Albuquerque-Bernalillo County Water Utility Authority
Southside Wastewater Reclamation Plant Outfall Restoration Project

WaterSMART Application: Funding Opportunity Announcement No. R23AS00106

June 1, 2023

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Section 1.1: Executive Summary

June 1, 2023
Albuquerque Bernalillo County Water Utility Authority
Albuquerque, Bernalillo County, New Mexico
Category A
Task Area B: Construction

Serving the greater Albuquerque population, the Southside Wastewater Reclamation Plant (SWRP) is operated by the Albuquerque Bernalillo County Water Utility Authority (Water Authority) and treats approximately 55 million gallons per day (MGD) of wastewater. The plant's high quality treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The Rio Grande has been impacted by water quality degradation and habitat loss, likely due to manmade modifications. Changes in riverine ecosystem processes and habitats have been linked to declines in the endangered Rio Grande Silvery Minnow (*Hybognathus amarus,* RGSM), the last remaining member of a guild of small, pelagic spawning minnows native to the Rio Grande. The SWRP Outfall Restoration project (proposed project) will reconnect the Rio Grande to its floodplain by excavating back the banks allowing water to stretch across the floodplain, thus restoring the river's natural hydraulic processes and enhancing habitat for the RGSM. An additional benefit of the project is, upon completion, it will create long term affects that benefit other federally listed threatened and endangered species, such as the Southwestern Willow Flycatcher, Yellow-billed Cuckoo, and the New Mexico meadow jumping mouse in the Middle Rio Grande.

The proposed project's goals are to enhance habitat for the RGSM and other threatened and endangered species, improve water quality through stabilization of Rio Grande riverbanks and floodplain reconnection, and integrate public recreational access and interpretive features through the restoration area by adding trails for increased public engagement. Bank stabilization measures, including rootwad revetments and soil encapsulated lifts, are proposed at the base of the excavated floodplain terraces to provide bank stability, promote hydraulic mixing of the high quality SWRP outfall water, and increase instream habitat availability.

The project is anticipated to begin construction in Fall 2024 and take approximately 8 months to complete, pending time of year restrictions for listed avian species and the monarch butterfly. The land surrounding the outfall is part of the Rio Grande Valley State Park and is jointly owned by Middle Rio Grande Conservancy District (MRGCD) and by the Bureau of Reclamation (Reclamation). The site is co-managed by MRGCD and the City of Albuquerque Open Space Division (OSD).

Section 1.2: Project Location

The Southside Wastewater Reclamation Plant (SWRP) Outfall Restoration project area includes approximately 11 acres of floodplain reconnection along the Rio Grande approximately five miles south of downtown Albuquerque, New Mexico in unincorporated Bernalillo County (**Figure 1**). The project latitude is 35°01'03.2"N and longitude is106°40'15.9"W.

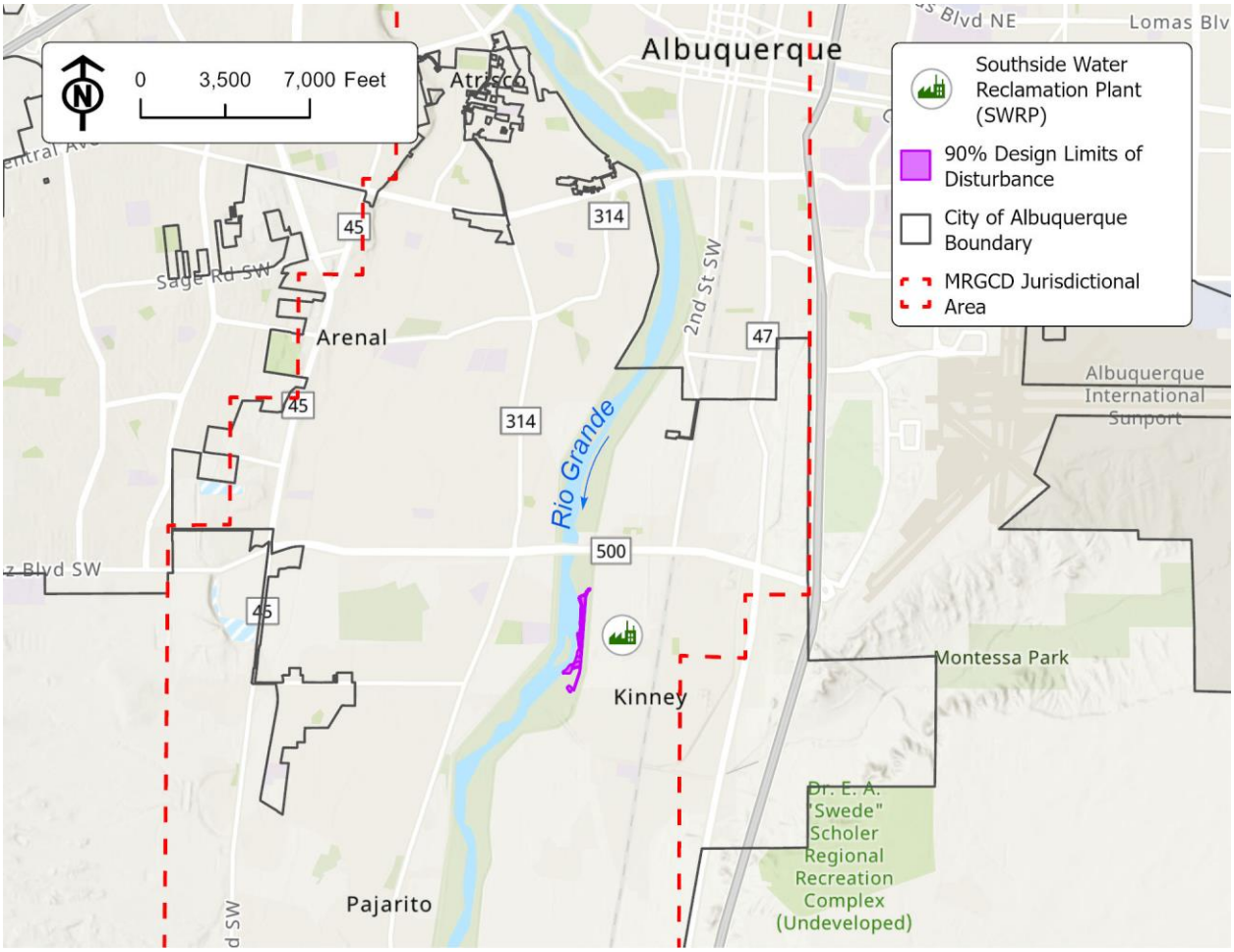

Figure 1: Project Location Map

Section 1.3: Project Description (*Task B: Construction*)

Project Background & Overview

The SWRP is operated by the Water Authority and treats approximately 55 million gallons per day (MGD) of wastewater. The plant's high-quality, treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The land surrounding the outfall is part of the Rio Grande Valley State Park and is jointly owned by the Middle Rio Grande Conservancy District (MRGCD) and U.S. Bureau of Reclamation (Reclamation). The site is co-managed by MRGCD and the City of Albuquerque Open Space Division (OSD). Access to the SWRP outfall is gained by an existing MRGCD maintenance road and the area is actively used by the public for hiking, biking, fishing, and swimming.

The main goals of the Water Authority's SWRP Outfall Restoration Project (Project) are to:

1. Make improvements to the outfall channel and surrounding areas to benefit water quality;
2. Facilitate public access; and
3. Create additional habitat for the endangered Rio Grande Silvery Minnow (RGSM).

In 2021, the Water Authority contracted Hazen and Sawyer (Hazen) to evaluate the size and scope of this project at a conceptual level, from which an alternative (i.e., floodplain terrace creation with rootwad revetment stabilization) was chosen to move forward into detailed design and permitting. At the time of this application submission (June 2023), the project is at the 90% Design phase and is currently under review by the Water Authority and project Stakeholders. The project is anticipated to go into construction in Fall 2024.

Existing Conditions

The project area is in Bernalillo County along 4,000 linear feet (LF) of the Rio Grande, just south of Rio Bravo Boulevard SE and includes the SWRP outfall. The approximately 11-acre site is home to public access trails and critical habitat for threatened and endangered species, as defined by the U.S. Fish and Wildlife Service (USFWS). The three federally listed threatened and endangered species in the project area are listed below.

- Rio Grande Silvery Minnow (*Hybognathus amarus*, RGSM), Endangered
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Endangered
- Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*), Threatened

Additionally, the project is habitat for the monarch butterfly *(Danaus plexippus),* a USFWS candidate species.

Through conversations with stakeholders, existing conditions survey review, and site investigations in early November 2022 the following existing conditions and site considerations were identified:

- **Jetty jacks** are steel beams welded together and threaded with wire and were historically used for flood control. They are located in long, continuous lines south of the SWRP outfall and are found intermittently north of the outfall. Generally, they are located on the existing floodplain and consist of a line of "front line" jetty jacks running parallel to the river and a line of "tieback" jetties stemming away from the river off the "front line" jetties. The jetty jacks near the project site were installed by the U.S. Army Corps of Engineers (USACE) in 1956 to protect the Middle Rio Grande East levee and are jointly managed by USACE, Reclamation, and MRGCD.
- **Native plants**, primarily cottonwoods (*Populus wislizenii*), are present throughout the project area and will be preserved where possible. Additional native plants, such as coyote willows (*Salix exigua*), were also identified.
- **Invasive plants**, such as Siberian elm (*Ulmus pumila*), salt cedar/tamarisk (*Tamarix spp.*), kochia (*Kochia spp.*), and Russian olive (*Elaeagnus angustifolia*), were observed north and south of the outfall.

- **Existing willow swales** are present near the project area and were constructed around 2011 as part of the USACE's Middle Rio Grande Bosque Environmental Restoration (MRGBER) project. There are two coyote willow swales near the outfall, one north of the outfall that creates floodplain connectivity during high flows, and the other south of the outfall with a side-channel design.
- **USACE levees** run parallel to the Rio Grande and were built by the USACE to provide additional flood protection during the 100-year storm event. Adjacent to the project area is a double levee system, with the outer-most levee being the USACE flood protection levee and the inner levee closest to the Rio Grande being used as the MRGCD access road.

