



**COLORADO**

**Colorado Water  
Conservation Board**

Department of Natural Resources

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**TO:** Colorado Water Conservation Board Members

**FROM:** Jonathan Hernandez, P.E., Project Manager  
Kirk Russell, P.E., Finance Section Chief

**DATE:** March 21-22, 2018 Board Meeting

**AGENDA ITEM:** 7b. Water Project Loans/Grants  
Trinchera Irrigation Company - Mountain Home Dam Outlet Rehabilitation Phase III

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### Introduction

The Trinchera Irrigation Company (Company) is applying for a loan and grant for the Mountain Home Dam Outlet Rehabilitation Phase III (Project). The purpose of the Project is to meet the emergency drawdown requirements of the State Engineers Office Dam Safety Branch (SEO) and eliminate the annual leakage of up to 2,000 AF by rehabilitating the dam's outlet works. This action will prevent a storage restriction on an irrigation reservoir that is located within a State Wildlife Area. The total Project cost is estimated to be \$987,000. The Company is requesting a loan from the CWCB for approximately 44% of the Project cost and a WSRF grant for approximately 52% of the Project cost. The balance will be funded with grants from the Moore Charitable Foundation and Trinchera Water Conservancy District. See attached Project Data Sheet for a location map and Project summary.

The Rio Grande Roundtable approved a grant application for \$60,221 from the Rio Grande Basin Fund and \$602,217 from the statewide account. Due to insufficient funds in the statewide account, CWCB staff reduced the Company's statewide ask to \$452,779. The Company offset the grant reduction by increasing its CWCB loan request.

### Staff Recommendation for CWCB Loan

Staff recommends the Board approve a loan not to exceed \$440,360 (\$436,000 for Project costs and \$4,360 for the 1% service fee) to the Trinchera Irrigation Company for costs related to the Mountain Home Dam Outlet Rehabilitation Phase III Project, from the Severance Tax Perpetual Base Fund. The loan terms shall be 30 years at the agricultural interest rate of 1.65% per annum. Security for the loan shall be in compliance with CWCB Financial Policy #5.

### Staff Recommendation for WSRF Grant

Staff recommends approval of up to \$452,779 from the Statewide Fund and \$60,221 from the Rio Grande Basin Fund to the Trinchera Irrigation Company for costs related to the Mountain Home Dam Outlet Rehabilitation Phase III Project.



### **Background**

The Company is located in Costilla County and owns and operates Mountain Home Reservoir, Smith Reservoir, and approximately 26 miles of canals and 45 miles of laterals. The Company's service area includes approximately 14,100 acres of farm land north and south of Highway 160 and west of the Sangre de Cristo Mountains.

Mountain Home Reservoir (Reservoir) was built in 1908, has a storage capacity of 17,964 AF, and can provide water to all of the Company's service area. The Reservoir's primary function is for irrigation but Colorado Parks and Wildlife (CPW) also operates a 715-acre State Wildlife Area (SWA) and has a conservation pool of 653 AF at the Reservoir. The SWA offers camping, boating, hunting, and fishing and includes two boat ramps and restroom facilities. Since only 2% of Costilla County's land is public, the Reservoir and SWA are an important asset to CPW and the community.

The Reservoir is classified as a high hazard jurisdictional dam by the SEO and has undergone multiple dam improvements including rehabilitation of the spillway, raising the dam crest, and installation of a toe drain. The outlet structure consists of the three original 30-inch gate valves and is in need of repair as only one of the three valves is operable and the valves experience significant leakage. During the non-irrigation season, leakage varies between 2 and 5 cfs, resulting in an annual storage water loss of approximately 2,000 AF. Other areas needing repair include the deteriorated trash rack and spot areas of concrete within the tunnel and tower that need lining.

