CONVERTING

RIDGE 1.3 RIGHT

OPEN LATERAL TO A BURIED PIPE SYSTEM

Funding Opportunity Announcement No. BOR-DO-20-F001

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Years 2020 and 2021

APPLICANT:

KANSAS BOSTWICK IRRIGATION DISTRICT

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KWO Contract No.16-115

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Executive summary

Date: September 30th, 2019

Applicant Name: Kansas Bostwick Irrigation District

City: Courtland

County: Republic

State: Kansas

Through the activities outlined in this application, Kansas Bostwick Irrigation District (KBID) plans to convert the Ridge 1.3 Right lateral canal into a buried pipe system. If successful through this application, the funding awarded will be used to purchase materials needed to complete this project. This project accomplishes one of the specific goals outlined in the FOA through the piping of canals to conserve water.

If successful through this application, the project will commence in mid-October of 2020 and will be completed, at the very latest, by the end of May 2021 and prior to the 2021 Irrigation Season.

The proposed project takes place within and as part of KBID which is a Bureau of Reclamation Irrigation District. Since inception, KBID has had perpetual easements and right-of-way for its canal system which passes through private landowner property.

Background Data

Kansas Bostwick Irrigation District (KBID) is a Pick-Sloan Project headquartered in Courtland, Kansas. The district is served by flows of the Republican River and White Rock Creek. The district holds Water Rights #385 and #4673 with the State of Kansas and is strictly utilizes these rights for agricultural irrigation. As with most irrigation districts reliant on surface streamflow and subject to changing climatic conditions, the total quantity of water supply that is manageable varies from year to year. However, under water right #385 for flows of the Republican River, KBID is able to manage up to 102,521 acre-feet annually if it is available. Through water right #4673 for flows of White Rock Creek, KBID is able to manage up to 19,700 acre-feet annually.

KBID consists of approximately 100 miles of unlined open main canals, 40 miles of unlined open lateral canals and 110 miles of buried PVC pipeline providing

service to 42,500 acres of cropland in Republic and Jewell Counties in Kansas. The three primary crops raised in the district are Corn, Soybeans and Alfalfa. There are approximately 350 landholders served by the district through approximately 675 field turnouts. KBID considers 15" per acre to be a full supply for its irrigators, however, in most of the last 25 years, restrictions have been imposed on irrigators in the district due to short water supplies.

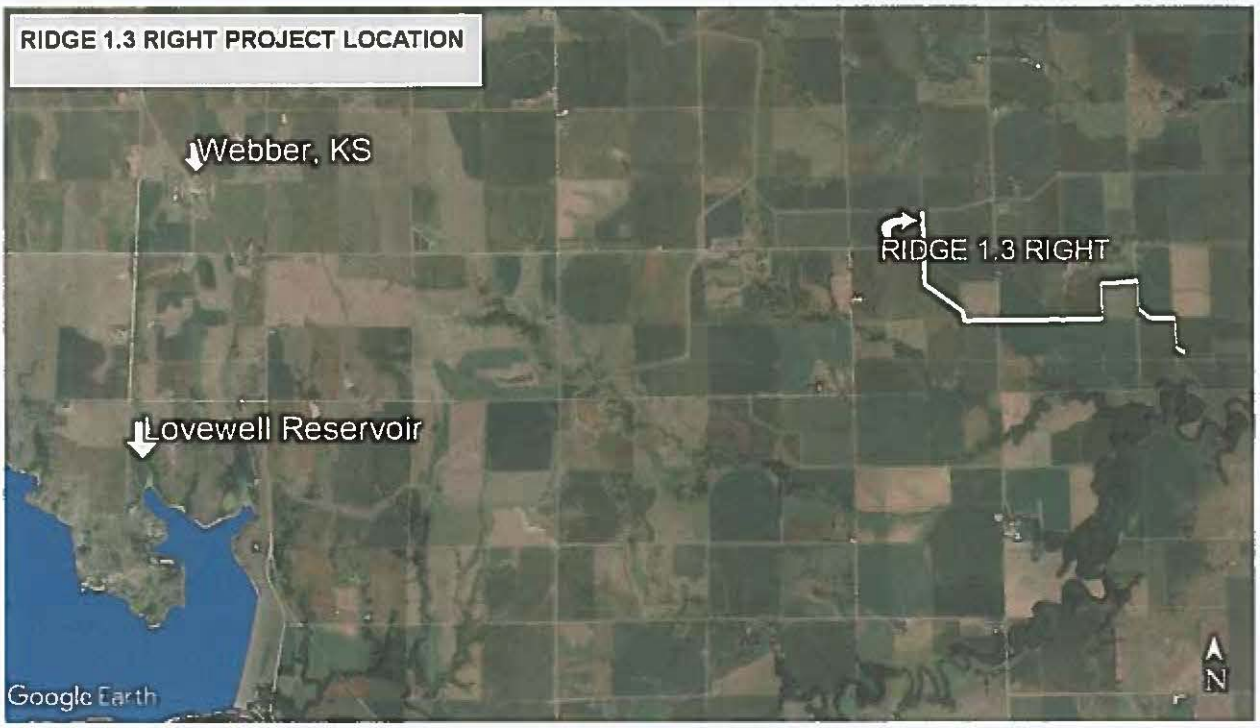
The Republican River Basin remained embroiled in controversy over groundwater depletion of river flows from the late 1990s until the latest Supreme Court Settlement on the issue that was delivered in 2015. That particular ruling stated that Nebraska had not delivered the prescribed amount of water to Kansas. For its overuse of allocation, the Court ordered Nebraska to pay Kansas $5.5 million. While the ruling went in favor of Kansas, it didn't not bring back the water that Nebraska overused in the past. While relations on the issue between the states have recently improved, the most recent Supreme Court action leaves compact compliance in the hands of the State of Nebraska. Kansas, and therefore KBID's supply in water-short years, is now based upon the State of Nebraska's forecast of water availability and ability to augment river flows by shutting off surface projects and ordering water released from reservoirs in Nebraska to deliver "Compact" water to Kansas, as well as pumping groundwater from two augmentation facilities. The only tool KBID has to answer the problems created by this controversy and to protect what supply is available annually, is to continue improving the district's efficiency and conserving water, primarily through projects like the one outlined in this application.

KBID has previously worked in conjunction with the Bureau of Reclamation on numerous Water Conservation Field Services Program opportunities the district has been awarded. Under a 2025 challenge grant applied for in 2006 and awarded in 2007, 9 miles of large laterals were buried by the fall of 2010. An estimated 26 miles of laterals have also been buried under Field Service Agreements in the last 18 years. In 2018, KBID completed the burial of 1.3 miles of small laterals using funding received through a WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2017. In addition, the district has buried 71 miles of laterals without assistance from Reclamation. Currently the district is completing the burial of 3.38 miles of pipeline to eliminate 4.1 miles of lateral canals with assistance from a WaterSMART Grants: Water and Energy Efficiency Grant for Fiscal Year 2018. This 2018 WaterSMART Grant project will be completed by the beginning of the 2020 Irrigation Season. KBID was also just recently awarded two additional WaterSMART Grants: Small-Scale Water Efficiency Projects for Fiscal Year 2019. Through those particular awards, KBID will

eliminate another 2.12 miles of open lateral canal and replace it with buried pipe. At the time of this application, KBID has buried 109.77 miles of pipe in the conversion of open lateral canals to buried pipe systems. With the approval of this application, continuity may be maintained in the district's goal of converting open canals to buried pipe systems.

Project Location

The Ridge 1.3 Right lateral headgate and the initial 1.1 miles of the lateral is located in Jewell County, Kansas until it crosses the county line and proceeds into Republic County, Kansas until it reaches its terminal end. The Ridge 1.3 Right lateral headgate is approximately 5.0 miles east of Webber, KS in Jewell County, Kansas. Likewise, the Ridge 1.3 Right lateral project location is also approximately 5.0 mile east-northeast of the inlet to Lovewell Reservoir. The project latitude is 39°55'N and longitude is 97°56'W.



Technical Project Description

The activity and work involved in completing the proposed project will include three major tasks as follows:

Task 1 - Site Preparation - will begin mid-October, 2020
Task 2 - Laying pipeline and installing turnouts - when able following Task 1

Task 3 - Concluding tasks of the project after the pipe is laid - site cleanup and final dirt work - will conclude no later than the end of May in 2021

As a general rule, the duration of each portion of the project is estimated in the following manner: Task 1 represents 30% of the project, Task 2, 60%, and Task 3, 10% of the project.

Task 1 preparation includes 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. Also included in task 1 is the stockpiling of pipe and material to be used on the project.

Task 2 includes the use of the KBID trencher to trench the line for the pipe. An excavator with a sling is used to swing the pipe into the trench and align the pipe to be pushed together. A bull dozer or patrol is then used to backfill the trench.