Field Investigation

For design purposes, site visits were conducted at the SWRP outfall site in November 2022 to document site conditions for streambank erosion analysis, verify the site survey, document pedestrian trail connectivity, and understand design approaches at known, existing habitat restoration sites (i.e., Water Authority Paseo del Norte East and West). A Bank Assessment for Non-point Source Consequences of Sediment (BANCS) analysis (Rosgen, 2006)[1] was performed to qualify streambank stability and quantify streambank erosions rates. Additionally, geotechnical borings were collected at four locations within the project area to determine soil characteristics, soil chemical properties, and depth to groundwater.

Biological Assessment

A biological survey was conducted to support the permitting and design of the SWRP project. It evaluates the potential effects of the project on federal and state threatened or endangered species and lists the state's endangered plant species regulations. The overall conclusion states:

> "***The layout of the project will be designed to minimize disturbance to cottonwood trees and other environmentally sensitive areas along the bosque. The project will also involve the creation of floodplain habitat areas that extend upstream and downstream of the SWRP outfall. Potential impacts to special-status species are expected to be localized and temporary, and the creation of new habitat areas and improvements to existing habitat are expected to provide a long-term benefit to sensitive species as well as a long-term benefit to other native wildlife species."***

Proposed Conditions

Many approaches for RGSM habitat creation and restoration have been constructed, including modified site channels, vernal pools, log-crib habitat structures, and bendway weirs. Monitoring efforts performed through the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP) indicate that populations of RGSM successfully inhabit and reproduce in the restored floodplain areas, including those completed by the Water Authority near Paseo del Norte (MRGESCP monitoring site ID 140). Therefore, this approach for habitat creation was incorporated within this project along with inclusion of rootwad revetments to facilitate bank stabilization, habitat creation, and mixing of the high-quality SWRP outfall waters with the Rio

[1] Rosgen, D. 2006. Watershed Assessment of River Stability and Sediment Supply (WARSSS). Wildland Hydrology, Fort Collins.

Grande. The project design also incorporates Reclamation's relevant Best management Practices (BMP) and guidance for restoration activities in the bosque – applied in coordination with Reclamation Staff. The SWRP Outfall Restoration project area includes approximately 11 acres of floodplain restoration work along approximately 1,900 LF of Rio Grande. **Figure 2** shows a schematic layout of the 90% design features including excavated floodplain terraces, rootwad revetments, soil encapsulated lifts, and Jetty Jacks for removal. The following subsections provide more detail on these technical aspects of the project.

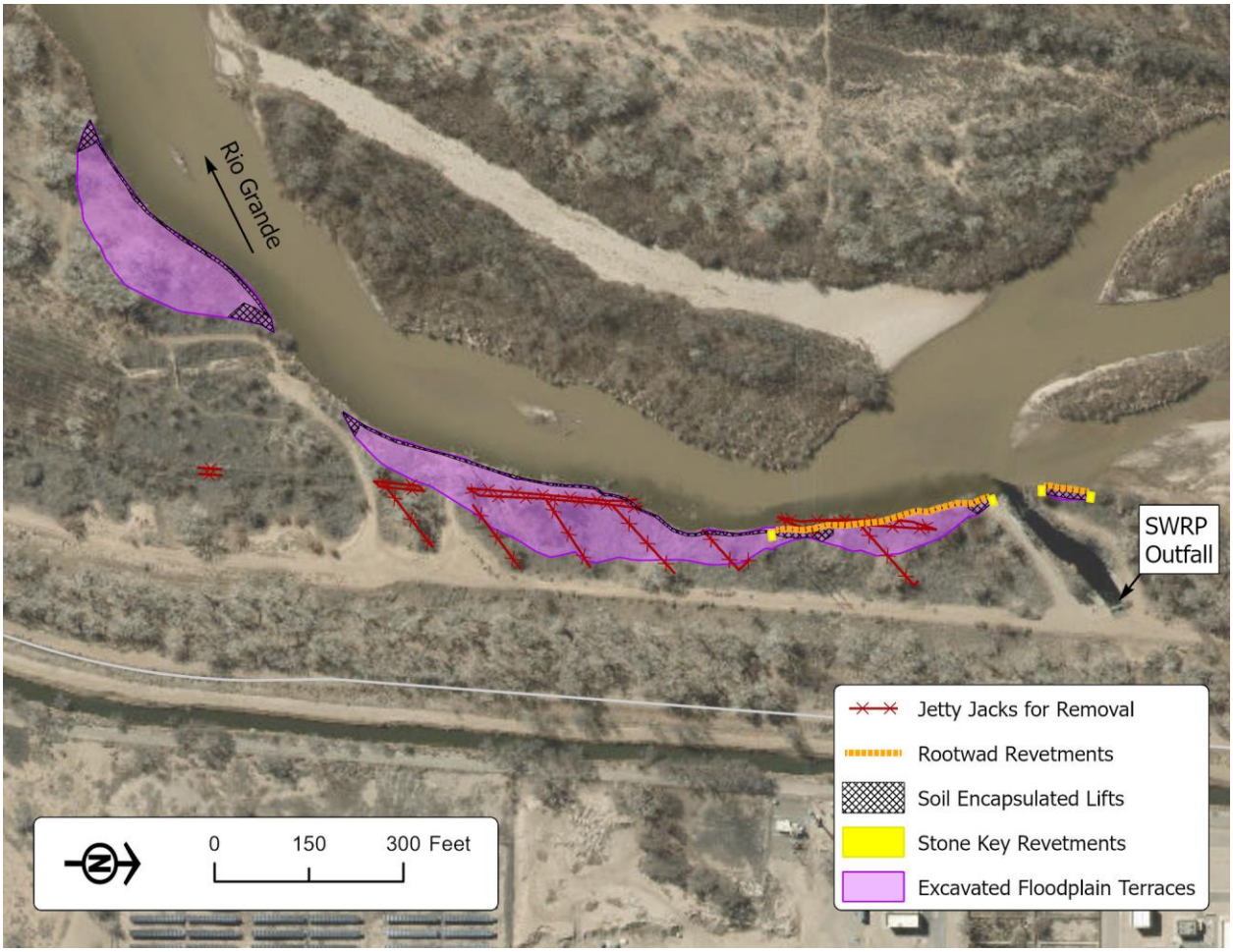

Figure 2: Schematic Layout of the SWRP Outfall Restoration 90% Design Features

Floodplain Terraces

A HEC-RAS hydraulic model developed by Hazen was used to determine the flood water elevations for the Hazen-selected RGSM habitat design flows (i.e., 900 cubic feet per second (cfs), 1500 cfs). The lower flow was selected by reviewing historical flood frequency between the months of May to July, whereas the higher habitat flow is a Reclamation published, guidance. Floodplain terrace elevations, extents, and tie-ins across the project area were determined through modeling iterations to mimic the desired spawning habitat of the RGSM, which generally equate to flood depth ranges of 0.5 to 1.6-feet and velocities between 0.5 to 1.6

feet per second (fps)[2]. Engineering judgement was used to determine lateral grading limits of the floodplain terraces to provide sufficient space for RGSM spawning, account for site considerations and utility constraints, and ensure terrace constructability. The hydraulic model results were also used to refine grading extents based on flood inundation in the proposed landscape, depth to groundwater in the project area, and constructability considerations.

Streambank Stabilization

The project area is located along the Rio Grande's outside meander bend, which is generally prone to increased erosion rates. Because of this, several techniques will be implemented to stabilize the streambank. These design features include grading the floodplain terrace at a 3H:1V slope beginning at the toe of slope, a launchable stone toe, incorporating coir matting (i.e., Rolanka Bio-D 70 or approved equal), and revegetation with native species specific to the bosque. Coir matting is a biodegradable, manufactured product that provides erosion protection until native vegetation consisting of herbaceous and woody species can be sufficiently established and provide streambank stabilization. The findings from the hydraulic modeling were used to understand velocities and shear stress along the streambank's toe. In areas with higher anticipated scour, additional stabilization measures were used including rootwad revetments and launchable stone toe revetments. Launchable stone toe protects the bank against potential toe scour by incorporating an excess amount of stone which launches into a scour hole to provide continued stabilization.

Rootwad Revetment and Other Bioengineering Techniques

Rootwad revetments are proposed along the toe of the Rio Grande upstream and downstream of the SWRP outfall channel to facilitate the mixing of the heavy sediment-loaded water of the Rio Grande with the high-quality effluent discharged from the SWRP outfall. Rootwad revetments will be installed at or below base flow elevations approximately 65 LF upstream and 319 LF downstream of the outfall channel to provide bank stability, promote hydraulic mixing, and increase instream habitat availability. Trees felled onsite during the construction of the floodplain terraces will be repurposed as rootwad structures to maximize the use of on-site materials, facilitate aquatic habitat, reduce construction costs, and attain sustainable streambank stabilization.

Soil encapsulated lifts (SEL) with biodegradable blocks[3] will be installed above the rootwad revetment structures up to the specified floodplain terrace elevation at a 3H:1V slope. The SEL is a biodegradable manufactured product and bioengineering technique that provides additional bank protection and vertical stability until vegetation becomes established. An example of a stream restoration site in Rockville, Maryland can be seen in **Figure 3** that uses the same bioengineering technique of rootwad revetments with vegetated SELs installed on top. The vegetation planted on the SEL will include a riparian seed mix, 2-inch plugs, live stakes, and/or container plantings on the exposed face of each lift.