The SEO's emergency drawdown requirements call for reservoirs to be capable of draining 5 feet of water storage in fewer than 5 days to ensure dam safety and prevent total failure during an emergency situation. With only one valve operable, the Reservoir does not meet this requirement. The SEO granted a full storage allowance on the Reservoir conditioned upon the Company making necessary repairs. The Company approached the repair project in three phases:

- Phase I was a feasibility level study of the outlet, including a dive inspection, and was in part funded with a \$25,000 WSRF Rio Grande Basin grant (POGG1 2015-120).
- Phase II is for engineering including an alternatives analysis and final design, and is in part funded with a \$70,000 WSRF Rio Grande Basin grant (POGG1 2017-1040).
- Phase III will be the construction phase and is the subject of this loan and grant request.

### **Loan Feasibility Study**

Clint Brown, P.E. of Engineering Analytics prepared the Loan Feasibility Study titled, "Mountain Home Dam Outlet Rehabilitation - Feasibility Study," dated February 1, 2018. The feasibility study was prepared in accordance with CWCB guidelines and includes an analysis of alternatives, preliminary engineering design, and construction cost estimates. Financial statements were prepared and provided by the Company.

### **Borrower - Trinchera Irrigation Company**

The Company is a Mutual Ditch Company incorporated in 1944. It operates as a nonprofit corporation and is in good standing with the Colorado Secretary of State. The Company is governed by a five-member board of directors that exercise the general supervision of the affairs of the Company. Revenues are primarily generated from stock assessments with minor sources of income coming from leases and interest.

The Company is made up of 12,396 active shares held by 40 shareholders. The Company holds an additional 104 inactive shares which are not assessed by the Company. The by-laws (1987) require that levied assessments are to be sufficient to pay all estimated and anticipated operating and maintenance expenses including the payment of debt service. The Board of Directors has the power to set

assessments in the event that shareholders fail to do so. All assessments are a lien upon the shares until paid and the Company has the authority to shut off water for non-payment of assessments and ultimately force the sale of stock for delinquent shareholders.

**Water Rights**

In Division 3 Water Court Case W-3148 (1986), seven points of diversions from Trinchera, Ojito, and Indian Creeks and two storage locations of Mountain Home and Smith Reservoirs, were designated as alternate, supplemental, or storage points of diversions; allowing the Company flexibility to move water around its service area. The storage rights impacted by this Project are shown in Table 1.

**TABLE 1: IMPACTED STORAGE RIGHTS**

Name	Amount	Appropriation Date	Adjudication Date	Water Court Case No.
Mountain Home Reservoir	19,150 AF	12/4/1906	1/4/1915	CA0659

Average annual diversions of the Company are 9,000 AF.

**Project Description**

The primary objective of the Project is to prevent an SEO storage restriction on the Reservoir by rehabilitating its outlet structure to bring the Reservoir into compliance with the SEO’s emergency drawdown requirements. Benefits of completing this Project include the recovery of 2,000 AF currently lost to leakage and ensuring the long-term integrity and protection of 14,100 acres of irrigated land, as well as the environment, wildlife and recreation at the SWA. The following alternatives were analyzed as part of Phase II:

**Alternative 1 - No Action:** This alternative was not selected because it will ultimately lead to a reservoir storage restriction by the SEO, negatively impacting the Company, CPW, and the community.

**Alternative 2 - Minor Repairs to Existing Valves:** This alternative would attempt to bring the valves into operable condition and stop the leakage by repairing the original valves and making necessary improvements to the outlet’s concrete structure. Due to the age of the valves, replacement parts would be difficult and expensive to obtain. Although this is the least cost alternative at \$473,000, the Company did not select this alternative because the repairs could not be guaranteed to be successful, and would likely result in greater long-term costs as future rehabilitation would still be required.

