

Bureau of Reclamation WaterSMART  
Water and Energy Efficiency Grants  
Phase 1 Grant Application  
NOFO No. R24AS00052

# CASTLE ROCK IRRIGATION DISTRICT NORTH PLATTE RIVER DIVERSION INFRASTRUCTURE REHABILITATION PROJECT



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[Appendix A](#): *Project Location Maps*

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**ATTACHMENTS**

*JEO Diversion & Headgate Structure Improvements Drawings*

# Technical Project Proposal

## ***Executive Summary***

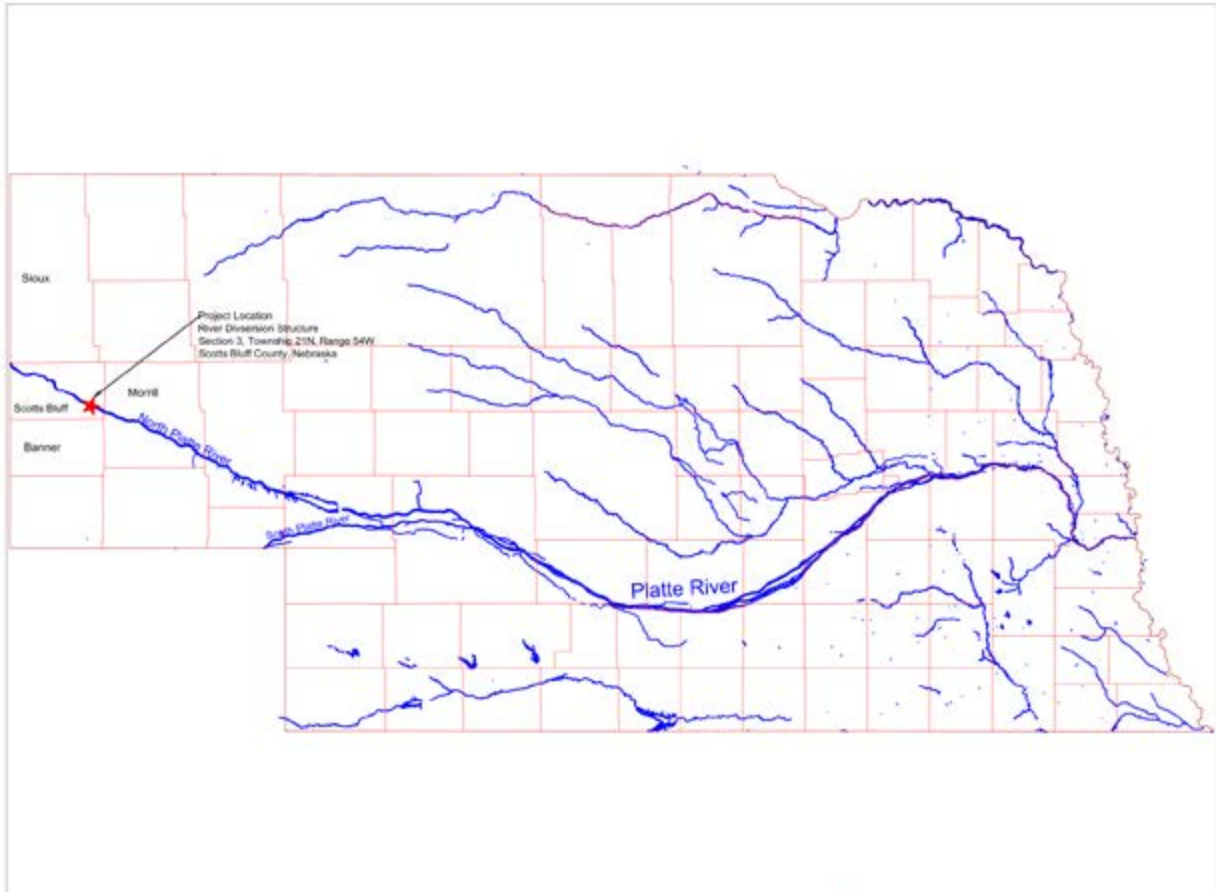
The Castle Rock Canal and the North Platte River are both essential components of the irrigation system within the Platte River Basin, a vital component of the regional and national economy, ecology, and hydrology. The focus of this proposal is the Castle Rock Canal, a 45-mile-long man-made canal in southern Nebraska that diverts water from the North Platte River and delivers it to local farmers for crop production. The Canal was built in 1888 by the Farmers' Canal Company of Cheyenne County, and the Castle Rock Irrigation District (CRID) was established to provide water to agricultural and residential customers and is responsible for maintaining the infrastructure necessary for the effective and efficient delivery of irrigation water. The CRID works closely with other water management organizations in the region to ensure that water resources are used in a sustainable and responsible manner, and plays an important role in managing water quality, monitoring water usage, and enforcing water use regulations. Over the water district's tenure, the CRID has diligently facilitated irrigation management and planning meetings between various stakeholders present in our region: state and federal agencies, nonprofits, concerned citizens, municipalities, agriculture, and recreationists. This proposal aims to replace aging diversion infrastructure along the Castle Rock Canal with a newer, more modern structure that can accommodate automated controls to stabilize irrigation diversions and minimize spills and waste. The activities in this proposal are critically important as the flows with the current facilities fluctuate significantly with the stage in the river at their diversion, resulting in shortages that affect Castle Rock's irrigators and excesses that affect downstream appropriators who are shortened until corrections can be made. CRID is confident that with the requested funding, we can complete all outlined activities in this proposal from October 2024 to June 2025.


Castle Rock Irrigation District is a Category A applicant and none of the proposed activities are located on a federal facility.

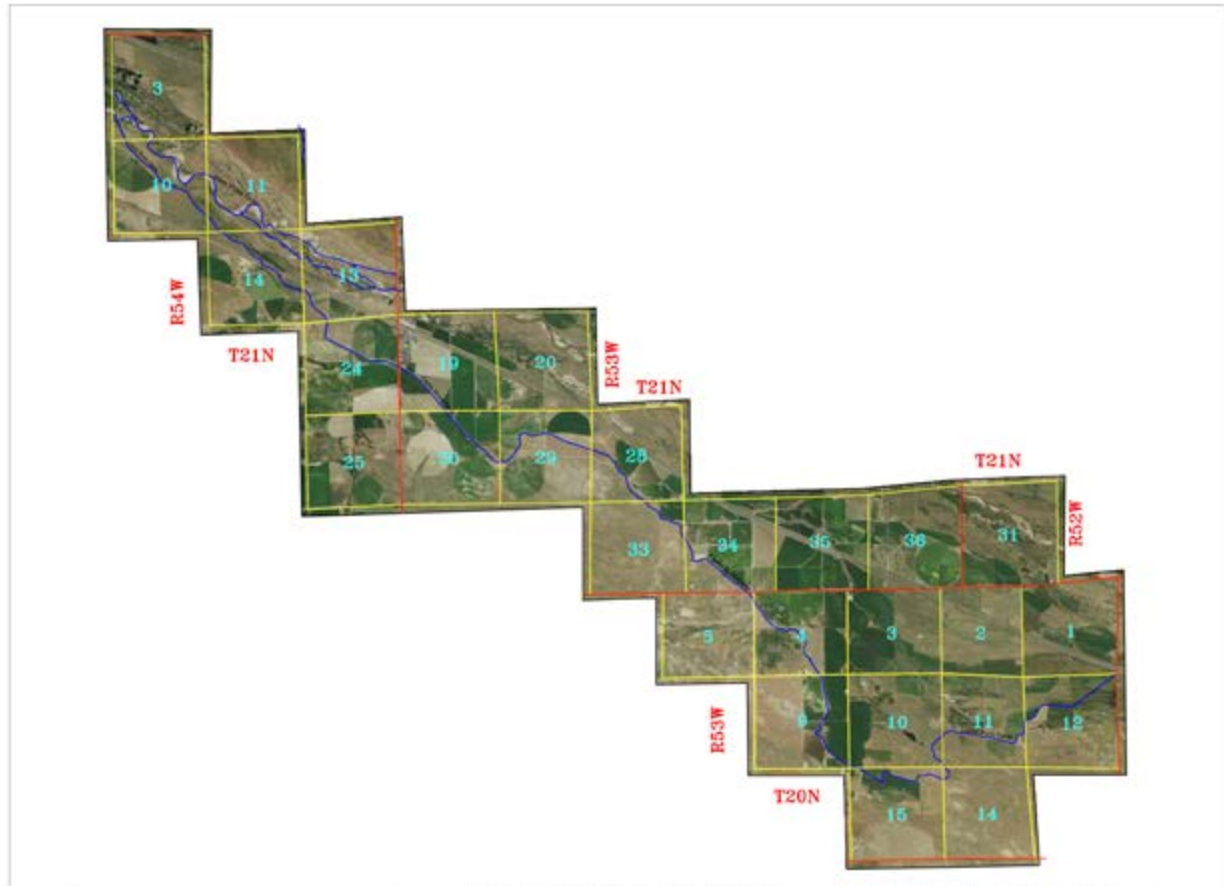
## ***Project Location***

The North Platte River Infrastructure Diversion Project (the Project) is located on the North Platte River in Section 3, Township 21N, Range 54W of the 6th P.M., Scotts Bluff County, Nebraska. The location is approximately three miles northeast of Melbeta, Nebraska, just north of Nebraska State Highway 92 in Section 3. The Project latitude is 41°49'02" N and longitude is 103°34'36.4" W.