Also included within task 2 will be the installation of a new large diameter butterfly valve to replace the open canal headgate for turning the pipeline on and off. At this time aeration screens will also be installed in the canal to supply the pipeline with clean, screened water. These particular items in task 2 will begin at the Ridge Main Canal Station 68 + 39.0 where the Ridge 1.3 Right lateral headgate is located.

Task 3 includes picking up any and all scrap or excess material left on the site and leaving it in a manner that the landowner can do further earthwork if they desire with their own farm equipment. Any open lateral, which is not in the alignment of the pipeline, will also be destroyed in task 3.

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, it's important to note that none of the project tasks will require any labor or machinery support outside of the district's own work force & equipment.

As this project will leave existing easement and right-of-way for the proposed route of the buried line, new easements will be needed. KBID has previously worked with the Nebraska-Kansas Area Office of the Bureau of Reclamation in acquiring new easements for similar projects and will do so again on this project.

Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (30 points)

*Up to **30 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.*

All applicants should be sure to address the following:

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.

Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

As a direct result of this project 623 acre-feet (AF) of water will be saved and conserved each year. By removing operational spills experienced at the Ridge 1.3 Right lateral waste way the project will save 135 AF of water per year. An additional 488 AF of water will be saved through the elimination of seepage losses to the ground and evaporative losses to the environment. The water conserved and saved through this project is more thoroughly examined below.

Describe current losses: Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Describe the support/documentation of estimated water savings: Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. *In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are <u>not</u> sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.*

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.

(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 the following:

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.

All of the above questions will be answered within the narrative and data provided below.

The most easily measured result and expectation of the project will be identified through the conservation of water. The water that will be conserved through this project is currently being lost due to three main reasons: seepage, evaporation, and operational spills at the terminal end of the lateral and out its waste-way. The water spilled at the waste-way ends up returning to White Rock Creek through open drains, and eventually the Republican River.

Average annual canal seepage and evaporative losses were determined by Inflow-Outflow testing conducted on the Ridge 1.3 Right lateral during the 2017 Irrigation Season. A total of 9 tests were conducted. The first tests occurred on June 23, 2017 and the finals tests occurred on September 11, 2017.

Measurements were taken by using weir sticks and measuring flows over check structures behind the lateral head gate. Measurements were taken using the same method at the waste-way for the lateral. All measurements were taken in the morning between the hours of 7am and 9am and prior to any changes in total flow and overall deliveries being made on the laterals. This being the case, when the inflow/outflow measurements were taken on each of these mornings,

the canals had been running at stabilized levels for previous 22 to 24 hours ensuring the accuracy of the data recorded in relation to seepage and evaporative losses.

The data collected showed that seepage and evaporative losses averaged 0.972 cubic-feet per second per mile. (See table below) This equates to 1.94 Acre-feet lost per mile on the Ridge 1.3 Right lateral per day. Using an average length 90-day irrigation season, and the 2.79-mile total distance of open canal to be eliminated by this project, KBID should experience an annual water savings of 488 acre-feet due to seepage and evaporative savings alone.

INFLOW/OUTFLOW TESTS							
RIDGE 1.3 RIGHT LATERAL - 2.79 MILES BETWEEN MEASUREMENT LOCATIONS							
MEASUREMENT DATA SHOWN IN CUBIC-FEET PER SECOND (CFS)							
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	DISTANCE (MILES)	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	8:00 AM	3.07	0.00	0.00	2.79	3.07	1.1004
7/23/2017	7:00 AM	12.90	5.50	0.00	2.79	7.40	2.6523
7/31/2017	7:00 AM	5.55	3.80	1.06	2.79	0.69	0.2473
8/7/2017	7:00 AM	3.00	0.00	1.02	2.79	1.98	0.7097
8/14/2017	7:00 AM	3.00	0.00	1.02	2.79	1.98	0.7097
8/21/2017	7:00 AM	3.50	1.00	1.00	2.79	1.50	0.5376
8/28/2017	7:00 AM	8.15	4.80	1.02	2.79	2.33	0.8351
9/4/2017	7:00 AM	5.75	1.80	1.00	2.79	2.95	1.0573
9/11/2017	7:00 AM	5.80	1.80	1.50	2.79	2.50	0.8961
				AVG LOSS PER MILE (CFS)			0.9717

This project will also eliminate a waste-way and therefore the associated operational spills. By using a conservative figure of 0.75 cubic feet per second as the operational spill amount over this waste-way every day throughout an estimated 90-day irrigation season, this project will save an additional 135 acre-feet of water annually.

Therefore, by combining the amount of water saved from seepage and evaporative losses with the amount of water saved by eliminating operational spills through the waste-way, it is expected that a minimum of 623 acre-feet of water would be conserved annually by completing this project.

The actual seepage, evaporative and operational spill reductions will be verified after the completion of this project by comparing pre and post project data.

The specific materials being used in this project will consist of PVC pipe rated at 80 PSI. All of the fittings used in this project will either be gasket style or solvent weld style and rated at a minimum of 100 PSI. All field turnouts installed will be controlled by nickel-plated butterfly gear valves that can either be buried or placed above the surface of the ground.

E.1.2. Evaluation Criterion B—Water Supply Reliability (18 points)

*Up to **18 points** may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.*

Note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11 (see p. 52 of the FOA for additional information).

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1. Will the project address a specific water reliability concern? Please address the following:

    - Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

    - Describe how the project will address the water reliability concern? In your response, please address where the conserved water 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.

    - Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

    - Indicate the quantity of conserved water that will be used for the intended purpose.

2. Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:

    - Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

        - 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.

- Will the project benefit a larger initiative to address water reliability?

- Will the project benefit Indian tribes?

- Will the project benefit rural or economically disadvantaged communities?

- Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved water will go and where 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.

3. Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?

   - Is there widespread support for the project?

   - What is the significance of the collaboration/support?

   - Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

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

   - Describe the roles of any partners in the process. Please attach any relevant supporting documents.

4. Will the project address water supply reliability in other ways not described above?

All of the above questions within Evaluation Criterion B are answered within the discussion below.

The specific water reliability concern that will be addressed through this project is and will be the ability for KBID to more efficiently provide irrigation to the same number of acres as in the past, all while using less water from the Republican River. As stated earlier within this application, groundwater depletions and overuse by upstream users within the Republican River Basin significantly impacted KBID's available water supplies in the past. While much has been done to partially alleviate this concern, including the State of Nebraska's implementation of using augmentation wells to provide the prescribed amount of Republican River water to users in Kansas and to remain in compliance with The Republican River Compact, some concern still exists. Through projects like

this one, KBID will not only be able to use its currently supplies more efficiently, but will also be able to more effectively manage future potential short-supply issues.

As stated above, with this open canal to buried pipe conversion project, there will be a definite and quantifiable amount of water saved each year following its completion. At a minimum using the calculations and date gathered in 2017 through the Inflow-Outflow testing, we expect annual savings of 623 Acre-feet of water. By reducing the overall amount of diversions needed by KBID it should in turn increase stream flows in the Republican River. This will benefit multiple sectors, facets and species of the environment reliant on steady flows on the Republican River and downstream locations.

Projects like this one will not only allow for less water to be diverted from the Republican River but will also allow for less water to be released from KBID's upstream supply reservoir, Harlan County Lake, to meet daily diversion demands. This should result in more water being left in the reservoir at the end of each irrigation season resulting in increased opportunities for recreational activities including fishing and boating.

This project and other conservation measures that allow for less water to be diverted from the natural flows of the Republican River subsequently means the potential for more beneficial uses of water to multiple users across multiple sectors.

To highlight other positive impacts a project like this one would have on the overall Republican River Basin, one can look to users downstream of KBID. Not only are there other agricultural users of water downstream of KBID on the Republican River, but municipal users also exist. 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.

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

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.

This project also will benefit a larger initiative to address water reliability. In October of 2013, then Kansas Governor, Sam Brownback, issued a call to action for his Administration to develop a 50-year Vision for the Future of Water in Kansas. The Mission Statement of the Vision is to "*Provide Kansans with the framework, policy and tools, developed in concert with stakeholders, to manage, secure and protect a reliable, long term statewide water supply while balancing conservation with economic growth.*" A project like the one outlined in this application falls directly in line with the 50-year Vision. In fact, KBID's pipeline burial projects have been highlighted during the Kansas Governor's Annual Conference on the Future or Water in Kansas on multiple occasions.

A project like this one most certainly will benefit the rural communities in and around the Kansas Bostwick Irrigation District. KBID has portions of its district that are located in both Republic County, Kansas and Jewell County, Kansas. To understand just how rural these areas are one can look at the total populations of each county. The total population of Jewell County is 2,970 and that of Republic County is 4,725. The majority of the economy in each county is driven by agriculture and is strengthened through the irrigation that is provided by KBID. Pipeline projects like this one ensure the continued viability of the district an enable it to continue to provide irrigation to local farmers, even during times of limited supply, who then in turn, help drive the local economy.

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.

