Mountain Home Dam
Outlet Rehabilitation

Feasibility Study

Prepared for:

Trinchera Irrigation Company
610 Main Street
P.O. Box 41
Blanca, CO 81123

FEASIBILITY STUDY APPROVAL
Pursuant to Colorado Revised Statutes 37-60-121 &122, and in accordance with policies adopted by the Board, the CWCB staff has determined this Feasibility Study meets all applicable requirements for approval.

Signed 3/6/18 Date

Prepared by:

Engineering Analytics, Inc.

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Project No. 110718

February 1, 2018

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1.0 INTRODUCTION

This report was prepared by Engineering Analytics (EA) under our direct supervision and presents the analysis of alternatives along with estimated construction costs for the Mountain Home Reservoir Outlet Rehabilitation. Rehabilitation of the dam's outlet works are being considered due to the poor operating condition of the three existing gate valves. The objectives of this investigation were to characterize the existing conditions, investigate rehabilitation alternatives, and determine the feasibility of the chosen alternative to return the dam to operable conditions for compliance with regulations of the Colorado Office of the State Engineer (SEO), Dam Safety Branch. As shown in the following pages, full operational capability of the existing outlet gates is required to meet SEO emergency drawdown requirements.

The civil investigation program that was conducted for this project included the following:

- Review of engineering reports prepared for the site, and investigation of the site geology,
- Site visits by EA personnel, including Clint Brown, P.E., to personally observe distress to the structures,
- Preparation of this report presenting summaries of the engineering reports, results of the field investigation, results of the alternative analysis, estimates of cost for each alternative, our opinions regarding the distress of the structures, and our recommendations for remediation of the structures.

This report contains a summary of voluminous writings, recordings, photographs, and other documents which cannot be produced conveniently by way of attachment. This report contains a summary of those writings, recordings, photographs and other documents, the originals of which are available for examination in the EA job file.

1.1 Project Location

The project is located in Section 36, Township 30 South, Range 72 West; Section 1, Township 31 South, Range 72 West; Section 31 Township 30 South, Range 71 West; and Section 6 Township 31 South, Range 71 West of the 6th P.M., in Costilla County, Colorado. Access to the project site is via Ice House Road off of Colorado State Highways 159 and 160. Figures 1.1 and 1.2 show the project location and access.

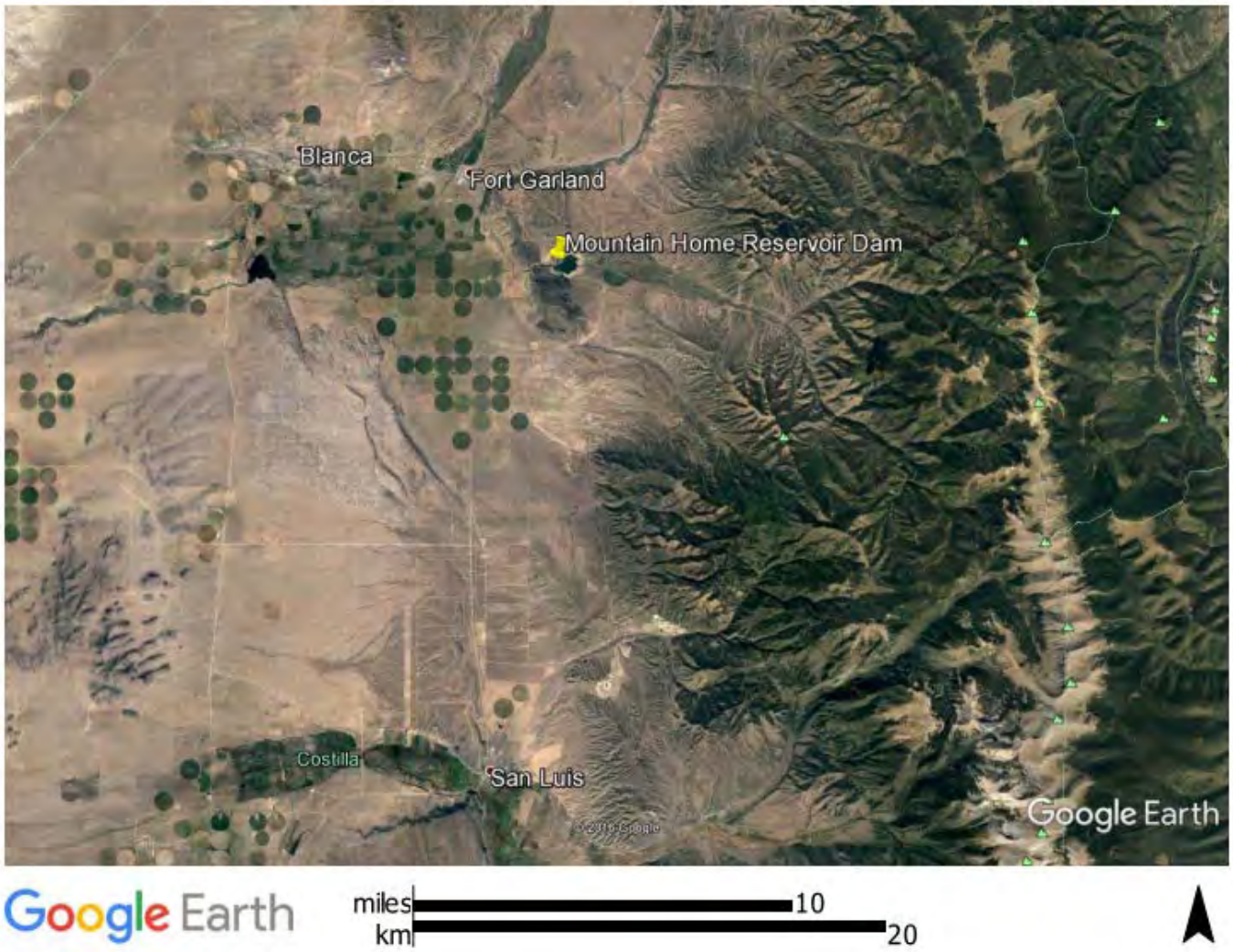

Figure 1.1 Vicinity Map of Mountain Home Reservoir

Figure 1.2 Access Map of Mountain Home Reservoir

Figure 1.3 Plan View of Mountain Home Dam

2.0 PROJECT SPONSOR

The Trinchera Irrigation Company (TIC) is a Colorado Mutual Ditch Company and a Non-profit Corporation. The board of directors consists of five stockholders. The directors are elected for a term of 5 years. Articles of Incorporation and Bylaws are included in Appendix A. The company's facilities are located in Costilla County in the town of Blanca. They consist of Mountain Home Reservoir (capacity 17,964 acre feet), Smith Reservoir, approximately 36 miles of canals, and 45 miles of laterals for the purpose of managing irrigation water.

3.0 PROJECT SERVICE AREA

3.1 Service Area Boundaries

The land irrigated by the TIC may be generally described as that land lying south of Highway 160, with the western boundary being approximately 6 miles west of Highway 159, bounded by on the south by the Trinchera and Highline Canals, and bounded on the east by the foothills of the Sangre de Cristo Mountains. This area comprises approximately 14,100 acres of irrigated land. Of this land approximately 11,800 acres can be irrigated out of Mountain Home Reservoir. The service area boundaries are shown in Figure 3.1.

3.2 Future Usage

The purpose of the proposed rehabilitation is to enable the TIC to continue to serve lands which are presently irrigated. No increase in irrigated acreage is anticipated due to the rehabilitation.

Future conversion of farm land urban use has been relatively slow in the district. Due to the nature of the economy and the lack of a close metropolitan area, we would not expect any large trend toward urbanization and thus no large loss in irrigated land is expected.

3.3 Land Ownership

The ownership of land in the area served by the TIC is primarily private farms, ranch land, and individual home sites. An exact break down of land ownership is no known, but is expected to consist of less than one percent (1%) public land owned by municipalities, the State, or Federal Government. There are 43 shareholders and 12,500 shares of stock. The TIC has the power to set annual assessments to be paid by the shareholders, the power to cut off water deliveries to shareholders that fail to pay their assessments, and the power to offer stock for sale to pay back assessments.

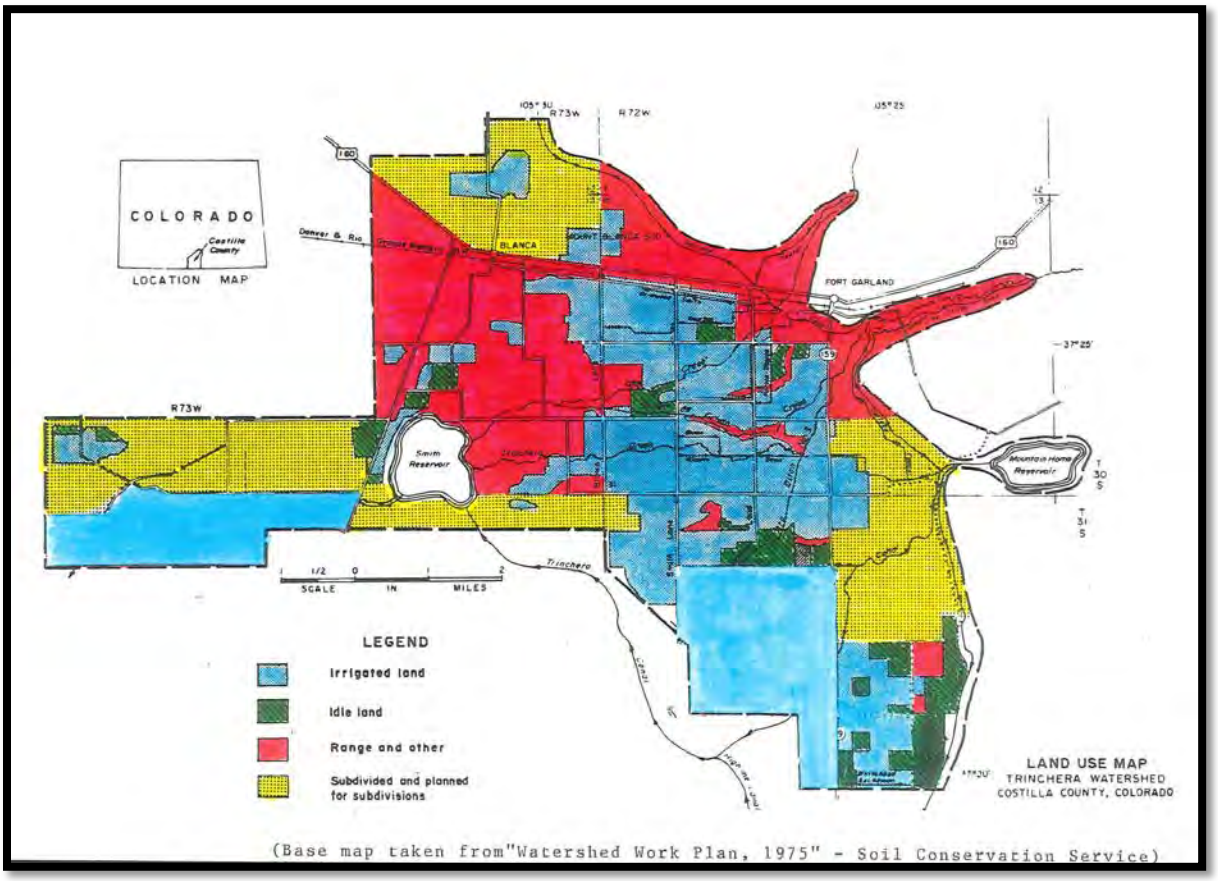

Figure 3.1 Trinchera Irrigation Company Land Use Map

4.0 WATER RIGHTS

Mountain Home Reservoir is filled by an appropriation of water from Trinchera Creek and its tributaries. Appendix C summarizes the water rights and decrees for the TIC including those for Mountain Home Reservoir

The Trinchera Watershed has three intermittent and well defined water courses – Ute Creek, Sangre de Cristo Creek, and Trinchera Creek. The creeks are fed by snow melt from their headwaters which reach elevations over 13,000 feet above sea level in the Sangre de Cristo Mountains.

Water is diverted from Ute Creek and Sangre de Cristo Creek into the system on a supply and demand basis. Flows exceeding the diversion demand follow the natural channels through the watershed and enter Smith Reservoir. These flows contribute to the groundwater recharge for the watershed area and to the storage in Smith Reservoir. Flows in these two creeks are utilized to the extent of demand.

Based on the definition of "safe yield" being the available storage during a critical dry period the safe yield would be 1,700 acre-feet as recorded in 1951. The Soil Conservation Service (SCS) in their study of the district in 1975 determined the safe yield to be 2,400 acre-feet based on a 70 percent probability. For the purposes of this report the safe yield used will be that accepted by the SCS.

4.1 Water Quality

The water quality of Mountain Home Reservoir is not expected to be a problem. Due to the turnover of the reservoir each year a build-up of salts and other minerals is not expected. The water supplying the reservoir is runoff from the mountains and should be of good quality. No major pollution sources are upstream of the reservoir and most of the runoff is from timberland, sage brush flats, and pasture land. Some silt load is expected due to the nature of the soils in the area, but is not expected to be severe. The water may tend to be somewhat alkaline due to the soil in the area but should not be severe enough to be a problem.

5.0 DOCUMENTS REVIEWED

The SEO dam inspection reports, *Rehabilitation Concept-Level Alternatives Memorandum* by RJH Consultants, and other documents provided to us by Trinchera Irrigation Company were reviewed as part of the civil investigation program. A list of these documents is included below. SEO inspection reports from the past two years (2015 and 2016) are attached as Appendix D. No attempt has been made to summarize the documents in their entirety. Rather, the information that is most significant to EA's investigation is noted. These materials and our visits to the site together with our education, training, and experience form the basis of our opinions.

The following is our understanding of the chronological development at the site of the Mountain Home Reservoir Dam leading up to improvements being required for the dam's current outlet works.

a. July, 1908: H.I. Reid. Civil Engineering issued Construction Plans for the original construction of Mountain Home Reservoir Dam.
b. November, 1992: Smith Geotechnical Engineering issued Feasibility Study for Rehabilitation of the Spillway for Mountain Home Reservoir.
c. February 10, 1995: Smith Geotechnical Engineering issued As-Constructed Drawings for improvements made to Mountain Home Reservoir Dam.
d. April 23, 2015: Office of the State Engineer, Division of Water Resources, Dam Safety Branch requested plans and specifications for the rehabilitation of the dam outlet works.
e. April 1, 2016: RJH Consultants Inc. presented alternatives for the rehabilitation of the Mountain Home Dam outlet works.
f. June 7, 2016: Office of the State Engineer, Division of Water Resources, Dam Safety Branch requested improvements be made to the Mountain Home Dam outlet works, returning all outlet valves to operating condition in order to meet the SEO drawdown requirements.