Please see attached Project Location Maps in Appendix A for location of project in relation to watershed and political boundaries.



Date: 11-01-2023	NEBRASKA STATE MAP PROJECT LOCATION	CASTLE ROCK IRRIGATION DISTRICT DIVERSION STRUCTURE REHABILITATION PROJECT	 Castle Rock Irrigation District c/o Plummer Associates Bridgport, NE 68308	Phone: 308.772.3008 Steve Johnson, Chairman sjohnst@plummerassociates.com	01 OF 8
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Date: 11-01-2023	CASTLE ROCK DISTRICT MAP	CASTLE ROCK IRRIGATION DISTRICT DIVERSION STRUCTURE REHABILITATION PROJECT	 Castle Rock Irrigation District c/o Plummer Associates Bridgport, NE 68308	Phone: 308.772.3008 Steve Johnson, Chairman sjohnst@plummerassociates.com	02 OF 8
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## **Technical Project Description**

### **Engineering Design**

To properly design the headgate and diversion structures, analysis and modeling of the North Platte River statistical, historical flow rates was completed by CRID's contracted engineering firm. This analysis provided the basis for ensuring that the size of the structures, number of gates, and proposed elevations will allow the system to function for River flow measurement and irrigation water delivery. The hydraulic design also incorporates an overflow weir to pass flood flows around the primary diversion structure and be stored for future use. The overflow weir will be constructed of sheet pile and rock riprap to provide adequate stability and scour protection. The final design will include solar powered controls for the gates on the headgate and diversion structures to allow for remote controlled operation.

The Diversion Structure will consist of 2 – 20' X 7' openings with hydraulic radial gates to control the flow. Flows through the Diversion Structure, consisting of Rubicon SlipMeter gates, and overflow weir will continue to flow down the North Platte River. When the radial gate is fully open flow through the opening is calculated using the weir equation. Similarly, peak flows over the overflow weir are also calculated using the weir equation. A weir coefficient (C) of 3.0 was assumed for both structures. By placing the overflow weir elevation at 3840.0 (per vertical datum NAVD88) and the Diversion Structure flowline at 3837.0 flow will be conveyed solely by the Diversion Structure at least half of the year based on the duration analysis.

### **Construction**

The construction of this project is broken down into TASK A-F below. All proposed activities will take place between October 2024 and May 2025:

#### *TASK A – Demolition and Removal of the Existing Structures; Temporary Cofferdam/Diversion to Bypass River Flows*

Following the end of the irrigation season, construction will commence. The first construction tasks, which may occur concurrently, consist of demolition of the existing headgate and diversion structures, and construction of a temporary bypass for North Platte River. The temporary bypass channel will likely consist of an earthen cofferdam that will route flows through the proposed location of the overflow weir. Routing the primary River flow around the proposed headgate and diversion structure location will be the most reasonable dewatering method to create suitable conditions for building the structures.

#### *TASK B – Construction of the Headgate; Construction of the Diversion Structure*

Upon completion of the items described above, construction of the structures will commence by driving steel sheet pile cutoff walls and supports for both structures into the proposed locations. The steel sheet pile will prevent under seepage and provide a stable base for the concrete structures to be built upon. Next, forming the bases and floors of the structures will occur. All concrete will be reinforced with steel and each joint will have a water stop installed. Once the bases and floors are poured, the walls will be formed, and concrete poured. After the walls are built and adequate concrete cure time is provided, the gates will be installed, along with railing and walkways.



*Existing and proposed infrastructure.*



*For more drawings, see the “JEO Diversion & Headgate Structure Improvements Drawings” attachment.*

### *TASK C – Grading and Riprap Placement*

Upon completion of both structures, the temporary cofferdam will be removed to allow the river flow through the diversion structure. At that time, installation of the steel sheet pile and riprap overflow weir will occur, along with associated grading adjacent to the structures.

### *TASK D – Installation and Commissioning of Controls*

Upon completion of both structures, installation of the solar panels and gate controls will occur. The gates will be commissioned and tested to verify functionality of the system and associated controls.

### *TASK G – Seeding and Erosion Control*

The final construction item will include restoration of the area, seeding and mulching, and any other necessary erosion control items such as erosion control blanket, silt fence, and/or straw wattles.

# Evaluation Criteria

## ***E.1.1. Evaluation Criterion A – Quantifiable Water Savings***

### ***Describe The Amount of Estimated Water Savings and Describe Current Losses***

Currently, the flow in the canal is re-regulated 2.23 miles downstream from the diversion at Castle Rock’s measuring device. If there is water in excess of their order of appropriation, the excess is spilled back to the North Platte River at that point. With the 2.23-mile travel time, accurate re-regulation of the flows is not always possible or accurate. According to the District’s operations staff, the amount of spill returning to the river at the spillway near the District’s measuring device as high as 25 cubic-feet per second, caused mainly by fluctuations in the flow of the North Platte River and the travel time for diversion adjustments to reach the spillway. Travel time for adjustments is estimated at two hours from the time the adjustment is made at the North Platte River until it reaches the measuring device.

According to the Nebraska Department of Natural Resources records for the Castle Rock Diversion for the period 2002-2022, there were 1,762 days that the canal was diverting water. Of the 3,700 days, 393 days (10.62%) had diversions in excess of their natural flow water rights, resulting in water spill at the District’s spillway (See Table 1). This does not take into account the days their order was less than their water rights, and spills were occurring due to their inability to accurately regulate the flows at their diversion point.

Current losses or spills go back to the North Platte River through a drainage channel or at the end of the 16.25-mile-long canal, where they are released back to the North Platte River and utilized by the next senior downstream appropriator. The timing of the excesses that are spilled back to the river can negatively impact the downstream appropriator if the water is not available at the appropriator’s diversion when adjustments are being made, causing a shortage in divertible flow for the appropriator. If the downstream appropriator also has storage rights, they may call for the release of storage from the Federal reservoirs several miles upstream to make up the diversion requirement. By the time the storage water reaches the downstream appropriator, the spills from the Castle Rock canal may be available, causing a waste of the storage water.

This project will provide for a more accurate and timely diversion into the Castle Rock canal, thus reducing the inconsistent flows downstream of the diversion and providing a more stable aquatic ecosystem downstream.

### ***Describe The Support/Documentation Of Estimated Water Savings***

Estimated water savings were derived from the Nebraska Department of Natural Resources records for diversions into the Castle Rock Canal. Based on data from the last twenty one years (2002-2022), CRID averages 165 days of operation per year for a total annual spill of 1,485 acre-feet (See Table 1). CRID diversions exceeded its water right on 393 days with a total exceedance of 1,781 cubic square feet (cfs). This means CRID was spilling an average of 4.53 cfs or 9 acre-feet per day to regulate for its water right. With the implementation of the Project control of the diversion into the canal will be greatly improved.

Better control at the diversion will cause spills to be reduced by an estimated 90% [15.3 days



x 30 acre-feet x 90%] equaling a minimum estimated water savings of 1,335 acre-feet per year. Water savings estimates do not take into account days in which their diversion exceeded their order, when the order was less than their full rights, especially early and late in the season when a full diversion is not required to meet the demand. Nor does it take into account any savings by reducing the spill at the end of the Castle Rock canal due to excesses flowing into the canal. Therefore, the estimated water savings resulting from the new automated diversion structure is very conservative.

**Estimated Water Savings from Compiled Data from Nebraska Department of Natural Resources**  
**Table 1**

	Total CFS of Spill	Average Daily Spill - cfs	Average Days/Year	Average Annual Spill - cfs	Average in Acre-ft.	Savings @ 90%
Data Period: 2002-2022 (21 years)	1781	5	165	748	1483	1335

This table compiles data from 3700 Total Days, with 393 days exceeding CRID's 83 cfs water right, totalling 10.62% of days exceeding that water right.