[2] R. Dudley and S. Plantania. 1997. University of New Mexico Department of Biology and Museum of Southwestern Biology Division of Fishes. Habitat Use of Rio Grande Silvery Minnow. https://webapps.usgs.gov/mrgescp/documents/Dudley%20and%20Platania_1997_Habitat%20Use%20of%20RGSM.pdf

[3] Rolanka International. 2022. BioD-Block. https://rolanka.com/biod-block/

Figure 3: Example of Rootwad Revetments with SELs in Rockville, Maryland

Invasive Plant Species Removal and Native Plant Revegetation

As a part of the construction effort, invasive species will be removed and replaced with native riparian species. Installation and proper maintenance of the riparian corridor's vegetation will promote the growth of native plant species, enhance available riparian habitats, and support long-term project stability. A resilient, site-specific, and ecologically appropriate revegetation planting palette was created that incorporates variable plant types, ranging from custom cast seed, plugs, live cuttings, container plantings, and canopy trees. The plant varieties for revegetation have been selected to benefit the southwestern willow flycatcher, the yellow-billed cuckoo, and the monarch butterfly. The vegetation species and planting densities are based on guidance and feedback from the USFWS (see Section 2.1 for more detailed information on revegetation). The revegetation plan incorporates these plant species and custom seed mixes into revegetation zones based on each area's hydrologic zones (i.e., flood inundation frequency) and depths to groundwater.

Pedestrian Trail and Access Overview

In addition to increased stream stability and habitat for the RGSM, this project also explores opportunities for human interaction with the Middle Rio Grande. The design proposes to connect key elements for multi-purpose programming needs. These features include connecting the community to the river for community science monitoring, community cleanup, planting days, and recreational activities such as fishing, biking, and birdwatching. The trail network is divided

into a hierarchy of two path types: (1) a primary maintenance path wide enough for vehicular circulation at ten (10) feet wide and (2) a secondary, pedestrian-focused trail network at six (6) feet wide. **Figure 4** shows the Pedestrian Trail and Access Plan associated with the SWRP Outfall Restoration project.

Figure 4: SWRP Outfall Pedestrian Trail and Access Plan

Construction-Specific Processes

The restoration activities proposed require the use of heavy machinery for excavation, grading, installation, and revegetation purposes. The Water Authority has coordinated with project stakeholders and permitting agencies to incorporate site-specific design features and best management practices to minimize temporary disturbance during construction. Examples of these practices include temporary sediment and erosion control practices (e.g., silt fencing, coir matting, turbidity curtains), fire protection measures (e.g., temporary stockpiling, mulching depths), and species-specific requirements during construction (i.e., time of year restrictions, monitoring requirements, continuous fish exclusion). These practices are explicitly defined in the construction documents, permits, and site-specific monitoring plan.

Section 1.4: Performance Measures

See **Section 2.5: Performance Measures (Evaluation Criterion E)** *for details on the SWRP Outfall Restoration Project performance measures.*

Section 2: Evaluation Criteria

Section 2.1: Project Benefits (*Evaluation Criterion A*)

General Project Benefits (Criterion A.1)

The RGSM was listed as an Endangered Species under the designation of the USFWS in 1994 and currently exists in less than 5% of its native range. The decrease in RGSM populations is directly correlated with man-made modifications and alterations to the Rio Grande over the past century[4]. These modifications and alterations include water diversions for municipal and agricultural uses, alterations of the natural hydrological cycle of the Rio Grande, habitat degradation, and the construction of dams which prevent migration of the RGSM within its historical native range.

USFWS and Reclamation have led efforts to restore RGSM habitat and have published reports summarizing approaches for habitat creation and restoration (NMNRCS 2007[5], Massong, T. et al 2004[6]). In 2010, USFWS published the *Rio Grande Silvery Minnow Recovery Plan*[7] with the goal of preventing the extinction of the RGSM and recovering the species enough to downlist its status to threatened. Floodplain reconnection through overbank excavation of the Rio Grande has been implemented in areas throughout Albuquerque by the USACE as part of the MRGBER (USACE, 2011[8]), as well as by the Water Authority. Historical Biological Opinions from USFWS on similar projects were generally favorable to this type of habitat restoration approach, given that measures are implemented to protect the RGSM during and after construction. Monitoring efforts performed through the MRGESCP indicate that populations of RGSM successfully inhabit and reproduce in the restored floodplain areas, including those performed by the Water Authority near Paseo del Norte (MRGESCP monitoring site ID 140). Therefore, the floodplain restoration approach for habitat creation was selected for the project.

In addition to RGSM habitat creation, the reconnection of the Rio Grande to its floodplain has numerous other environmental and community benefits. Based on the field investigation, the Rio Grande's banks within the project area are re-experiencing active erosion. By stabilizing the banks, there will be a reduction of sediment into the Rio Grande, thus improving the surface water quality of the area and for downstream users. The increase in frequent floodplain

[4] US Bureau of Reclamation. 2004. Design Improvements for Constructed Rio Grande Silvery Minnow Nursery Habitat. https://www.usbr.gov/uc/albuq/envdocs/techreports/fish-geomorph/2004-HabitatDesignImpr.pdf
[5] New Mexico Natural Resources Conversation Service (NMNRCS) et al. 2007. A Guide for Planning Riparian Treatments in New Mexico. https://www.nrcs.usda.gov/plantmaterials/nmpmcpg7685.pdf
[6] Massong, T. et al. 2004. *Design Improvements for Constructed Rio Grande Silvery Minnow Nursery Habitat*. US Bureau of Reclamation.
[7] U.S. Fish and Wildlife Service. 2010. *Rio Grande Silvery Minnow (Hybognathus amarus) Recovery Plan, First Revision*. https://www.wildlife.state.nm.us/download/fishing/management/rio_grande_and_pecos/Rio-Grande-Silvery-Minnow-Recovery-Plan.pdf
[8] US Army Corps of Engineers, Albuquerque District. 2011. Environmental Assessment for the Middle Rio Grande Bosque Restoration Project. https://www.spa.usace.army.mil/Portals/16/docs/environmental/fonsi/MRG%20Bosque%20Final%20Environmental%20Assessment.pdf

inundation will lead to an increase in water infiltration through the soil profile, thus facilitating groundwater recharge and reducing the risk of catastrophic fires. Invasive species, including Siberian elm (*Ulmus pumila*), salt cedar/tamarisk (*Tamarix spp.*), kochia (*Kochia spp.*), and Russian olive (*Elaeagnus angustifolia*), will be removed and the area will be revegetated with native plants. This will bolster the bosque's biodiversity, and in turn, stabilize the ecosystem to be more robust and resilient under changing climactic conditions. This benefit will present a significant step in supporting the recovery of the RGSM in the Rio Grande. The project will also result in reduced fire risks in the project area, due to reconnection of the floodplain (i.e., wetter conditions), and the removal of invasive species and jetty jacks. Invasive species increase the frequency of fires by providing more continuous fuels that are easier to ignite, while jetty jacks present significant obstacles to firefighting access.

Specific design aspects of this project were chosen to add additional benefits to the area. Rootwad revetments installed at the toe of slope upstream and downstream of the SWRP outfall are not only for increased bank stabilization. Rootwads also create habitat within the inundated rootball of the tree and promote hydraulic mixing. The high-quality SWRP effluent flowing from the outfall channel can be starkly seen in **Figure 5** as it joins with the heavy sediment-loaded waters of the Rio Grande. Rootwad revetments are proposed along the toe of the Rio Grande adjacent to the SWRP outfall channel to facilitate the mixing of the turbid water of the Rio Grande with the effluent discharged from the SWRP outfall. Lastly, the design proposes to connect key elements of multi-purpose regional benefits. These features include connecting the community to the river for community science monitoring, community cleanup, planting days, and recreational activities such as fishing and birdwatching.

Figure 5: High-quality SWRP outfall water mixing with turbid water from the Rio Grande

Quantification of Specific Project Benefits (Criterion A.2.2)

The following are quantifiable benefits of the SWRP Outfall restoration project:

Species and Habitat Benefits

- Increased RGSM Spawning Area – This project will provide 2.2 acres of expanded floodplain habitat for the RGSM. These floodplain terraces have been designed to inundate at the 900 cfs and 1,500 cfs flood events, and when inundated, mimic the desired spawning habitat of the RGSM, which generally equate to flood depth ranges of 0.5 to 1.5 feet and velocities between 0.5 to 1.6 fps[9].
- Increased Threatened and Endangered Species Habitat – In addition to the inundated floodplain habitat for the RGSM, the extensive native planting schedule will provide approximately 11 acres of high-quality habitat for the yellow-billed cuckoo (threatened) and southwestern willow flycatcher (endangered). The long-term effects of the project can benefit other threatened and endangered species recovery efforts, such as for the New Mexico meadow jumping mouse. Additionally, project revegetation will include plant species to benefit the monarch butterfly, a USFWS candidate species.

Watershed Benefits

- Improved Water Quality – One of the original project objectives was to improve water quality within the Rio Grande. Pollutant load estimates were calculated using geotechnical investigation data and field-collected bank characteristics for Bank Erosion Hazard Index (BEHI) and Near Bank Stress (NBS) analysis. During the detailed design phase, "Protocol 1" (i.e., Credit for prevented sediment during storm flow) and "Protocol 2" (i.e., Credit for in-stream and riparian nutrient processing within the hyporheic zone during baseflow) methodologies were used per the Chesapeake Stormwater Network and Center for Watershed Protection peer-reviewed publication[10] to estimate pollutant load reductions, as seen in **Table 1**.

Table 1: SWRP Outfall Restoration Pollutant Load Reduction Summary Table

Pollutant [1]	Estimated Existing Pollutant Load	Estimated Proposed Pollutant Load Reduction
Total Suspended Solids (tons/year)	174.6	62.8
Total Nitrogen (pounds/year)	45.8	16.3
Total Phosphorus (pounds/year)	33.9	11.9

[1] Fecal Coliform and *E. Coli* levels were below testing limits for all field-collected samples

[9] R. Dudley and S. Plantania. 1997. University of New Mexico Department of Biology and Museum of Southwestern Biology Division of Fishes. Habitat Use of Rio Grande Silvery Minnow. https://webapps.usgs.gov/mrgescp/documents/Dudley%20and%20Platania_1997_Habitat%20Use%20of%20RGSM.pdf

[10] Wood, D. et al. 2020. Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit. Chesapeake Stormwater Network.