6.0 NEED FOR THE PROJECT

6.1 Existing Conditions

Mountain Home Reservoir has made multiple dam improvements in the past, including rehabilitation of the spillway, raising the dam crest, and installation of a toe drain on the downstream toe. Currently, the original gate valves located within the outlet works tower controlling discharge flow are deteriorated and in need of repair. The three 30-inch gate valves located within the outlet structure are all experiencing leakage. Per the 2016 SEO Inspection Report, both the right (north) and left (south) valves were recorded to have significant leakage, and the center valve was recorded to have minor leakage. The report also stated that only one of the three gate valves was considered operable.

With the rate of deterioration and hazard potential expected to increase with time, the TIC has decided that these repairs should be completed as soon as possible and has initiated this study to formulate a plan to upgrade the system. The decision was made to receive funding from the CWCB in order to initiate a complete repair which can be deemed the most cost effective solution.

After the 2016 SEO Inspection, the SEO is requiring the TIC to make all three outlet valves fully operable to meet the emergency drawdown requirements. If this is done, Mountain Home Reservoir will be allowed to be filled to the full design storage capacity.

6.2 Hydraulic Analysis of Outlet Works

The SEO requires that the reservoir be capable of draining 5-feet of water storage in fewer than 5-days. This drawdown requirement is to ensure the safety of the dam and prevent total failure during an emergency situation. Mountain Home Reservoir was evaluated to determine its capability of meeting the SEO draw-down requirements. Appendix F shows the results of the reservoir drawdown evaluation.

It was determined that the three existing 30-inch diameter knife gate valves are capable of achieving the required draw-down of 5-feet in only 3.7 days if fully opened while only two operable gates require a draw-down time of about 5.5 days. The smallest valve diameter which allows enough flow to meet the draw-down requirements was determined to be 16-inches. Therefore two 30-inch valves in combination with a single 16-inch valve would provide outlet flows sufficient for the draw-down requirements. It is also possible to use a single 30-inch valve in combination with a single 48-inch valve harnessing the flow from two existing 30-inch pipes.

7.0 SITE INVESTIGATION

The project site was visually inspected by L. Clint Brown on March 13, 2017. Further evaluation was made by reviewing previously completed site plans and current aerial photographs of the site and vicinity. Figure 1.1 shows a vicinity map with the location of Mountain Home Reservoir. Figure 1.2 shows access to the site. Figure 1.3 is an aerial photograph of Mountain Home Dam. Photos taken during the site visit are included in Appendix G.

7.1 Outlet Conduit Inspection

The outlet conduit tunnel was inspected during the March 13, 2017 site visit. Overall the tunnel structure was in generally good condition, considering the age of the structure. There was algae growth due to the consistent flows coming from the leaking outlet gates. The 2015 SEO Inspection Report noted calcite precipitate on the crown of the tunnel, indicating historical seepage, but no seepage was observed during the inspection.

Immediately downstream of the gates, at the entrance of the tunnel conduit, the stone and Portland cement walls are deteriorating and in need of repair due to years of impact from outlet flows. Steel aprons were installed in an effort to cover the deteriorating walls, but are now deteriorating themselves and also in need of repair. The concrete floor is in need of repair as well. The concrete encasement around the outlet gates is in generally good condition, but would need to be replaced in the event of repairing or replacing the outlet gates.

7.2 Outlet Gates Inspection

The outlet gates were inspected during the March 13, 2017 site visit. The two outer conduits were experiencing significant leakage and are essentially incapable of preventing or limiting flows. The center conduit is considered inoperable and experiences minor leakage. The 2016 SEO report confirms this state of the outlet gates and notes that only the right (looking downstream) gate is considered operable.

The outlet gates were installed in the original 1908 construction of the dam and have not been upgraded since. All three gates are encased in concrete and the encasement would need to be demolished for the gates to be removed or repaired.

7.3 Outlet Tower Inspection

The outlet tower was visually inspected during the March 13, 2017 site visit. No significant cracks or seepage was observed. It appears the lower portion of the tower has been lined with a grout sealant to prevent seepage. Mineral deposits indicate historical seepage, though no seepage was observed during the site visit.

7.4 Intake Structure Dive Inspection

On September 1, 2015, a dive team performed an inspection of the outlet intake structure. Although visibility was very poor, no major structural damage was found in the intake structure. The concrete was noted as being very old and typical of concrete of that age, but that there were no notable cracks, spalling, or major sections of exposed aggregate.

The trashrack was deteriorated and in need of repair during the inspection. To provide better access to the outlet, the dive team cut and removed a small section of the trashrack. In its current condition, the trashrack is in need of replacement, regardless of the alternative chosen.

8.0 ALTERNATIVE ANALYSIS

Based on our meeting with the TIC board on October 4, 2016 below are three alternatives for addressing the current conditions of the outlet works in Mountain Home Dam:

1. Perform minor repairs to continue using the existing valves (do nothing alternative)
2. Replace the three existing valves with two or three mechanically controlled valves
3. Replace the three existing valves with two or three hydraulically operated valves

Other combinations of valve sizes and valve types were evaluated, but were not presented herein as viable alternatives. Following is a summary of our assessment of each alternative for providing operable outlet control valves for the Mountain Home Reservoir Dam.

8.1 Alternative 1: Perform Minor Repairs to Existing Valves

This alternative consists of making minor repairs to all three existing gate valves. Repairing the existing valves includes lubrication of valves stems and stem nuts, replacements of valve seats, replacement of stem packing or packing gland bolts, and lining the existing concrete outlet tunnel as needed.

This alternative addresses the poor operating condition of the existing knife gate valves as well as the leakage issues associated with each gate valve. However, these repairs are not guaranteed to return the valves to completely operable conditions, and more significant repairs may be warranted beyond the scope of this alternative.

Due to the age of the existing valves, replacement parts may be difficult or expensive to obtain and more meticulous maintenance may be required. If the minor repairs fail to address all issues outlined by the State Engineers Office (SEO), major restrictions on the reservoir storage and release rates could result due to the inability to properly drain the reservoir in the event of an emergency.

This alternative is not considered to be a viable long-term alternative for properly maintaining this dam.

8.2 Alternative 2: Replace Existing Valves with Mechanically Operated Valves

This alternative includes the removal and replacement of the three existing gate valves with mechanical actuators in addition to concrete repairs that may be needed within the lower level of the outlet works.

8.2.1 *Alternative 2.1: Two 30" Valves and One 16" Valve with Pipe Reducer*

Alterative 2.1 shows the option of replacing the existing left and right gate valves with new 30" gate valves, and replacing the existing center gate valve with a 16" gate valve. Having three valves allows for more precise release rates, and therefore better reservoir storage control.

This alternative addresses all issues with the existing valves and extends the life of the lower level outlet structure by replacing or repairing any damaged concrete.

8.2.2 *Alternative 2.2: One 30" Valve and One 48" Valve with Pipe Reducer*

Alternative 2.2 includes the replacement of the left (looking downstream) gate valve with a new 30" gate valve, and combining the other two 30" pipes to connect with a new 48" gate valve. Reducing the number of valves to only two reduces the amount of annual maintenance, decreases the amount of effort, and reduces the time required to fully open the outlet pipes.

This alternative addresses all issues with the existing valves and extends the life of the lower level outlet structure by replacing or repairing any damaged concrete.

8.3 Alternative 3: Replace Existing Valves with Hydraulically Operated Valves

This alternative consists of replacing the existing gate valves with new but similar gate valves, making repairs to the existing concrete within the outlet tunnel, and installing a hydraulic operation system with hydraulic actuators for each valve. The use of hydraulically operated gate valves would significantly decrease the time required to open the valves in the event of an emergency, increasing the overall safety of the dam. Hydraulic valve operation would also significantly reduce the effort required for gate operation on a normal basis.

This alternative addresses all issues with the existing valves, extends the life of the lower level outlet structure, and reduces the time and effort for valve operations.

9.0 ESTIMATE OF CONSTRUCTION COST

An estimate of construction cost was prepared for each alternative. The costs have been determined by determining the scope of work expected, determining the quantities of work associated with each alternative, and determining the expected unit cost of each item of work. The costs associated with each item of work expected have been determined generally in two ways: one being estimating the labor and material costs, and the second method by obtaining costs from contractors that have expertise with work proposed. Table 9.1 below shows a summary of the three alternatives evaluated. Tables 9.2 through 9.5 include a breakdown of each alternative and its required construction items.

Table 9.1 Summary of Construction Alternative Cost Estimates

Item	Alternative 1 Minor Repairs to Existing	Alternative 2.1 (1) 16" & (2) 30" gates, Mechanical Actuator	Alternative 2.2 (1) 30" & (1) 48" gate, Mechanical Actuator	Alternative 3 (1) 16" & (2) 30" gates, Hydraulic Actuator
1. Construction	$280,829.00	$788,620.00	$771,620.00	$984,707.00
2. Contingency	$42,124.35	$118,293.00	$115,743.00	$147,706.05
3. Engineering Design	$70,000.00	$70,000.00	$70,000.00	$70,000.00
4. Engineering Construct.	$80,000.00	$80,000.00	$80,000.00	$80,000.00
5. Total Project Cost	**$472,953.35**	**$1,056,913.00**	**$1,037,363.00**	**$1,282,413.05**

Table 9.2: Alternative 1 – Minor Repairs to Existing

Item No.	Description	Qty	Unit	Unit Price	Amount
1	Mobilization, Insurance, Bonds	1	LS	$100,000.00	$100,000.00
2	Dewatering/Water Control				
	Install/Remove Temporary Bulkheads	1	LS	$83,403.00	$83,403.00
					$83,403.00
3	Outlet Gates				
	Lubricate Valve Stem & Stem Nut	3	EA	$1,500.00	$4,500.00
	Replace Valve Seat	3	EA	$2,500.00	$7,500.00
	Replace Stem Packing	3	EA	$2,500.00	$7,500.00
	Replace Packing Gland Bolts	3	EA	$1,500.00	$4,500.00
	New Concrete Lining (8" thick)	471	SQ FT	$61.00	$28,731.00
					$52,731.00
4	Outlet Structure				
	Trash Rack (replace)	1	EA	$44,695.00	$44,695.00
					$44,695.00
CONSTRUCTION COST					$280,829.00
CONTINGENCY (15%)					$42,124.35
ENGINEERING DESIGN					$70,000.00
ENGINEERING CONSTRUCTION MANAGEMENT					$80,000.00
TOTAL COST					**$472,953.35**

Table 9.3: Alternative 2.1 – One 16" Gate & Two 30" Gates (Mechanical)

Item No.	Description	Qty	Unit	Unit Price	Amount
1	Mobilization, Insurance, Bonds	1	LS	$157,454.00	$157,454.00
2	Dewatering/Water Control				
	Install/Remove Temporary Bulkheads	1	LS	$83,403.00	$83,403.00
					$83,403.00
3	Outlet Gates				
	Demo Existing Gate Valves	1	LS	$22,272.00	$22,272.00
	Concrete Removal	1	LS	$31,661.00	$31,661.00
	30" Knife Gate (bonneted)	2	EA	$70,000.00	$140,000.00
	16" Knife Gate (bonneted)	1	EA	$47,000.00	$47,000.00
	New Gate Stems	1	LS	$20,000.00	$20,000.00
	New Gate Valve Installation	1	LS	$160,337.00	$160,337.00
	New Concrete Structure	25	CU YD	$455.00	$11,375.00
	Ecodur Tower Lining (Lower 30 feet)	1	LS	$26,913.00	$26,913.00
	Test/Inspect Installed Valves	1	LS	$26,000.00	$26,000.00
					$485,558.00
4	Outlet Structure				
	Trash Rack (replace)	1	EA	$44,695.00	$44,695.00
					$44,695.00
5	Valve House				
	Remove/Replace Gate House	1	LS	$17,510.00	$17,510.00
					$17,510.00
CONSTRUCTION COST					$788,620.00
CONTINGENCY (15%)					$118,293.00
ENGINEERING DESIGN					$70,000.00
ENGINEERING CONSTRUCTION MANAGEMENT					$80,000.00
TOTAL COST					**$1,056,913.00**

Table 9.4: Alternative 2.2 – One 48" Gate & One 30" Gate (Mechanical)

Item No.	Description	Qty	Unit	Unit Price	Amount
1	Mobilization, Insurance, Bonds	1	LS	$157,454.00	$157,454.00
2	Dewatering/Water Control				
	Install/Remove Temporary Bulkheads	1	LS	$83,403.00	$83,403.00
					$83,403.00
3	Outlet Gates				
	Demo Existing Gate Valves	1	LS	$22,272.00	$22,272.00
	Concrete Removal	1	LS	$31,661.00	$31,661.00
	30" Knife Gate (bonneted)	1	EA	$70,000.00	$70,000.00
	48" Knife Gate (bonneted)	1	EA	$100,000.00	$100,000.00
	New Stems	1	LS	$20,000.00	$20,000.00
	New Gate Valve Installation	1	LS	$160,337.00	$160,337.00
	New Concrete Structure	25	C.Y.	$455.00	$11,375.00
	Ecodur Tower Lining (Lower 30 feet)	1	LS	$26,913.00	$26,913.00
	Test/Inspect Installed Valves	1	LS	$26,000.00	$26,000.00
					$468,558.00
4	Outlet Structure				
	Trash Rack (replace)	1	EA	$44,695.00	$44,695.00
					$44,695.00
5	Valve House				
	Remove/Replace Valve House	1	LS	$17,510.00	$17,510.00
					$17,510.00
CONSTRUCTION COST					$771,620.00
CONTINGENCY (15%)					$115,743.00
ENGINEERING DESIGN					$70,000.00
ENGINEERING CONSTRUCTION MANAGEMENT					$80,000.00
TOTAL COST					**$1,037,363.00**

Table 9.5: Alternative 3 – One 16" Gate & Two 30" Gates (Hydraulic)

Item No.	Description	Qty	Unit	Unit Price	Amount
1	Mobilization, Insurance, Bonds	1	LS	$157,454.00	$157,454.00
2	Dewatering/Water Control				
	Install/Remove Temporary Bulkheads	1	LS	$83,403.00	$83,403.00
					$83,403.00
3	Outlet Gates				
	Demo Existing Gate Valves	1	LS	$22,272.00	$22,272.00
	Concrete Removal	1	LS	$31,661.00	$31,661.00
	30" Knife Gate (bonneted)	2	EA	$70,000.00	$140,000.00
	16" Knife Gate (bonneted)	1	EA	$47,000.00	$47,000.00
	New Gate Valve Installation	1	LS	$160,337.00	$160,337.00
	New Concrete Structure	25	C.Y.	$455.00	$11,375.00
	Ecodur Tower Lining (Lower 30 feet)	1	LS	$20,000.00	$20,000.00
	Hydraulic Actuator	3	EA	$16,000.00	$48,000.00
	Hydraulic System	1	EA	$175,000.00	$175,000.00
	Test/Inspect Installed Valves	1	LS	$26,000.00	$26,000.00
					$681,645.00
4	Outlet Structure				
	Trash Rack (replace)	1	EA	$44,695.00	$44,695.00
					$44,695.00
5	Valve House				
	Remove/Replace Valve House	1	LS	$17,510.00	$17,510.00
					$17,510.00
CONSTRUCTION COST					$984,707.00
CONTINGENCY (15%)					$147,706.05
ENGINEERING DESIGN					$70,000.00
ENGINEERING CONSTRUCTION MANAGEMENT					$80,000.00
TOTAL COST					**$1,282,413.05**

10.0 THE SELECTED PROJECT

The TIC has chosen Alternative 2.1, which is to replace the three existing 30-inch gates with two 30-inch gates and a 16-inch gate. All three of the new gates are to be mechanically operated. (Refer to Appendix H for Preliminary Drawings) This alternative is not the lowest cost alternative, but is an alternative that adequately repairs the outlet gates, tunnel, and tower and removes the long term maintenance associated with hydraulically operated gates. Alternative 1, the "Do Nothing" alternative is a lower cost alternative, but would most likely result in a greater long term cost with future rehabilitation required to maintain the outlet works. Alternative 2.2 is very similar to the chosen alternative, and is a lower cost alternative, but the combination of a 48-inch gate with a 30-inch gate makes controlled release of lower outlet flows much more difficult. The chosen alternative with a 16-inch gate allows for more control over lower flows. Alternative 3 is a higher cost alternative, and allows for a decrease in the time required to open the valves in the event of an emergency, increasing the safety of the dam, but requires more long-term maintenance and is susceptible to leakage in the hydraulic lines, resulting in less reliable gates and potential contamination of discharged water.