**Address The Following According To The Type Of Infrastructure Improvement You Are Proposing For Funding : Irrigation Flow Measurement**

*(a) How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.*

Water savings estimates are based on a reduction of spills, corresponding to the amount of water diverted in excess of CRID's junior water right to the North Platte River. Since CRID does not have a storage water contract, it is required to spill excess water, and is assumed to spill that water into the river. As detailed above, NDNR data from 2002-2022 averages a total annual spill of 1,485 acre-feet. The Project will allow for the installation of Rubicon gates that provide for a measured flow passing the gates into the CRID canal at the point of control, avoiding the 2 hour travel time to the current measurement point, thereby allowing for more accurate control of flows in the canal and avoiding spills. The automated Diversion Structure will cause spills to be reduced by an estimated 90% [15.3 days x 30 acre-feet x 90%] equaling a minimum estimated water savings of 1,335 acre-feet per year.

*b) Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.*

Operational losses have been determined through NDNR data which logs daily diversion and the amount, if any, diverted in excess of one's water right.

*(c) Are flows currently measured at proposed sites and if so, what is the accuracy of existing devices? How has the existing measurement accuracy been established?*

Current measurement in the canal is provided by a USGS rated section with an accuracy of plus or minus 7.5%. This accuracy was established by USGS Scientific Investigations Report 2006-5036.

*(d) Provide detailed descriptions of all proposed measurement flow devices, including accuracy and the basis for the accuracy.*

The Rubicon FlumeGate gate will provide flow measurement with an accuracy of plus or minus of 2.5%. Accuracy of FlumeGate M-626-620 model was verified by Manly Hydraulics Laboratory in August 2005.

*(e) Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?*

The stabilization of flows in the canal makes for steady and reliable deliveries to farmers which supports conversions from gravity irrigation systems to more efficient center pivot irrigation systems. CRID estimates that delivery volumes will be reduced due to the efficiency of on-farm systems.

*(f) How will actual water savings be verified upon completion of the project?*

Actual water savings will be reflected in the diversion records of the District. There should be no more excesses in diversion that would require a spill. This will be evident in DNR diversion records after the project is completed, since that is how the spills were originally estimated.

## ***E.1.2. Evaluation Criterion B – Renewable Energy***

### ***E.1.2.1. Subcriterion No. B.1: Implementing Renewable Energy Projects Related To Water Management And Delivery***

Not applicable to project.

### ***E.1.2.2. Subcriterion No. B.2: Increasing Energy Efficiency In Water Management***

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

Not applicable to project.

*(f) Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.*

With the operation of the automated diversion, the Project will reduce the amount of vehicle travel required in fine-tuning adjustments at the canal's measuring device 2.23 miles downstream, thus reducing greenhouse gas emissions from the operator's vehicle. CRID staff estimate they currently make an average of 4 round trips per day to the district's diversion to regulate flows in the canal. A round trip consists of 9 miles, a total of 36 miles driven each day to adjust flows. With the Project's implementation the trips required each day will be reduced to no more than one, to make any necessary adjustments and clear debris from the diversion, providing for a savings of 27 miles per day. The district operates about 165 days per year for an annual savings of over 4,455 miles per year. The CRID staff vehicle averages 5 miles/gallon of gas. Approximately 891 gallons of gas will be saved annually as a result of the proposed automated diversion structure.

*(g) Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).*

The project will utilize small-scale solar power to operate the diversion gates and the SCADA system, avoiding utilizing power from a power company whose portfolio of power sources include fossil fuel generation.

### **E.1.3. Evaluation Criterion C – Sustainability**

#### **E.1.3.1. Enhancing Drought Resiliency**

*(a) Does the project seek to improve ecological resiliency to climate change?*

The project seeks to improve ecological resiliency to climate change by stabilizing river flows in the North Platte River. Climate change can lead to increased variability in precipitation patterns, resulting in irregular river flows and water availability. This negatively impacts the health and functioning of ecosystems, as well as the species that depend on them. Stabilizing the flow of the North Platte River will improve ecological resiliency to climate change by providing a consistent water supply to ecosystems.

Through flow stabilization, the project will also improve ecological resiliency to climate change by helping to maintain the integrity of aquatic habitats along the North Platte River and support the diverse ecosystems that flourish there. Stable river flows provide a constant water source for plants, animals, and microorganisms, ensuring their survival and reproduction. Stable flows also promote natural processes such as nutrient cycling, sediment transport, and floodplain connectivity, which are essential for ecosystem function and future resilience.

In addition to providing water, stable flow of the North Platte River provided by this project will help mitigate the impacts of climate change by reducing the risk of droughts and floods. Stable river flows support the growth of vegetation along riverbanks, which helps stabilize soils and prevent erosion. This vegetation acts as a carbon sink, absorbing and storing greenhouse gases and thus mitigating climate change impacts.

*(b) Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels.)*

The Project will stabilize the flows not only in the canal but also in the river, thereby providing for a more stable flow downstream. This stabilization will help in maintaining water levels.

*(c) Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species or particular recreational or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recover plan or conservation plan under the Endangered Species Act (ESA).*

The Project will benefit the state and federally threatened piping plover, and the state and federally endangered least tern and pallid sturgeon. The Platte River Implementation Program (PRRIP), sponsored by the Department of Interior, water users, and the States of Colorado,

Wyoming, and Nebraska, is working to provide benefits to the species. PRRIP water projects that support species needs are developed using a percentage of flows during certain months of the year for storage in environmental storage accounts both upstream and downstream of Castle Rock. The Project will provide more stable flows in the river downstream of Castle Rock's diversion, reducing shortages to downstream appropriators, and avoiding calls for storage waters from upstream federal reservoirs. As carryover in the federal reservoirs is increased, the water supply in both the federal and downstream reservoirs is increased to the benefit of the listed species. Additionally, the piping plover and the least tern, which utilize riverine sand bars, and the pallid sturgeon, which favor a diversity of depths threatened by lessened flow, will benefit from the stabilization of Platte River levels. Impacts to other federal and state listed T&E species will be reviewed as part of the environmental review/Cat-Ex under NEPA.

*(d) Please describe any other ecosystem benefits as a direct result of the project.*

The Project will result in a more efficient use and management of the water supply by stabilizing the flows in the canal and by providing a more reliable delivery of water to irrigators. The project will also reduce spills throughout the District's delivery system.

By promoting the efficient use of water in the North Platte River, the project will result in less water waste and more water availability to support local ecosystems during periods of drought. This will help maintain stable river flows and ensure a constant water source for plants, animals, and microorganisms.

### ***E.1.3.2. Addressing A Specific Water And/Or Energy Sustainability Concern(s)***

*Will the project address a specific sustainability concern? Please address the following:*

*(a) Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.*

The Project will help address shortages due to drought and/or climate change. Since 2002, the North Platte River systems have experienced water shortages in nine out of 21 years (43%). Water supplies have varied from 50% to 80% of a full supply.

*(b) Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.*

Not applicable to project.

*(c) Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?*

The Project will stabilize the canal and river flows by reducing over-diversion. This will benefit downstream appropriators and reduce the likely call for storage water due to shortages and fluctuations in river flows. Stabilizing the water flows in the river by not over-diverting will benefit

downstream appropriators and reduce their demand on both storage water and groundwater sources to make up shortages in surface water supplied. The North Platte Natural Resources District (NPNRD) is considered over-appropriated under state law. The NPNRD has an integrated management plan in place that regulates the use of groundwater (See Appendix E).

*(d) Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the system, or used to meet another intended use.*

The conserved water will primarily be used to reduce shortages that impact downstream appropriators' diversions or be left in the river system. Reducing shortages to downstream appropriators will reduce the demand on both storage water and groundwater resources to make up the shortage.

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

Not applicable to project.

*(f) Indicate the quantity of conserved water that will be used for the intended purpose.*

Not applicable to project.

### **E.1.3.3. Other Project Benefits**

#### *(1) Combating the Climate Crisis*

*Please describe how the project will address climate change, including the following:*

*(a) Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.*

The Project will stabilize river flows to benefit downstream appropriators, reducing supply shortages and calls for storage water releases. Stabilizing river flows directly supports E.O. 14008 by combating the climate crisis in several ways. First, stable river flows help maintain healthy habitats for plants and animals that depend on rivers and their surrounding areas. By ensuring consistent water availability, ecosystems can better adapt to changing climate conditions and support biodiversity. Further, stable river flows help regulate water levels, reducing the risk of both floods and droughts. This is especially important in the face of increasing extreme weather events caused by climate change. By effectively managing flows in the North Platte River, local communities can better prepare for and respond to these events. Stable river flows also preserve water resources, allowing for more efficient water management and reduced waste. This is crucial in areas along the North Platte River experiencing water scarcity and increased demand due to climate change. Finally, stable river flows enable carbon sequestration. Health river systems act as carbon sinks, capturing and storing carbon dioxide from the atmosphere. Stabilizing flows along the North Platte River also supports the growth of vegetation along the riverbank, helping to absorb and store carbon. Together,

these benefits of stable river flows work to mitigate greenhouse gas emissions and combat climate change.