- Reconnection to Floodplains – In addition to the 2.2 acres of expanded floodplain, the floodplain reconnection efforts can also be quantified by volume of earth removed from the floodplain and average height of bank lowering. Based on the 60% Design, approximately 16,400 cubic yards (CY) will be excavated from the floodplain and the bank will be lowered 5-feet on average for 1,900 LF of the Rio Grande to allow for water to more frequently overtop the streambank and inundate the newly lowered floodplain more easily.
- Removal of Invasive Species – A survey of trees with a diameter at breast height (DBH) greater than 12" was conducted at the beginning of the design phase of this project. Based on the 60% design phase, the following number of invasive trees with a DBH greater than 12" are proposed for removal:
    - 2 Russian Olive (*Elaeagnus angustifolia*) trees, equating to a total of 48" DBH
    - 6 Siberian elm (*Ulmus pumila*) trees, equating to a total of 161" DBH
- Restoration of Native Species – To improve the habitat of the area, an extensive bosque-specific planting schedule is proposed to increase the density and diversity of native species and maintain stability of the floodplain. The proposed revegetation schedule includes the following quantities of native plants (based on the 60% Design plans):
    - 23,400 plugs comprised of bottlebrush sedge (*Carex hystericina*), fragrant flatsedge (*Cyperus odoratus*), wire rush (*Juncus balticus*), hardstem bullrush (*Schoenoplectus acutus*), yerba mansa (*Anemopsis californica*), smooth horsetail (*Equisetum laevigatum*), and salt grass (*Distichlis spicata*)
    - 2,300 live stakes comprised of narrowleaf willow (*Salix exigua*), mulefat (*Baccharis salicifolia*), Rio Grande cottonwood (*Populus deltoides ssp. wislizenii*), Gooding's willow (*Salix gooddingii*), willow baccharis (*Baccharis salicina*), and Fremont cottonwood (*Populus fremontii*)
    - 1,100 tubelings, also known as D40, comprised of false indigo bush (*Amorpha fruticosa*), skunkbush sumac (*Rhus trilobata*), golden currant (*Ribes aureum*), wood's rose (*Rosa woodsii*), and torrey wolfberry (*Lycium torreyi*)
    - 300 1-gallon containers comprised of stretchberry (*Forestiera pubescens*), Arizona box elder (*Acer negundo var. arizonicum*), netleaf hackberry (*Celtis laevigata var. reticulata*), and velvet ash (*Fraxinus velutina*)

Water Supply Benefits

- Increased RGSM Spawning Period – The floodplain terraces were designed to inundate during the 900 cfs and 1,500 cfs conditions, and provide the desired flood depths and velocities for RGSM spawning. Based on historical U.S. Geological Society (USGS) gage data during the RGSM spawning window (i.e., May – July), the project will provide the desired floodplain inundation period of 1 – 6 weeks.

Other Quantifiable Benefits

- Safe Access to Nature – One of the primary goals of the project is to facilitate public access to the Rio Grande and bosque within the project area through the creation of additional trails that connect to the existing trail system. The proposed project includes

3,000 LF of pedestrian trails (6-foot wide) and 1,000 LF of vehicular trails (8-foot wide with a 1-foot buffer on each side) for the purpose of future maintenance efforts.

- Bank Stabilization Efforts – Several bank stabilization techniques are being implemented to protect the bank when reconnecting the Rio Grande to its floodplain. Rootwad revetments are proposed for 420 LF adjacent to the SWRP outfall to provide stabilization along the toe of slope. Approximately 2,690 LF of SELs are being installed above the rootwad revetment to provide additional bank protection and vertical stability until vegetation becomes established. Four stone key revetment areas comprised of 450 cubic feet of stone each will be installed on the upstream and downstream ends of the rootwad revetments to reduce bend scour and further protect the bank from instability.

Section 2.2: Prior Restoration Planning and Stakeholder Involvement and Support (*Evaluation Criterion B*)

Through outreach and collaboration with the New Mexico Office of the Natural Resources Trustee (ONRT), the Water Authority has garnered community support for this project. In particular, the South Valley neighborhood immediately adjacent to the project area has been integral to the Water Authority receiving capital outlay appropriations. This proposed project will provide community access to the bosque in an area of the City that is under-resourced. This project will also connect community trails from the existing Dominici Restoration area, increasing the neighborhood's access to safe trails for walking, biking, and running along the river.

The Project is in alignment with OSD's current effort to support projects in the bosque that will improve the health of the Bosque Forest and will reduce the overall fire risk. This project is listed on their project matrix as a possible project for the City to support either through funding resources and/or letters of support.

The Water Authority has met with the USACE to discuss this project, as well. The location and scope of this project is within the 8-miles of the Rio Grande that the USACE has identified for habitat restoration projects. The project area is in between two existing USACE-funded restoration areas and will create a longer, continuous stretch of floodplain habitat within the Albuquerque reach of the Rio Grande.

Essential partners:

- Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA)
- Bernalillo County Public Works – *permitting agency*
- Bureau of Reclamation – *permitting agency*
- City of Albuquerque Planning Department –*permitting agency*
- City of Albuquerque Open Space Division (OSD)
- Federal Emergency Management Agency (FEMA)
- Middle Rio Grande Conservancy District (MRGCD)
- Middle Rio Grande Endangered Species Collaborative Program (MRGESC)
- New Mexico Department of Game and Fish
- New Mexico Environmental Department (NMED) – *permitting agency*
- New Mexico Interstate Stream Commission (NMISC)
- New Mexico Office of Natural Resources Trustee (ONRT)
- Pueblo of Isleta
- U.S. Army Corps of Engineers (USACE) –*permitting agency*
- U.S. Fish and Wildlife Services (USFWS) – *permitting agency*
- Valle de Oro
- Water Authority Technical Advisory Committee (TCAC)

The Stakeholder outreach timeline presented in **Table 2** outlines key Stakeholder outreach events as well as major Project milestones. It shows the value the Water Authority places on Stakeholder involvement from the conception of a project through completion. Feedback received from Stakeholder coordination was addressed in subsequent design phases of the project. The Water Authority created informational handouts that could be provided to partners and interested parties with information on the project concept and design. These are included in **Attachment A**. Letters of Support from MRGCD, NMISC, USFWS, ONRT, Bernalillo County, and City of Albuquerque are included in **Attachment D**.

Table 2: Timeline of Stakeholder Coordination Table

Date	Stakeholder	Event Type	Details
November 2020	USACE	Concept Design Meeting	The Water Authority met USACE staff to discuss details and lessons learned from existing restoration sites adjacent to the Project site. Discussion included the removal of Jetty Jacks, revegetation sources, and types of monitoring and monitoring results.
December 2020	ONRT, NMDGF, NMISC	Concept Design Meeting	The Water Authority and its consultants met with Maggie Hart-Stebbins (ONRT), New Mexico Department of Game and Fish, and the NMISC to discuss the findings of the preliminary design evaluation. Discussion from the meetings were integrated into the final conceptual design.
February 2021	N/A	Concept Design Completion *	The Water Authority finalizes the concept design of the SWRP Outfall Restoration project that consists of three potential alternatives. The intent is to use these alternatives in stakeholder discussions before selecting a concept to move forward into detailed design.
October 2021	ONRT	Site Tour	Site visit with Maggie Hart-Stebbins (ONRT) and two community leaders from the South Valley neighborhood that included a tour of the existing Dominici Restoration site that was completed by the USACE and the Water Authority SWRP Outfall Restoration project. Ms. Hart-Stebbins and the two community leaders were integral in the Water Authority receiving two capital outlay appropriations ($322,500 in FY22 and $750,000 in FY23).
October 2021	OSD	Site Tour	Site visit to talk about the project as well as the need to expand the agreement with OSD for monitoring and maintenance at the site following construction. The tour included a discussion of creating a maintenance plan and agreement that unifies the approach for all restoration sites in the Albuquerque reach, including sites owned by the USACE and NMISC.
November 2021	New Mexico State Legislators	Presentation	Presentation to NM State Legislators to thank them for the FY22 capital outlay appropriation and to make a request for additional funding for the project. The Water Authority presented during a committee meeting and provided a handout that summarized the project as well as the funding request.

Date	Stakeholder	Event Type	Details
May 2022	City of Albuquerque Fish Refugium Staff	Site Tour	Site tour with staff from the City of Albuquerque BioPark Fish Refugium that is a nursery for RGSM. The Water Authority delivers RGSM eggs collected during spring monitoring to the refugium so they can be hatched and released in the Fall to augment the population in the river. The Water Authority contributes $155,000 per year to this refugium.
May 2022	New Mexico State Legislators	Site Tour	Site visit to tour the project area for which they provided capital outlay appropriations. The tour was from the outfall to the southern extent of the project area. Handouts were provided and additional information was given on the project objectives and funding needs. The Water Authority created a video of this tour that can be provided to any legislators unable to attend the tour, as well as any other outreach needed.
July 2022	N/A	Detailed Design Authorization *	Based on continued conversations with stakeholders, an alternative from the February 2021 Concept Design Report was selected. The Water Authority authorized the work of detailed design. The intent is to continue stakeholder involvement throughout the entirety of detailed design, with an anticipated completed 100% design in July 2023.
August 2022	TCAC, Water Authority Governing Board	Presentation	Water Authority staff presented to TCAC on August 11, 2022 to provide an overview of the project objectives and conceptual design. This committee consists of 9 customers or members from across the service area. Additionally, Water Authority staff presented to its governing board of 9 appointed members from Albuquerque City Council and the Bernalillo County Commission. The Water Authority governing boards are televised public meetings.
September 2022	ONRT, Pueblo of Isleta	Public Comment, Site Tour	ONRT submitted an updated Restoration Plan for public comment which provided details on the SWRP Outfall Restoration project. The Plan was distributed to stakeholders throughout the Middle Rio Grande, including downstream communities such as Pueblo of Isleta and Valle de Oro, as well as adjacent communities (e.g., Mountain View Neighborhood). The public comment period was 30-days and the Water Authority supported ONRT in developing responses and incorporated comments into the 60% design, as appropriate.
October 2022	USACE	Site Tour	Site tour with staff from the USACE to support permitting process for the project.