Based on the estimated cost for Alternative 2.1, the following financial plan has been developed based on the expected loan from the CWCB. The TIC has applied for a grant for both basin and statewide funds from the CWCB Water Supply Reserve Account in the amount of $662,438, at a ratio of 90% statewide funds and 10% basin funds.

The TIC plans to apply for a loan from the CWCB Construction Fund. The loan amount requested from the CWCB will be for $300,000.

11.0 FINANCIAL PLAN

The TIC has chosen Alternative 2.1 for a total estimated cost of $1,056,913. The TIC plans to apply for a $300,000 loan from the CWCB. The loan amount requested would be at an interest rate of 1.65% with a 30 year loan period.

Revenue for operations and payment of loans is derived from assessment. Assessments are presented to stockholders and approved at the annual stockholders meeting on second Tuesday of March each year. The 2018 assessment has been set at $24.00 per share for 12,396 shares. From 2011 through 2017 the assessments were at $23.00 per share for 12,396 shares. Prior to 2011 the assessments were at $22.00 per share for 12,396 shares.

For the loan requested in this application, the assessments will be required to be increased by approximately $2.84 per share to cover the additional loan and construction interest payments.

The fund requirements for Grant Payments, CWCB, and the TIC through the end of construction of the project are shown in Table 11.1.

Table 11.1 Fund Requirement Schedule

Year	Total Funds Required	Trinchera Blanca/Moore Charitable Foundation Grants	WSRA Grant	CWCB Loan	Trinchera Irrigation Company
2018	$ 956,913	$ 35,000	$ 600,000	$ 300,000	$ 21,913
2019	$ 100,000	$ 0	$ 62,438	$ 0	$ 37,562

The funds shown in Table 11.1 required for 2018 include the engineering costs for design and construction and the construction costs for the outlet rehabilitation. For 2019, the funds required include engineering construction costs and the remaining amount to complete the outlet conduit construction work.

The following table is a summary of the company's income and expenses based on their financial statements from 2015, 2016, and 2017 which are included in Appendix B.

Table 11.2 Summary of Income and Expenses

	2017	2016	2015
Current Assets	$ 147,913	$ 131,589	$ 161,367
Total Assets	$ 4,085,655	$ 4,067,031	$ 4,096,809
Current Liabilities	$ 106,976	$ 67,571	$ 76,466
Long term Liabilities	$ 872,722	$ 912,844	$ 952,975
Total Liabilities	$ 979,698	$ 980,415	$ 1,029,441
Total Income	$ 315,663	$ 303,766	$ 311,945
Total Expenses	$ 296,293	$ 284,518	$ 273,253
Net Income	$ 19,370	$ 19,248	$ 38,692

The financial condition of the company is solid at the present time. The company has no other obligations other than those listed in the financial statement found in Appendix B. The TIC has three previous loans from the CWCB. The first is for a previous Mountain Home Reservoir rehabilitation in 1993 and has a remaining balance of $274,235.86. The yearly payment is $18,622.92 and the maturity date is 2035. The second loan is for repairs to Smith Reservoir in 2010 and has a remaining balance of $388,423.74. The yearly payment is $29,926.26 and the maturity date is 2034. The third loan is for repairs to Garland #2 Canal in 2011 and has a remaining balance of $210,061.79. The yearly payment is $12,434.65 and the maturity date is 2041. The loans are not delinquent.

Table 11.3 below shows the debt service requirements for the TIC. The payments shown in Table 11.3 include three current loans from the CWCB and the new loan application.

Table 11.3 Debt Services

Year	PMT #				Total Debt Payments
	153607	150303	150316	NEW	
2018	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2019	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2020	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2021	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2022	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2023	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2024	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2025	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2026	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2027	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2028	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2029	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2030	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2031	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2032	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2033	$18,622.92	$29,926.26	$12,434.65	$12,758.99	$73,742.82
2034	$18,622.92	$7,486.69	$12,434.65	$12,758.99	$51,303.25
2035	$18,622.92		$12,434.65	$12,758.99	$43,816.56
2036			$12,434.65	$12,758.99	$25,193.64
2037			$12,434.65	$12,758.99	$25,193.64
2038			$12,434.65	$12,758.99	$25,193.64
2039			$12,434.65	$12,758.99	$25,193.64
2040			$12,434.65	$12,758.99	$25,193.64
2041			$12,434.65	$12,758.99	$25,193.64
2042				$12,758.99	$12,758.99
2043				$12,758.99	$12,758.99
2044				$12,758.99	$12,758.99
2045				$12,758.99	$12,758.99
2046				$12,758.99	$12,758.99
2047				$12,758.99	$12,758.99
2048				$12,758.99	$12,758.99

During an average year the TIC diverts an average yield of 9,000 acre-ft of water. Per the 1975 SCS study, the safe yield was determined to be approximately 2,400 acre-ft of water. The total project cost per acre-foot of water used is approximately as follows:

For Average Yield: $117.43
For Safe Yield: $440.38

12.0 OPINION OF FEASIBILITY

The selected alternative is technically and financially feasible. There are no significant roadblocks which would keep the TIC from successfully completing the project.

The benefit to cost ratio is greater than 1.0 and the cost per acre-foot of water is also favorable. The following summary provides a breakdown of the unit costs and benefit to cost ratio.

The anticipated annual loan payment was calculated per CWCB's loan calculator for a 30-year, $300,000 loan with a 1.65% interest rate.

The following is a cost to benefit analysis of the project.

12.1 Total Project Cost including Interest

$12,758.99 x 30 years = $382,770

12.2 Total Cost per Share

$1,056,913 ÷ 12,396 shares = $85.26

12.3 Cost per Share per Year

$85.26 ÷ 30 years = $2.84

12.4 Cost per Acre-Foot of Average Yield

$1,056,913 ÷ 30 years ÷ 9,000 acre-ft = $3.91

12.5 Cost per Acre-Foot of Safe Yield

$1,056,913 ÷ 30 years ÷ 2,400 acre-ft = $14.68

12.6 Benefit/Cost

The current value of the water is expected to be in the range of $1,000 per acre-foot based on information from the TIC President Tracy Kester. Over the 30 year life of the loan, the value would be expected to be much higher than the current value of the water. Using the average yield of 9,000 acre-foot per year rather than storage capability, the benefit to cost ratio would be as follows.

Benefit/Cost = [$1,000 x $9,000] ÷ $1,056,913 = 8.5

13.0 IMPLEMENTATION SCHEDULE

The following schedule is proposed for implementation of the project:

Task		Target Completion Date
1.	Feasibility Study Approval by CWCB	3/21/18
2.	CWCB Contracts Finalized	6/1/18
3.	Begin Design	10/1/17
4.	Design Completed	3/1/18
5.	Design documents submitted to SEO	3/15/18
6.	Design approval by SEO	5/1/18
7.	Project out for Bid	5/1/18
8.	Bids due – contract awarded	6/1/18
9.	Start Construction	9/15/18
10.	Intake Structure Plugged	9/15/18
11.	Outlet Rehabilitation Completed	1/1/19
12.	SEO Approval for refilling	2/1/19

14.0 SOCIAL, ECONOMIC, AND PHYSICAL IMPACTS

14.1 SOCIAL IMPACTS

Mountain Home Reservoir is part of a 715 acre Colorado State Wildlife Area. A 653 acre foot conservation pool provides a year-round sport fishery, regularly stocked by Colorado Parks and Wildlife (CPW) with rainbow trout, brook trout cutthroat trout and northern pike. The reservoir is not to be drained during construction, and construction will not take place when outflows for irrigation are required. By maintaining the reservoir elevation, the project will not have negative long-term social impacts.

14.2 ECONOMIC IMPACTS

Mountain Home Reservoir provides an average of over 9,000 acre-ft of irrigation water per season to farmers and ranchers in norther Costilla County, plus an average of 851 acre-ft for the Trujillo fields at the Blanca Trinchera Ranch. By maintaining historical seasonal levels and flow patterns and by preserving the CPW conservation pool, the TIC maintains stockholder value and continues deliveries to its stakeholders without interruption.

The project will avoid the negative economic effects which would accompany emptying the reservoir, providing the TIC with positive economic gains by restoring the full designed function of the dam. Emptying the reservoir would cause an increase in pumping, further depleting the aquifer, significantly increasing costs to farmers and ranchers, and would increase the water management problems.

In the average year, Mountain Home Reservoir delivers irrigation water for approximately three months and impounds water for the remaining nine months. Depending on the storage level in

the reservoir, the gate leakage has resulted in an average loss of 170 acre-ft per month or 1,190 acre-ft per year. Estimating the cost of water in the region at $1,000 per acre-ft, this amounts to a loss of $1,190,000 per year in water or nearly $12 Million over the last decade.

This project has a positive long-term economic impact by mitigating these losses and restoring the reservoir to its design capacity.

14.3 PHYSICAL IMPACTS

The project will have no significant physical impacts with the exception of construction equipment in the immediate vicinity of the project site. These impacts will be minor in nature. Access roads to the project site have been used for maintenance and construction purposes in the past and are capable of handling construction traffic to and from the site. All changes will be internal to the outlet tower and not be visible during construction. There is no significant change in layout of the outlet tower or outlet works.

15.0 PERMITTING

The location of the construction to be performed lies in property owned by the TIC. No local construction permits or easements are expected to be required for this rehabilitation.

The company and the Engineer believe no Environmental Assessment (EA) or Environmental Impact Statement (EIS) will be required. The Corps of Engineers – Department of the Army (DA) will be notified of the scope of work but we believe the work will not fall within their jurisdiction.

16.0 COLLATERAL

The TIC has the following collateral it can offer for the CWCB loan, in this order of preference:

1. The revenue from assessments as allowed by the Company By-Laws and Articles of Incorporation.
2. The physical structure including the dam and appurtenant structures.
3. Company assets including equipment, land, and buildings.

17.0 INSTITUTIONAL CONSIDERATION

The TIC has applied to borrow $300,000 from the Colorado Water Conservation Board Construction Fund. The loan from the CWCB is contingent upon CWCB approval, and the successful negotiation of a contract between the CWCB and the TIC. The company has applied for and received approval for a grant of $662,438 through the **CWCB Water Supply Reserve Account.** The TIC has also received $35,000 in Grants from the Louis Bacon-Moore Charitable Foundation and Trinchera-Blanca Foundation to assist in covering the costs associated with maintaining the reservoir elevation throughout construction.

Respectfully Submitted,
Engineering Analytics, Inc.

L. Clint Brown, P.E.
Project Engineer

APPENDIX A
Trinchera Irrigation Company
Articles & By-Laws

BY-LAWS OF THE TRINCHERA IRRIGATION COMPANY.

ARTICLE I.
Board of Directors.

Section 1--Election--As specified in the Articles of Incorporation of this company, the Board of Directors consists of five members, each of whom shall be a stockholder of the Company. The members of the board shall be elected by the stockholders at their annual meeting each year, and shall hold their respective offices, as directors, for a term of one year, or until their successors shall have been elected and qualified.

Section 2--Vacancies--Any and all vacancies in the office of director shall be filled by a majority vote of the remaining directors, at any regular or special meeting thereof. A vacancy shall exist when a director dies, resigns, is judicially declared a lunatic, or ceases to be a stockholder of the company.

Section 3--Duties and Powers--The Board of Directors shall exercise general supervision of the affairs of the company; shall elect, appoint, or designate, and may remove all officers, agents, attorneys and employees; shall receive and pass upon reports of the secretary and treasurer; and shall approve or reject all bills and accounts against the company; shall let all contracts for work authorized by the company; shall prepare proper reports, audits and recommendations for submission to the annual meetings of the stockholders, including a proposed budget of expenses for each ensuing year.

Section 4--Quorum--A majority of all the members of the Board of Directors shall constitute a quorum for the purpose of transacting any and all business of the board. Any number of directors less than a quorum shall have power and authority to adjourn any meeting of the board, from time to time, until a quorum shall be present.

Section 5--Regular meetings--A regular meeting of the Board of Directors shall be held at 10 o'clock, A. M., on the first Tuesday of each month, at the office of the company in Blanca, Costilla County, Colorado; provided: that the Board of Directors may, in its discretion, in the event the first Tuesday of any month shall be a holiday, meet on said day, or on the next succeeding day at the same hour and place.

Section 6--Special meetings--A special meeting of the Board of Directors may be held at such time and place as may be determined by the Board, at any regular meeting thereof, or upon call of the president. In the event not less than two members of the Board of Directors shall request him to do so, it shall be the duty of the president to call a special meeting of the board, and in the call therefor, he shall state the general objects and purposes of such meeting.