With several irrigation districts and other water users in the upstream states of Colorado and Nebraska also relying on the flows of the Republican River, any conservation measures that can be taken in the basin, such as the piping of canals within KBID, has the potential to positively impact the overall circumstances. By reducing the overall demand for the precious resource of water from the Republican River Basin conservation projects like this one have the potential to help resolve future water related conflicts in the region and prevent further water-related conflicts and litigation, thus there exists widespread support for projects like this one.

Kansas Bostwick Irrigation District (KBID) is one part of the The Bostwick Division within the Bureau of Reclamation's Nebraska-Kansas Project Area, and the Nebraska Bostwick Irrigation District (NBID) headquarted in Red Cloud, NE makes up the second part. The Bureau of Reclamation is tasked with apportioning the available water to each district within the Bostwick Division in an equitable manner through a formula within a Memorandum of Agreement (MOA) between the districts. Therefore, conservation projects that occur in either district of the Bostwick Division also stand to benefit the other district. As a result,

the project described in this application will not only benefit KBID but it will also benefit and continue to encourage collaboration with NBID.

This project will also result in at least one new center pivot to be installed on one particular landowner's property which will further conserve water by more efficient application methods than used in the past.

E.1.3. Evaluation Criterion C—Implementing Hydropower (18 points)

*Up to **18 points** may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.*

If the proposed project includes construction or installation of a hydropower system, please address the following:

Describe the amount of energy capacity. For projects that implement hydropower systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe the amount of energy generated. For projects that implement hydropower systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe any other benefits of the hydropower project. Please describe and provide sufficient detail on any additional benefits expected to result from the hydropower project, including:

- Any expected reduction in the use of energy currently supplied through a Reclamation project.
- Anticipated benefits to other sectors/entities.
- Expected water needs, if any, of the system.

Not Applicable.

E.1.4. Evaluation Criterion D—Complementing On-Farm Irrigation Improvements (10 points)

*Up to **10 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.*

Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on- farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would

complement the WaterSMART Grant project. Financial assistance through EQIP is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. **Applicants are *not* required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Please note: on-farm improvements themselves are *not* eligible activities for funding under this FOA. This criterion is intended to focus on how the WaterSMART Grant project will complement ongoing or future on-farm improvements. NRCS will have a separate application process for the on- farm components of selected projects that may be undertaken in the future, separate of the WaterSMART Grant project.

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, installation of 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.

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this FOA may be considered for NRCS funding and technical assistance to the extent that such assistance is available. For more information, including application deadlines and a description of available funding, please contact your local NRCS office. See the NRCS website for office contact information, www.nrcs.usda.gov/wps/portal/nrcs/ main/national/contact/states/.

Pipeline projects like the ones described in this application certainly compliment and incentivize on-farm irrigation improvements. As stated earlier within the application 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 1.3 Right Lateral has shown interest in installing a center pivot on his acres that are currently gravity irrigated and inefficient in the NE¼ of Section 36-1-6 in Jewell County, KS. However, as things currently exist with the open canal transecting this property, if a center pivot were to be installed it would only be capable of making an approximately 290° swing as it's end towers would collide with the open canal and bridging the canal in this area simply wouldn't be feasible. This aspect has prevented the landowner from seriously considering a pivot installation on this farm in the past. But, if the Ridge 1.3 Right lateral canal was converted to buried pipe, it would allow for the landowner to install a center pivot capable of completing a full 360° swing allowing for more return on this kind of on-farm

investment. 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 Intent within the appendix materials.) 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.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)

*Up to **10 points** may be awarded based on the extent that the proposal demonstrates that the project supports the Department priorities. Please address 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 proposal.*

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*

    a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;
    b. Examine land use planning processes and land use designations that govern public use and access;
    c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards;
    d. Review Department water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;
    e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;
    f. Identify and implement initiatives to expand access to Department lands for hunting and fishing;
    g. Shift the balance towards providing greater public access to public lands over restrictions to access.

2. *Utilizing our natural resources*

a. Ensure American Energy is available to meet our security and economic needs;
b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;
c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;
d. Manage competition for grazing resources.

3. *Restoring trust with local communities*
   a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;
   b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

4. *Striking a regulatory balance*
   a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;
   b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

5. *Modernizing our infrastructure*
   a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;
   b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
   c. Prioritize Department infrastructure needs to highlight:
      1. Construction of infrastructure;
      2. Cyclical maintenance;
      3. Deferred maintenance.

As it pertains to Department of the Interior (DOI) Priorities, this project is an opportunity to update and improve KBID's distribution system and infrastructure. Federal assistance through this funding opportunity is essential and necessary to aid KBID in its' plan to maintain continuity in the District's overall conservation efforts and to reach contracted goals for improved efficiency. Failure to receive this funding potentially puts this contract commitment at risk.

As stated earlier, controversy surrounded the Republican River Basin in the past. Forward thinking conservation projects like this one help restore trust between the various states that are part of the Republican River Compact and all of their respective users. For other users to see an entity like KBID continuing to implement water conservation measures like pipeline burial projects, it can only aid in strengthening the bonds of trust between all water users in the basin and encourage them to follow suit.

The modernization of KBID's infrastructure though the elimination of open and inefficient laterals and subsequent move towards buried pipelines for the District's delivery system aligns with DOI priorities that concentrate on the general modernization and construction of improved and new infrastructure.

E.1.6. Evaluation Criterion F—Implementation and Results (6 ints)

*Up to **6 points** may be awarded for these subcriteria.*

E.1.6.1. Subcriterion F.1— Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place.

Provide the following information regarding project planning:

1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

2) Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

KBID is the first water right holder on the Republican River in the State of Kansas. The District is obligated to conserve its supply and make valuable use of its share of the Republican River flows. At the present time, the most immediate way for KBID to conserve water is through the burial and piping of currently open canals. It is essential for KBID to be efficient with the water delivered from other states to comply with the Republican River Compact.

Along with this, KBID has a contractual commitment to the Bureau of Reclamation to improve efficiencies. Within Attachment B of Contract No. 009D6B0120 (see Attachment B within the appendix materials), otherwise referred to as the "District Operating Plan", under the heading Water Conservation Measures, the District is required to fund and actively pursue measures to improve efficiencies and conserve water. Within the District, the process of converting open canals to buried pipe systems is of the highest priority within our conservation plan. As KBID works to conserve its' supply, additional water users, the general environment and related organisms will also realize auxiliary benefits of a longer lasting water supply including fish, wildlife,

and recreationalists, not only at the storage reservoirs, but also at downstream locations.

Considerable improvement in efficiency has been realized with past accomplishments through the burial of smaller laterals. However, the tasks remaining, such as the ones outlined in this application, are the larger and more expensive projects beyond the District's ability to achieve without additional funding.

E.1.6.2. Subcriterion F.2— Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see *Appendix A: Benefit Quantification and Performance Measure Guidance.*

All Water and Energy Efficiency Grants applicants are required to propose a "performance measure" (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grants recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

As noted earlier in this application, through the completion of this project, 623 acre-feet (AF) of water will be saved and conserved each year.

Average annual canal seepage and evaporative losses were determined by Inflow-Outflow testing conducted on the Ridge 1.3 Right lateral during the 2017 Irrigation Season. A total of 9 tests were conducted. The first tests occurred on June 23, 2017 and the finals tests occurred on September 11, 2017.

Measurements were taken by using weir sticks and measuring flows over check structures behind the lateral head gate. Measurements were taken using the

same method at the waste-way for the lateral. All measurements were taken in the morning between the hours of 7am and 9am and prior to any changes in total flow and overall deliveries being made on the laterals. This being the case, when the inflow/outflow measurements were taken on each of these mornings, the canals had been running at stabilized levels for previous 22 to 24 hours ensuring the accuracy of the data recorded in relation to seepage and evaporative losses.

The data collected showed that seepage and evaporative losses averaged 0.972 cubic-feet per second per mile. (See table below) This equates to 1.94 Acre-feet lost per mile on the Ridge 1.3 Right lateral per day. Using an average length 90-day irrigation season, and the 2.79-mile total distance of open canal to be eliminated by this project, KBID should experience an annual water savings of 488 acre-feet due to seepage and evaporative savings alone.

INFLOW/OUTFLOW TESTS							
RIDGE 1.3 RIGHT LATERAL - 2.79 MILES BETWEEN MEASUREMENT LOCATIONS							
MEASUREMENT DATA SHOWN IN CUBIC-FEET PER SECOND (CFS)							
DATE	TIME	HEAD-GATE CHECK MEASUREMENT	DELIVERIES EN ROUTE	WASTE WAY MEASUREMENT	DISTANCE (MILES)	EXPERIENCED LOSS	LOSS PER MILE
6/23/2017	8:00 AM	3.07	0.00	0.00	2.79	3.07	1.1004
7/23/2017	7:00 AM	12.90	5.50	0.00	2.79	7.40	2.6523
7/31/2017	7:00 AM	5.55	3.80	1.06	2.79	0.69	0.2473
8/7/2017	7:00 AM	3.00	0.00	1.02	2.79	1.98	0.7097
8/14/2017	7:00 AM	3.00	0.00	1.02	2.79	1.98	0.7097
8/21/2017	7:00 AM	3.50	1.00	1.00	2.79	1.50	0.5376
8/28/2017	7:00 AM	8.15	4.80	1.02	2.79	2.33	0.8351
9/4/2017	7:00 AM	5.75	1.80	1.00	2.79	2.95	1.0573
9/11/2017	7:00 AM	5.80	1.80	1.50	2.79	2.50	0.8961
				AVG LOSS PER MILE (CFS)			0.9717

This project will also eliminate a waste-way and therefore the associated operational spills. By using a conservative figure of 0.75 cubic feet per second as the operational spill amount over this waste-way every day throughout an estimated 90-day irrigation season, this project will save an additional 135 acre-feet of water annually.