*(b) Does this proposed project strengthen water supply sustainability to increase resilience to climate change?*

The Project will reduce calls for storage water from upstream federal reservoirs providing drought protection and resilience to the impacts of climate change. By stabilizing the flows of the North Platte River, this project will help ensure a consistent supply of water and allow local communities to rely on the river as a consistent source of drinking water and irrigation. Further, stable river flows will allow CRID to better plan and allocate water resources, reducing wastage and maximizing water usage. Through more efficient water management, local reservoirs and other storage facilities will build up adequate water reserves during periods of high flow and ensure a continuous water supply during drier periods. Stabilizing flows along the North Platte River will also help maintain water quality, as adequate flow levels help dilute pollutants and flush out contaminants to ensure cleaner and healthier water for both human consumption and ecosystem health. Overall, this project will strengthen water sustainability in the region and support the overall well-being of local communities, ecosystems, and the agricultural economy that depends on reliable access to water resources.

*(c) Will the proposed project establish and utilize a renewable energy source?*

The power source for the proposed Rubicon gates will be a 12 volt battery pack and a solar charging system. The gates' motion and water measurement will be powered by the battery pack, which is supported and recharged by solar panels.

*(d) Will the project result in lower greenhouse gas emissions?*

The Project will result in lower greenhouse gas emissions in several ways. First, automating diversion needed to regulate flow will reduce the 36 miles driven each day by CRID staff to manage the diversion, and therefore greenhouse gases emitted by CRID vehicles. Second, by stabilizing flows along the North Platte River, the project will allow for more consistent and reliable hydropower generation along the river. This will reduce reliance on fossil fuels for electricity production, thereby reducing greenhouse gas emissions. Third, this project will result in a more reliable and consistent water supply that will enable local farmers to optimize their irrigation systems and ensure crops receive the necessary amount of water without excess waste. Efficient irrigation reduces the need for energy-intensive practices like pumping and transporting water, thus lowering greenhouse gas emissions associated with energy consumption. Fourth, this project will help ensure adequate flow levels in the North Platte River which will help dilute pollutants and flush out contaminants, reducing the need for extensive water treatment processes. Water treatment and purification require energy intensive processes, which can contribute to greenhouse gas emissions.

*(2) Disadvantaged or Underserved Communities*

*Please describe how the project supports E.O. 14008 and E.O. 13985 including (a) - (c):*

Not applicable to project.

*(3) Tribal Benefits*

*Please address the following, (a) - (c), if applicable.*

Not applicable to project.

*(4) Other Benefits*

*Will the project address water and/or energy sustainability in other ways not described above?*

*For example:*

*(a) Will the project assist States and water users in complying with interstate compacts?*

The Project will help avoid unnecessary releases of storage water from the Bureau of Reclamation facilities on the North Platte River in Wyoming. This will leave more water in carryover storage and avoid calls for regulation upstream of the federal reservoirs in Wyoming, as required by the U.S. Supreme Court Modified North Platte Decree.

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

The Project will benefit agricultural water users in the CRID as well as users downstream by stabilizing canal and river flows, avoiding unnecessary spills, and providing better water delivery to irrigators. The project will benefit the environment by stabilizing the flows in the river to support the aquatic ecosystem, and will benefit recreation including fishing, bird watching, and canoeing. Stabilizing river flows along the North Platte River will also benefit downstream hydroelectric generators, such as the Kingsley Dam on Lake McConaughy, by ensuring a constant supply of water to the turbines, allowing for reliable and uninterrupted power generation and enabling them to operate at their optimal efficiency.

*(c) Will the project benefit a larger initiative to address sustainability?*

The Project benefits the North Platte Natural Resources District's larger sustainability initiatives. The hydraulically connected alluvial aquifer which provides water to the entire NPNRD is considered over-appropriated by the Nebraska Department of Natural Resources. As such, the NPNRD is working to reduce its water usage to a sustainable level. Stabilizing river flows by avoiding over-diversion by CRID will reduce the shortages to downstream water users who turn on groundwater wells when they experience shortages.

*(d) Will the project help to prevent a water-related crisis or conflict? Is there frequent tension or litigation over water in the basin?*

The Project will reduce the over-diversion by CRID, thereby reducing shortages to downstream appropriators. In water-short years, tensions are high as water users in the North Platte River Basin experience more frequent and intense water shortages which correspond to tight regulation of water rights. Litigation has occurred in the past between the states of Nebraska and Wyoming that have resulted in U.S. Supreme Court decrees, most recently Nebraska v. Wyoming, 515 U.S. 1 (1995), and Nebraska v. Wyoming, 507 U.S. 584 (1993), on the basis of equitable apportionment detailed in the Court's 1945 opinion. Downstream surface water projects have filed suit against the NPNRD for overuse of the commingled water supply in the past. The Project seeks to provide accurate measurement and equitable apportionment to lessen the likelihood of future conflict over the North Platte River Basin.

#### ***E.1.4. Evaluation Criterion D – Complementing On-Farm Irrigation Improvements***

*(1) Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies*

*(a) Provide a detailed description of the on-farm efficiency improvements.*

*(b) Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?*

*(c) 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.*

*(d) Applicants should provide letters of intent from farmers/ranchers in the affected project areas.*

There are currently six on-farm improvement projects planned over the next two years. Five are conversions from gravity irrigation to center pivot irrigation. One is a conversion from a dirt head ditch for gravity irrigation to a pressurized gate piping system. The locations within the District are shown on Drawing 4 (See [Appendix A ON-FARM WATER CONSERVATION MAP #1](#)). Drawing 5 ([Appendix A ON-FARM WATER CONSERVATION MAP #2](#)) and Drawing 6 ([Appendix A ON-FARM WATER CONSERVATION MAP #3](#)) shows more detail for the five parcels and the acres associated with each parcel.

Parcel #4 has been in negotiations with the NRCS, but details are not available at this time. Parcel #6 has applied through EQIUP for funding on the pivot. Documentation that the on-farm projects are eligible for NRCS assistance, and that assistance has been requested are not available at this time.

Letters of Intent related to all six on-farm improvement projects are provided as attachments to this proposal in [Appendix B](#).



*(2) Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.*

*(a) 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*

*(b) Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?*

The proposed project will help facilitate and directly benefit the planned on-farm improvements. Automation of the diversion site will significantly reduce fluctuations in canal flows, making it more reliable for pumping to a center pivot system, avoiding pivot shutdowns when levels are low, and avoiding spills when levels are high. In addition, by stabilizing the flows in the canal, the proposed project will encourage other irrigations to transition to more efficient irrigation practices. Drawing #3 illustrates the increasing number of irrigators in the service area who are installing center pivot systems to improve their water efficiency.

*(3) Describe the on-farm water conservation or water use efficiency benefits that are expected to result from any on-farm work.*

*a) 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.*

The five planned center pivot conversion projects are estimated to save approximately 286.41 acre-feet of water annually at the diversion point. Net irrigation requirements in Scotts Bluff County, Nebraska, is 14 inches per year. A gravity irrigation system is, at best, 55% efficient. A center pivot system is 87% efficient at meeting the irrigation requirement. The majority of the earthen canal systems in the service area are 55% efficient. Calculations are as follows:

*Gravity system [(14 inches/55%)/55% = 46.3 inches or a 3.86-acre-foot diversion requirement]*

*Center pivot system [(14 inches/87%)/55% = 29.26 inches or a 2.44-acre-foot diversion requirement]*

*Savings per acre [3.86 - 2.44 = 1.42 acre-foot/acre] [1.42 x 201.7 acres = 286.41 acre-feet] per year at the point of diversion*

The method for calculating the water savings for Parcel #5 for the conversion of 30.1 acres irrigated with a dirt head ditch conversion to a pressurized gated pipe system is unknown.

*(4) Please provide a map of your water service boundaries.*

See [Appendix A](#) for map of service area boundaries.

## **E.1.5. Evaluation Criterion E – Planning and Implementation**

### **E.1.5.1. Subcriterion No. E.1.: Project Planning**

*(1) Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place. Including a specific excerpt or a link to the planning document may also be considered where appropriate.*

*Provide the following information regarding project planning:*

- (a) 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.*
- (b) 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).*
- (c) If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes).*

Castle Rock Irrigation District is not a federal contractor and is not required to have a Water Conservation Plan or System Optimization Review. A WaterSMART Basin Study has not been conducted for the North Platte River Basin. The NDNR does have a Drought Contingency Plan in place. CRID, as well as most surface water districts in the area, were part of developing the Drought Contingency Plan which includes implementing projects that conserve water and/or improve water management. Specific projects, however, are not mentioned in the NDNR Drought Contingency Plan. CRID is also a member of the NPNRD's Hazard Mitigation Plan which addresses several types of hazards, including flooding. See Appendix E for NDNR Upper Platte River Drought Contingency Plan and NPNRD Hazard Mitigation Plan.