**Alternative 3 - Replace Valves with Hydraulically Operated Valves:** This alternative would replace the existing gate valves with new gate valves, line the existing concrete within the outlet tunnel and tower, replace the trashrack, remove and replace the gate house, and install a hydraulic operation system with hydraulic actuators for each valve. Hydraulically operated gate valves would decrease the time required to open the valves in the event of an emergency and would also reduce the effort required for gate operation on a normal basis. The cost of this alternative is estimated to be \$1,282,000 and is the highest cost alternative. The Company did not select this alternative as it determined the advantages that hydraulically operated valves would provide was not worth the increase in cost.

**Selected Alternative 4 - Replace Valves with Mechanically Operated Valves:** This alternative is similar to Alternative 3, only the use of mechanical actuators instead of hydraulic actuators. As part of the alternative analysis different valve size combinations were analyzed. Hydraulic modeling showed two 30-inch and one 16-inch valves are sufficient to meet the SEO’s drawdown requirement as are one 48-inch and one 30-inch valve. Although it would be slightly cheaper to select the 48-inch and 30-inch

combination, the controlled release of lower outlet flows would be more difficult. Therefore, the Company selected to install two 30-inch and one 16-inch valves.

The estimated total cost associated with the Project is shown in Table 2.

**TABLE 2: ESTIMATED PHASE III PROJECT COST**

Task	Total
Design Engineering	Incl. in Phase II
Construction	
Mobilization	\$157,500
Dewatering/Water Control	\$83,400
Outlet Gates	\$485,600
Trash Rack	\$44,700
Valve House	\$17,500
Construction Total	\$788,700
Construction Contingency (15%)	\$118,300
<b>CONSTRUCTION SUB-TOTAL</b>	<b>\$907,000</b>
Construction Observation	\$80,000
<b>TOTAL</b>	<b>\$987,000</b>

*Permitting:* All construction disturbance will occur on property owned by the Company and no local construction permits or easements are expected to be required for this rehabilitation. Additionally, due to the nature of the work, the engineer does not believe an Environmental Assessment or Environmental Impact Statement will be required. The Army Corps of Engineers will be notified of the scope of work, but the work is not expected to fall within its jurisdiction.

*Schedule:* The Company is anticipating finalizing engineering design to be completed by April 2018 and receive SEO approval by June 2018. Construction is planned to occur from September 2018 through February 2019.

## Water Supply Reserve Fund Grant

**Applicant & Grantee:** Trinchera Irrigation Company  
**Water Activity Name:** Mountain Home Reservoir Outlet Rehabilitation – Phase III  
**Water Activity Purpose:** Agricultural, Environmental, and Recreational  
**County:** Costilla  
**Drainage Basin:** Rio Grande  
**Water Source:** Trinchera Creek, Ojito Creek, Indian Creek

At the January 2018 Rio Grande Basin Roundtable meeting, the Roundtable recommended approval of the Mountain Home Reservoir Outlet Rehabilitation Phase III application request for \$60,221 from the Rio Grande Basin Fund and \$602,217 from the statewide account. Due to insufficient statewide funds, CWCB Staff reduced the statewide ask to \$452,779.

**Amount Requested/Source of Funds:** \$60,221 Rio Grande Basin Fund  
\$452,779 Statewide Fund  
\$513,000 Total Grant Request

**Matching Funds:** Basin Fund Match: \$60,221 = 13% of statewide grant request (meets 10% min);  
Non-Statewide Fund Match: \$534,221 = 118% of statewide grant request (meets 50% min);  
Applicant & 3<sup>rd</sup> Party Match: \$474,000 = 105% of statewide grant request (meets 10% min)

**Discussion:** This project meets Goals 4, 5, 6, 11, 12, and 14 of the Rio Grande Basin Implementation Plan which are to : (4) operate, maintain, rehabilitate and create necessary infrastructure to meet the Basin’s long-term water needs, including storage; (5) manage water use to sustain optimal agricultural economy throughout the Basin’s communities; (6) support the development of projects and methods that have multiple benefits for agricultural, municipal & industrial, and environmental & recreational water needs; (11) protect, preserve, and enhance terrestrial and aquatic wildlife habitats throughout the basin; (12) conserve, restore, and maintain wetlands and riparian areas for the benefit of a healthy watershed; and (14) maintain and enhance water-dependent recreational activities by involving schools, youth-corps groups, and the community.