Therefore, by combining the amount of water saved from seepage and evaporative losses with the amount of water saved by eliminating operational spills through the waste-way, it is expected that a minimum of 623 acre-feet of water would be conserved annually by completing this project.

The actual seepage, evaporative and operational spill reductions will be verified after the completion of this project by comparing pre and post project data.

E.1.6.3. Subcriterion F.3— Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement.

Applicants that describe a detailed plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

- Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.
- 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 how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

The activity and work involved in completing the proposed project will include three major tasks as follows:

Task 1 - Site Preparation - will begin mid-October, 2020
Task 2 - Laying pipeline and installing turnouts - when able following Task 1
Task 3 - Concluding tasks of the project after the pipe is laid - site cleanup and final dirt work - will conclude no later than the end of May in 2021

As a general rule, the duration of each portion of the project is estimated in the following manner: Task 1 represents 30% of the project, Task 2, 60%, and Task 3, 10% of the project.

Task 1 preparation includes 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. Also included in task 1 is the stockpiling of pipe and material to be used on the project.

Task 2 includes the use of the KBID trencher to trench the line for the pipe. An excavator with a sling is used to swing the pipe into the trench and align the pipe to be pushed together. A bull dozer or patrol is then used to backfill the trench.

Also included within task 2 will be the installation of a new large diameter butterfly valve to replace the open canal headgate for turning the pipeline on and off. At this time aeration screens will also be installed in the canal to supply the pipeline with clean, screened water. These particular items in task 2 will begin at the Ridge Main Canal Station 68 + 39.0 where the Ridge 1.3 Right lateral headgate is located.

Task 3 includes picking up any and all scrap or excess material left on the site and leaving it in a manner that the landowner can do further earthwork if they desire with their own farm equipment. Any open lateral, which is not in the alignment of the pipeline, will also be destroyed in task 3.

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, it's important to note that none of the project tasks will require any labor or machinery support outside of the district's own work force & equipment.

As this project will leave existing easement and right-of-way for the proposed route of the buried line, new easements will be needed. KBID has previously worked with the Nebraska-Kansas Area Office of the Bureau of Reclamation in acquiring new easements for similar projects and will do so again on this project.

No work will be done on this project by sub recipients, consultants, or contractors.

An estimate of $1000 was provided by staff at the Bureau of Reclamation's Nebraska-Kansas Area Office in regards to activities undertaken by Reclamation for environmental and regulatory compliance. This has been included as a line item within the project budget.

E.1.7. Evaluation Criterion G – Nexus to Reclamation Project Activities (4 Points)

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

- Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:
    - Does the applicant receive Reclamation project water?
    - Is the project on Reclamation project lands or involving Reclamation facilities?
    - Is the project in the same basin as a Reclamation project or activity?

- Will the proposed work contribute water to a basin where a Reclamation project is located?

- Will the project benefit any tribe(s)?

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. 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.

E.1.8. Evaluation Criterion H – Additional Non-Federal Funding (4 points)

*Up to **4 points** may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:*

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}}$$

$$\$166,451.32 / \$329,451.32 = 51\%$$

As shown in the calculation above, the non-federal funding percentage for this project will be 51%. Of the $166,451.32 of non-federal funding, KBID will provide $143,603.77 and the remaining $22,847.55 will come from the Supreme Court Settlement Funds held by the Kansas Water Office for exclusive use by KBID. (see KWO Contract No. 16-115 in the appendix)

Project Budget

Funding Plan & Letters of Commitment

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 the District. 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 1.3 Right lateral is one of the many projects identified specifically within the contract with the KWO.

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. This will not be considered in the application and will be a portion of the districts share.

If successful, Kansas Bostwick will contribute $143,603.77 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 $22,847.55 and WaterSMART grant award funding in the amount of $163,000 to cover the cost of materials needed. Therefore, total project costs would come to $329,451.32 with 51% of the total coming from the non-federal sources, and WaterSMART grant award funding comprising the remaining 49%.

Budget Proposal

SOURCE	AMOUNT
Costs to be remibursed with the requested Federal funding	$163,000.00
Costs to be paid by the applicant	$143,603.77
Value of third party contributions	$22,847.55
TOTAL PROJECT COST	**$329,451.32**

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	$/UNIT	QUANTITY		
Salaries and Wages				
Foreman (BM)	$19.72	247.69	HOURS	$4,884.46
Foreman (DR)	$19.61	247.69	HOURS	$4,857.21
Excav. Optr (TA)	$15.58	247.69	HOURS	$3,859.02
Trencher Optr. (DD)	$18.00	247.69	HOURS	$4,458.43
Loader Optr (RE)	$15.46	247.69	HOURS	$3,829.30
Dozer Optr. (GK)	$15.25	247.69	HOURS	$3,777.28
Excav Optr. (WF)	$14.90	247.69	HOURS	$3,690.59
Laborer (CL)	$13.12	247.69	HOURS	$3,249.70
Laborer (LS)	$15.63	247.69	HOURS	$3,871.40
Laborer (FH)	$14.65	247.69	HOURS	$3,628.67
Laborer (NM)	$13.12	247.69	HOURS	$3,249.70
Laborer (NM)	$13.12	247.69	HOURS	$3,249.70
Laborer (NM)	$13.12	247.69	HOURS	$3,249.70
Fringe Benefits				
Foreman (BM)	$11.48	247.69	HOURS	$2,844.54
Foreman (DR)	$10.59	247.69	HOURS	$2,623.79
Excav. Optr (TA)	$14.64	247.69	HOURS	$3,625.64
Trencher Optr. (DD)	$10.84	247.69	HOURS	$2,686.13
Loader Optr (RE)	$6.34	247.69	HOURS	$1,570.86
Dozer Optr. (GK)	$14.65	247.69	HOURS	$3,628.05
Excav Optr. (WF)	$2.57	247.69	HOURS	$636.55
Laborer (CL)	$6.05	247.69	HOURS	$1,499.43
Laborer (LS)	$10.82	247.69	HOURS	$2,678.91
Laborer (FH)	$10.67	247.69	HOURS	$2,642.65
Laborer (NM)	$6.05	247.69	HOURS	$1,499.43
Laborer (NM)	$6.05	247.69	HOURS	$1,499.43
Laborer (NM)	$6.05	247.69	HOURS	$1,499.43
District-Owned Equipment Use				
JCB Excavator	$46.42	168	HOURS	$7,797.17
CAT 320C Excavator	$46.42	145	HOURS	$6,745.29
John Deere 690 Excavator	$56.34	66	HOURS	$3,699.85
CAT D7 Dozer	$85.88	169	HOURS	$14,512.65
IHC TD-15 Dozer	$67.12	112	HOURS	$7,514.25
Fiat-Allis 14C Dozer	$63.91	65	HOURS	$4,144.24
Linkbelt ls-78 Crane	$73.87	9	HOURS	$682.56
Skid Steer	$17.32	12	HOURS	$202.43
Motorgrader	$59.31	31	HOURS	$1,810.44
H-International 540 Loader #1	$82.93	51	HOURS	$4,203.10
Komatsu 540 Loader #2	$82.93	32	HOURS	$2,672.83
Forklift	$20.82	14	HOURS	$289.14
2700 Hydramaxx Port Industries Trencher	$130.58	74	HOURS	$9,699.16
T-35 Peterbilt Regular Bed Dump Truck #1	$37.32	4	HOURS	$132.20
T-37 Peterbilt Rock Bed Dump Truck #2	$49.49	4	HOURS	$198.66
T-36 Red Chevy C-70 Dump Truck #4	$37.32	0.1	HOURS	$2.82
T-32 IHC Little Blue Dump Truck #3	$30.47	2	HOURS	$64.70
T-40 American General Dump Truck	$37.32	0	HOURS	$5.70
T-39 Peterbilt Semi Truck	$45.43	5	HOURS	$222.42
Load King Lowboy Trailer	$12.12	1	HOURS	$11.73
JLG 1255 Telehandler	$47.78	1	HOURS	$37.18
New Holland E35B Mini-Excavator	$10.10	16	HOURS	$165.26