Section 7--Notice of Meetings--No notice of any regular meeting of the Board shall be required.

Notice of special meetings shall be in writing signed by the president and secretary, and shall be served personally upon or mailed to each director not less than 48 hours prior to the hour of such meeting.

Section 8--Waiver of Notice--Notice of any meeting of the Board of Directors, of which meeting notice is required hereby, or by the statutes of the State of Colorado, to be given, may be waived, by

(a) The presence of a director at such meeting.

(b) The signature of a director to a written waiver thereof.

(c) A ratification of the proceedings at such meeting, indicated by a director's signature to the record of such pro-

ceedings; and in the event of a waiver by any director of notice of such meeting, by any of the means herein specified, the proceedings at such meeting shall be deemed to be regular, proper, and legal, in like manner and with like effect as though any notice required hereby or by the Articles of Incorporation of the company should have been given.

ARTICLE II.
Officers.

The officers of the company shall consist of a president, vice president, secretary, and treasurer; and at the option of the board, evidenced by its resolution, an assistant secretary. Upon resolution of the Board of Directors the offices of secretary and treasurer may be combined and held by one individual. All of said officers shall be members of the Board of Directors, except the secretary or the assistant secretary, who may or may not be a director. Said officers shall be elected by the Board of Directors annually at a meeting of said board held immediately upon the adjournment of the annual stockholders meeting. All officers shall hold their respective offices until their successors shall have been elected and qualified, and shall have entered upon the duties of their respective offices.

ARTICLE III.
Duties of Officers.

Section 1--President--The president shall be the chief executive officer of the company. He shall have power and authority and it shall be his duty, among other things, to preside at all meetings of the Board of Directors and of the stockholders, to sign all bonds, notes, debentures, or other evidences of indebtedness, all certificates of stock, all deeds, agreements, and other instruments of writing of the company, all checks, drafts, and other instruments disbursing the funds of the company;

and, in general, to perform all of the acts, and to do all things ordinarily incidental to such office. Before entering upon the duties of his office, the President shall give bond signed by a surety company in the sum of not less than $3000.00 conditioned for the faithful performance by him of the duties of his office, the premium to be paid by the Company.

Section 2--Vice President--The vice president shall have power and authority, and it shall be his duty to perform all of the functions of the office of president, in the event of the latter's absence, or his inability or refusal to act.

Section 3--Secretary--The secretary shall have power and authority, and it shall be his duty, as follows:

To prepare any and all notices required by these by-laws or by the statutes of the State of Colorado, of all meetings of the stockholders, and of all special meetings of the Board of Directors; to prepare and keep an accurate and correct record of the proceedings at all regular and special meetings of the stockholders and of the Board of Directors, the correctness of which proceedings shall be certified by him by his signature appended to the record of each of such meetings; to keep such books of record for the business of the company as may be required by the Board of Directors; to countersign and register all certificates of stock of the company, and to keep and preserve a correct and accurate stock ledger, according to the provisions of the statutes of the State of Colorado; to attest any and all documents and instruments of writing of the company requiring the signature of the president, and to attach thereto the corporate seal of the company; to receive all moneys due the company, to give receipts therefor, to keep and preserve an accurate record of such moneys, and to pay the same over to the treasurer on or

before the last day of each month during which such moneys are received to him.

Section 4--Assistant Secretary--In the event the Board of Directors shall be resolution so provide, an assistant secretary may be designated, and any of the powers and duties hereinbefore prescribed for the secretary may be delegated to such assistant secretary; provided:

That power and authority shall not be vested in the assistant secretary to sign or attest certificates of stock, or other instruments of writing which require the signature of the president and the seal of the company.

Section 5--Treasurer--The treasurer shall receive from the secretary all funds of the company, and shall give the secretary his receipt therefor. He shall make all disbursements from the funds of the company authorized by the board of directors by check, draft, or voucher, signed by the president, and countersigned by him; and he shall keep an accurate and complete record, in form to be prescribed by the board of directors, of all moneys of the company received and paid out by him. Before entering upon the duties of his office he shall give bond, signed by a Surety Company, in the sum of not less than Three Thousand Dollars, conditioned upon the faithful performance of his duties as treasurer, and his accounting for all funds of the company coming into his hands, the premium to be paid by the company. He shall present a complete and detailed financial statement at each stockholders meeting, which financial statement shall incorporate and include an operating statement for the immediately preceding fiscal year. At each regular meeting of the Board of Directors he shall submit a report of receipts and disbursements for the preceding month, and of cash on hand on the date of such meeting.

In the performance of his duties the treasurer may employ such clerical and accounting assistance as the Board of Directors by resolution may provide; provided:

That the bond of the treasurer shall remain liable for defalcations on the part of any assistant so employed by him.

ARTICLE IV.
Stockholders.

Section 1--Annual Meetings--An annual meeting of the stockholders shall be held on the third Tuesday in January of 1945, and on the third Tuesday in January of each year thereafter, at the office of the company in Blanca, Costilla County, Colorado; Provided: That, if the third Tuesday in January of any year hereafter shall fall upon a holiday, said meeting shall be held upon the next succeeding day. If any notice of any stockholders meeting shall state that such meeting is to be held on the third Tuesday in January, and said day shall be a holiday, such notice shall not, for said reason, be held to be defective or ineffective, but shall constitute complete and legal notice of such meeting to be held on the next succeeding day.

Section 2--Special Meetings--A special meeting of the stockholders may be called by the Board of Directors by a resolution which shall specify the business to be transacted at such special meeting, and the time and place of holding the same. In the event the owners of one-third or more of all the issued and outstanding capital stock of the company shall make demand in writing therefor, the Board of Directors shall call a special meeting of the stockholders at a time and place and for the purposes specified in such demand. In the event of the refusal of the Board of Directors to call such special meeting, upon demand of such stockholders, the same may be called and held upon the notice herein provided for, signed by any three

stockholders of the company, owning in the aggregate not less than Five Hundred shares of the capital stock thereof.

Section 3—Notice of Meetings—Notice of all annual or special meetings of the stockholders shall be given in the manner provided by the statutes of the State of Colorado prevailing at the time such notice is given. Notices of annual meetings of the stockholders need not state or specify the objects and purposes thereof or the business to be transacted. Notices of special meetings shall briefly state the objects and purposes thereof and the business to be transacted thereat; and only such business shall be considered and transacted as shall be within the scope of the objects and purposes set forth in the notices thereof.

Section 4--Quorum--A majority in number of shares of all issued and outstanding capital stock of the company shall constitute a quorum for the transaction of any and all business of the company, save only in case the affirmative or negative vote of more than fifty per cent of such outstanding capital stock shall be required upon any proposition before such stockholders meeting, in which event the percentage of such outstanding capital stock as shall be required by the statutes of the State of Colorado upon any affirmative or negative vote shall constitute a quorum. All outstanding capital stock, at any regular or special meeting of the stockholders, may be represented at such meetings in person or by proxy, and if so represented, shall be considered present for the purpose of creating a quorum. Less than a quorum of outstanding capital stock shall have power to adjourn any annual or special meeting of the stockholders to a later date, to be specified in such adjournment; and in such event, no additional notice of such adjourned meeting need be given.

Section 5—Voting—

(a) Each stockholder shall be entitled to one vote for each share of stock held by him, which vote may be cast either by such stockholder or by a proxy duly appointed and authorized by him so to do. No stockholder or proxy for such stockholder shall be eligible to vote at any annual or special meeting of the stockholders unless all assessments then and theretofore due upon stock shall have been paid in full.

(b) All proxies must be in writing, shall be signed by the owner of the stock giving such proxies, and the same must be filed with the secretary before they shall be permitted to vote.

(c) Election of directors and all other votes taken at any annual or special stockholders meeting, shall be by ballot; provided:

That by the unanimous vote of the stockholders present or represented by proxy at such meetings, this requirement may be waived and the secretary of the meeting may be authorized and instructed to cast one ballot for one or more or all of the directors to be elected, or to cast one ballot for or against any motion or proposal to be voted upon at such meeting.

ARTICLE V.
Stock.

Section 1--Stock Certificates--Each stockholder of the company shall receive a certificate or certificates for the number of shares of capital stock to which he may be entitled. All such certificates shall be signed by the president and secretary, shall bear the seal of the company, and shall be numbered and registered in the order in which they are issued.

Section 2—Transfer of Stock--Shares of stock shall be transferable only upon the books of the company, and upon the

assignment of certificate, or a written request for transfer by the owner or holder thereof, personally, or by agent or attorneys, and upon the signature of the certificates to be transferred properly endorsed or assigned; and no transfer of stock shall be made until and unless all assessments, interest, and charges due thereon shall have been paid.

Section 3--Sale of Stock--No capital stock of the company shall be sold or issued, save only in strict compliance with the provisions of the Articles of Incorporation of the company relating thereto.

Section 4--Cancellation of Certificates--All transferred or surrendered certificates of stock shall be cancelled and preserved by the secretary.

Section 5--Lost Certificates--In the event of loss of certificate, none shall be issued to replace the same except by resolution of the Board of Directors, which resolution shall require an affidavit or affidavits of such loss to be filed, stating the facts and circumstances thereof, and shall require such surety and indemnity against loss, cost or damage to the company by reason of the loss of such certificate and the issuance of a substitute certificate, as may be prescribed by the Board of Directors.

ARTICLE VI.
Assessments on Stock.

Section 1--Levy--At each annual meeting of the stockholders of the company there shall be levied a pro rata assessment upon each share of the outstanding capital stock of the company, the aggregate of which assessments shall be sufficient to pay all estimated and anticipated operating and maintenance expenses, and interest upon and principal of indebtedness for the year in which such assessment is levied. Each share of the

capital stock of the company shall be subject to the payment of such pro rata assessments as may be so levied, and the company shall have a first and prior lien upon each share of such stock for such pro rata assessment until the same, together with all interest and other charges connected therewith shall have been paid in full. In the event any annual meeting of the stockholders shall fail to levy such assessment by the first day of March in any year the Board of Directors shall have full power and authority to make such assessment at any regular or special meeting of said board, called for that purpose, and any levy so make by the Board of Directors shall be as effective for all purposes as though made by the stockholders, and shall be subject to all of the provisions of these by-laws relating to assessments made by the stockholders.

Section 2--Payment of Assessments--All assessments upon the capital stock of the company, levied in accordance with the provisions of Section 1 of this article, shall be due and payable as an entirety or in installments at such time or times and in such amounts as shall be fixed and determined by the stockholders at their annual meeting or by the directors, in the event no such levy is made by the stockholders.

Section 3--Notice of Assessment--Within thirty days after the annual meeting of the stockholders or meeting of the Board of Directors at which any assessment provided in Section 1 of this Article is levied, the secretary shall mail a notice thereof to each stockholder at his last known post office address, stating the amount of such levy and the date or dates upon which the same shall become due, either as entirety or in installments. The secretary shall mail a notice to each stockholder at his last known post office address not less than

fifteen days prior to the due date of any such assessments or installments, stating the amount thereof, and the date upon which the same becomes due, which notice shall also include a statement of any delinquent assessments then past due from each stockholder, if any. If any assessment heretofore levied or any installment thereof be not paid when due, the same shall bear interest at the rate of six per cent per annum from the due date thereof until the same shall be paid, and such interest shall become a part and parcel of such assessment for all purposes specified herein.

Section 4--Lien for Assessments--All assessments or installments of assessments upon each share of stock of the company shall be and remain a lien upon such share from the time of the levy thereof until the same shall have been paid in full, which lien shall be prior and superior to any other lien upon such share of stock theretofore or thereafter created or coming into existence.

Section 5--Delivery of Water to Delinquents--No stockholder who shall be delinquent in the payment of his assessments or any installment thereof for any prior year shall be entitled to receive nor shall there be delivered to such stockholder any water for the year then current so long as such delinquency shall continue; provided:

That the secretary of the company shall, prior to the shutting off of the water of the delinquent stockholder, have mailed to such stockholder at his last known post office address, or shall have delivered to such stockholder personally a notice in writing and signed by the secretary, stating such delinquency, the amount due, and demanding payment thereof be made on or before a certain date, not less than thirty days from the date of the

mailing or service of said notice, and stating that, unless payment in full be made by the date specified therein, the water of said stockholder shall be shut off.

Section 6--Sale or Forfeiture--The Board of Directors may forfeit or sell the shares of stock owned by any stockholder who shall become delinquent in the payment of any assessment or assessments or of any installment or installments thereof, in the manner following, to-wit:

When any stockholder shall become delinquent in the payment of any assessment or assessments or any installment thereof as defined and provided in Section 5 of this Article, the secretary shall mail or serve the notice provided for in said Section 5 of this Article, and as therein provided. After such notice shall have been given, and the period of not less than thirty days prescribed therein shall have expired, and at any time thereafter a written notice signed by the secretary shall be mailed to such stockholder at his last known post office address, or shall be delivered to the stockholder in person, which notice shall state the date and amount of such delinquencies, shall demand payment thereof, and shall give notice that unless payment of such assessment or assessments or installments thereof, with interest thereon, shall be made on or before a certain date not less than thirty days after the date of the service or mailing of such notice, such stock shall be forfeited to, or sold by the company. If payment be not made as demanded in said notice on or before the day specified, the Board of Directors may:

(a) Declare said stock forfeited to the company, or

(b) Proceed to sell said stock in manner following: The secretary shall give notice by advertisement in a newspaper

published in Costilla County, Colorado, or if no newspaper be published in said county, then in some newspaper of general circulation in an adjacent or adjoining county (said notice to be published in two consecutive weekly issues of said newspaper), that, on the day mentioned in said published notice, said shares of stock of such delinquent stockholder will be sold at public sale to the highest bidder for cash at the office of the company, or at such other place as shall be designated in such notice, for the purpose of satisfying said assessments or installments thereof, together with interest and costs of sale.

At said time and place so specified in said notice the secretary shall offer for sale and shall sell the same for the highest and best cash price obtainable, in no event less than the amount of said assessments or assessment, or installment or installments thereof, with interest and costs of sale; and the proceeds of such sale over and above the amount due on said shares, including interest and all costs and expenses of making such sale shall be paid to the delinquent stockholder. A new certificate or certificates shall be delivered to the purchaser, and the certificate of the delinquent stockholder shall be cancelled on the books of the company. If the outstanding certicate or certificates of stock of the delinquent stockholder so forfeited or sold be not surrendered, the secretary shall mark on the stub thereof, "Cancelled," reciting thereon the fact of such forfeiture and sale, and the issuance and number or numbers of such new certificate or certificates.