Date	Stakeholder	Event Type	Details
December 2022	OSD, Isleta Pueblo, MRGCD, ONRT, Reclamation, USACE, USFWS	30% Design Complete *	The 30% Design package is complete and distributed to Stakeholders for comment and feedback. Stakeholders include MRGCD, ONRT, OSD, Reclamation, USACE, USFWS, and Isleta Pueblo. Feedback from Stakeholders from the 30% design will be implemented in the 60% design phase as needed.
March 2023	KRQE (Local News)	News Story	The Water Authority supported a local news story on KRQE covering the restoration project. The news story aired during the 5:00 p.m. news and is available online.
April 2023	OSD, Isleta Pueblo, MRGCD, ONRT, Reclamation, USACE, USFWS	60% Design Complete *	The 30% Design package is complete and distributed to Stakeholders for comment and feedback. Stakeholders include MRGCD, ONRT, OSD, Reclamation, USACE, USFWS, and Isleta Pueblo. Feedback from Stakeholders from the 60% design will be implemented in the 90% design phase as needed.

* indicates a major SWRP Outfall Restoration Project milestone

Section 2.3: Project Implementation and Readiness to Proceed (*Evaluation Criterion C.2*)

Budget Narrative

A more detailed discussion on the project budget can be found in ***Section 3: Project Budget****. Below is a summary of the budget narrative for the purposes of Evaluation Criterion C.*

Based on the 60% Design's AACEI Class 3 cost estimate, the project is anticipated to cost between $3,926,000 and $6,380,000. A breakdown of key construction elements and the percentage of the total construction cost can be seen in the bulleted list below.

- *General Requirements* (7.3% of total construction cost) – Activities including mobilization/demobilization, survey and staking, and project record drawings
- *Existing Conditions* (1.3% of total construction cost) – Activities including demolition of concrete debris and Jetty Jacks
- *Earthwork* (38.2% of total construction cost) – Activities including excavation, clearing and grubbing, tree and invasive species removal, and erosion control measures
- *Exterior Improvements* (21.0% of total construction cost) – Activities including proposed pedestrian and vehicular paths and revegetation measures
- *Waterway and Marine Construction* (7.2% of total construction cost) – Activities including rootwad revetments, soil encapsulated lifts, and stone keys
- *Bid Services and Construction Oversight* (15.4% of total construction cost) – Engineering review of Request for Proposal documents and proposals received plus construction oversight and permitting support
- *Short-term Monitoring* (2.0% of total construction cost) – activities associated with streambank stabilization, floodplain inundation, and habitat establishment success
- *Construction Contingency* (7.5% of total construction cost) – additional funds needed to account for COVID/inflation market fluctuations

In late 2022, the Water Authority was awarded a grant through from Water Trust Board to the amount of $3,700,000 with a required match of 10%, or $370,000. The Water Authority is seeking additional support through Reclamation's WaterSMART Aquatic Ecosystems Notice of Funding Opportunity (NOFO) for $3,014,481 to assist in covering additional construction and monitoring needs for the project.

Project Timeline

Data collection activities began September 2022, with the 30% Design sent to stakeholders December 2022. The 60% Design deliverable was completed in April 2023. At the time of submission of this application, the Water Authority has finalized the 60% Design phase and is working to finalize the 90% Design phase by early June 2023. The final 100% Design phase will be completed prior to July 31, 2023, in accordance with the requirements of the funding received through the Water Trust Board. The full 90% Design Package will be submitted to Reclamation at their request following the application deadline and will consist of the following documents:

- Final Basis of Design Report
- 90% Design Drawings
- Final Technical Specifications

The Water Authority anticipates that construction will begin in Fall 2024 and will last approximately 8 months. The sequence of construction will consist of Phase 1: Mobilization and Site Preparation (1 month); Phase 2: Construction (5 months); and Phase 3: Planting, Punch List, and Demobilization (2 months).

Permits and Authorizations

The Water Authority is currently on schedule to receive all necessary permits for the SWRP Outfall Restoration Project. A summary of the required permits and submittals can be found in **Table 3**, along with the status of each at the time of this application submittal.

Table 3: Permit and Submittal Summary Table

Permit	Agency	Requirements	Status as of June 2023
Endangered Species Act, Section 7 Consultation	USFWS	• Biological Opinion from USFWS based on the Biological Assessment submitted to the Bureau of Reclamation	Consultation with USFWS is underway, with an expected Biological Opinion in June 2023.
National Historic Preservation Act, Section 106	NM Historic Preservation Department (NMHPD)	• Concurrence from NMHPD	Cultural resource report is currently under review by the Bureau of Reclamation and NMHPD.
Clean Water Act Sections 404/401, (Nationwide Permit 27)	USACE, NMDEP	• Pre-Construction Notification (PCN) • Maintenance & Monitoring Plan	PCN and Maintenance & Monitoring Plan are under development by the Water Authority, with an anticipated award in June 2023.
Floodplain Development Permit	Bernalillo County	• No-Rise Technical Memo • HEC-RAS model	No-Rise conditions have been met based on proposed modeling results. Technical Memo and model files will be submitted to Bernalillo County CFM by July 2023
National Environmental Policy Act	Reclamation	• Finding of No Significant Impact	Draft Environmental Assessment is under review by Bureau of Reclamation.
Landowner Agreement	MRGCD, Reclamation	• Joint licensing agreement	Joint licensing agreement will be approved by Reclamation and MRGCD following the approval of Environmental Assessment (see *National Environmental Policy Act*)

Depletion calculations were performed for the 60% Design using the New Mexico Office of the State Engineer's (NMOSE) protocol titled "*Depletions Offsetting for Habitat Restoration Projects within the Middle Rio Grande Project*[11]*."* The 60% design terrace areas were intersected with the river channel corridor created from a 300-foot offset from the stream centerline. In addition, Hazen analyzed 30 years of historical river flows from the USGS gage station at Central Avenue between May, June, and July to determine the probable number of days of inundation per terrace. As seen in **Table 4**, the restoration activities are located within the approved buffer area and do not require depletion offset mitigation.

Table 4: Detailed Design NMOSE Depletion Calculations

Design Terrace	Terrace area (acres)	Days of inundation per year (based on 30-yr mean)	Water Evaporation Rate (in/day)	Depletions (ac-ft/ac/yr)	Required amount for offsets (ac-ft)
900 cfs	0	45	0.19	0.71	0
1,500 cfs	0	33	0.19	0.52	0
Total					**0**

Pending Unresolved Issues

Because of the Water Authority's due diligence in ensuring all stakeholders and affected parties have been involved from the onset of the project, there are no unresolved issues associated with the implementation of the SWRP Outfall Restoration Project.

Section 2.4: Presidential and Department of Interior Priorities (*Evaluation Criterion D*)

Climate Change – E.O. 14008

The proposed project addresses climate change through increasing inundation at varying flows and revegetation with native species. By lowering the banks of the Rio Grande, the floodplain will be inundated more frequently, facilitating important groundwater recharge and creating wetter conditions that reduce the potential for catastrophic fires. The burning of carbon sources, such as trees and shrubs, is a major contributor to greenhouse gases. By reducing the potential for fires, this project is in turn reducing the potential for these greenhouse gases being emitted. The removal of Jetty Jacks across the floodplain and the addition of vehicular trails will reduce the number of obstacles and allow firefighters and first responders easier access to the area. Additionally, invasive species removal will decrease the area's fire risk by reducing the available fuels. These invasive species will be replaced with native plants, shrubs, and grasses, which will increase the area's biodiversity, and in turn, stabilize the ecosystem to be more robust and

[11] New Mexico Office of the State Engineer. 2011. Depletions Offsetting for Habitat Restoration Projects within the Middle Rio Grande Project. https://allaboutwatersheds.org/groups/nmsf/public/tamarisk/permitting/depletions-offsetting-for-habitat-restoration-projects-within-the-middle-rio-grande-project/at_download/file

resilient under changing climactic conditions and increase the floodplain's ability to capture carbon into the vegetation.

The proposed floodplain excavation will be stabilized with rootwad revetments, SELs, stone keys, and coir matting, which will provide continued long-term stability to the area. The rootwad revetments for this project have an estimated lifespan of around 50 years, which is expected to meet because they are placed below the toe of slope and will not experience the frequent inundation and drying that can cause the failure of large woody debris structures. The addition of stone keys at the upstream and downstream ends will further protect the structures and the excavated floodplain by reducing the risk of these points of failure.

Disadvantaged or Underserved Communities – E.O. 14008 and E.O. 13985

According to the Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool[12], the project area falls within Tract Number 35001004001, which is identified as disadvantaged for meeting more than one burden threshold and the associated socioeconomic threshold (82nd percentile). The burden thresholds exceeded by this area and their associated percentiles are listed below.

- Expected agricultural loss rate (97th percentile)
- Proximity to Risk Management Plan facilities (94th percentile)
- Proximity to Superfund Sites (96th percentile)
- Wastewater discharge (98th percentile)
- High school education (28th percentile)

The construction of this project will increase community access to nature, with a focus on identifying and optimizing the social, environmental, and educational amenities and benefits of reconnecting the adjacent underserved community to the Rio Grande and associated Paseo del Bosque Trail System. The addition of the extended trail system will provide the community with opportunities for outdoor activities such as fishing, biking, and running. Educational signage will be installed along constructed trails, providing additional information on the habitat and the species that can be found. The Water Authority's commitment to this area and to the restoration of the area's floodplain increases opportunities for community science and monitoring as well as community education on threatened and endangered species and the importance of environmental stewardship and protection.