Supplies and Materials				
27" PVC Pipe	$26.49	1479	FEET	$39,178.71
24" PVC Pipe	$20.42	2703	FEET	$55,195.26
21" PVC Pipe	$15.94	2626.5	FEET	$41,866.41
18" PVC Pipe	$11.38	1055.7	FEET	$12,013.87
15" PVC Pipe	$7.66	861.9	FEET	$6,602.15
12" PVC Pipe	$4.88	1050.6	FEET	$5,126.93
10" PVC Pipe	$3.38	1836	FEET	$6,205.68
27 X 24 REDUCER	$278.23	1	FITTING	$278.23
24 X 21 REDUCER	$185.59	1	FITTING	$185.59
21 X 18 REDUCER	$126.07	1	FITTING	$126.07
18 X 15 REDUCER	$91.55	1	FITTING	$91.55
15 X 12 REDUCER	$50.24	1	FITTING	$50.24
12 X 10 REDUCER	$31.14	1	FITTING	$31.14
24 - 45° ELBOW	$588.81	1	FITTING	$588.81
21 - 45° ELBOW	$216.41	1	FITTING	$216.41
27 X 10 T	$485.38	2	FITTING	$970.76
24 X 10 T	$382.89	1	FITTING	$382.89
24 X 12 T	$412.17	1	FITTING	$412.17
21 X 10 T	$289.35	3	FITTING	$868.05
15 X 10 T	$129.78	1	FITTING	$129.78
18 X 10 T	$172.32	2	FITTING	$344.64
12 X 10 T	$88.47	4	FITTING	$353.88
derground Valves w/flanges and (2) 4' ext. ste	$570.42	11	VALVE	$6,274.62
minum airvent vaccuum relief valves (1 per tu	$15.91	11	AIRVENT	$175.01
2" airvent pipe (15' X # of turnouts)	$1.98	165	FEET	$326.70
10" Propeller Flow Meters	$1,142.00	6	METER	$6,852.00
Other				
lamation Environmental & Cultural Compli	$1,000.00	1	N/A	$1,000.00
TOTAL DIRECT COSTS				$329,451.32
TOTAL ESTIMATED PROJECT COSTS				$329,451.32

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 on-site foremen. 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 costs and the same goes for executing compliance and reporting requirements.

Field crew hours and the subsequent associated salary and fringe benefit figures were calculated using actual project numbers from previous projects of similar size completed by KBID. KBID has buried laterals with its equipment and crew for years and has many years of data to aid in extrapolating these calculated figures for estimating costs relating to hours work be each employee.

The labor rates included for all personnel is certified to be the actual labor rates of each individual identified in this application. Also included in the tables

below are the actual fringe benefit rates for each individual which includes Health coverage, FICA, and KPERs retirement.

2019 KBID SALARIES	
EMPLOYEE	HOURLY WAGE
Foreman (BM)	$19.72
Foreman (DR)	$19.61
Excav. Optr (TA)	$15.58
Trencher Optr. (DD)	$18.00
Loader Optr (RE)	$15.46
Dozer Optr. (GK)	$15.25
Excav Optr. (WF)	$14.90
Laborer (CL)	$13.12
Laborer (LS)	$15.63
Laborer (FH)	$14.65
Laborer (NM)	$13.12
Laborer (NM)	$13.12
Laborer (NM)	$13.12

2019 KBID PERSONNEL - BENEFITS PAID BY EMPLOYER									
EMPLOYEE	MEDICARE		FICA		KPERS		HEALTH INSURANCE		BENEFIT HOURLY WAGE TOTAL
	Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	Monthly	Hourly	
Foreman (BM)	$46.81	$0.27	$200.16	$1.14	$343.26	$1.95	$1,431.00	$8.13	***$11.48***
Foreman (DR)	$23.98	$0.14	$102.56	$0.58	$306.83	$1.74	$1,431.00	$8.13	***$10.59***
Excav. Optr (TA)	$33.77	$0.19	$144.40	$0.82	$271.19	$1.54	$2,126.89	$12.08	***$14.64***
Trencher Optr. (DD)	$44.22	$0.25	$189.09	$1.07	$313.32	$1.78	$1,362.04	$7.74	***$10.84***
Loader Optr (RE)	$34.30	$0.19	$146.66	$0.83	$269.10	$1.53	$666.14	$3.78	***$6.34***
Dozer Optr. (GK)	$35.18	$0.20	$150.44	$0.85	$265.45	$1.51	$2,126.89	$12.08	***$14.65***
Excav Optr. (WF)	$36.57	$0.21	$156.39	$0.89	$259.35	$1.47	$0.00	$0.00	***$2.57***
Laborer (CL)	$32.40	$0.18	$138.53	$0.79	$228.37	$1.30	$666.14	$3.78	***$6.05***
Laborer (LS)	$38.00	$0.22	$162.48	$0.92	$272.06	$1.55	$1,431.00	$8.13	***$10.82***
Laborer (FH)	$36.35	$0.21	$155.42	$0.88	$255.00	$1.45	$1,431.00	$8.13	***$10.67***
Laborer (NM)	$32.40	$0.18	$138.53	$0.79	$228.37	$1.30	$666.14	$3.78	***$6.05***
Laborer (NM)	$32.40	$0.18	$138.53	$0.79	$228.37	$1.30	$666.14	$3.78	***$6.05***
Laborer (NM)	$32.40	$0.18	$138.53	$0.79	$228.37	$1.30	$666.14	$3.78	***$6.05***

ESTIMATED LABORS HOURS PER TASK - Ridge 1.3 Right						
EMPLOYEE	TASK 1	TASK 2	TASK 3	TOTAL HOURS	TOTAL HOURLY WAGE	TOTAL COST
Foreman (BM)	74	149	25	248	$31.20	$7,729.00
Foreman (DR)	74	149	25	248	$30.20	$7,481.00
Excav. Optr (TA)	99	149	0	248	$30.22	$7,484.66
Dozer Optr. (NM)	99	149	0	248	$28.84	$7,144.56
Trencher Optr. (DD)	25	198	25	248	$21.80	$5,400.16
Laborer (FH)	25	198	25	248	$29.90	$7,405.33
Loader Optr (RE)	74	149	25	248	$17.47	$4,327.14
Patrol Optr. (NM)	74	149	25	248	$19.17	$4,749.13
Laborer (CL)	25	198	25	248	$26.45	$6,550.32
Laborer (LS)	25	198	25	248	$25.32	$6,271.31
Excav Optr. (WF)	99	149	0	248	$19.17	$4,749.13
Laborer (CL)	25	198	25	248	$19.17	$4,749.13
Laborer (GK)	25	198	25	248	$19.17	$4,749.13
TOTALS	743	2229	248	3220	$318.10	$78,789.99

As 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 Construction Equipment Ownership and Operating Expense Schedule. Estimates on the number of hours required for each machine were extrapolated from using actual numbers and data from similar sized projects KBID has completed in the past.

All of the materials and supplies needed for the project are listed above in the Budget Proposal Table. The supplies are itemized by major category, unit price, quantity and purpose. All items are those that will be used in the field for accomplishing the goals of this project. All costs were derived from actual product costs or by quotes received by KBID on each product within the last 365 days.

No work will be done on this project by sub recipients, consultants, or contractors.

An estimate of $1000 was provided by staff at the Bureau of Reclamation's Nebraska-Kansas Area Office in regards to activities undertaken by Reclamation for environmental and regulatory compliance. This has been included as a line item within the project budget.

No other expenses or indirect costs have been identified.

ATTACHMENT B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Kansas-Bostwick Irrigation District No. 2
Franklin, Superior-Courtland and Courtland Units
Bostwick Division
Pick-Sloan Missouri Basin Program, Kansas

"DISTRICT OPERATING PLAN"

This "District Operating Plan" hereinafter referred to as "Plan" is made for the purpose of providing a means to implement the contractual commitment made by the District to the United States concerning the operation of the District and the performance of certain water conservation and environmental activities which are part of the consideration for a 40 year repayment term. The District hereby agrees to honor the commitments in this Plan. The parties shall annually, or as otherwise agreed, review the Plan and may, by mutual agreement of the parties, modify and amend the operating criteria of the initial Plan necessary to achieve the District's commitments, Provided, That the District's commitments shall not be diminished or eliminated.

BACKGROUND:

The Bostwick Division is located in south-central Nebraska and north-central Kansas along the Republican River and the White Rock Creek. The Bostwick Division consists of the Franklin, Superior-Courtland, and Courtland Units. The Franklin and Superior-Courtland Units consists of Harlan County Dam and Lake, Superior-Courtland Diversion Dam, and a system of canals, laterals, and drains that currently serves 36,313 acres of project lands. The Courtland Unit consists of Lovewell Dam and Reservoir, and a system of canals, laterals, and drains that currently serves 29,122 acres of project lands. In addition to storing water for irrigation, the three units protect the downstream areas from floods and offer opportunities for recreation and for conservation and development of fish and wildlife.