Section 7--Additional Remedies--All remedies herein provided for the collection of delinquent assessments upon shares of stock of this company shall be cumulative. The exercise of

one or more of such remedies shall not prevent the Board of Directors from invoking the other or others herein provided or which are now or may hereafter be provided by law for the collection of such assessments. The failure of the Board of Directors to invoke any one or more of such remedies or the failure of the secretary to give any notice herein provided to be given shall in no event constitute or be deemed to be a waiver of the right of the Board of Directors thereafter to invoke any or all of such remedies.

ARTICLE VII.
Superintendent.

Section 1--Appointment and Removal--The Board of Directors shall select and may thereafter remove a superintendent, whose salary or compensation shall be fixed by resolution of the board. Such superintendent may or may not be a member of the Board of Directors, or a stockholder of the company.

Section 2--Powers and Duties--The superintendent shall have entire charge of the management and operation of the irrigation system of the company, acting in all things and at all times under the supervision and control of the Board of Directors. He shall give his personal attention to the business of the company, and he may not delegate any of his powers or duties to any other person without the written consent of the Board of Directors. During the irrigating season he shall keep an accurate record showing the volume of water flowing through the company's main head gate, each day, and the total amount of water stored in the company's reservoirs, once every thirty days, or oftener, if water conditions require it. He shall also keep an accurate record of water allocated to each of the lateral head gates on all of the company's main ditches and with outlets through the company's reservoirs.

ARTICLE VIII.
Distribution of Water.

Section 1--Liability of the Company--The company shall not be considered for any purpose as guaranteeing to the holders of stock the use at any or all times of the full amount of water to which they are respectively entitled; and if, in the distribution of water any stockholder may at any time fail to receive his, her, or its proportionate share, the company shall not be liable to such stockholder in damages, if such failure be caused by an error in judgment on the part of those charged with the distribution of water, by reason of the fact that sufficient water be not available to the extent that each stockholder could receive the share of water to which he is entitled, or by reason of any fact, thing, or circumstance beyond the control of such person; but the company shall only be liable in damages to such stockholder in case such failure to distribute water equally was the result of some wilful discrimination against such stockholder on the part of the Board of Directors or of those charged by the Board of Directors with the distribution of water.

Section 2--Wasting Water--No stockholder shall be permitted to waste water; and in case of any such waste, the Board of Directors shall have, and is hereby given authority to take such steps or use such measures as it deems necessary to prevent future waste and to punish such wasting of water as has theretofore occurred.

Section 3--Delivery to Lateral Head Gates--The point of distribution and delivery of water by the company to the respective stockholders shall be on the main ditch at the head gates of the respective laterals through which they receive their respective amounts of water. The superintendent shall apportion and regulate the use of water among the stockholders

by allowing to flow into each lateral head gate on the main ditches or canals such proportion of the company's water flowing therein as is needed to furnish the proper pro rata amount for the aggregate number of shares of stock of this company owned by stockholders taking water through each of such respective laterals; and neither the company nor the superintendent shall be under any obligation to see to the maintenance of any of the said laterals, or to the distribution of water through any of such laterals to the respective individual stockholders thereunder after it has left the main ditches or canals. All lateral head gates and appliances on the line of the company's main ditches or canals shall be and remain the property of the company, and shall at all times be under the absolute and exclusive control of the Board of Directors and the superintendent.

Section 4--Interference with Head Gates--No stockholder shall at any time, except by express written permission from the superintendent, unlock, open, adjust, or otherwise interfere with any such lateral head gate. All lateral head gates on the line of the company's main ditches or canals shall be put in and maintained by the company at the company's expense, and shall be and remain the property of the company.

ARTICLE IX.
Seal

The seal of the company shall consist of two concentric circles. Between the two circles shall appear the name of the company, and the word "Colo"; and within the inner circle shall appear the following: "Seal. Incorporated 1944."

ARTICLE X.
Amendments.

These by-laws may be altered, amended, revised, or repealed, or additional by-laws adopted at any regular meeting of

the Board of Directors or at any special meeting thereof called for the purpose of considering such amendments by a majority vote of all members of the board.

STATE OF COLORADO)
COUNTY OF COSTILLA) ss:

I, A. M. Weaver, Secretary of the Trinchera Irrigation Company, do hereby certify that the above and foregoing is a true, perfect and complete copy of the By-Laws of the said The Trinchera Irrigation Company, which were adopted at a meeting of the Board of Directors of said Company duly called and held on the 11th day of March, A. D. 1944.

(Signed) A. M. Weaver
Secretary

SEAL

RESOLUTION

Whereas, it appears that not enough land is now irrigated by water stored in the Smith Reservoir to use all of such water, or to make said Reservoir self-sustaining, and

Whereas, water stored in the Mountain Home Reservoir, plus water available from the direct flow rights of the Company, is sufficient only to irrigate adequately the land which is now being irrigated from and out of said Mountain Home Reservoir and by said direct flow rights, which land lies above the Smith Reservoir, and

Whereas, the total authorized capitalization of the Company was originally fixed at 15,000 shares in order to provide a surplus of stock in the treasury, over and above the number of shares which, it was then contemplated, it would be necessary to issue to irrigators who were, under the Articles of Incorporation of the Company, entitled to receive the same, which surplus, in accordance with the provisions of the interlocutory decree of the United States District Court for the District of Colorado, in a matter entitled "In the Matter of the Petition of The Trinchera Irrigation District for Composition of its Debts", amounts to 1393 shares of said capital stock, and

Whereas, it is considered to be for the best interests of the Company and of all of its stockholders that additional treasury stock now be sold for use of water below the Smith Reservoir, in such amount that the greater portion of such water shall henceforth be used and that the stockholders under the same will pay in assessments a sufficient amount to pay their proportionate share of the bonded indebtedness of the Company,

the interest thereon, and to bear their proportionate share of the expenses of the maintenance and operation of the company's system, and that such condition as is created by such sale of stock shall continue in the future, therefore:

Be it, and it is hereby resolved that the By-laws of The Trinchera Irrigation Company be, and they are hereby amended in the following particulars:

That Section 2 of Article V thereof be amended to read as follows:

> "Section 2--Transfer of Stock--Shares of stock shall be transferable only upon the books of the company, and upon the assignment of certificate, or a written request for transfer by the owner or holder thereof, personally, or by agent or attorneys, and upon the signature of the certificates to be transferred properly endorsed or assigned; and no transfer of stock shall be made until and unless all assessments, interest, and charges due thereon shall have been paid. No stock, by virtue of which water is now used upon lands lying below the Smith Reservoir, may be transferred, either by sale or by rental or use agreement, for use above said reservoir; and no stock, by virtue of which water is now used upon lands lying above the Smith Reservoir, may be transferred, by sale or by use agreement, for use below said reservoir.

And be it and it is further hereby resolved that the sale and issuance at par, of not more than 1000 shares of the capital stock of the Company be and it is hereby authorized, which stock shall be sold solely for use of water below the Smith Reservoir and subject to the By-laws of the Company including specifically the above amendment of said By-laws.

The above resolution was read to the Board. It was moved by Young, seconded by Brown that said resolution be adopted. On vote taken the motion was unanimously carried.

AMENDMENTS TO THE BY-LAWS OF THE TRINCHERA IRRIGATION COMPANY.

BY-LAWS AMENDED on March 6, 1945 at Board of Directors regular meeting:

ARTICLE V, SECTION 2

Add - No Stock, by virtue of which water is now used upon lands lying below the Smith Reservoir, may be transferred either by sale or by rental or use agreement, for use above said reservoir; and no stock, by virtue of which water is now used upon lands lying above the Smith Reservoir, may be transferred by sale or by use agreement, for use below said reservoir.

Moved by J.R. Young, seconded by E. E. Brown and carried unanimously.

BY-LAWS EMENDED, April 2, 1946 at Board of Directors regular meeting:

ARTICLE V, SECTION 3

Sale of Stock - That no stock of the Company be sold by any Board of Directors without the approval of a 2/3 majority vote of the stock present at a regular or special meeting of the stockholders.

Moved by Guy Winner, seconded by E. E. Brown and carried by unanimous vote.

January 19, 1954 Annual Stockholders meeting:

ARTICLE I, SECTION 1

Walter Smith made a motion that the By-Laws not be changed in connection with the method of electing officers but there be a "Gentlemens Agreement" that any one member shall not serve more than 5 consecutive years but after one year has elapsed, the outgoing member to be eligible for election again.

Elmer Stroupe seconded the motion and upon voting, carried unanimously.

BY-LAWS AMENDED, February 21, 1956 at Annual Stockholders meeting:

ARTICLE IV, SECTION 4

Stockholders - Lyle Smith made a motion that Article IV, Section 4 of the By-Laws be amended to provide for a majority of the eligible outstanding shares be necessary to form a quorum. In this case eligible meaning that all assessments have been paid.

Glen Hufman seconded the motion, which carried by unanimous vote.

BY-LAWS AMENDED, January 15, 1957 at Annual Stockholders meeting:

ARTICLE IV, SECTION 1

Annual Meetings - Lyle Smith made a motion, seconded by Wayne Escheman, that Article IV, Section 1 be amended as follows: An annual meeting of the stockholders shall be held on the second Tuesday in March, 1958, and on the second Tuesday in March of each year thereafter, at the office of the Company in Blanca, Costilla County, Colorado; provided that, if the second Tuesday in March of any year hereafter shall fall upon a holiday, said meeting shall be held upon the next succeeding day. If any notice of any stockholders meeting shall state that such meeting is to be held on the second Tuesday in March, and said day shall be a holiday, such notice shall not, for said reason, be held to be defective or ineffective, but shall constitute complete and legal notice of such meeting, to be held on the next succeeding day.

Motion carried by unanimous vote.

AMENDMENTS TO THE BY-LAWS OF THE TRINCHERA IRRIGATION COMPANY.

BY-LAWS AMENDED, March 13, 1962 at Annual Stockholders meeting:

ARTICLE I, SECTIONS 1 and 2

Election - Morris Grimwood made a motion as follows: To amend Article I, Section 1 of the By-Laws by electing at this meeting one member to the Board for a term of one year, one for a term of 2 years, one for a term of 3 years, one for a term of 4 years and one for a term of 5 years. Hereafter one director shall be elected each year to serve a term of 5 years, and

Vacancies - to amend Article I, Section 2; in the event of a vacancy, the Board of Directors shall appoint a member to fill the vacancy until the next Annual Stockholders meeting when a member shall be elected to fill the unexpired term of vacating member.

Motion seconded by R. A. Skinkle and carried by unanimous vote.

BY-LAWS AMENDED, March 10, 1981 at Annual Stockholders meeting:

ARTICLE V, SECTION 2, a

Stock - Motion was made by Lyle Smith that Article V, Section 2 be amended as follows: Colorado Law permits reasonable restrictions on minimum quantity of stock to be transferred provided such restrictions are adopted prior to time the transferor obtained the stock and valid only against stockholders who purchase stock after adoption of the by-law. Colorado rule is that stockholders have the right to change the place of the use of water if other users are not injured thereby. The Board of Directors shall have the authority to refuse a change in point of delivery from the original point of delivery if such delivery shall cause water loss and injury to the other stockholders, which would constitute futile call.

Motion seconded by Bill Cruff and approved unanimously.
Glen Bean made a motion that the sense of stockholders present and proxy is that the intent of this amendment is to limit the number of shares that can be transferred on a certificate to 5 shares. Motion seconded by Bob Smith and carried.

BY-LAWS AMENDED, MARCH 13, 1984 AT ANNUAL STOCKHOLDERS MEETING

ARTICLE 1, SECTION 1 AND 2

ELECTION - GLEN WIESCAMP MADE THE FOLLOWING MOTION: "IN THE EVENT THAT A DIRECTOR HAS SERVED FOR A FIVE YEAR TERM, THAT MEMBER WILL NOT BE ELIGIBLE FOR RE-ELECTION OR APPOINTMENT FOR A PERIOD OF ONE YEAR; IN THE EVENT THAT A MEMBER HAS SERVED FOR A PERIOD OF 3 YEARS OR LESS EITHER BY APPOINTMENT OR ELECTION TO COMPALETE AN UNFULFILLED TERM THEN THAT MEMBER WILL BE ELIGIBLE TO RUN FOR RE-ELECTION AT THE END OF THAT TERM". MOTION WAS SECONDED BY GLEN BEAN AND CARRIED.

BY-LAWS AMENDED, MARCH 10, 1987 AT ANNUAL STOCKHOLDERS MEETING

ARTICLE 1, SECTION 1 AND 2

ELECTION - GLEN BEAN MADE THE FOLLOWING MOTION: "IN THE EVENT THAT A DIRECTOR HAS SERVED FOR A FIVE YEAR PERIOD, THAT MEMBER WILL NOT BE ELIGIBLE FOR RE-ELECTION OR APPOINTMENT FOR A PERIOD OF ONE YEAR; PROVIDED THAT THIS LIMITATION SHALL NOT APPLY TO A DIRECTOR WHO IS PRESIDENT OF THE BOARD AT THE TIME HIS TERM EXPIRES; IN THE EVENT THAT THE MEMBER HAS SERVED FOR A PERIOD OF 3 YEARS OR LESS EITHER BY APPOINTMENT OR ELECTION TO COMPLETE AN UNFULFILLED TERM, THEN THAT MEMBER WILL BE ELIGIBLE TO RUN FOR RE-ELECTION AT THE END OF THAT TERM." MOTION WAS SECONDED BY ELZABETH BROWN AND CARRIED BY UNANIMOUS VOTE.

ARTICLES OF INCORPORATION

of

THE TRINCHERA IRRIGATION COMPANY

KNOW ALL MEN BY THESE PRESENTS:

THAT we, A. M. Weaver, J. R. Young, and Guy Winner, all residents of the County of Costilla and the State of Colorado, have associated ourselves together as a corporation under the name and style of The Trinchera Irrigation Company, for the purpose of becoming a body corporate and politic, under the laws of the State of Colorado; and, in accordance with the provisions of the applicable laws of said State, we hereby make, execute, and acknowledge these presents as and for our certificate in writing of our intention to become such body corporate under and by virtue of said laws.

ARTICLE I. NAME

The name of said corporation shall be THE TRINCHERA IRRIGATION COMPANY.

ARTICLE II. OBJECTS

The objects for which said corporation is formed are as follows:

Section 1. To purchase and acquire all of the presently owned water rights, both direct flow and storage, for irrigation and domestic purposes, and all reservoirs, reservoir sites, dams, embankments, and other adjuncts thereto and thereof, and all canals, ditches, flumes, headgates, diversion dams and other structures now owned by The Trinchera Irrigation District, and used as a means of supplying land owners within the boundaries of said District with water for irrigation purposes, all of which constitute an irrigation system owned by said District: also, any and all personal and other property now owned by said District, whether herein specifically enumberated, specified or mentioned or not.