In addition to the dam repairs for this Project, local community groups would like to explore additional recreational opportunities at the Reservoir site in connection with the existing SWA. In support of future planning efforts, the Company has agreed in principal to cease its leasing of 25 acres adjacent to the Reservoir and SWA for cattle grazing, and dedicate that land for the purposes and uses of public recreation.

**Issues/Additional Needs:** No issues or additional needs have been identified.

**Eligibility Requirements:** The application meets requirements of all eligibility components: General Eligibility, Entity Eligibility, Water Activity Eligibility, and Eligibility Based on Match Requirements.

**Evaluation Criteria:** This activity has undergone review and staff has determined it satisfies the Evaluation Criteria outlined in Colorado’s Water Plan, Section 9.4. Please refer to Basin Roundtable Chair’s Recommendation Letter and the Application for a detailed response.

<u>Funding Source</u>	<u>Cash</u>	<u>In-Kind</u>	<u>Total</u>	<u>Status</u>
Moore Charitable Trust	\$18,000	\$0	\$18,000	Secured
Trinchera Water Cons. District	\$20,000	\$0	\$20,000	Secured
CWCB Water Project Loan	\$436,000	\$0	\$436,000	
<b>Subtotal Matching Funds</b>	<b>\$474,000</b>	<b>\$0</b>	<b>\$474,000</b>	
WSRF Rio Grande Account	\$60,221	\$0	\$62,221	
WSRF Statewide Account	\$452,779	\$0	\$452,779	
<b>Total Project Costs</b>	<b>\$987,000</b>	<b>\$0</b>	<b>\$987,000</b>	

## CWCB Loan Program

### Financial Analysis

Table 3 provides a summary of the Project's financial aspects. The Company qualifies for an agricultural interest rate of 1.65% for a 30-year term.

TABLE 3: FINANCIAL SUMMARY

Total Project Cost	\$987,000
Moore Charitable Foundation Grant	\$18,000
Trinchera Water Cons. District	\$20,000
WSRF Grant	\$513,000
CWCB Loan Amount	\$436,000
CWCB Loan Amount (Including 1% Service Fee)	\$440,360
CWCB Annual Loan Payment	\$18,728
CWCB Annual Loan Obligation (1 <sup>st</sup> Ten Years)	\$20,601
Number of Shares	12,396
Annual Obligation per Share	\$1.66
Current Assessment per Share	\$23/share
Future Assessment per Share	\$24.66/share
Project Cost per AF of Storage (17,964 AF)	\$55/AF

*Loan/WSRF Grant Disbursement:* Payments from the CWCB funds will be processed at the following percentages: 46% loan (\$436K/\$949K) to 54% WSRF grant (\$513K/\$949K).

*Creditworthiness:* The Company has \$912,854 in existing debt made up of three CWCB loans. Loan C153607L brought the Mountain Home Reservoir's emergency spillway to SEO standards, loan C150303 repaired Smith Reservoir's dam and embankment, and loan C150316 repaired the diversion and piped a section of the Garland Canal #2. All loans are in good standing.

The Company's assessments have been \$23/share since 2011. Prior to 2011 assessments were \$22/share.