Due to a depleting water supply, the District, in cooperation with the Bostwick Irrigation District in Nebraska, is willing to limit its irrigation deliveries in order to maintain higher reservoir levels and undertake water conservation measures to improve the efficiency of

the project delivery system and encourage on-farm efficiency improvement.

IRRIGATION DELIVERIES:

It is understood that from time to time the United States shall accomplish sediment re-surveys of the reservoirs which shall change the area-capacity data and the elevation-capacity relationship. It is further understood that when the data is officially revised and placed into use it shall be used in the calculation for the shutoff elevations. In the event the re-survey necessitates changes in reservoir elevations for flood control and irrigation this Plan shall be revised to incorporate those changes.

The available water supply to the District shall be flows of the Republican River, White Rock Creek, storage waters in Lovewell Reservoir above the established shutoff elevation, and the District's apportionment of storage waters available for release above the annually established reservoir shutoff elevation for Harlan County Lake as computed by the Contracting Officer.

The amount of irrigation water released during any one irrigation season from Harlan County Lake and Lovewell Reservoir shall be determined by the Contracting Officer in consultation with the District, based on the following:

1. By January 15 of each year, the United States shall provide the District and the Bostwick Irrigation District in Nebraska an estimate of the reservoir shutoff elevation, and the water supply available for the irrigation season. By June 15 of each year, the actual reservoir shutoff elevations shall be established. The following process will be used:

    A. The space available for irrigation use in Harlan County Lake has been established as 150,000 acre-feet between elevations 1945.7 and 1931.75. The current contents are 311,104 acre-feet (El. 1945.7) and 159,674 acre-feet (El. 1931.75) which establishes the current irrigation space as 150,000 acre-feet after a sediment adjustment of 1,430 acre-feet in this pool. In addition irrigation is allowed to use up to 20,000 acre-feet from the sediment pool to adjust for annual evaporation loss that is allocated to sediment storage provided irrigation releases are less than 119,000 acre-feet. The space available for irrigation use in Lovewell Reservoir is established as the space available between elevations 1582.6 and 1571.7.

The current contents are 35,666 acre-feet (El. 1582.6) and 11,644 acre-feet (El. 1571.7) which establishes the current irrigation space as 24,022 acre-feet.

B. The annual shutoff elevation for Harlan County Lake shall be estimated by January 15 of each year. By June 15 of each year the actual shutoff elevation shall be established using May 31 data as follows:

For January estimate:

1. Estimate the May 31 content by taking the December 31 total reservoir storage plus the January-May inflow estimate (57,600 acre-feet or the running average inflow for the last 5-year period, whichever is less) minus the January-May evaporation estimate (8,800 acre-feet). The value determined is the estimated reservoir content projected for May 31.

2. Establish the percentage of estimated water yield available in the irrigation pool using the 20,000 acre-feet adjustment for evaporation and this equation:

$$\frac{(\text{Total Estimated Content(End of May) minus Inactive Pool} + 20{,}000) \times 100}{\text{Total Irrigation Space Yield}}$$

(This result is used in steps 5 or 6 below)

3. Compute first shutoff line slope constant (equal to or greater than 60% irrigation space yield):

Use 130,000 release rate at 100% Irrigation Space Yield
Use 90,000 release rate at 60% Irrigation Space Yield

$$\frac{(\text{Irrigation Space Yield}) \times .40 - (130{,}000 - 90{,}000)}{40}$$

Current Constant:

$$\frac{((311{,}104 - 159{,}674 + 20{,}000) \times .40) - (40{,}000)}{40} = 714.3$$

4. Compute second shutoff line slope constant (less than 60%

irrigation space yield):

$$\frac{((\text{Irrigation Space Yield}) \times .60) - 90{,}000}{60}$$

Current Constant:

$$\frac{((311{,}104 - 159{,}674 + 20{,}000) \times .60) - (90{,}000)}{60} = 214.3$$

5. If Step 2 result is equal to or greater than 60.0:

   Shutoff Content equals ((Step 2 result - 60.0) x Step 3 constant) + inactive pool content - 20,000 + (Step 4 constant X 60).

6. If Step 2 result is less than 60.0:

   Shutoff Content = ((Step 2 result -0.0) x Step 4 constant) + inactive pool content - 20,000.

7. Convert computed shutoff content to shutoff elevation. This Plan does not provide for any shutoff elevation lower than El. 1927.0.

For Adjustment using actual May 31 data:

1. Compare the estimated May 31 content with the actual May 31 content.

2. If the actual end of May content is less than the estimated end of May content lower the shutoff content by using this equation:

   Shutoff content = Estimated shutoff content - (Estimated May 31 content - Actual May 31 content).

3. If the actual end of May content is equal to or greater than the estimated end of May content, the estimated shutoff content is established as the annual shutoff content.

4. Convert computed shutoff content to shutoff elevation. This Plan does not provide for any shutoff elevation lower than El. 1927.0.

5. If the shutoff content is below the bottom of the irrigation pool, releases shall be discontinued at the shutoff elevation or whenever 119,000 acre-feet has been released and the reservoir is below the bottom of the irrigation pool, whichever occurs first.

C. The annual shutoff elevation for Lovewell Reservoir is established as El. 1571.7 which is a current content of 24,022 acre-feet.

D. The water supply shall be apportioned between the beneficiaries according to a separate agreement between the District and the Bostwick Irrigation District in Nebraska, subject to approval of the Contracting Officer.

2. The United States reserves the right to make any releases necessary to protect the project facilities and the public in accordance with appropriate safety procedures.

WATER CONSERVATION MEASURES:

The District agrees to:

1. Establish a revolving water conservation fund to be utilized for annual costs associated with the water conservation program activities. The funding shall be provided by an annual assessment on all project lands collected by the District as part of their annual operation and maintenance charge. It is provided that these funds may be fully utilized on an annual basis or accumulated to allow the District to perform water conservation projects that would not otherwise be within the District's financial capability should such projects have to be funded through collections or charges during any one year period. It is specifically provided that these funds may be utilized for Reclamation or other cost-share assistance that may be available to the District for water conservation activities.

2. Continue, when permitted, the practice of seasoning canals with stream flows or flood waters to reduce canal losses and control the growth of vegetation. Diversion of natural flows or flood waters to season canals shall not be initiated without concurrence of the Contracting Officer, and may not be permitted during those times that the resulting flow reduction would impact the storage of water in downstream reservoirs.

3. Continue the established practice of providing assistance to irrigators who upgrade on-farm irrigation facilities by improving turnout locations, installing meters, assisting with buried pipe projects to allow the use of gated pipe or center pivots, and implementation of other new technology.

4. Continue to work with Reclamation on evaluating computer software and other new technology that shall improve water scheduling and accounting.

The District also agrees to: continue and/or improve its existing policies and practices that further the goals of water conservation; provide educational opportunities for District employees, such as canal operations training, water scheduling, water use seminars, etc.; and work with irrigators through educational type demonstrations or projects that measure on-farm efficiencies and crop water requirements in terms of the type of irrigation methods employed by individual irrigators.

The District further agrees to provide for proper accounting for all water deliveries and operational waste within five years of the date of this Plan. Water delivery and operational waste accounting records shall be provided to the United States on or before November 1 of each year. Prior to March 1 of each year, the District and the Contracting Officer's representative shall meet to assess the past year's water supply and delivery records and accounting, and to evaluate the upcoming irrigation season. Through the use of these records and other available data, the Contracting Officer shall assess the delivery efficiency and on-farm efficiency improvements resulting from the District's implementation of water conservation commitments. The improvements shall be measured against pre-Plan water use data. On that basis, it is the general goal of the District to increase the delivery efficiency of the District by 6 percent and on-farm efficiencies by 5 percent. If the "improvements" are not expected to result in the individual or cumulative increase in efficiencies during the first ten year period of this Plan as determined by the Contracting Officer, additional water conservation measures

shall be identified, by mutual agreement of the parties, to be undertaken to ensure the increased efficiency is realized during the succeeding five year period.

Prior to July 1 of each year, the District shall provide the Contracting Officer an annual report of water conservation activities/accomplishments for the prior year, and a statement of water conservation funds collected, expended, and water conservation fund balance as of the end of the prior calendar year.

ENVIRONMENTAL MEASURES:

The District agrees to:

1. Install or create better screening devices to prevent the passage of fish, crayfish, etc., into turnouts and lateral systems.
2. Establish policies to preserve lake levels.

In addition to accepting the changes in operation the District is willing to cooperate with Reclamation, the Bostwick Irrigation District in Nebraska and others in improving fish and wildlife habitat and recreation on Reclamation lands. If requested, the District shall annually furnish 20 man-days of labor at project related fish and wildlife and recreational areas provided the work is coordinated through Reclamation and scheduled during the non-irrigation season at least one month in advance. In lieu of the man-days of labor, the District shall furnish a district-owned machine and operator for 4 days. It is further provided that the District, if requested, may agree to perform more man-days and/or more machine and operator days during one calendar year than the annual commitment, and that any man-days and/or machine and operator days furnished in excess of the annual commitment shall apply as a credit to the succeeding years' commitment(s).