Section 2. Upon the acquisition of said irrigation system, to maintain and operate the same and all thereof for the purpose of storing, supplying and conveying water for domestic and irrigation purposes, for use upon lands of the stockholders of

said corporation, in the Counties of Costilla and Alamosa, in the State of Colorado, including the maintenance and operation of reservoirs for storing water, maintenance and operation of reservoirs for storing water, maintenance and operation of lateral or branch irrigation ditches from the main canals and ditches, and from the reservoirs of said company to such localities, in said County of Costilla and Alamosa, as will enable the stockholders of said company to make the fullest and most beneficial use of all water so stored, conducted and delivered for the purposes herein set forth.

Section 3. If it is found to be wise and expedient, to acquire, construct, operate and maintain other canals, ditches and reservoirs, than those proposed to be acquired from said The Trinchera Irrigation District, for the purposes herein specified.

Section 4. To borrow money to carry on the purposes and objects hereinbefore specified; to issue bonds, notes, debentures or other evidences of indebtedness therefor, of whatsoever kind or nature, in the name of the Company; and to assign, mortgage or pledge the property, rights and franchises of the Company, as security for the repayment of any money so borrowed.

Section 5. To do or perform any and all acts or things which may be incident, necessary or proper, or conducive to the attainment of the aforesaid objects, or any of them, or to the usual powers of corporate bodies comparable to this corporation.

ARTICLE III. CAPITALIZATION

The capital stock of said corporation shall be Seven Hundred Fifty Thousand Dollars, which shall be divided into fifteen thousand shares, of the par value of Fifty Dollars per share. Said capital stock shall be assessable as provided in Sec. 144 of Ch. 41 of Colorado Statutes Annotated, 1935, and not otherwise, for the purpose of providing funds for the maintenance and operation of its irrigation system, for the purpose of paying indebtedness of the Company, howsoever created, and howsoever evidenced, and, in general, for the purpose of carrying on the business of the Company and promoting the interests of its stockholders. And, with reference to said capital stock the following provisions are hereby specifically imposed upon the issuance, sale or disposition thereof.

Section 1. The Board of Directors shall be and are hereby authorized, as a part and portion of the consideration for the conveyance by The Trinchera Irrigation District of all of its irrigation system, as hereinbefore and in Article II specified, to issue and to deliver to said The Trinchera Irrigation District or to such persons, firms or corporations as said District may in writing specify. A certificate or certificates of stock for a number of the shares thereof which shall equal the total number of acres upon which all District assessments, for maintenance and operation, shall have been paid for the years 1941, 1942 and 1943; Provided: That no stock shall be issued to the owner of any lands for the irrigation of such lands which, by reason of the nature of the soil or the presence of seepage is not susceptible to practical irrigation. Before the issuance of such certificates, and as a condition precedent thereto, the Board of Directors of the Company shall require all land owners who claim to be entitled to receive said stock to submit to the board, for its inspection and registration, abstracts of title to their lands, or deeds thereto, or contracts of purchase thereof, or such other evidences of ownership as the Board may require. Copies of deeds or other instruments of conveyance to such land owners, duly certified by the County Clerk and Recorder of Costilla County may be accepted by the Board under the term "other evidence of ownership."

Section 2. Each share of the capital stock of this Company shall entitle the holder thereof to receive water for the irrigation of one acre of land. In the event, during any year or years, thereshall be insufficient water for the irrigation of all of the land served by the Company to the extent of its full needs, then each share of stock shall entitle the owner thereof to the pro rata of share of water available to the entire acreage, for the purpose of irrigating one acre of land.

Section 3. None of said capital stock shall be issued or sold to any other persons, firms or corporations other than those who shall have been owners of land and users of water within the bounderies of The Trinchera Irrigation District during the year 1943, until such time as all of said land owners have been issued the number of shares of capital stock, through said The Trinchera Irrigation District, to which they are entitled, or have refused or failed to accept issuance and delivery thereof, upon the terms herein specified; and, thereafter, the issuance and sale of all of the capital stock of this corporation shall be made by resolution of the Board of Directors, at a price, and upon terms of payment specified in and by such resolution of the Board of Directors.

ARTICLE IV BOARD OF DIRECTORS

The affairs of said corporation shall be managed by a board of five directors; and the named of those who shall

manage the affairs thereof for the first year of its existance, and untill their successors shall have been elected and qualified, are: Guy Winner, J.R.Young, Wayne H.Escheman,A.M.Weaver, and Wm.L.Thompson.

Article V. Powers of BOARD OF DIRECTORS

In the management of the affairs and business of said corporation,the Board of Directors are hereby given and shall have authority,without prejudice to or in derogation of any general powers,under these articles of incorporation or the statutes of the State of Colorado, as follows:

Section 1. to manage,conduct and transact the business of said corporation,insuch manner and upon such conditions as they may deem necessary,expedient and advantageous to the corporation.

Section 2. To do any and all acts and things neceaary to carry into effect the powers specified in these articles.

Section 3. To make,and thereadter to alter or to amend such by-laws as they may deem proper and necessary for the management,conduct and control of the affairs;business and property of the corporation,not, however,inconsistent with the provisions of these articles, or the laws of Colorado.

Section 4. The Board of Directors may hold regular or special meeting at any place or point in the State of Colorado which may be decided upon by said Board.

ARTICLE VI. OFFICE AND PLACE OF BUSINESS.

The principal business of said corporation shall be carried on in the Counties of Costilla and Alamosa, in the State of Colorado: The principal office for the transaction of said business shall be kept in Blanca,Costilla County, Colorado; and an office of the Company may,at the discretion of the Board of Directors,be kept at any locality or place in the State of Colorado.

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ARTICLE VII. USE OF WATER IN GENERAL

The use to which the water hereinbefore mentioned is to be applied is for irrigation and domestic purposes, connected with the land of the stockholder of this company, along the lines of its ditches, canals and laterals.

ARTICLE VIII. SYSTEM OF SUPPLY AND LOCATION OF DITCHES, CANALS AND RESERVOIRS.

Section 1. The streams, channels or sources from which said water is to be taken, the points or places at or near which said water is to be taken out, and the lines, as near as may be, of the ditches now constructed or intended to be constructed, are as follows:

NEWTON DITCH, NEWTON DITCH NO. 2, VALDEZ DITCH NO. 2, THE MACMULLAN DITCH AND AMENDED TUE CREEK HIGHLINE DITCH.

The source of supply of the above named ditches is Ute Creek. All of said ditches have a common headgate; and it is located at a point 110 yards east of the Southwest Corner of the northwest quarter of the northwest quarter of Sec. 15, Twp. 30 South of Range 72 West, The water of said ditches is conveyed, by means of a common ditch, the line thereof, as near as may be, runs from the above designated point in a southwesterly direction through portions of Sections 15, 16, 20, 21 and 30 of Township 30 South of Range 72 West.

GARLAND DITCH AND GARLAND ENLARGEMENT AND EXTENSION DITCH.

The sources of supply of the Garland Ditch and of the Enlargement and Extension of Garland Ditch are Sangre de Cristo Creek and Ute Creek; and said two ditches have two points at which water is taken out of said two streams. Headgate No. 1 is located on Sangre de Cristo Creek at a point 400 ft. N. 48 Deg. E of the center of Sec. 23 Twp. 30 S.R. 72. W. and headgate No. 2 is located on the right bank of Ute Creek, at a point N. 40 deg. West of the N.W. Cor. of the N.E. ¼ S.E. ¼ Sec. 21 Twp. 30 S.R. 72 W., The line of said ditch, as near as may be, runs from the above designated point, in a westerly and northwesterly direction, through portions of Sections 22,21,20,17 18 and 7, in Twp. 30 South Range 72 West, through Sec. 12, 1 and 2 of Township 30 South Range 73 West, and through Sections 35, 34 and 27 of Township 29 South of Range 73 West.

SANGRE de CRISTO DITCH AND JOHN FRANCISCO DITCH

The source of supply of said ditches is Sangre de Cristo Creek. The point at or near which the water thereof is taken out is as follows: A point, in the

COUNTY of Costilla,State of Colorado,on the left bank of Sangre de Cristo Creek,from which said ditch draws its supply of water, whence the west quarter corner of Section 27,Township 30 South Range 72 West,bears South 32 degrees,35 minutes West 588 feet. The line,as near as may be of said ditches runs from the above designated point in a southwesterly direction through portions of Sections 27-28 and 33 of Township 30 South of Rnge 72 West, and Sections 4,5,8 and 7 of Township 31 South of Range 72 West.

THE MARTIN DITCH.

The source of supply of water of said ditch is Sange de Cristo Creek. The point or place at or near which said water is taken out is as follows: A point 680 ft.N.E. from S.E. Corner of the S.W.¼ Sec.28 Twp 30 S.R.72 W. The line ,as near as may be,of said ditch runs from the above described point,in a westerly direction,through portions of Sections 28,33,32 and 29 of Township 30 South of Range 72 West.

THE WALSEN-BECKWITH-MARTIN DITCH.

The source of supply of said ditch is Sangre de Cristo Creek. The point or place at or near which the water thereof is taken out is as follows: A point N. 75 Deg. 30 Min. W. 14.50 chains from the common corner of Secs. 26-25, 36-35, Twp 30 S.R. 73 W. The line as near as may be,of said ditch runs from the above described point southwesterly through portions of Sections 25,26,35,36 of Township 30 South Rabge 73 West.

TRINCHERA HIGHLINE CANAL; T.J.TOBIN DITCH, FORD DITCH,PATRICK BREEN DITCH,VALDEZ DITCH,WALSEN DITCH NO.2

The above ditches ,and decrees therefor, now form The Trinchera Highline Canal. The source of supply thereof is Trinchera Creek. The point or place ~~of supply~~ at or near which water thereof is taken out is as follows: A point, in the County of Costilla, State of Colorado,on the south bank of Trinchera Creek,from which said ditch draws its supply of water, whence the eat quarter corner of Section 25,Township 30 South,Range 72 West, bears north 44 degrees,35 Min. east 946 feet. The line,as near as may be, of said canal runs from the above designated point southerly through portions of Sections 35 Township 30 South of Range 72 west, Sections 2, 11, 14,23,26,27 and 34, to a point in the Southeast quarter of Section 33 in said Townhsip and Range, from which point said line runs in a Northwesterly direction through portions of Sections 33, 29, 20, 19, 18, and 7 of said Township and Range, and, in a westerly and northwesterly direction,through portions of Sections 12, 11, and 2,of Township 31 South of Range 73 West.

WALSEN DITCH NO. I

The source of supply of said ditch is Tri chera Creek, The point or place at or near which water is taken out is as follows: A point located 430 yards N. of the S.E. corner of the S.E.¼ of Sec.34 Twp 30 S.R. 72 W. The lines of said ditch,(there are two branches thereof),as near as may be,run from the above designated point as follows:

in a southwesterly direction through portions of Sections 35 and 34,of Township 30 South Range 72 West,and westerly along the South line of said Township and Range, and northwesterly from the above designated point through Sections 35, 34, 33 and 28 of Township 30 South of Range 72 West.

TRINCHERA CANAL AND TRINVHERA DITCH EXTENSION.

The sourceeos supply of water for said ditches is Trinchera Creek, The pont or place at or near which the water is taken out for said ditches is common to the two,and is located as follows: A point at or near the center of the Southwest quarter of Section 35,Township 30 South,Range 72 West. the lines, as near as may be, of said ditches run from the above described point in a southwesterly direction through Section 35, of Township 30,South Range 72 West. and Sections 2, 3, 10, 15,16, 21 and 20 of Township 30 South of Range 72 West. In the Southeast quarter of the Southwest quarter of Section 20 Township 31 South of Range 72 West,the line of said ditch joins the line of the Trinchera Highline Canal,and from that point said line and the line of said Trinchera Highline canal are common.

TRINCHERA GARLAND CANAL.

The source os supply of water of said canal is Trinchera Creek. The point or place at or near which the water of said canal is taken out of said creek, is as follows: At a point whence the southwest corner of Section 35, Township 30, South, Range 72 West bears South 9 degrees 6 Min. West 1163.5 ft. The line as near as may be,of said canal runs from the above designated point in a northwesterly direction through portions of Sections 35, 34, 27 and 22 of Thownship 30 South,Range 72 West. At a point near the center of said Section 22 Township 30,South Range 72 West, water conveyed by said Trinchera Garland Canal flows into Sangre de Cristo Creek, and from that creek is diverted by means of the Garland Canal,the line os which is hereinbefore described.

OJITO CREEK DITCH.

The source of supply of said ditch is Ojito Creek. The place or point at or near which mater is taken out of said creek is as follows: A point, in the County of Costilla, State of Colorado,on the right bank of Ojito Creek,at a point whence the Northeast corner of Section 7, Rownhsip 31, South, Range 72 West, bears north 21 Deg 57 min, east 5775.36 feet. The line, as near as may be, of said ditch runs from the above described point, through the stream bed os said Ojito Creek to its junction with the Trinchera Highline Canal at a point in the Northwest quartr of Section 14, Township 31, South Tange 72 est, from which point the water os said ditch is conveyed through said Trinchera Highline Canal.

NORTH SWAMP DITCH

The source of supply of said ditch is seepage water from swamp land. The point or place at or near which said waters are taken out for said ditch is as follows:

A point in the County of Costilla, State of Colorado whence the north quarter corner of Section 23, Township 30 South, Range 73 West, bears north 81 degrees 45 minutes west 1423 feet. The line, as near as may be, of said ditch runs from the above designated point in a southwesterly direction through sections 23 and 22 of Township 30 south of Range 73 West.

SOUTH SWAMP DITCH

The source of supply of said ditch is seepage water from swamp lands. The point or place at or near which said waters are taken out for said ditch is as follows:

A point, in the County of Costilla, and State of Colorado, whence the northquarter corner of Section 26, Township 30 South, Range, 73 West bears north 5 degrees, 48 minutes east 1106.5 feet. The line, asn near as may be, of said ditch runs from the above designated point northwesterly through portions of Section 26, 27 and 22 of Township 30 South, Range 73 West.

In addition to the above seecribed priorities and ditches, the irrigation system proposed to be purchased by this corporation includes certain unadjudicated filings. the supply of water which may be expected to be developed from these filings is neglible and therefore not herein specified.

SECTION 2. LOCATION OF RESERVOIRS

The Mountain Home Reservoir has been constructed, and is locate in Sec 1, Township 31, South, Range 72 West; Section 6, Township 31 South, Range 71 West; Sections 25 & 36, Township 30 South, Range 72 West; Sec 31, Township 30 South, Range 71 West.