The project is located downstream of the Atchison Topeka and Santa Fe Tie-Treater (ATSF) and South Valley Superfund Sites. ONRT has selected the SWRP Outfall Restoration Project as the preferred restoration alternative for continued mitigation in response to these superfund sites[13].

[12] Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool. Accessed May 23, 2023. https://screeningtool.geoplatform.gov/en/#11.28/34.9898/-106.6289.

[13] State of New Mexico Office of Natural Resources Trustee, August 2022. *Addendum to the Restoration Plans for the Atchison Topeka and Santa Fe Tie-Treater and South Valley Superfund Sites, DRAFT*. https://onrt.env.nm.gov/wp-content/uploads/2022/08/Draft-ONRT-Addendum-to-ATSF-South-Valley-Restoration-Plans-Aug-2022-8-26-22.pdf

This project will enhance the area surrounding the SWRP outfall to improve water quality, public access, and the surrounding habitats in response to the adjacent superfund sites.

While the project site does not officially fall above 90th percentile threshold for Projected wildfire risk, this area is still at a high risk for wildfire by being in the 82nd percentile. Through increased inundation from floodplain reconnection and removing invasive species, this project is reducing the potential for wildfires in the community.

Tribal Benefits – President's Memorandum

Some of the oldest users of the Rio Grande are just below the project area. The Pueblo of Isleta, located just five miles downstream of the SWRP outfall has used the waters of the Rio Grande since time immemorial as a water resources and for cultural purposes. The associated water quality benefits of the project will benefit the Pueblo of Isleta by decreasing erosion and sediment loading to the Rio Grande. Additionally, the rootwad revetments will facilitate mixing of the high-quality effluent of the SWRP outfall with the Rio Grande and further improve water quality for the Pueblo of Isleta. The Pueblo of Isleta is expected to benefit from the project's water quality improvements as the nearest downstream user of Rio Grande water.

The Water Authority has remained in contact with local Tribes including Pueblo of Isleta and Valle de Oro and has received feedback from Pueblo of Isleta during the public review comment period through New Mexico ONRT.

Section 2.5: Performance Measures (*Evaluation Criterion E*)

The Water Authority and its consultants are currently developing a monitoring plan for the SWRP Outfall Restoration Project. The monitoring plan will meet the requirements for restoration site monitoring, as described by Clean Water Act (CWA) permitting guidelines, while also incorporating additional quantitative and qualitative data for assessing restoration practices. Best practices for restoration site monitoring are being developed with other restoration site managers in the Middle Rio Grande, and with the MRGESCP. The Water Authority assumes responsibility for the maintenance and monitoring of this site and has established an agreement to incorporate this site into their current management agreement with OSD. The following parameters will be monitored to ensure the project is meeting its key project goals of improving water quality, facilitating public access, and increasing RGSM habitat:

- Photo documentation
- Groundwater depth
- Channel and floodplain morphology
- Vegetation
- Wetland condition
- Wildlife (fish, bird, and Monarch butterfly communities)
- Public trail use

Baseline monitoring will be conducted before the onset of construction.

Section 3: Project Budget

Section 3.1: Funding Plan

The total project cost for the project is estimated to be $7,084,481. The Water Authority will be using Water Trust Board funds for the non-federal share. A summary of the non-federal and federal funding sources can be seen in **Table 5**. The Water Authority applied for funding through the Water Trust Board in September 2022. The funding is composed of 90% grant ($3,330,000), 10% loan ($370,000), and a match of $370,000 totaling $4,070,000. The funds will be available as of Fall 2024.

Table 5: Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Water Trust Board Grant	$3,700,000
2. Water Authority (Water Trust Board Grant Match)	$370,000
Non-Federal Subtotal	$4,070,000
REQUESTED RECLAMATION FUNDING	**$3,014,481**

The Water Authority will have spent $1,350,050 on the SWRP Outfall Restoration Project prior to construction. These funds paid for permitting, data collection, and design and are separate from the funds summarized in **Table 5**.

Section 3.2: Budget Proposal

The Water Authority will fully fund the project through a combination of the federal funds from the WaterSMART Aquatic Ecosystems NOFO and non-federal funds from the Water Trust Board Grant and the Water Authority match, as summarized in **Table 6**. **Table 7** highlights that the Water Authority will provide additional staffing resources, fringe benefits, and the 10% de minimis rate so that the full funds being requested will go to construction services.

Table 6: Total Project Cost Summary

Source	Amount
Costs to be reimbursed with the requested Federal Funding	$3,014,481
Costs to be paid by applicant	$4,070,000
Value of third-party contribution	$0.00
Total Project Cost	**$7,084,481**

Table 7: Budget Detail

Budget Item Description	Computation		Federal Cost	Cost Share
	$/unit	Quantity		
Salaries/Wages Engineering, program management	1 engineer @ .4 FTE, 2 years 1 grants manager @ .2 FTE, 2 yrs, 1 PM @ .75 FTE, 2 years, 2 site inspectors @ 0.25 FTE, 1 year	Not claimed as cost share	$0	$0
Fringe Benefits	25% of AS	--	$0	$0
Travel	None	--	$0	$0
Equipment	None	--	$0	$0
Supplies	None	--	$0	$0
Contractual	None	--	$0	$0
Construction	Baseline conditions monitoring and measurements, survey, subsurface utility, easements, permitting support, construction, and construction oversight.		$3,014,481	$4,070,000
Other	None	--	$0	$0
Indirect Costs	None	10% approved rate (not charged to project)	$0	$0
TOTAL			**$3,014,481**	**$4,070,000**

Section 3.3: Budget Narrative

The Water Authority plans to subcontract all federal funds and all match funds. A summary of the budget can be found in **Table 8**, with the total amount requested highlighted. Construction quantities are based on the 60% design drawings and contractual requirements, whereas unit costs are derived from RSMeans and bid prices received from similar restoration projects in the Albuquerque and Southwest region. The project will be competitively bid using a unit price contract and shall follow the Water Authority's procurement procedures, selecting the most qualified bidder. Labor hour estimates for the bid phase, signage design, and engineering services during construction are based on the anticipated construction duration, time of year restrictions, and mandatory minimum permitting requirements. The subsequent sections break down the budget into individual items included in the budget proposal.

Table 8: Budget Narrative Summary

60% DESIGN, CONSTRUCTION ESTIMATES		60% DESIGN ESTIMATED COST
DIVISION 01: GENERAL REQUIREMENTS	$	357,800.00
DIVISION 02: EXISTING CONDITIONS	$	66,275.00
DIVISION 31: EARTH WORK	$	1,875,416.00
DIVISION 32: EXTERIOR IMPROVEMENTS	$	1,032,080.00
DIVISION 35: WATERWAY AND MARINE CONSTRUCTION	$	354,000.00
TOTAL ESTIMATED CONSTRUCTION COST	$	3,685,571.00
CONSTRUCTION CONTINGENCY (25%)	$	921,392.75
BASE TOTAL ESTIMATED COST WITH CONTINGENCY	$	4,606,963.75
UPPER ESTIMATE, +30%	$	5,989,052.88
LOWER ESTIMATE, -20%	$	3,685,571.00

BID PHASE + CONSTRUCTION OBSERVATION + SIGNAGE + MONITORING ESTIMATES		ESTIMATED FEE
TOTAL ESTIMATED FEE	$	1,095,428.00
BID PHASE ENGINEERING AND PERMITTING ON-CALL SUPPORT	$	148,820.00
CONSTRUCTION MANAGEMENT SERVICES	$	780,900.00
PEDESTRIAN TRAIL SIGNAGE AND VISUALIZATION DESIGNS	$	55,108.00
MONTH 0 to MONTH 6 MONITORING	$	110,600.00

60% DESIGN, CONTRIBUTING FUNDS		ABCWUA CONTRIBUTING FUNDS
CONTRIBUTING FUNDS, TOTAL	$	4,070,000.00
ABCWUA CONTRIBUTING FUNDS	$	370,000.00
2022 WTB GRANT FUNDS	$	3,700,000.00

60% DESIGN, REMAINING FUNDS NEEDED FOR CONSTRUCTION		ROUNDED ESTIMATED COST
BASE	$	1,632,392.00
UPPER	**$**	**3,014,481.00**
LOWER	$	710,999.00

- *Staff* – The Water Authority estimates one (1) Engineering staff at .4 FTE for two years, one (1) Grants Manager at .2 FTE for two years, and one (1) Program Manager to oversee contracts and reporting at .75 FTE for two years. Two (2) field construction inspectors will provide construction oversight in the field at 0.25 FTE. There is no charge to federal funds for these positions, and they will not be reported as match.
- *Fringe Benefits* – There is no charge to federal funds for fringe benefits, and they will not be reported as match.
- *Travel* – None.
- *Equipment* – None.
- *Supplies* – None.
- *Contractual* – All contracts will be for construction.
- *Construction* – The summary of activities outlined in **Table 8** will be contracted. Costs for each activity are estimated, seeing as the Water Authority must follow all Purchasing policy and procedures outlined in **Attachment F: Rules of Governing Procurement**[14]. A more detailed unit cost for construction table can be found in **Attachment G: Unit Cost for Construction**.
- *Other* – none.
- *Indirect Costs* – The Water Authority will not apply its Federally approved indirect rate of 10%.

