irrigate crops in a timely fashion. As NBID is in the finishing phases of fully automating our largest canal, we can vouch for the importance of fully automating a canal and installing buried pipe. These conservation measures have been going on for years and will be ongoing for the future. This project would be another step in furthering the effort to save water by improving the efficiency and reducing waste due to precise discharges. This would lead to conserving the water in Lovewell and reduce the need to release more water out of Harlan County Reservoir.

KBID and NBID both strive to manage our water resources as effectively as we can and this project would be another step forward towards that goal. NBID supports this project without hesitation.

Sincerely,

Sage Sanger
General Manager
Bostwick Irrigation District in Nebraska

“Water is Life”

October 23, 2024

To whom it may concern:

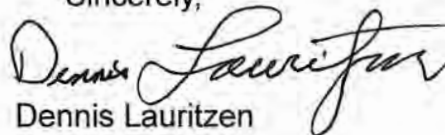
My name is Dennis Lauritzen and I'm an irrigator within KS Bostwick Irrigation District. Many of my irrigated fields are supplied water by the Ridge Canal. The Ridge has been a troublesome canal over the years with fluctuating canal levels. It has improved over the last few years since the irrigation district installed automated headgates for more consistent flows, but the bays I irrigate from still fluctuate some which can cause issues.

Pete has told me they plan to apply for a grant to automate the Ridge Canal which will eliminate the fluctuation issue which I'm in full support of.

Additionally, I have been considering the installation of a center pivot in the NW¼ of Section 28-1-5. With the pipeline to be installed as a part of this project the likelihood of me doing that would increase as this portion of my property would now be supplied with screened water delivered through a pipeline instead of the presently open canal.

Therefore, I'd like to voice my support of KBID's application for this WaterSMART grant opportunity for federal funding.

Sincerely,


Dennis Lauritzen