The proposed project will provide remote operation of Castle Rock's diversion dam to better manage canal flows to avoid waste and spills. The system will also help prevent localized flooding within CRID's service area during flood events.

### **E.1.5.2. Subcriterion No. E.2.: Readiness To Proceed**

*(a) Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section 1.3; this section should focus on a summary of the major tasks to be accomplished as part of the project.*

CRID has received funds from the State of Nebraska Department of Natural Resources to begin construction on the Project in October 2024. The major initial tasks necessary to the Project are finalizing the design, obtaining the requisite permits, opening the bid process, and contracting with the strongest candidate. Once a contractor is selected mobilization and construction will commence. Complete rehabilitation of the diversion infrastructure will be completed by June 2025.

*(b) Describe any permits that will be required, along with the process for obtaining such permits.*

CRID's Project requires the following permits:

- A Categorical Exclusion (Cat-Ex) document following guidance from the Bureau of Reclamation will be required to comply with the National Environmental Protection Act (NEPA).
- A United States Army Corps of Engineers (USACE) Clean Water Act (CWA) 404 Permit – submission of application upon finalization of design footprint. We anticipate this project will be permitted under a Nationwide Permit (NWP), specifically NWP 3(a). The permit application will be submitted to the USACE Omaha Regulatory Office.
- A NPDES Construction Stormwater – submission of application during final design process. A construction stormwater permit (CSW) will be obtained through the Nebraska Department of Environment and Energy (NDEE). This will include development of a Stormwater Pollution Prevention Plan (SWPPP) to specify the erosion control measures included in the contract documents.
- A Local Floodplain – submission of application with final design. The permit application is provided to the local jurisdiction, Scottsbluff County, with certification of meeting the local floodplain permitting requirements.

*(c) Identify and describe any engineering or design work performed specifically in support of the proposed project.*

JEO Consulting group, a licensed professional engineering consultant, has been hired to complete a preliminary design of the diversion structure. The final design is in process and will continue towards final through 2023 into early 2024. The consultant will prepare bid documents for public bidding.

The preliminary design included the following components: site survey, geotechnical investigation, hydrology and hydraulic modeling, and structural engineering.

- The consultant's survey of the proposed site location collected elevations, site features, property boundaries from GIS data, and existing utilities to create an AutoCAD electronic drawing detailing these specifications. The site survey also collected available property pins, sections, and corners for legal descriptions required for the Project.
- The consultant obtained 3 borings to approximately 30' depth adjacent to the Riverbank and diversion structure as specimens for the geotechnical investigation. The borings were then lab tested to provide soil properties, resulting in a brief report. Additional geotechnical investigation will be performed in the final design phase.
- Basic hydrologic tests and hydraulic modeling was performed to support the design and the Local Floodplain Permit.
  - A duration analysis was completed to determine the percentage of time the North Platte River discharges were at selected levels. Using the current NDNR gaging station 0668200 North Platte River near Minatare and the historical USGS stream gage 0668199 to obtain daily discharge data from 1958-2023, the consultant completed analyses for annual and quarterly flows, considering that flow in the North Platte River is significantly impacted by the operation of the reservoirs and irrigation projects. The analysis found that on an annual basis 50% of the time the peak flow would exceed 572 cfs but in the 3rd Quarter, during peak irrigation season, the peak flow would only exceed 471 cfs 50% of the time. Next, the headgate structure

which conveys flows to the Castle Rock Canal was analyzed to ensure these flows could be achieved during periods of low flow on the North Platte River. This analysis took into account both the water rights of the Castle Rock Canal and the water diverted to the Steamboat Canal via the Castle Rock Canal, which are permitted to divert 82.57 cfs and 5.69 cfs respectively.

- The positioning and dimensions of the Diversion Structure and overflow weir was decided by calculating flow through the gates using the standard weir equation with a weir coefficient (C) of 3.0.
- A two dimensional (2D) hydraulic model was created to evaluate the potential improvements during large discharge events using HEC-RAS software version 6.3.1. The existing conditions topographic surface was created using USGS 2020 LiDAR data and modified in the main channel of the river to include estimated bathymetry. A land cover surface was created using data from the 2019 National Land Cover Database. Manning’s ‘n’ values were assigned based upon the land cover surface and aerial imagery. Channel ‘n’ values were set at 0.025 for the North Platte River and 0.03 for the Castle Rock Irrigation Canal while overbank ‘n’ values ranged from 0.03 to 0.085. The diversion structure, headgate structure and overflow weir were all modeled as a 2D connection within HEC-RAS. Unsteady flow files were created for the 2-Year and 100-Year flood events. The structure was modeled assuming all seven headgates were closed and both radial gates were fully open. Even during the 2-Year event some of the flow bypasses the structure to the north. At this time there is limited data to fully assess the impacts of the existing and potential future bypass channels that may be naturally created by the North Platte River during large storm events.
- From these data sets and models, the consultant ran structural engineering analyses to determine floor and wall thickness, reinforcement, and sheet pile length.

CRID anticipates that the final design stage will be reached by March 2024.

*(d) Describe any new policies or administrative actions required to implement the project.*

Not applicable to project.

*(e) Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

Milestones associated with the Project Schedule above include:

- Conclusion of Permitting and Commencement of Bidding Process - By March 1 2024
- Project Contractor Selected - By May 1 2024
- Mobilization - By October 2024
- Construction and Installation (100%) - By June 1 2025

Castle Rock Irrigation District - Diversion and Headgate Structure Replacement Anticipated Project Schedule																													
	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25
Survey																													
Preliminary Design																													
Final Design																													
Permitting (Environmental and Cultural)																													
Bidding																													
Contracting																													
Construction																													

### **E.1.6. Evaluation Criterion F – Collaboration**

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

*(a) Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?*

Steamboat Irrigation District (Steamboat) is a local partner. CRID carries Steamboat's water for delivery to users holding water rights under Steamboat. Steamboat pays assessments to CRID and as such will have a financial obligation as part of the local match. The Nebraska Department of Natural Resources (NDNR) is a supporter and funding partner for the proposed project. The North Platte Natural Resource District (NPNRD) is a non-funding partner that is in support of the proposed project. The Nebraska State Irrigation Association (NSIA) is providing in-kind support to assist water districts, including CRID, with securing funding assistance for improving water management and efficiencies in their systems. The North Platte Valley Irrigators Association (NPVIA) is a non-funding local supporter of the project and they are providing in-kind assistance with grant writing.

*(b) What is the significance of the collaboration/support?*

Steamboat will participate in the financial obligation for the local match. The NDNR will provide financial assistance and support the project as it contributes to goals identified in the NPNRD Drought Mitigation and Hazard Mitigation plans (See [Appendix E](#)). The NPVIA is a local association of irrigation districts and canal companies that work to assist member districts and others with issues relating to their operations. The NSIA is a statewide association of irrigation districts, public power districts, canal companies, reclamation districts, and individuals working to support surface water irrigation in Nebraska. The support of these bodies is significant as it attests to the importance of the Project on a local and state level.

*(c) Will this project increase the possibility/likelihood of future water conservation improvements by other water users?*

The proposed project will serve as a demonstration project for the many other smaller irrigation districts in the area that will benefit from improvements to their diversion structures, such as adding remote operations.

*(d) Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).*

See attached letters of support and commitment in [Appendix B](#).

### **E.1.7. Evaluation Criterion G – Additional Non-Federal Funding**

*State the percentage of non-Federal funding provided using the following calculation: Non-Federal Funding / Total Project Cost.*

$$\begin{aligned} & \$2,621,700.00 \text{ (Non-Federal Funding Amount)} / \$4,023,160.00 \text{ (Total Project Cost)} \\ & = 65.2\% \text{ Non-Federal Funding} \end{aligned}$$

If federal funding is approved, this Project will be supported by 65.2% non-federal funding and 34.8% federal funding.

### **E.1.8. Evaluation Criterion H – Nexus To Reclamation**

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

*(a) Does the applicant have a water service, repayment, or O&M contract with Reclamation?*

No.

*(b) If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?*

No.

*(c) Will the proposed work benefit a Reclamation project or activity?*

The Project will benefit Reclamation's North Platte Project which includes thirteen irrigation districts in Wyoming and Nebraska. The Project will also benefit eight irrigation districts in Wyoming and Nebraska that receive water from the Glendo Unit of the Pick-Sloan Project. Improved control of Castle Rock's diversion will stabilize flows downriver, reducing demand by Reclamation contractors for storage water from federal reservoirs in Wyoming, such as the Pathfinder Reservoir, thereby leaving more water in the system to the benefit of all water users.

*(d) Is the applicant a Tribe?*

No.