The Smith Reservoir has been constructed and is located in Sections 26, 27, 34, and 35 in Township 30, South, Range 73 West, and in Section 2, 3, and 4 in Township 31 South of Range 73 West,.

Article IX. Term of Existence

Said corporation shall have perpetual existence.

ARTICLE X, NATURE OF CORPORATION. copy

This corporation is intended to be a mutual orrogation corporation, and to operate under the applicable laws of the State of Colorado, and is not a corporation for profit.

In Witness whereof we have hereunto set our hands and seals this 4th day of ~~January~~ Feb., 1944.

A M Weaver ----Seal

J R Young ----Seal

Guy S Winner ----Seal

STATE OF COLORADO)
County Of COSTILLA) SS.

I, Virginia M Teasley a Notary Public in and for the above County and State, do hereby certify that, on this day, personally appeared before me, A.M.Weaver, J.R.Young, and Guy Winner, to me known to be the persons whose names are subscribed to the foregoing Articles of Incorporation, and acknowledged to me that they signed, sealed and delivered the said instrument of writing as their free and voluntary act, for the uses and purposes therein mentioned.

Witness my hand and Notary seal this 4th day of ~~January~~ Feb A.D.1944.

Virginia M Teasley
Notary Public

My Commission expires: March 13th 1945

Seal (1)

CERTIFICATE OF AMENDMENT OF
THE ARTICLES OF INCORPORATION OF
THE TRINCHERA IRRIGATION COMPANY

We, Wayne H. Escheman, President, and A. M. Weaver, Secretary of The Trinchera Irrigation Company, hereby certify that, at a special meeting of the stockholders of said company, duly and legally called to be held and held on the 11th day of March, 1946 at the office of said company in Blanca, Colorado, the following amendment to the Articles of Incorporation of said company was adopted by the affirmative vote of not less than two-thirds of the outstanding capital stock of said company entitled to vote thereat, to-wit: That Article III of said Articles of Incorporation be amended to read as follows:

ARTICLE III. CAPITALIZATION

The capital stock of said corporation shall be Six Hundred Twenty Five Thousand Dollars, which shall be divided into twelve thousand five hundred shares, of the par value of Fifty Dollars per share. Said capital stock shall be assessable as provided in Sec. 144 of Ch. 41 of Colorado Statutes Annotated, 1935, and not otherwise, for the purpose of providing funds for the maintenance and operation of its irrigation system, for the purpose of paying indebtedness of the Company, howsoever created, and howsoever evidenced, and, in general, for the purpose of carrying on the business of the Company and promoting

the interests of its stockholders. And, with reference to said capital stock the following provisions are hereby specifically imposed upon the issuance, sale or disposition thereof.

Section 1. The Board of Directors shall be and are hereby authorized, as a part and portion of the consideration for the conveyance by The Trinchera Irrigation District of all of its irrigation system, as hereinbefore and in Article II specified, to issue and to deliver to said The Trinchera Irrigation District or to such persons, firms or corporations as said District may in writing specify, a certificate or certificates of stock for a number of the shares thereof which shall equal the total number of acres upon which all District assessments, for maintenance and operation, shall have been paid for the years 1941, 1942 and 1943; Provided: That no stock shall be issued to the owner of any lands for the irrigation of such lands which, by reason of the nature of the soil or the presence of seepage is not susceptible to practical irrigation. Before the issuance of such certificates, and as a condition precedent thereto, the Board of Directors of the Company shall require all land owners who claim to be entitled to receive said stock to submit to the board, for its inspection and registration, abstracts of title to their lands, or deeds thereto, or contracts of purchase thereof, or such other evidences of ownership as the Board may require. Copies of deeds or other instruments of conveyance to such land owners, duly certified by the County Clerk and Recorder of Costilla County may be accepted by the Board under the term "other evidence of ownership."

Section 2. Each share of the capital stock of this Company shall entitle the holder thereof to receive water for the irrigation of one acre of land. In the event, during any year or years, there shall be insufficient water for the irrigation of all of the land served by the Company to the extent of its full needs, then each share of stock shall entitle the owner thereof to the pro rata of share of water available to the entire acreage, for the purpose of irrigating one acre of land.

Section 3. None of said capital stock shall be issued or sold to any other persons, firms or corporations other than those who shall have been owners of land and users of water within the boundaries of The Trinchera Irrigation District during the

year 1943, until such time as all of said land owners have been issued the number of shares of capital stock, through said The Trinchera Irrigation District, to which they are entitled, or have refused or failed to accept issuance and delivery thereof, upon the terms herein specified; and, thereafter, the issuance and sale of all of the capital stock of this corporation shall be made by resolution of the Board of Directors, at a price, and upon terms of payment specified in and by such resolution of the Board of Directors.

IN WITNESS WHEREOF said The Trinchera Irrigation Company has caused this certificate to be made and attested by its president and secretary this 11th day of March A. D., 1946.

THE TRINCHERA IRRIGATION COMPANY

By Wayne D. Eackerman
President

ATTEST:

A. M. Shearer
Secretary

APPENDIX C
Water Rights

DISTRICT COURT, WATER DIVISION 3, STATE OF COLORADO

Case No. W-3148

FINDINGS OF FACT, CONCLUSIONS OF LAW, JUDGMENT, AND DECREE

IN THE MATTER OF THE APPLICATION FOR CHANGE OF WATER RIGHTS OF THE TRINCHERA IRRIGATION COMPANY IN COSTILLA COUNTY, COLORADO

THIS MATTER, having come on to be heard this date upon the application of Trinchera Irrigation Company (hereinafter "Applicant"), and the Water Judge having considered the pleadings, the files herein and the evidence presented before him, hereby enters the following Findings of Fact, Conclusions of Law, Judgment and Decree, in accordance with Colorado Revised Statute § 37-92-304 (1973).

FINDINGS OF FACT

I. Name and address of applicant:

Trinchera Irrigation Company
c/o Jerry Smith
P.O. Box 41
Blanca, CO 81123

II. First Proposed change:

1. The application of Trinchera Irrigation Company for alternate, supplemental and storage points of diversion of various water rights was filed with the Court on March 27, 1973. The Applicant seeks judicial confirmation of Applicant's right to designate nine specific headgates or locations as alternate, supplemental or storage points of diversion for the following water rights:

a. Highline Canal (Trinchera Creek)

Priority No. 9 as of May 31, 1869 for 5.33 cfs
Priority No. 29 as of May 1, 1875 for 4.00 cfs
Priority No. 80 as of Dec. 6, 1910 for 64.20 cfs

b. Trinchera Canal (Trinchera Creek)

Priority No. 8½ as of Nov. 15, 1867 for 3.33 cfs
Priority No. 40 as of Dec. 10, 1887 for 76.00 cfs
Priority No. 72 as of Sept. 26, 1908 for 212.00 cfs

c. Ojito Creek Ditches (Ojito Creek)

Priority No. 67½ as of Nov. 18, 1907 for 40.00 cfs
Priority No. 67½ as of Nov. 18, 1907 for 47.05 cfs

d. Indian Creek Diversion Canal (Indian Creek)

Priority No. 70 as of July 11, 1908 for 75.00 cfs

e. Walsen No. 1 Ditch (Trinchera Creek)

Priority No. 5 as of May 1, 1864 for 2.66 cfs
Priority No. 6 as of May 31, 1867 for 3.00 cfs
Priority No. 34 as of May 31, 1879 for .83 cfs

f. Trinchera Garland Canal (Trinchera Creek)

Priority No. 74 as of Nov. 21, 1908 for 171.89 cfs.

g. Mt. Home Reservoir

Priority No. 94 as of Dec. 4, 1906 for 19,150 acre feet.

h. Smith Reservoir

Priority No. 95 as of April 8, 1911 for 5,000 acre feet.

The water rights described herein are used for irrgation purposes. The present points of diversion or location for each water right are described in the following paragraph.

2. The nine headgates or locations which are to be designated as alternate, supplemental or storage points of diversion for each and every one of the water rights listed in paragraph 1 above are as follows:

a. The point of diversion of the Highline Canal described as follows:

The point of diversion or location of the headgate of the Highline Canal as fixed by said decree, is on the South Bank of Trinchera Creek, whence the East one-quarter corner of Section 35, Township 30 South, Range 72 West of the 6th. P.M. bears North 44 degrees 35 minutes East 946 feet, County of Costilla, State of Colorado.

b. The point of diversion of the Trinchera Canal described as follows:

The point of diversion or location of the headgate of the Trinchera Canal as fixed by said decree on Trinchera Creek is a point at or near the center of the Southwest quarter of Section 35, Township 30 South, Range 72 West of the 6th. P.M. County of Costilla, State of Colorado.

c. The points of diversion of the Ojito Creek Ditches described as follows:

The point of diversion or location of the headgate of the Ojito Creek Ditch as fixed by said decree, is on the Right Bank of Ojito Creek at a point whence the Northeast corner of Section 7, Township 31 South Range 72 West of the 6th. P.M. bears North 21 degrees 57 minutes East, 5775.36 feet, County of Costilla, State of Colorado.

The point of diversion or location of the headgate of the Ojito Creek Ditch as fixed by said decree, is a point in the center of Ojito Creek in Costilla County, State of Colorado, whence the Southwest corner of the Southeast Quarter (SE¼) of Section Eleven (11) in Township Thirty-one (31) South, of Range Seventy-two (72) West of the 6th. P.M. bears South 83 degrees 56 minutes West 5356 feet.

d. The point of diversion of the Indian Creek Diversion Canal described as follows:

The point of diversion or location of the headgate of the Indian Creek Diversion Canal as fixed by said decree, is located at a point on the Southerly bank of Indian Creek whence the corner common to Sections 4, 5, 8 and 9, Township 30 South, Range 71 West of the 6th. P.M. bears South 87 degrees 25 minutes East 12,428.52 feet, County of Costilla, State of Colorado.

e. The point of diversion of Walsen #1 Ditch described as follows:

The point of diversion or location of the headgate of Walsen #1 Ditch as fixed by said decree, is located on Trinchera Creek at a point or place 430

yards North of the Southeast corner of the Southeast quarter of Section 34, Township 30 South, Range 72 West of the 6th. P.M. County of Costilla, State of Colorado.

f. The point of diversion of the Trinchera Garland Canal is described as follows:

The point of diversion or location of the headgate of the Trinchera Garland Canal as fixed by said decree, is located on Trinchera Creek at a point whence the Southwest corner of Section 35, Township 30 South, Range 72 West of the 6th. P.M. bears South 9 degrees 6 minutes West 1163.5 feet, County of Costilla, State of Colorado.

g. The location of the Mountain Home Reservoir described as follows:

That certain reservoir known as the Mountain Home Reservoir, the dam whereof is located in Section 36, Township 30, South of Range 72 West of the 6th. P.M. Costilla County, State of Colorado, and which reservoir is located in parts or portions of Sections 25 and 36 in Township 30, South of Range 72 West; Section 31 in Township 30, South of Range 71 West; Section 1, Township 31, South of Range 72 West; and in Section 6, Township 31, South of Range 71 West.

h. The location of the Smith Reservoir described as follows:

That certain reservoir known as the Smith Reservoir, the dam whereof is located in Section 34, Township

30 South of Range 73 West of the 6th. P.M. Costilla County, State of Colorado, and which reservoir is located in parts and portions of Sections 26, 27, 33, 34 and 35 of Township 30 South of Range 73 West of the 6th P.M. and in parts or portions of Sections 2 and 3 in Township 31, South of Range 73 West.

3. Applicant seeks to divert through the alternate, supplemental, or storage headgates or locations only the volume available in priority to the water rights as originally decreed. Applicant seeks the right to store any of the foregoing direct flow rights in Mountain Home Reservoir or Smith Reservoir. The water rights will continue to be used for irrigation purposes.

4. The water rights both as originally decreed and as changed through alternate, supplemental or storage points of diversion are subject to administration in priority except as provided in the decree of the District Court of Costilla County referred to in paragraph 31.

5. The change requested confirms the long standing historical irrigation practice of the Applicant and its predecessors in interest.

6. Notice of the application was duly published pursuant to Colorado Revised Statutes § 37-92-302 (1973) and this Court has jurisdiction herein.

7. A Statement of Opposition was timely filed by Forbes Trinchera, Inc. That statement was subsequently withdrawn pursuant to a Stipulation by and between the Applicant and Forbes Trinchera, Inc., the terms of which have been incorporated in this Decree.

8. The Applicant and Forbes Trinchera, Inc., between them own all the water rights on Trinchera Creek and its tributaries exclusive of Ute Creek.

III. Second Proposed Change

9. The application of Trinchera Irrigation Company for alternate, supplemental and storage points of diversion of various water rights was filed with the Court on March 27, 1973. The Applicant seeks judicial confirmation of Applicant's right to designate five specific headgates or locations as alternate, supplemental or storage points of diversion for the following water rights:

a. Sangre De Cristo #3 Canal (Sangre De Cristo Creek)

Priority No. 3 as of May 31, 1863 for 8.66 cfs
Priority No. 86 as of April 17, 1911 for 45.00 cfs

b. Sangre De Cristo Trinchera Diversion Canal (Sangre De Cristo Creek)

Priority No. 39 as of Oct. 31, 1887 for 25.00 cfs
Priority No. 44 as of May 31, 1890 for 3.00 cfs
Priority No. 70 as of July 11, 1908 for 43.00 cfs

c. Juell Ditch (Sangre De Cristo Creek)

Priority No. 44 as of May 31, 1890 for 2.00 cfs
Priority No. 45 as of April 20, 1895 for 2.00 cfs

d. Garland #1 Canal (Sangre De Cristo Creek)

Priority No. 38 as of March 2, 1886 for 2.00 cfs
Priority No. 39 as of Oct. 31, 1887 for 26.00 cfs

Priority No. 70 as of July 11, 1908 for 25.70 cfs

e. Smith Reservoir

Priority No. 95 as of April 8, 1911 for 5,000 acre feet.

The water rights described herein are used for irrgation purposes. The present points of diversion or location for each water right are described in the following paragraph.