TABLE 4: EXISTING DEBT

Lender	Original Balance	Current Balance	Annual Payment	Maturity Date	Collateral
CWCB (C153607L)	\$611,478	\$289,815	\$18,623	2034	Assessment revenues. Mountain Home Reservoir
CWCB (C150303)	\$524,553	\$406,666	\$29,926	2035	Assessment revenues. Smith Reservoir and Smith Reservoir water rights.
CWCB (C150316)	\$251,793	\$216,373	\$12,435	2041	Assessment revenues. Garland #2 Canal water rights.
<b>Total</b>		\$912,854	\$60,984		

TABLE 4: FINANCIAL RATIOS

Financial Ratio	Past 2 Years	Future w/ Project
Operating Ratio (revenues/expenses) weak: <100% - average: 100% - 120% - strong: >120%	104% (average) \$333K/\$321K	104% (average) \$354K/\$342K
Debt Service Coverage Ratio (revenues-expenses)/debt service weak: <100% - average: 100% - 120% - strong: >120%	120% (strong) (\$333K-\$260K) \$61K	115% (average) (\$354K-\$260K) \$82
Cash Reserves to Current Expenses weak: <50% - average: 50% - 100% - strong: >100%	8% (weak) \$27K/\$321K	8% (weak) \$27K/\$342K
Annual Operating Cost per Acre-Foot (9,000 AF) weak: >\$20 - average: \$10 - \$20 - strong: <\$10	\$36 (weak) \$321K/9,000 AF	\$38 (weak) \$342K/9,000 AF

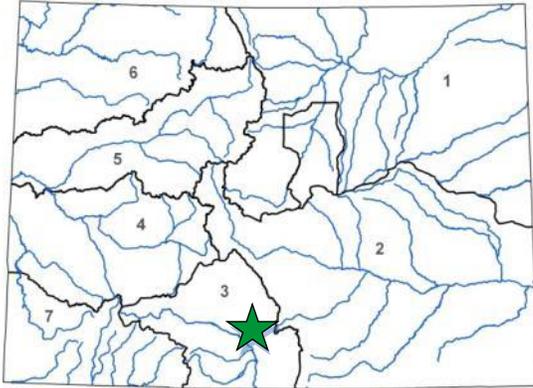
*Collateral:* Security for this loan will be a pledge of assessment revenues back by a rate covenant and the Project itself (Mountain Home Reservoir Outlet Structure). This security is in compliance with the CWCB Financial Policy #5 (Collateral).

cc: Tracy Kester, President, Trinchera Irrigation Company  
 Jennifer Mele, Colorado Attorney General's Office

Attachment: Water Project Loan Program - Project Data Sheet



L O A N   D E T A I L S		
Project Cost:	\$987,000	
CWCB Loan (with Service Fee):	\$440,360	
Loan Term and Interest Rate:	30 years @ 1.65%	
Funding Source:	Severance Tax PBF & WRSF	
B O R R O W E R   T Y P E		
Agriculture	Municipal	Commercial
100%	0% Low - 0% Mid - 0% High	0%
P R O J E C T   D E T A I L S		
Project Type:	Dam Rehabilitation	
Average Annual Diversions:	9,000 AF	



Trinchera Irrigation Company is located in Costilla County and owns and operates Mountain Home Reservoir, Smith Reservoir, and approximately 26 miles of canals and 45 miles of laterals. Mountain Home Reservoir (Reservoir) was built in 1908 and has a capacity of 17,964 AF. The Reservoir’s primary function is for irrigation but Colorado Parks and Wildlife operates a State Wildlife Area around the Reservoir and maintains a conservation pool of 653 AF in the Reservoir.

L O C A T I O N			
County:	Costilla		
Water Source:	Trinchera Creek		
Drainage Basin:	Rio Grande		
Division:	2	District:	14

The Reservoir’s existing outlet works experience significant leakage and since only one of the three valves is operable, does not meet the State Engineer’s Office, Dam Safety Branch’s emergency drawdown requirements. This Project will replace the original valves with new valves and make other minor repairs to the outlet including a new trash rack, line the outlet tunnel and tower, and replace the gate house. Successful repair of the dam outlet works will prevent a storage restriction, recover approximately 2,000 AF currently lost to leakage, and ensure the long-term integrity and protection of 11,800 acres of irrigated land, as well as the environment, wildlife, and recreation at the State Wildlife Area. Funding for the project will come from the CWCB loan and \$513,000 in WSRF grant funds.