# Performance Measures

*Provide a brief summary describing the performance measure(s) that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).*

CRID will quantify benefits from the Project by comparing NDNR diversion data used to estimate spills with diversion data after the installation of the Diversion Structure. CRID expects to see a 90% reduction in over diversion at the point of control, leading to immense water savings estimated at 1,335 acre-feet per year (See Table 1 on page 9).

After a year of automated operation, CRID staff will be asked to estimate the number of trips taken to the Diversion Structure in order to ascertain the amount of gas conserved.

# Project Budget

## ***Funding Plan and Letters of Commitment***

The funding plan for the Project is as follows, and will be split according by percentage as follows:

- 63.9% Nebraska Department of Natural Resources match: \$2,571,700.00
  - committed as of July 18, 2023. See [Appendix B](#) for letter of commitment by NDNR Director Tom Riley.
- 1.3% Castle Rock Irrigation District commitment: \$50,000.00
- 34.8% Reclamation WaterSMART Grant: \$1,401,460.00
  - proposed as of January 12, 2024.

*Please identify the sources of the non-Federal cost share contribution for the project, including:*

*(a) Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments)*

CRID is contributing \$50,000.00, nearly one half of its yearly budget, toward the Project. CRID's budget comes from appropriator dues. The Nebraska Department of Natural Resources (NDNR) has generously committed \$2,621,700.00 toward the cost-share requirement.

*(b) Any costs that will be contributed by the applicant*

Not applicable to project.

*(c) Any third party in-kind costs (i.e., goods and services provided by a third party)*

The North Platte Valley Irrigators Association (NPVIA) is providing in-kind assistance with grant writing.

*(d) Any cash requested or received from other non-Federal entities*

Not applicable to project.

*(e) Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.*

Not applicable to project.

## **Budget Proposal**

**Table 1. – Total Project Cost Table**

SOURCE	AMOUNT
Costs to be reimbursed by proposed Federal funding	\$1,401,460.00
Costs to be reimbursed by applicant	\$50,000.00
Costs to be reimbursed by third party contribution - State funding	\$2,571,700.00
<b>TOTAL PROJECT COST</b>	<b>\$4,023,160.00</b>



**Table 2. – Budget Proposal**

BUDGET ITEM DESCRIPTION	\$/Unit	Quantity	Quantity Type	TOTAL COST
<b>Personnel Salaries and Wages</b>				
Included in Contractual	N/A	N/A	N/A	\$0.00
<b>Fringe Benefits</b>				
Not applicable	N/A	N/A	N/A	\$0.00
<b>Travel</b>				
Not applicable	N/A	N/A	N/A	\$0.00
<b>Equipment</b>				
Included in Construction	N/A	N/A	N/A	\$0.00
<b>Supplies and Materials</b>				
Included in Construction	N/A	N/A	N/A	\$0.00
<b>Contractual</b>				
Engineering, Survey, Architecture Design Services	See Appendix D			\$454,000.00
<b>Construction</b>				
Equipment, Materials, Supplies, and Labor for Project Tasks A-F	See Appendix D			\$2,974,300.00
20% Contingency	See Appendix D			\$594,860.00
<b>TOTAL DIRECT COSTS</b>				<b>\$4,023,160.00</b>
<b>Indirect Costs</b>				
Not applicable	N/A	N/A	N/A	\$0.00
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$4,023,160.00</b>

For more information, please see the Budget Narrative file included with this application and [Appendix D.](#)

# Environmental and Cultural Resources Compliance



As the proposed project excavates a diversion structure, creates a cofferdam to divert river flow, and installs new Rubicon gates it will have temporary effects on the surrounding environment such as increased noise, dust, river turbidity, and traffic re-routing. Disturbances to the soil and water will be minimized with physical processes while disturbances like noise will be minimized by the time of day that the work is completed. As the Project is just north of Nebraska State Highway 92, CRID will work with local authorities in Melbeta to mitigate traffic disruption.

State and federally threatened species in the North Platte River Basin should not be greatly affected by the interim steps of construction. The project will go through an environmental review process in accordance with NEPA to confirm that all activities are carried out with the utmost awareness of ecosystem impact.

The Castle Rock Canal was constructed in 1888 by the Farmers' Canal Company. The Project will modify the original canal infrastructure by removing the antiquated diversion gate structure and installing an automated gate for more accurate diversion and flow measurement.

The proposed project should not have an adverse effect on low income or minority populations. No Indian sacred sites or archaeological sites have been identified in the Project location.

The Project is committed to restoration of the area surrounding the structure, and will be seeding and mulching the areas disturbed by construction. As this restoration takes place, the contractor will be required to remove toxic weeds and non-native plant species.

## **Required Permits or Approvals**



The Project includes the following permitting activities in compliance with municipal, state, and federal guidelines:

Environmental Review/Cat-Ex in accordance with NEPA

United States Army Corps of Engineers (USACE) Clean Water Act (CWA) 404 Permit, Nationwide Permit (NWP), specifically NWP 3(a) via the USACE Omaha Regulatory Office.

Local Floodplain Permitting via Scottsbluff County.

NPDES Construction Stormwater Permit on Stormwater Pollution Prevention Plan (SWPPP) and a Construction Stormwater Permit (CSW) through the Nebraska Department of Environment and Energy (NDEE).

## **Conflicts of Interest Disclosure**

There are no known conflicts of interest with regard to Castle Rock Irrigation District and the proposal for federal assistance.

## **Single Audit Reporting Statement**

Castle Rock Irrigation District has not spent more than \$750,000 in U.S. Dollars this fiscal year.

## **Unique Entity Identifier and System for Award Management**

Castle Rock Irrigation District is registered with SAM under the Unique Entity Identifier GB8HZPWMGL21 / 9NSB1.

# NEBRASKA

Good Life. Great Water.

DEPT. OF NATURAL RESOURCES

January 5, 2024

Steve Jobman, Director  
Castle Rock Irrigation District  
160529 County Road 29  
Gering, NE 69341



Jim Pillen, Governor

Dear Steve:

Please consider this letter a formal expression of support and commitment from the Nebraska Department of Natural Resources to provide up to \$2,571,700 of matching state funding for your Bureau of Reclamation WaterSMART grant application. These types of projects are key investments toward sustaining irrigation operations over the long term, and enhancing water supplies during periods of drought. The Department's current plans pertaining to the project area include an integrated management plan developed in partnership with your District and the Basin-Wide Plan. Both plans recognize the benefits of these types of activities in supporting goals aimed at the long-term sustainability of irrigation uses in the basin.

Should your grant application be approved, Department staff will work with you to ensure the cost-share commitment is implemented with state funding. Once again, the Department fully supports your District's efforts to implement these water supply improvements and appreciates your District's efforts in working to support the state's integrated management plan and basin-wide plan goals.

Sincerely,

A handwritten signature in blue ink that reads "Thomas E. Riley".

Thomas E. Riley,  
Director

Thomas E. Riley, P.E., Director

Department of Natural Resources

245 Fallbrook Blvd., Suite 201 OFFICE 402-471-2363  
Lincoln, Nebraska 68521 FAX 402-471-2900

[dnr.nebraska.gov](http://dnr.nebraska.gov)



Where Every Drop Counts!

Post Office Box 904  
Scottsbluff, Nebraska 69363-0904

# North Platte Valley Irrigators Association

....16 Member Districts Serving Irrigators in Scotts Bluff,  
Morrill and Sioux Counties

March 15, 2023

**RE: Castle Rock Irrigation District Grant Application**

To Whom It May Concern:

The North Platte Valley Irrigators Association (NPVIA) is a nonprofit entity comprised of 16 surface water irrigation districts and canal companies in the North Platte River Valley from the Wyoming/Nebraska state line to Lewellen, Nebraska, servicing over 300,000 acres.

The Association is a supporter of its member districts in their efforts to improve management of their water delivery systems and conserve one of Nebraska's most precious natural resources, water. The Association provides in-kind support by providing grant writing assistance through its Executive Director.

Castle Rock Irrigation District has identified a project to improve the management of their water delivery system through the rehabilitation/replacement and automation of their canal diversion from the North Platte River. The existing system is difficult to operate and manage resulting in fluctuating flows in their canal causing shortages, and excesses that are wasted back to the river impacting their irrigators and appropriators downstream.

It is nearly impossible for small irrigation districts like Castle Rock to fund improvements of this magnitude without financial assistance from federal, state and local sources. We hope you will seriously consider funding Castle Rock's grant request, so this important project can move forward.

We appreciate your consideration of our comments in support of Castle Rock's grant application. If you have any questions, please feel free to contact Dennis Strauch, our Executive Director at telephone number (308) 672-9577 or by email at [dennis@pathfinderirrigation.com](mailto:dennis@pathfinderirrigation.com) . Thank you.