Reclamation is committed to determine the significance of selenium concentration levels for fish and wildlife resources in the Republican River Basin. This commitment by Reclamation shall be implemented through an adaptive management process as outlined in the Record of Decision for the Final Environmental Impact Statement, Long-Term Water Supply Contract Renewals, Republican River Basin, Kansas and Nebraska dated July 22, 2000. The adaptive management process includes, but is not limited to: identification and selection of objectives, implementation and monitoring of response, and assessment of accomplishment that can conclude or refine management actions.

KANASAS BOSTWICK IRRIGATION DISTRICT NO. 2

RESOLUTION NO. 2019-003

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 converting of open ditch lateral to buried pipelines will conserve large volumes of water and improve efficiencies,

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 Energy Efficiency Grants for Fiscal Year 2020 and 2021, Funding Opportunity Number BOR-DO-20-F001** grant program for the conversion of the **Ridge 1.3 Lateral** to a piped system. 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 5 September 2019, and unanimously adopted.

BOARD OF DIRECTORS

Gary L. Housholder – President

Brad D. Peterson - Secretary

Monty D. Dahl - Treasurer

Conversion of Open Irrigation Canals to Buried Pipe Systems
Within the Kansas Bostwick Irrigation District
Kansas Water Office Contract Number 16-115

OPENING CLAUSE:

This Contract between the Kansas Water Office, 900 SW Jackson Ave, Suite 404,Topeka, Kansas, 66612 and the Kansas Bostwick Irrigation District, P.O. Box 165, Courtland, KS 66939. The parties enter into this Contract for the purposes of completing a conversion of open irrigation canals to that of buried pipe systems.

I. PROJECT TITLE

The project has been entitled: Conversion of open irrigation canals to buried pipe systems within the Kansas Bostwick Irrigation District. All references to this Contract shall include this title and the Kansas Water Office Contract Number: 16-115.

II. SCOPE OF WORK

A. The Scope of Work, Deliverables and the Payment Schedule, Attachment B, is hereby incorporated in this contract and made a part hereof by reference.

B. The Kansas Water Office will have 30 business days from the date of receipt to review the deliverable, ask for changes or approve the deliverable.

III. COMPENSATION

A. The Kansas Water Office agrees to pay, Kansas Bostwick Irrigation District (KBID), an approximate cost of Two Million and Five Hundred Thousand Dollars and No/100 ($2,500,000.00) for the work to be completed or performed under the attachments incorporated into this agreement by reference as Attachments B and C. Payments will be made based upon actual costs incurred for the purchase of materials to complete tasks included in the Scope of Work from KBID, under the schedule in Attachment B, upon receipt, review and acceptance by the Kansas Water Office of the indicated deliverables listed in Attachment B. Additional projects may be added as approved by the Kansas Water Office, if the entire 2,500,000.00 is not expended on these projects. See the Payments clause, *infra*.

B. The Conversion of Open Irrigation Canals to Buried Pipe Cost Estimate, Attachment C, is hereby incorporated in this contract and made a part hereof by reference. The Kansas Water Office and the Kansas Bostwick Irrigation District agree that Attachment C is the best estimate, as of the date of this contract, for prices of the materials needed to complete the project and agree that the price may fluctuate depending on outside variables.

C. The Kansas Bostwick Irrigation District agrees to contribute in kind services by providing machinery and cost of labor as shown in Attachment C in an amount of approximately $1,157,000.00.

ORIGINAL COPY

JAN 26 2016

JAN 21 2016

III. PAYMENTS

Invoices for payments for work completed under the terms of this Contract, as outlined in the attachments to this Contract should be sent to:

Kansas Water Office
Attention: Accounts Payable
900 SW Jackson St., Suite 404
Topeka, Kansas 66612

Payments will be due and payable 30 calendar days following the receipt of the invoice from, Kansas Bostwick Irrigation District (KBID). No payment will be remitted unless and until the appropriate work or work to be delivered has been received and approved by the Kansas Water Office in the manner specified in the attachments hereto.

IV. EFFECTIVE DATES

This Contract shall be effective for the period of January 11, 2016, through June 30, 2024, inclusive.

V. MODIFICATION AND EXTENSION/RENEWAL OF CONTRACT

This Contract may be modified, extended or renewed by written agreement of all parties to this Contract. The parties agree that any request by Kansas Bostwick Irrigation District (KBID) for an extension of time of the completion of the Contract should be communicated to the Kansas Water Office no later than 60 days prior to the stated completion date.

VI. CONTACT PERSONS

Each party has designated a contact person to facilitate communication between the parties for purposes of this Contract. The designated contact person may be changed by either party at any time by sending notice of such change, via first class mail, to the appropriate party at the address first given above.

A. The Kansas Water Office contact person for purposes of this Contract will be:
   Name: Katie Goff
   Address: 900 SW Jackson St., Suite 404, Topeka, KS 66612
   Phone: (785) 296-0863
   E-mail: Katie.Goff@kwo.ks.gov

B. The Kansas Water Office contact person for purposes of contract administration will be:
   Name: Earl Lewis
   Address: 900 SW Jackson St., Suite 404, Topeka, KS 66612
   Phone: (785) 296-3185
   E-mail: Earl.Lewis@kwo.ks.gov

C. The Kansas Bostwick Irrigation District (KBID) contact person for purposes of this Contract will be:
   Name: Jared "Pete" Gile
   Address: P.O. Box 165, Courtland, KS 66939-7941
   Phone: (785) 374-4514
   E-mail: kbid@courtland.com

VII. OWNERSHIP OF INFORMATION, DOCUMENTS, ETC.

All reports, information, data, photos, documents, procedures, and descriptions accumulated, developed or acquired by Kansas Bostwick Irrigation District (KBID), under this Contract shall be jointly owned by the Kansas Water Office and KBID. Either party may use, release or otherwise use any such materials without the written approval of the other party.

VIII. ADDITIONAL PROVISIONS

A. KANSAS CONTRACT PROVISIONS ATTACHMENT. The provisions found in contractual provisions attachment (Form DA-146a – Attachment A), which is attached hereto, are hereby incorporated in this contract and made a part thereof.

B. HEADINGS. Headings used in this Agreement are informational and not to be considered persuasive or determinative of any clause or matter in dispute.

C. FUNDING. The Kansas Bostwick Irrigation District agrees to explore other opportunities for funding in order to meet the estimated total cost to complete projects listed in Attachment C.

IX. SIGNATURES

In agreement to the terms of this Contract, we set our hand this 22nd day of January 2016, under the authority and power granted to us by virtue of our position or office.

For the Kansas Water Office

Tracy Streeter
Director
Kansas Water Office

Kansas Bostwick Irrigation District

Kenneth Nelson
Superintendent
Kansas Bostwick Irrigation District

State of Kansas
Department of Administration
DA-146a (Rev. 06-12)

CONTRACTUAL PROVISIONS ATTACHMENT A

Important: This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the vendor/contractor's standard contract form, then that form must be altered to contain the following provision:

"The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 06-12), which is attached hereto, are hereby incorporated in this contract and made a part thereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof, said contract being the 22nd day of January, 2016.

1. Terms Herein Controlling Provisions: It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated. Any terms that conflict or could be interpreted to conflict with this attachment are nullified.

2. Kansas Law and Venue: This contract shall be subject to, governed by, and construed according to the laws of the State of Kansas, and jurisdiction and venue of any suit in connection with this contract shall reside only in courts located in the State of Kansas.

3. Termination Due To Lack Of Funding Appropriation: If, in the judgment of the Director of Accounts and Reports, Department of Administration, sufficient funds are not appropriated to continue the function performed in this agreement and for the payment of the charges hereunder, State may terminate this agreement at the end of its current fiscal year. State agrees to give written notice of termination to contractor at least 30 days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided in this contract, except that such notice shall not be required prior to 90 days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided State under the contract. State will pay to the contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any such equipment. Upon termination of the agreement by State, title to any such equipment shall revert to contractor at the end of the State's current fiscal year. The termination of the contract pursuant to this paragraph shall not cause any penalty to be charged to the agency or the contractor.

4. Disclaimer Of Liability: No provision of this contract will be given effect that attempts to require the State of Kansas or its agencies to defend, hold harmless, or indemnify any contractor or third party for any acts or omissions. The liability of the State of Kansas is defined under the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.).

5. Anti-Discrimination Clause: The contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and the applicable provisions of the Americans With Disabilities Act (42 U.S.C. 12101 et seq.) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs or activities; (b) to include in all solicitations or advertisements for employees, the phrase "equal opportunity employer"; (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration; (f) if it is determined that the contractor has violated applicable provisions of ADA, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration.

   Contractor agrees to comply with all applicable state and federal anti-discrimination laws.

   The provisions of this paragraph number 5 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of such contract or whose contracts with the contracting State agency cumulatively total $5,000 or less during the fiscal year of such agency.