[14] ABCWUA, February 2022. *Rules Governing Procurement for the Albuquerque Bernalillo County Water Utility Authority*. https://www.abcwua.org/info-for-builders-vendor-services/

Section 4: Additional Recommended Components

Section 4.1: Environmental and Cultural Resources Compliance

Environmental Impacts

Potential adverse impacts to the surrounding environment are expected to be temporary and occur only during construction. Potential air quality impacts include pollution from exhaust and dust from motorized construction equipment and are not expected to exceed the ambient air quality standards in the project area. The largest impact during construction is expected to be from earth-disturbing activities. Earth-disturbing work includes the excavation of the floodplain to create additional habitat for the RGSM and the removal of Jetty Jacks using an excavator or other heavy machinery. All remaining voids from Jetty Jack removal will be filled with excavated soil. Temporary and permanent erosion control measures will be installed during and after construction to minimize the movement of sediment from the project area into the adjacent river channel. This includes stabilizing excavated areas with native vegetation and coir matting, designating construction ingress and egress areas and the access road to reduce the tracking of sediment offsite, installation of silt fence and turbidity curtains, and temporary seeding of spoils and soil stockpile areas. Additional impacts to the surrounding environment include the removal of invasive species within the project area. The project area will be revegetated using native species to further stabilize the area and increase the area's biodiversity and aquatic and riparian habitat availability. Project implementation will be scheduled to avoid the avian nesting season for migratory birds as well as the spawning and rearing period for the RGSM. If work is not completed within that timeframe, work within suitable or occupied migratory bird habitat will be avoided during construction activities as much as possible using the most current annual survey.

Threatened and Endangered Species Impacts

The project area has the potential to impact the following threatened and endangered species:

- Southwestern willow flycatcher, or SWFL (*Empidonax traillii extimus*), endangered
- Yellow-billed cuckoo, or YBCU (*Coccyzus americanus*), threatened
- Rio Grande silvery minnow (*Hybognathus amarus*), endangered
- Monarch butterfly (*Danaus plexippus*), candidate for listing (as of December 2020)

While the SWFL and YBCU are not known to be within the project area, there is vegetation in the area that is considered suitable for the SWFL and marginally suitable habitat for the SWFL and YBCU. This project is not anticipated to have adverse impacts on the SWFL nor YBCU. Additionally, construction will occur outside of the breeding season for both species.

The RGSM is known to live in the river adjacent to the project area. The project is being constructed to increase the quantity and quality of RGSM habitat within the RGSM corridor. The aquatic habitat will temporarily be impacted during construction through increased turbidity. Fish netting will be used to exclude fish from the active construction area. Active construction along the river corridor will only be permitted in approximately 200 linear feet increments to reduce impacts to the aquatic environment and the RGSM.

The monarch butterfly is known to live in the area based on the presence of milkweed stands and monarch butterfly caterpillars observed during a September 2022 biological survey conducted by Water Authority's consultant. Similar to the RGSM, this project will increase monarch habitat through the re-establishment of native vegetation including milkweed. To avoid impacts to the monarch butterfly during construction, the removal of native nectary plants will be avoided to the greatest extent possible.

Wetland Impacts

According to the National Wetlands Inventory and field observations by the Water Authority's consultants, the mapped wetland features within the project area are predominantly freshwater forested/shrub wetland and forested shrub riparian. The Rio Grande falls under the CWA jurisdiction of "Waters of the United States." The Water Authority is currently developing a Pre-Construction Notification and Maintenance & Monitoring Plan in accordance with the CWA Sections 404/401 under a Nationwide Permit 27.

Irrigation System Impacts

While a water delivery system does not run directly through the project area, the project sits just upstream and downstream of the SWRP outfall channel, which was constructed in 1960. The project will not impact irrigation systems nor buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places and is not expected to impact these systems due to the lack of proximity to them.

Cultural Impacts

A survey was conducted by Water Authority consultants in August 2022, and it was found that there are no known archeological sites in the proposed project area. Therefore, no adverse impacts are expected to occur on cultural resources or historic properties. The project will not disproportionately affect low income or minority populations. The project is located in an underserved community and will provide additional access to nature by reconnecting the community to the Rio Grande and associated Paseo del Bosque Trail System. Waters of the Rio Grande are used by local Tribes for ceremonial purposes. The project is expected to create higher quality water, and thus will not have any negative impacts. *National Environmental Policy Act*
The project does not fall within the recognized Categorical Exclusion by NEPA. The Water Authority and its consultants have drafted an Environmental Assessment (EA) which has determined that there will be no significant impacts associated with the project. The EA is currently under review by the Bureau of Reclamation and is expected to receive a Finding of No Significant Impact.

National Historic Preservation Act (NHPA)

The Water Authority is currently working towards completing the Section 106 process of the NHPA. The Water Authority and its consultants have drafted the Cultural Resource Report, which is currently under review by Reclamation and the NMHPD. The project is expected to receive concurrence from NMHPD.

Endangered Species Act (ESA)
The Water Authority and its consultants have submitted a Biological Assessment to Reclamation and USFWS in compliance with Section 7 of the ESA. It states that the project is not likely to adversely affect any endangered or threatened species. The consultation with USFWS is underway, with an expected Biological Opinion in June 2023.

Section 4.2: Required Permits and Approvals

Please see **Table 3: Permit and Submittal Summary Table** for a complete list of the required permits and their current status at the time of this application submission. The Water Authority is currently on track to receive all required permits by the anticipated construction start date of Fall 2024.

Section 4.3: Overlap or Duplication of Efforts Statement

The Albuquerque Bernalillo County Water Utility Authority does not have any overlap between the proposed project and any other active or anticipated proposals or projects. The project associated with this application does not duplicate any other proposal that has been or will be submitted for funding consideration, both Federal and non-Federal.

Section 4.4: Conflict of Interest Disclosure Statement

The Albuquerque Bernalillo County Water Utility Authority does not have any actual or potential conflicts of interest for this project.

Section 4.5: Uniform Audit Reporting Statement

See **Attachment B: Uniform Audit Reporting Statement**.

Section 4.6: Disclosure of Lobbying Activities

See **Attachment C: Disclosure of Lobbying Activities**.

Section 4.7: Letters of Support

Letters of support from the Middle Rio Grande Conservancy District, New Mexico Interstate Stream Commission, United Stated Department of the Interior Fish and Wildlife Service, State of New Mexico Office of Natural Resources Trustee, Bernalillo County, and City of Albuquerque can be found in **Attachment D: Letters of Support**.

Section 4.8: Letters of Partnership

Not applicable to this project.

Section 4.9: Official Resolution

The Resolution is currently in draft form at the time of submission. The Water Authority will vote on the Resolution on June 28, 2023. See **Attachment E**. The Water Authority will notify the Bureau of Reclamation about the Water Authority Board's decision of support of the Resolution.

Section 4.10: Letters of Funding Commitment

Not applicable to this project.

Section 4.11: Documents Authorizing the Study, Design, or Construction of a Dam Removal Project.

Not applicable to this project.

Albuquerque Bernalillo County
Water Utility Authority

Attachment D: Letters of Support

ATTACHMENT D

May 17, 2023

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

Department of the Interior,
Bureau of Reclamation
Water Resources and Planning Office

via email: lcarreon@abcwua.org

Re: Letter of Support - Southside Wastewater Reclamation Plant

To Whom It May Concern,

The Albuquerque Bernalillo County Water Authority (Water Authority) operates and treats approximately 55 million gallons per day (MGD) of wastewater at the Southside Water Reclamation Plant (SWRP). The plant's treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The Water Authority is requesting funding from the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office for construction of the SWRP Outfall Restoration. The Middle Rio Grande Conservancy District (MRGCD) supports the Water Authority's goals and priorities for the proposed project. These goals include: facilitate habitat enhancement via floodplain reconnection and the preservation of sensitive habitats for threatened and endangered species; improve water quality in the Rio Grande and connected groundwater systems; and increase public access to the Bosque. The proposed improvements will be tied into the existing U.S. Army Corps of Engineers (USACE) habitat restoration sites to the north and south, creating a holistic, interconnected project along the Bosque. As part of the proposed project, the Water Authority is proactively coordinating with the MRGCD, the City of Albuquerque Open Space Division, the Bureau of Reclamation and other state and federal agencies on project design, construction and implementation.

Sincerely,

Jason M. Casuga, P.E.
CEO/Chief Engineer

cc: Albuquerque Bernalillo County Water Utility Authority
File

P.O. Box 581
87103-0581
1931 Second St. SW
Albuquerque, NM
87102-4515
505.247.0234
Fax # 505.243.7308

NEW MEXICO INTERSTATE STREAM COMMISSION

BATAAN MEMORIAL BUILDING
ROOM 101
P.O. BOX 25102
SANTA FE, NEW MEXICO 87504-5102
(505) 827-6160
FAX: (505) 827-6188

May 18, 2023

To Whom It May Concern,

The Albuquerque Bernalillo County Water Authority (Water Authority) is an important contributor to implementing a bright future for the Middle Rio Grande environment by actively engaging in multiple projects that conserve water and protect endangered species. The Water Authority is planning to create a habitat restoration project in conjunction with Southside Water Reclamation Plant outfall (SWRP). The Water Authority treats and discharges effluent to the Rio Grande. The Water Authority is requesting funding from the Bureau of Reclamation Water Resources and Planning Office for construction of the SWRP Outfall Restoration (proposed project). The New Mexico Interstate Stream Commission (NMISC) has constructed over 300 acres of habitat for endangered species purposes and has participated in discussions on the proposed project during its planning stages. The NMISC supports the Water Authority's goals and priorities for the proposed project, which are to:

- facilitate habitat enhancement via floodplain reconnection and the preservation of sensitive habitats for threatened and endangered species.
- improve water quality in the Rio Grande and connected groundwater systems; and,
- increase public access to the Bosque.

The proposed improvements will be tied into other habitat restoration in the vicinity and will also assist with connection of trails for public access and education. Coordination with the landowners (Middle Rio Grande Conservancy District) and land managers (City of Albuquerque Open Space), the NMISC, US Fish and Wildlife Service, Reclamation, Tribes and Pueblos, and local stakeholder groups is expected to continue throughout the project. The NMISC supports funding for this project by the Department of the Interior because of its importance for improving water quality and ecosystem health.