Sincerely,  
North Platte Valley Irrigators Association

Rodney Schaneman, President

# NEBRASKA STATE IRRIGATION ASSOCIATION

1233 Lincoln Mall • Suite 201 • Lincoln, NE 68508 • Phone 402-476-0162 • Fax 402-476-2469

March 22, 2023

To Whom It May concern:

RE: Castle Rock Irrigation District Application for Project Grant Support

The Nebraska State Irrigation Association here supports the Castle Rock Irrigation District's request for support of a grant to assist the District in its important work on the project to rehabilitate, repair and replace some facilities within the District's project. The Association appreciates your consideration of our support of the District's planned work.

The Association [NSIA] is a non profit organization established in 1894 to represent the interests of Nebraska irrigation water organizations. In that capacity the Association has worked closely with organizations like Castle Rock over its years of service to member irrigators.

The NSIA has worked closely with the Legislature in the establishment of the Surface Water Irrigation Infrastructure Fund, and has worked closely with Nebraska's surface irrigation organizations to review their facilities needs; identify the designs necessary to rehabilitate, repair and replace such facilities, and coordinate with the Districts to identify the costs necessary to complete these efforts.

Castle Rock has identified this project to restore its project delivery system and automate the diversion from the North Platte River. The existing system is difficult to operate and manage resulting in fluctuating flows and causing shortages and the wasting of water back to the river.

We understand that irrigation organizations like Castle Rock wishing to fund such expensive work without added financial assistance from federal, state and other local sources may find it impossible to carry out.

We sincerely hope that you will consider and provide the funding assistance the District's grant request has submitted.

Should you need other further information or have questions about the Nebraska State Irrigation Association's support of this Castle Rock request you may contact Lee Orton, The Executive Director of the Association by telephone at 402-476-0162.

Respectfully submitted,



Lee Orton, Executive Director



# NORTH PLATTE

## Natural Resources District

100547 Airport Road, P.O. Box 280, Scottsbluff, NE 69363-0280

[www.npnrd.org](http://www.npnrd.org)

(308) 632-2749

[npnrd@npnrd.org](mailto:npnrd@npnrd.org)

March 21, 2023

*Via Email*

Castle Rock Irrigation District  
c/o Steve Jobman  
[sjobman@plummerinsurance.com](mailto:sjobman@plummerinsurance.com)

***Re: Letter of Support for Surface Water Infrastructure Fund (SWIF) Application***

Dear Mr. Jobman:

The North Platte Natural Resources District would like to provide this letter of support to you for your SWIF Application. The NPNRD supports this project because we recognize the important hydrological benefits that your irrigation district and others provide to the overall water system in this area.

We are fully aware of the need for repair to your infrastructure and feel this project would be a good opportunity for you to take part in this funding program to help accomplish those repairs and meet your irrigation district's needs. We have a close relationship with all our surface water partners in this District and would like to continue to provide any level of support we can.

If you have any concerns or need anything further from us, please do not hesitate to contact our office.

Sincerely,



Scott Schaneman  
General Manager

To whom it may concern:

The Dawes County Commissioners and the Dawes County Roads Department are very much in support of the Whitney Irrigation District acquiring a Water Smart Grant for the purpose of replacing the current open canal along North Whitney Lake Road in Dawes County Nebraska, that feeds Whitney Lake with a pipeline to supply water. The main reason being that during the winter months while the Whitney Irrigation District is filling Whitney Lake, blizzard conditions will drift the canal shut and cause ice jams which in turn causes the canal to back up and flood North Whitney Lake Road which leads to road closures and significant damage to the road as well as the roadbed itself.

In 2008 North Whitney Lake Road was closed from December until August due to how extensive it had been flooded, which caused damage to the road surface as well as the roadbed itself. In 2019 North Whitney Lake Road was closed for approximately 120 days due to flooding and then again for approximately another 120 days so the Dawes County Roads Department could make repairs to the road. North Whitney Lake Road has been closed on an average of 30 to 45 days per winter due to flooding, and the damage that the flooding causes each year to the road itself.

In summary we feel that installing a pipeline to replace the current open canal would benefit not only the Whitney Irrigation District, but also the Dawes County Roads Department. It would save the residents of Dawes County thousands in tax dollars that it takes to make the repairs to the road every year, as well as the time that the Roads Department could obligate to other roads issues if a pipeline was installed to feed Whitney Lake instead of the current open canal.

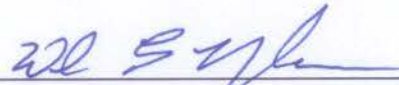
Thank you, sincerely.

Dawes County Commissioners:

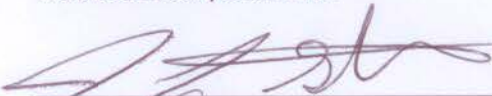
Dawes County Highway Superintendent:



Webb Johnson/Chairman



Wade L. Yada



Jake Stewart



Vic Rivera



Mark Mazza  
1891 Road 63  
Potter, Nebraska 69156

March 15, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

Dear Board of Directors:


I own a tract of land located in part of the NW $\frac{1}{4}$  and part of the N $\frac{1}{2}$ SW $\frac{1}{4}$  of Section 24, Township 21N, Range 54W, Scotts Bluff County, Nebraska, containing 146 acres of land served by the Castle Rock Irrigation District.

I understand the District is applying for a grant to assist with replacement and automation of the District's diversion dam from the river. The existing diversion structure is in poor repair and is difficult to regulate the flows into the canal, causing fluctuations in water levels and deliveries to my farm, as such I have been reluctant to convert to center pivot irrigation.

The proposed project will greatly improve the control of the water levels in the canal and stabilize the delivery to my farm. In conjunction with the District's project I plan to make improvements to my on-farm irrigation system by replacing the gravity system with a center pivot system that will greatly improve my on-farm efficiency on 42.3 acres of land. I have applied through USDA for assistance through the EQIP program, but as of this date, have not received confirmation of funding.

I greatly appreciate the District's efforts to improve water service to its irrigators and conserve our most precious natural resource. Please keep me informed as the project moves forward and let me know if I can help in any way.

Sincerely,

A handwritten signature in blue ink that reads "Mark Mazza" followed by a vertical line.

Mark Mazza

Chase Skaggs  
7753 Road #98  
Bayard, Nebraska 69334

March 1, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

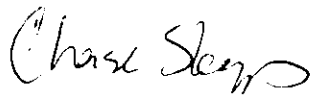
Dear Board of Directors:

I own a tract of land located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 34, Township 21N, Range 53W, Scotts Bluff County, Nebraska, containing 40 acres of land served by the Castle Rock Irrigation District.

I understand the District is applying for a grant to assist with rehabilitation of the District's diversion structure from the river that will improve their ability to control flows in the canal. I plan to make improvements to my on-farm irrigation system by replacing the gravity system with a center pivot system that will greatly improve my on-farm efficiency on 30.6 acres of land. Better control of the flows in the canal will ensure my delivery remains stable avoiding problems with the operation of my pivot.

Please let me know if I can assist in anyway as the District's project moves forward.

Sincerely,

A handwritten signature in black ink that reads "Chase Skaggs". The signature is written in a cursive, flowing style.

Chase Skaggs

Jody Fiscus  
180662 CR 33  
Bayard, Nebraska 69334

March 1, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

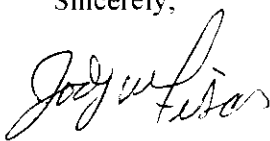
Dear Board of Directors:

I own a tract of land located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 34, Township 21N, Range 53W, Scotts Bluff County, Nebraska, containing 37 acres of land served by the Castle Rock Irrigation District.

I understand the District is applying for a grant to assist with replacement and automation of the District's diversion dam from the river. The proposed project will greatly improve the delivery to my farm by stabilizing flows in the canal. I plan to make improvements to my on-farm irrigation system by replacing the gravity system with a center pivot system that will greatly improve my on-farm efficiency on 21.2 acres of land.

I greatly appreciate the District's efforts to improve water service to its irrigators and conserve our most precious natural resource. Please keep me informed as the project moves forward and let me know if I can help in any way.

Sincerely,

A handwritten signature in cursive script that reads "Jody Fiscus". The signature is written in black ink and is positioned to the left of the printed name.

Jody Fiscus

Spencer Jobman  
190794 CR 36  
Bayard, Nebraska 69334

March 1, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

Dear Board of Directors:

I own a tract of land located in the S½ of Section 2, Township 20N, Range 53W, Scotts Bluff County, Nebraska, containing 381 acres of land served by the Castle Rock Irrigation District.

I understand the District is applying for a grant to assist with replacement and automation of the District's diversion dam from the river. The existing diversion structure is in poor repair and is difficult to regulate the flows into the canal, causing fluctuations in water levels and deliveries to my farm located in the lower third of the service area.