6. Acceptance Of Contract: This contract shall not be considered accepted, approved or otherwise effective until the statutorily required approvals and certifications have been given.

7. Arbitration, Damages, Warranties: Notwithstanding any language to the contrary, no interpretation of this contract shall find that the State or its agencies have agreed to binding arbitration, or the payment of damages or penalties. Further, the State of Kansas and its agencies do not agree to pay attorney fees, costs, or late payment charges beyond those available under the Kansas Prompt Payment Act (K.S.A. 75-6403), and no provision will be given effect that attempts to exclude, modify, disclaim or otherwise attempt to limit any damages available to the State of Kansas or its agencies at law, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

8. Representative's Authority To Contract: By signing this contract, the representative of the contractor thereby represents that such person is duly authorized by the contractor to execute this contract on behalf of the contractor and that the contractor agrees to be bound by the provisions thereof.

9. Responsibility For Taxes: The State of Kansas and its agencies shall not be responsible for, nor indemnify a contractor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.

10. Insurance: The State of Kansas and its agencies shall not be required to purchase any insurance against loss or damage to property or any other subject matter relating to this contract, nor shall this contract require them to establish a "self-insurance" fund to protect against any such loss or damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.), the contractor shall bear the risk of any loss or damage to any property in which the contractor holds title.

11. Information: No provision of this contract shall be construed as limiting the Legislative Division of Post Audit from having access to information pursuant to K.S.A. 46-1101 et seq.

12. The Eleventh Amendment: "The Eleventh Amendment is an inherent and incumbent protection with the State of Kansas and need not be reserved, but prudence requires the State to reiterate that nothing related to this contract shall be deemed a waiver of the Eleventh Amendment."

13. Campaign Contributions / Lobbying: Funds provided through a grant award or contract shall not be given or received in exchange for the making of a campaign contribution. No part of the funds provided through this contract shall be used to influence or attempt to influence an officer or employee of any State of Kansas agency or a member of the Legislature regarding any pending legislation or the awarding, extension, continuation, renewal, amendment or modification of any government contract, grant, loan, or cooperative agreement.

ATTACHMENT B

Scope of Work, Deliverables and the Payment Schedule

SCOPE OF WORK

Item No.	Work Item Description
1.	All materials needed for the project will be ordered by KBID to allow for delivery to site location before work begins. Materials can include PVC pipe, (as small as 10", or as large as 36"), lateral turnouts and fittings.
2.	Bull dozer and patrol work will be done 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.
3.	The KBID Hydramaxx Wheel Trencher will be used to trench the line for the pipe. An excavator with a sling will be used to swing the pipe into the trench and align the pipe to be pushed together. A bull dozer will be used to back fill the trench.
4.	KBID will pick up any and all scrap or excess material left on the site and leave the site in a manner that the landowner can work it with his farm equipment.
5.	Any open lateral, which is not in the alignment of the pipeline, will be destroyed and left in a manner that the landowner can work the area with his farm equipment and returned to the farmer's operations.

Open Irrigation Canals to be Converted to Buried Pipe System	
Canal Project in Order of Priority	Miles of Open Canal to be Eliminated
31.1 – 3rd Section	1.91
32.1 – 3rd Section	2.99
33.0 – 3rd Section	3.84
1.3R – Ridge Canal	3.05
2.6 – Ridge Canal	2.19
PUMP #1 North Canal	5.33
48.8 – Courtland 5th Canal	0.93
50.7 – Courtland 5th Canal	2.90
Total	23.14

DELIVERABLES

The KBID shall submit project deliverables to the KWO, 900 SW Jackson St, Ste. 404, Topeka, KS 66612.

1. Prior to purchase of materials, for which reimbursement will be sought, for the canal conversion projects listed in the Scope of Work above, KBID will provide to the KWO a listing of all expected materials to be purchased. The Kansas Water Office will review and respond to the proposed purchase within 7 calendar days.
2. By October 31 of each calendar year, KBID will provide to KWO verify purchase of equipment and supplies with Financial Estimate and Invoice Receipt. The Kansas Water Office will use this deliverable as basis for payment under the terms of this contract.
3. By June 30 of each calendar year, for the preceding 12 month period, KBID will provide to the KWO a report of:
    a. the open irrigation canal section or sections converted to buried pipe systems,
    b. the amount of in kind contribution provided by KBID,
    c. other sources and amounts of funding obtained and used (if applicable),
    d. the estimated amount of water loss saved as a result of the conversion,
    e. significant issues encountered during implementation,
    f. any significant changes to plans to canal conversion previously submitted, and
    g. general plans of work for conversion of open irrigation canal to buried pipe systems to be accomplished in the subsequent July to June, 12 month period.

COMPENSATION AND PAYMENT SCHEDULE

The Kansas Water Office agrees to pay the KBID an approximate amount of $2,500,000.00 for the deliverables identified in Attachment B, above. If the described projects are constructed for less than $2,500,000.00 the remaining amount and any additional funds that may be available may be used for additional projects as approved by the Kansas Water Office.

Payments will be made within 30 days, upon receipt of a financial estimate and an invoice as described in deliverable 2 by October 31 each year from the KBID, and subject to all deliverables above for the preceding 12 months being considered final as provided in Section III of this Contract.

ATTACHMENT C

Conversion of Open Irrigation Canals to Buried Pipe
Cost Estimate

Canal Project in Order of Priority	Miles of Open Canal to be Eliminated	Material Cost Est.	KBID In Kind Labor/Machinery Cost Est.
31.1 – 3rd Section	1.91	$237,590.02	$95,500.00
32.1 – 3rd Section	2.99	$432,053.00	$149,500.00
33.0 – 3rd Section	3.84	$625,392.76	$192,000.00
1.3R – Ridge Canal	3.05	$383,467.02	$152,500.00
2.6 – Ridge Canal	2.19	$176,772.97	$109,500.00
PUMP #1 North Canal	5.33	$653,560.18	$266,500.00
48.8 – Courtland 5th Canal	0.93	$112,526.69	$46,500.00
50.7 – Courtland 5th Canal	2.90	$503,394.86	$145,000.00
Totals	23.14	$3,124,757.50	$1,157,000.00
	Total Cost	**$4,281,757.50**	
	10% Contingency Added	**$4,709,933.25**	

900 SW Jackson Street, Suite 404
Topeka, KS 66612

Kansas
Water Office

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

Earl Lewis, Acting Director

Laura Kelly, Governor

September 24, 2019

Mr. Jared "Pete" Gile, Superintendent
Kansas Bostwick Irrigation District
P.O. Box 165
Courtland, KS 66939-0165

RE: KBID water conservation and efficiency proposals

Dear Mr. Gile:

As Acting Director of the Kansas Water Office, this letter is to express my support for the Kansas Bostwick Irrigation District's (KBID) proposal to the Bureau of Reclamation for water conservation measures and efficiency improvements. The work proposed will reduce seepage and operational losses, have more direct system connections and improve the water management capabilities. The proposed improvements are consistent with the *Kansas Water Vision* water management recommendations.

The Kansas Bostwick Irrigation District has had an aggressive conservation program with a series of improvements to the system. We recognize that the district has invested a great deal of time and money in these projects, many with support from the Bureau of Reclamation. Reclamation's support has been essential for the district to accomplish these expensive but needed improvements.

The Kansas Water Office supports the district's efforts to modernize the system's efficiencies and conserve water. I recommend that Kansas Bostwick Irrigation District be awarded the proposed grant.

Sincerely,

Earl D Lewis Jr

Earl Lewis
Acting Director

Bostwick Irrigation District in Nebraska

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

September 23, 2019

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 convert open ditch laterals to buried pipe on the Courtland Canal.

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. By converting the open ditch to buried pipe, many years of records have shown huge water savings. These conservation measures have been going on for years and will be ongoing for the future. This project would be another step in furthering our efforts to save water.

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,

Tracy Smith
General Manager
Bostwick Irrigation District in Nebraska

"Water is Life"

September 24, 2019

To whom it may concern,

My name is Tony Hobson and my family has held ground in the KS Bostwick Irrigation District for many years. In fact, my father Elvin served on the board of directors at KS Bostwick from 1987 until he retired from the board in 2005.

Over my father's time as a member of the board, the district really began transforming as many of the open canals became buried pipelines, which over the years, has saved the district a great deal of irrigation water.

A few years ago, we installed a pivot in the SE¼ of Section 36-1-6 in Jewell County and we and have the feasibility and plans to install a second full-swing pivot in the NE¼ of the same section if this canal is piped. Both of these particular farms are served by the Ridge 1.3 Right canal.

At the present time and considering the open canal as it lies on the farm, we would certainly have issues trying to bridge it in the SW 40 acres of the farm.

Therefore, I definitely support KS Bostwick and their efforts to receive grant funding to bury a pipeline to replace this canal.

Sincerely,

Anthony C Hobson

Tony Hobson