Sincerely,

Grace M Haggerty

Grace M. Haggerty
New Mexico Interstate Stream Commission
Rio Grande Bureau ESA and Compliance Programs

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office
2105 Osuna Road NE
Albuquerque, New Mexico 87113
Telephone 505-346-2525 Fax 505-346-2542
www.fws.gov/southwest/es/newmexico/

May 17, 2023

To Whom It May Concern,

The Water Authority operates and treats approximately 55 million gallons per day (MGD) of wastewater at the Southside Water Reclamation Plant (SWRP). The plant's treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The Water Authority is requesting funding from the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office to construction of the SWRP Outfall Restoration (proposed project). The U.S. Fish and Wildlife Service New Mexico Ecological Services Field Office understand the Water Authority's goals and priorities for the proposed project are to: facilitate habitat enhancement via floodplain reconnection and the preservation of sensitive habitats for threatened and endangered species; improve water quality in the Rio Grande and connected groundwater systems; and increase public access to the Bosque. The proposed improvements will be tied into the bounding U.S. Army Corps of Engineers (USACE) habitat restoration sites to the north and south, creating a holistic, interconnected project along the Bosque. As part of the proposed project, the Water Authority is proactively coordinating with the Middle Rio Grande Conservancy District (MRGCD) (the landowners), as well as the Bureau of Reclamation and other state and federal agencies to ensure seamless project construction and implementation.

Sincerely,

Andy Dean

Andy Dean
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office

STATE OF NEW MEXICO
OFFICE OF NATURAL RESOURCES TRUSTEE

121 Tijeras Avenue NE, Suite 1000
Albuquerque, NM 87102
www.onrt.state.nm.us

MICHELLE LUJAN GRISHAM
Governor

HOWIE MORALES
Lieutenant Governor

MAGGIE HART STEBBINS
Trustee

KATE GIRARD
Executive Director

May 24, 2023

To Whom It May Concern,

The Office of the Natural Resources Trustee (ONRT) supports the request by the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) for Department of the Interior funding to support the Southside Water Reclamation Plant (SWRP) Outfall Restoration Project.

The ABCWUA treats approximately 55 million gallons per day (MGD) of wastewater at the SWRP, located south of Albuquerque. The plant's treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river.

ABCWUA is requesting funding from the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office, to construct the SWRP Outfall Restoration (proposed project). ONRT supports ABCWUA's goals and priorities for the proposed project that will: improve water quality in the Rio Grande and connected groundwater systems; facilitate habitat enhancement via floodplain reconnection; and the preservation of sensitive habitats for threatened and endangered species; and encourage and manage appropriate public access to the bosque downstream from the SWRP. The proposed improvements will be tied into the bounding U.S. Army Corps of Engineers (USACE) habitat restoration sites to the north and south, creating a holistic, interconnected project along the bosque. As part of the proposed project, ABCWUA is proactively coordinating with ONRT, the New Mexico State Legislature, the Middle Rio Grande Conservancy District (MRGCD) (the landowners), as well as the Bureau of Reclamation and other state and federal agencies to ensure seamless project construction and implementation.

As New Mexico's Natural Resources Trustee, I encourage you to support ABCWUA's request for funding to support the SWRP Outfall Restoration Project.

Sincerely,

Maggie Hart Stebbins
Trustee

Commissioner Barbara Baca, Chair
415 Silver Ave. SW, 4th Floor
Albuquerque, NM 87102
Office: (505) 468-7027
Fax: (505) 462-9817
District1@bernco.gov
www.bernco.gov

May 17, 2023

To Whom It May Concern,

The Water Authority operates and treats approximately 55 million gallons per day (MGD) of wastewater at the Southside Water Reclamation Plant (SWRP). The plant's treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The Water Authority is requesting funding from the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office to construction of the SWRP Outfall Restoration (proposed project). Bernalillo County understands the Water Authority's goals and priorities for the proposed project are to: facilitate habitat enhancement via floodplain reconnection and the preservation of sensitive habitats for threatened and endangered species; improve water quality in the Rio Grande and connected groundwater systems; and increase public access to the Bosque. The proposed improvements will be tied into the bounding U.S. Army Corps of Engineers (USACE) habitat restoration sites to the north and south, creating a holistic, interconnected project along the Bosque. As part of the proposed project, the Water Authority is proactively coordinating with the Middle Rio Grande Conservancy District (MRGCD) (the landowners), as well as the Bureau of Reclamation and other state and federal agencies to ensure seamless project construction and implementation.

Sincerely,

Barbara Baca

Barbara Baca
Bernalillo County Commissioner, Chair

CITY OF ALBUQUERQUE
City Council

P.O. Box 1293
Albuquerque, NM 87103
Tel: (505) 768-3100
Fax: (505)768-3227
www.cabq.gov/council

President Pat Davis
District 6

Vice President Renée Grout
District 9

Chris Melendrez
Council Director

Louie Sanchez District 1
Isaac Benton District 2
Klarissa J. Peña District 3
Brook Bassan District 4
Dan Lewis District 5
Tammy Fiebelkorn District 7
Trudy E. Jones District 8

May 16, 2023

To Whom It May Concern,

The Water Authority operates and treats approximately 55 million gallons per day (MGD) of wastewater at the Southside Water Reclamation Plant (SWRP). The plant's treated effluent is continuously released to the Rio Grande via an outfall channel located on the east bank of the river. The Water Authority is requesting funding from the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office to construction of the SWRP Outfall Restoration (proposed project). The City Council of Albuquerque understands the Water Authority's goals and priorities for the proposed project are to: facilitate habitat enhancement via floodplain reconnection and the preservation of sensitive habitats for threatened and endangered species; improve water quality in the Rio Grande and connected groundwater systems; and increase public access to the Bosque. The proposed improvements will be tied into the bounding U.S. Army Corps of Engineers (USACE) habitat restoration sites to the north and south, creating a holistic, interconnected project along the Bosque. As part of the proposed project, the Water Authority is proactively coordinating with the Middle Rio Grande Conservancy District (MRGCD) (the landowners), as well as the Bureau of Reclamation and other state and federal agencies to ensure seamless project construction and implementation.

Sincerely,

Sincerely,

Pat Davis
Albuquerque City Councilor, District 6

Albuquerque Bernalillo County
Water Utility Authority

Attachment E: Official Resolution

ATTACHMENT E

ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

BILL NO. R-23-x

RESOLUTION

AUTHORIZING THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY TO SUBMIT AN APPLICATION FOR WATERSMART GRANT FINANCIAL ASSISTANCE FOR THE SOUTHSIDE WASTEWATER RECLAMATION PLANT OUTFALL RESTORATION PROJECT

WHEREAS, the Albuquerque Bernalillo County Water Utility Authority (Water Authority) is seeking WaterSMART grant funding assistance for the Southside Wastewater Reclamation Plant (SWRP) Outfall Restoration Project; and

WHEREAS, the project will benefit the Water Authority as well as the Albuquerque area by creating new and enhancing existing riparian and aquatic habitats along the Rio Grande, above and below the SWRP Outfall Restoration Project through removal of invasive plant species, floodplain reconnection and the establishment of native riparian species; and

WHEREAS, the project enhances habitat for native species including the endangered Rio Grande Silvery Minnow, New Mexico Meadow Jumping Mouse and Yellow-Billed Cuckoo; and

WHEREAS, the project provides increased community access to the Bosque in the South Valley through the development of new trails as well as access for maintenance of the Bosque; and

WHEREAS, the project aligns with policies within Water 2120 and the Water Authority's 100-year water resources management strategy; and

WHEREAS, the Water Authority desires utilizing WaterSMART grant funding to construct the SWRP Outfall Restoration Project.

BE IT RESOLVED BY THE WATER AUTHORITY:

Section 1. That an application for WaterSMART grant financial assistance for the SWRP Outfall Restoration Project, be submitted to the US Department of Interior, Bureau of Reclamation.

Section 2. That Water Authority will provide a cost sharing amount of 35% of the total project cost.

Section 3. That the Executive Director shall have the authority to enter into an agreement and meet all established deadlines.

PASSED AND ADOPTED THIS 28th DAY OF June, 2023

BY A VOTE OF:_____ FOR_____AGAINST.

Yes:

No:

Excused:

_____

Eric C. Olivas, Chair

ATTEST:

_____

Mark S. Sanchez, Executive Director

Albuquerque Bernalillo County Water Utility Authority

Agenda Item No. 9X

Meeting Date: June 28, 2023
Staff Contact: Elizabeth Anderson, Chief Planning Officer

TITLE: R-23-X – Authorizing the Water Authority to Submit an Application for WaterSMART Grant Financial Assistance for the Southside Wastewater Reclamation Plant Outfall Restoration Project

ACTION: Recommend Approval

SUMMARY:
The Albuquerque Bernalillo County Water Utility Authority (Water Authority) is seeking WaterSMART grant funding assistance for the Southside Wastewater Reclamation Plant (SWRP) Outfall Restoration Project.

The SWRP Outfall Restoration Project will improve and enhance existing habitat areas through the removal of invasive species and the establishment of diverse, native riparian species. Completion of this project will improve water quality and will benefit native species including the endangered Rio Grande Silvery Minnow, New Mexico Meadow Jumping Mouse and Yellow-Billed Cuckoo.

Additionally, the SWRP Outfall Restoration project will create floodplain habitat areas that will extend upstream and downstream of the SWRP treated effluent outfall into the Rio Grande and tie into existing restoration sites north and south of the project area. New community trails will be constructed throughout the project area, increasing access to this area of the Bosque and improving access for maintenance of the restoration areas.

This project aligns with the Water Authority's 100-year water resources management strategy and Water 2120 policies including: Policy K – Preserve and Enhance the Quality of Life in the Region and Policy J – Protect Valued Environmental and Cultural Resources.

This resolution provides the Executive Director the authority to enter into an agreement with the US Department of Interior, Bureau of Reclamation related to this funding and all established deadlines.

FISCAL IMPACT:
The Water Authority will provide a cost sharing amount of 35%, which has been identified in awarded Capital Outlay Appropriations and Water Trust Board funding.