The proposed project will greatly improve the control of the water levels in the canal and stabilize the delivery to my farm. In conjunction with the District's project I plan to make improvements to my on-farm irrigation system by replacing the gravity system with a center pivot system that will greatly improve my on-farm efficiency on 60.5 acres of land.

I greatly appreciate the District's efforts to improve water service to its irrigators and conserve our most precious natural resource. Please keep me informed as the project moves forward and let me know if I can help in any way.

Sincerely,



Spencer Jobman

Steve Jobman  
200245 CR 35  
Bayard, Nebraska 69334

March 1, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

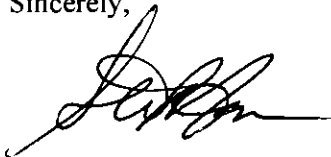
Dear Board of Directors:

I own a tract of land located in part of the S½SE¼ of Section 1, Township 20N, Range 53W, Scotts Bluff County, Nebraska, containing 37.2 acres of land served by the Castle Rock Irrigation District.

My farm is very close to the end of the Castle Rock Canal and as such my delivery can fluctuate with flows in the canal, both shortages and excesses. I currently irrigated 30.1 acres with a gravity system with a dirt ditch at the head end. Fluctuating flows in the canal affect my delivery causing difficulties in irrigating the 30 acres. The District is working to secure grants to rehabilitate the canal diversion from the river to resolve the fluctuation of flows in the canal. With these improvements, I plan to change my on-farm irrigation system by replacing the dirt head ditch with a pressurized gated pipe system which will improve my ability to irrigate my lands.

I applaud the Board of Directors for their efforts to resolve the problems we are experiencing with canal flows. Please let me know if I can do anything more to help with this important project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Steve Jobman', written in a cursive style.

Steve Jobman

Justin Rafferty  
200049 CR 36  
Bayard, Nebraska 69334

March 1, 2023

Board of Directors  
Castle Rock Irrigation District  
P.O. Box 83  
McGrew, Nebraska 69353-0083

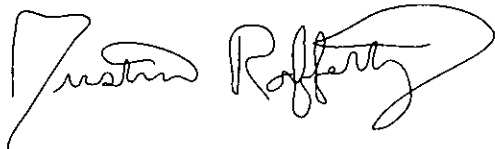
Dear Board of Directors:

I own a tract of land located in the NW¼ of Section 12, Township 20N, Range 53W, Scotts Bluff County, Nebraska, containing 156 acres of land served by the Castle Rock Irrigation District.

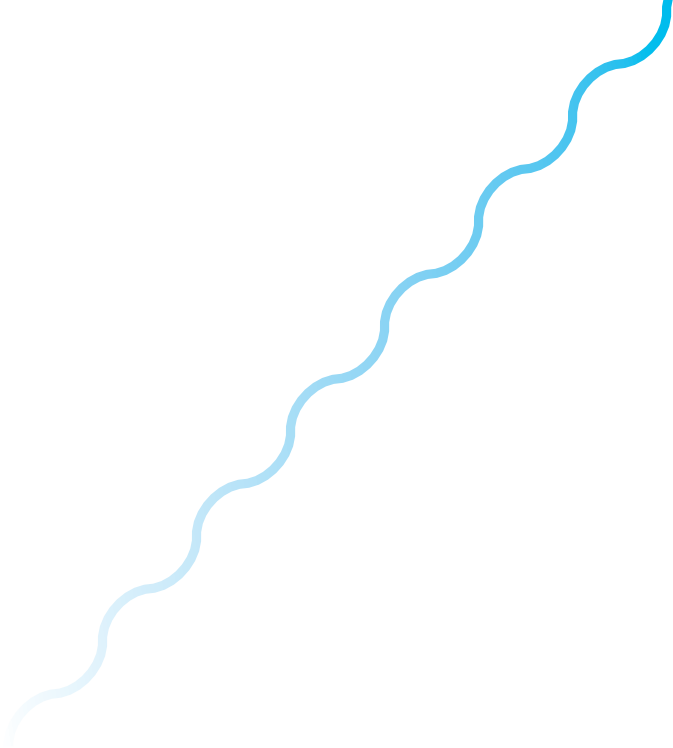
My farm is close to the very end of the Castle Rock Canal and as such my delivery can fluctuate with flows in the canal, both shortages and excesses. The District is attempting to rectify this problem by rehabilitating its diversion from the river and is in need of some funding assistance through grants. With the District's efforts, I plan to make improvements to my on-farm irrigation system by replacing the gravity system with a center pivot system that will improve my on-farm efficiency on 47.1 acres of land. Better control of the flows in the canal will ensure the delivery to my pivot will remain stable.

I want to thank the Board of Directors for their efforts to make improvements to the Castle Rock Canal. Please let me know if I can do anything more to help with this important project.

Sincerely,

A handwritten signature in black ink that reads "Justin Rafferty". The signature is written in a cursive style with a large, sweeping flourish at the end.

Justin Rafferty



## **Appendix C**

### ***Official Resolution***

**RESOLUTION**  
**OF**  
**CASTLE ROCK IRRIGATION DISTRICT**

Date 3/13, 2023

WHEREAS, the Castle Rock Irrigation District (District) was organized and formed under Nebraska State Statute, with irrigation water rights from the North Platte River dated April 18, 1889 Appropriation D-921; and

WHEREAS, the District is charged with the operation, maintenance, repair and replacement of the irrigation facilities to the benefit of its water right holders; and

WHEREAS, the District continually takes steps, investing its own resources to improve on the performance of the facilities for water conservation, operation and maintenance;

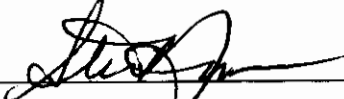
BE IT THEREFORE RESOLVED that the Board of Directors of the Castle Rock Irrigation District has reviewed and authorizes the District's Board Chairman to pursue a Department of Interior WaterSMART grant for the rehabilitation and automation of the District's diversion from the North Platte River. Project name: "Castle Rock Irrigation District Diversion Structure Rehabilitation/Automation and Betterment Project", on behalf of the District; and

BE IT FURTHER RESOLVED that the Board of Directors of the Castle Rock Irrigation District by authority granted under Nebraska State Statute, commits to the financial and legal obligations associated with receipt of a financial assistance award under this Notice of Funding Availability.

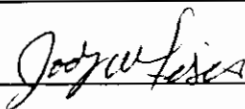
THEREFORE, BE IT RESOLVED.

ENACTED THIS 13 DAY OF March, 2023.

CASTLE ROCK IRRIGATION DISTRICT

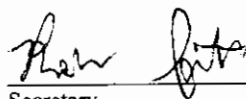
  
\_\_\_\_\_  
Steve Jobman

  
\_\_\_\_\_  
Dan Fitts

  
\_\_\_\_\_  
Jody Fiscus

BOARD OF DIRECTORS

ATTEST:

  
\_\_\_\_\_  
Secretary



**RESOLUTION**  
**OF**  
**STEAMBOAT IRRIGATION DISTRICT**

Date March 15, 2023

WHEREAS, the Steamboat Irrigation District (District) was organized and formed under Nebraska State Statute, with irrigation water rights from the North Platte River dated October 22, 1895 for Appropriation A-186 and July 22, 1896 for Appropriation A-350; and

WHEREAS, the District is charged with the operation, maintenance, repair and replacement of the irrigation facilities to the benefit of its water right holders; and

WHEREAS, the District's appropriations are diverted and conveyed for delivery through the Castle Rock Irrigation District Canal (Castle Rock); and

WHEREAS, the District pays Castle Rock an assessment per acre to operate, maintain and deliver water to Steamboat irrigators; and

WHEREAS, Castle Rock is taking steps, investing its own resources to improve on the performance of the facilities for water conservation, operation and maintenance;

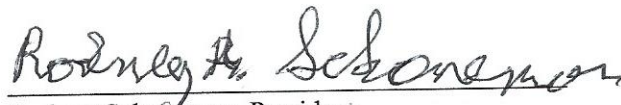
BE IT THEREFORE RESOLVED that the Board of Directors of the Steamboat Irrigation District has reviewed and authorizes the District's Board President to support Castle Rock's pursuit of a Department of Interior WaterSMART grant for the rehabilitation and automation of the District's diversion from the North Platte River. Project name: "Castle Rock Irrigation District Diversion Structure Rehabilitation/Automation and Betterment Project", on behalf of both Castle Rock and the District; and

BE IT FURTHER RESOLVED that the Board of Directors of the Steamboat Irrigation District by authority granted under Nebraska State Statute, commits to the financial and legal obligations associated with receipt of a financial assistance award under this Notice of Funding Availability.


THEREFORE, BE IT RESOLVED.

ENACTED THIS 15 DAY OF March, 2023.

STEAMBOAT IRRIGATION DISTRICT

  
Rodney Schafeman, President

ATTEST:

  
Dave Fischer, Secretary