10. The five headgates or locations which are to be designated as alternate, supplemental or storage points of diversion for each and every one of the water rights listed in paragraph 9 above are as follows:

a. The point of diversion of the Sangre De Cristo #3 Canal described as follows:

The point of diversion or location of the headgate of the Sangre De Cristo #3 Canal as fixed by said decree, is at a point on the left bank of Sangre De Cristo Creek whence the West quarter corner of Section 27, Township 30 South, Range 72 West of the 6th. P.M. bears South 32 degrees, 35 minutes West 588 feet, County of Costilla, State of Colorado.

b. The point of diversion of the Sangre De Cristo Trinchera Diversion Canal described as follows:

The point of diversion or location of the headgate of the Sangre De Cristo Trinchera Diversion Canal as fixed by said decree, is located on the South bank of Sangre De Cristo Creek at a point whence the Southeast corner of Section 25, Township 30 South, Range 72 West of the 6th. P.M. bears South 9 degrees

45 minutes East 9106.4 feet, County of Costilla, State of Colorado.

c. The point of diversion of the Juell Ditch described as follows:

The point of diversion or location of the headgate of the Juell Ditch as fixed by said decree, is located on Sangre De Cristo Creek at a point North 75 degrees 30 minutes West 14.50 chains from the common corner of Sections 26, 25, 36 and 35, Township 30 South, Range 73 West of the 6th. P.M. County of Costilla, State of Colorado.

d. The point of diversion of Garland #1 Canal described as follows:

The point of diversion or location of the headgate of Garland #1 Canal as fixed by said decree, is located on Sangre De Cristo Creek at a point 400 feet North, 48 degrees East of the center of Section 22, Township 30 South, Range 72 West of the 6th P.M. County of Costilla, State of Colorado.

e. The location of the Smith Reservoir described as follows:

That certain reservoir known as the Smith Reservoir, the dam whereof is located in Section 34, Township 30 South of Range 73 West of the 6th. P.M. Costilla County, State of Colorado and which reservoir is located in parts and portions of Sections 26, 27, 33, 34 and 35 of Township 30 South of Range 73 West of the 6th. P.M. and in parts or portions of

Sections 2 and 3 in Township 31, South of Range 73 West.

11. Applicant seeks to divert through the alternate, supplemental, or storage headgates or locations only the volume available in priority to the water rights as originally decreed. Applicant seeks the right to store any of the foregoing direct flow rights in Smith reservoir. The water rights will continue to be used for irrigation purposes.

12. The water rights both as originally decreed and as changed through alternate, supplemental or storage points of diversion are subject to administration in priority except as provided in the decree of the District Court of Costilla County referred to in paragraph 31.

13. The change requested confirms the long standing historical irrigation practice of the Applicant and its predecessors in interest.

14. Notice of the application was duly published pursuant to Colorado Revised Statutes § 37-92-302 (1973) and this Court has jurisdiction herein.

15. The Applicant and Forbes Trinchera, Inc., between them own all the water rights on Trinchera Creek and its tributaries exclusive of Ute Creek.

IV. Third Proposed Change

16. The application of Trinchera Irrigation Company for alternate, supplemental and storage points of diversion of various water rights was filed with the Court on March 27, 1973. The Applicant seeks judicial confirmation of Applicant's right to designate seven specific headgates or locations as alternate,

supplemental or storage points of diversion for the following water rights:

a. Newton Canal (Ute Creek)

Priority No. 6½ as of May 1, 1867 for 4.00 cfs
Priority No. 18½ as of May 1, 1872 for 9.33 cfs
Priority No. 35 as of May 31, 1880 for 1.34 cfs
Priority No. 79 as of Aug. 30, 1910 for 47.10 cfs

b. Garland #2 Canal (Ute Creek)

Priority No. 39 as of Oct. 31, 1887 for 51.00 cfs
Priority No. 71 as of July 11, 1908 for 123.00 cfs

c. South Swamp Ditch (South Swamp Seepage)

Priority No. 81 as of Feb. 10, 1911 for 53.00 cfs

d. North Swamp Ditch (North Swamp Seepage)

Priority No. 82 as of Feb. 14, 1911 for 53.00 cfs

e. Mill Ditch

Priority No. 27 as of May 31, 1874 for 0.66 cfs

f. Smith Reservoir

Priority No. 95 as of April 8, 1911 for 5,000 acre feet.

The water rights described herein are used for irrgation purposes. The present points of diversion or location for each water right are described in the following paragraph.

17. The seven headgates or locations which are to be designated as alternate, supplemental or storage points of diversion for each and every one of the water rights listed in paragraph 16 above are as follows:

a. The points of diversion of the Newton Canal as follows:

The point of diversion or location of the headgate of the Newton Canal as fixed by said decree, is on the West bank of Ute Creek and is located at a point 110 yards East of the Southwest corner of the Northwest Quarter of the Northwest quarter of Section 15, Township 30 South, Range 72 West of the 6th. P.M. County of Costilla, State of Colorado.

Commencing at the common quarter corner of Sections 9, 10, 15 & 16, Township 30 South, Range 72 West of the 6th. P.M.; thence South 27 degrees 3 minutes East 1213.2 feet on the North bank of Ute Creek.

b. The point of diversion of Garland #2 Canal described as follows:

The point of diversion or location of the headgate of the Garland #2 Canal as fixed by said decree, is located on the right bank of Ute Creek at a point North 40 degrees West of the Northwest corner of the Northeast quarter of the Southeast quarter, Section 21, Township 30 South, Range 72 West of the 6th. P.M. County of Costilla, State of Colorado.

c. The point of diversion of the South Swamp Ditch described as follows:

The point of diversion or location of the headgate of the South Swamp Ditch as fixed by said decree, is located at a point whence the North quarter corner of Section 26, Township 30 South, Range 73 West of the 6th. P.M. bears North 5 degrees 48 minutes East 1106.5 feet, County of Costilla, State of Colorado.

d. The point of diversion of the North Swamp Ditch described as follows:

The point of diversion or location of the headgate of the North Swamp Ditch as fixed by said decree, is located at a point whence the North quarter corner of Section 23, Township 30 South, Range 73 West of the 6th. P.M. bears North 81 degrees 45 minutes West 1423 feet, County of Costilla, State of Colorado.

e. The point of diversion of the Mill Ditch described as follows:

The point of diversion or location of the headgate of the Mill Ditch as fixed by said decree, is located on the West bank of Ute Creek, whence the Northeast corner of the Southwest quarter of Section 10, Township 30 South, Range 72 West of the 6th. P.M. bears North 79 degrees 00 minutes East 474 feet, County of Costilla, State of Colorado.

f. The location of the Smith Reservoir described as follows:

That certain reservoir known as the Smith Reservoir, the dam whereof is located in Section 34, Township 30 South of Range 73 West of the 6th. P.M. Costilla County, State of Colorado and which reservoir is

located in parts and portions of Sections 26, 27, 33, 34 and 35 of Township 30 South of Range 73 West of the 6th. P.M. and in parts or portions of Sections 2 and 3 in Township 31, South of Range 73 West.

18. Applicant seeks to divert through the alternate, supplemental, or storage headgates or locations only the volume available in priority to the water rights as originally decreed. Applicant seeks the right to store any of the foregoing direct flow rights in Smith reservoir. The water rights will continue to be used for irrigation purposes.

19. The water rights both as originally decreed and as changed through alternate, supplemental or storage points of diversion are subject to administration in priority except as provided in the decree of the District Court of Costilla County referred to in paragraph 31.

20. The change requested confirms the long standing historical irrigation practice of the Applicant and its predecessors in interest.

21. Notice of the application was duly published pursuant to Colorado Revised Statutes § 37-92-302 (1973) and this Court has jurisdiction herein.

22. The applicant and Forbes Inc., doing business in Colorado as Forbes Magazine, Inc., between them own all of the water rights on Ute Creek and its tributaries except for one water right for 1 c.f.s., priority no. 73, which belongs to Emmett Calkins.

CONCLUSIONS OF LAW

23. Pursuant to the terms of this Decree, the requirements

of Colorado Revised Statute § 37-92-305(3) (1973) have been complied with such that the Applicant's proposed changes in points of diversion and storage will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right.

24. The provisions of the Decree contained herein ensure that the water rights of the Forbes Trinchera, Inc., and Emmett Calkins will not be injuriously affected by the proposed changes presented in the application.

25. Administration of these priorities is controlled by the terms of a decree of the District Court of Costilla County in Case No. 1067 and the Court by this decree does not intend to affect or modify that decree.

DECREE

26. The application of Trinchera Irrigation Company for a change of its water rights, in Costilla County, Colorado is granted on the following terms and conditions.

27. The findings of fact set forth above are incorporated herein by this reference.

28. Subject to the terms of this Decree, the Trinchera Irrigation Company shall hereafter be entitled to use the headgates and or locations designated in paragraph 2 above as alternate, supplemental or storage points of diversion for each and every one of the water rights specified in paragraph 1 above. Trinchera Irrigation Company shall hereafter further be entitled to use the headgates or locations designated in paragraph 10 above as alternate, supplemental or storage points of diversion for each and every one of the water rights specified in paragraph 9 above. Trinchera Irrigation Company shall hereafter further be entitled to use the headgates or locations designated in paragraph 17 above

as alternate supplemental or storage points of diversion for each and every one of the water rights specified in paragraph 16 above.

29. Notwithstanding any provision hereof to the contrary, the changes in water rights herein granted shall not be authority for exercise of the subject water rights in such a manner as to cause a call on those water rights of the Forbes Trinchera, Inc. identified below, when no such call would have existed under conditions existing prior to the application and decree in this cause.

Spring Ditch:

Decreed: December 15, 1899
Appropriation Date: June 15, 1883 for .5 c.f.s.

Alamos Altos Ditch:

Decreed: December 15, 1899
Appropriation Date: April 30, 1889 for 1.2 c.f.s.

Judge Ditch:

Decreed: September 2, 1902
Appropriation Date: 1865 for 2.0 c.f.s.

Hoffman Ditch:

Decreed: January 4, 1915
Appropriation Date: December 31, 1891 for 2.0 c.f.s

Meadow Ditch:

Decreed: December 15, 1899
Appropriation Date: May 31, 1863 for 1.0 c.f.s.

Nenninger Ditch:

Decreed: December 15, 1899
Appropriation Date: May 31, 1863 for 1.33 c.f.s.

Walsen Ditch No. 3:

Decreed: December 15, 1899
Appropriation Date: June 1, 1867 for 3.0 c.f.s.

Hughes No. 1 Ditch:

Decreed: December 15, 1899
Appropriation Date: June 30, 1869 for 1.6 c.f.s.

Aragon (or Arragon) Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1871 for 1.0 c.f.s.

Le Testu Ditch:

Decreed: December 15, 1899
Appropriation Date: April 30, 1872 for 4.0 c.f.s.

Nenninger Ditch First Enlargement:

Decreed: December 15, 1899
Appropriation Date: May 31, 1872 for 1.0 c.f.s.

Home Ditch:

Decreed: December 15, 1899
Appropriation Date: October 31, 1872 for 2.0 c.f.s.

Cowgill McCarthy Ditch:

Decreed December 15, 1899
Appropriation Date: May 1, 1873 for 3.7 c.f.s.

Johnny Ditch:

Decreed: December 15, 1899
Appropriation Date: September 30, 1874 for 1.5 c.f.s.

Bridge Ditch:

Decreed: November 20, 1937
Appropriation Date: May 24, 1923 for 7.0 c.f.s.

New North Ditch:

Decreed: November 20, 1937
Appropriation Date: June 5, 1923 for 12.5 c.f.s.

New South Ditch:

Decreed: November 20, 1937
Appropriation Date: May 24, 1923 for 11.0 c.f.s.

Gossoin Ditch:

Decreed: December 15, 1899
Appropriation Date: May 31, 1868 for .8 c.f.s.

East Island Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1871 for .8 c.f.s.

House Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1871 for 1.6 c.f.s.

East Ridge Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1871 for .8 c.f.s

West Ridge Ditch:

Decreed: December 15, 1899
Appropriation Date: May 10, 1871 for 1.2 c.f.s.

Meyer No. 1 Ditch:

Decreed: December 15, 1899
Appropriation Date: May 31, 1871 for 2.5 c.f.s.

West Side Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1872 for 2.0 c.f.s.

Upper Island Ditch:

Decreed: December 15, 1899
Appropriation Date: May 1, 1872 for .8 c.f.s.

West Island Ditch:

Decreed: December 15, 1899
Appropriation Date: May 10, 1872 for .8 c.f.s.

North East Island Ditch:

Decreed: December 15, 1899
Appropriation Date: May 10, 1872 for .5 c.f.s.

North Middle Island Ditch:

Decreed: December 15, 1899
Appropriation Date: May 10, 1872 for .5 c.f.s.

Meyer No. 2 Ditch:

Decreed: December 15, 1899
Appropriation Date: May 10, 1872 for 1.5 c.f.s.

Lascano Ditch:

Decreed: January 4, 1915
Appropriation Date: May 31, 1888 for 2.0 c.f.s.

Salome Aragon Ditch:

Decreed: January 4, 1915
Appropriation Date: May 31, 1902 for 2.0 c.f.s.

Medina Ditch:

Decreed: January 4, 1915
Appropriation Date: May 1, 1907 for 1.0 c.f.s.

Fred Etter Ditch (Meyer Enlargement):

Decreed: January 4, 1915
Appropriation Date: January 15, 1912 for 3.0 c.f.s.

Fred Etter Ditch (Enlargement No. 3):

Decreed: January 4, 1915
Appropriation Date: March 14, 1914 for 3.0 c.f.s.

Fred Etter Ditch (First Appropriation):

Decreed: December 15, 1899
Appropriation Date: May 31, 1860 for 1.5 c.f.s.

Fred Etter Ditch (Second Appropriation):

Decreed: December 15, 1899
Appropriation Date: May 31, 1876 for .37 c.f.s.

Fred Etter Ditch (Third Appropriation):

Decreed: December 15, 1899
Appropriation Date: May 31, 1884 for 1.13 c.f.s.

30. Notwithstanding any provision hereof to the contrary, the changes in water rights herein granted shall not be authority

for exercise of the subject water rights in such a manner as to call on the water rights of Emmett Calkins, priority no. 73 for 1 c.f.s., when no such call would have existed under conditions existing prior to the application and decree in this cause.

31. Nothing in this decree shall be taken or construed as affecting or modifying the decree in Costilla County District Court Civil Action No. 1067 entered on June 23, 1941. Except to the extent that this decree permits alternative, supplemental or storage points of diversion for certain water rights as provided herein, this decree shall not modify or affect prior decrees, agreements, plans of augmentation or the rights and obligations of the parties as set forth therein. Nothing herein shall be authorization for or allow an expansion of historically irrigated acreage.

DECREE ENTERED this 28th day of May, 1986.

BY THE COURT:

Honorable Robert W. Ogburn
Water Judge
Water Division No. 3
State of Colorado

APPROVED AS TO FORM:

LUCERO & KADINGER, P.C.

By Richard A Kadinger

Carlos F. Lucero, #1485
Richard A. Kadinger, #9788
P.O. Drawer 3002
311 San Juan Ave.
Alamosa, CO 81101-3002
(303) 589-6626

ATTORNEYS FOR THE TRINCHERA IRRIGATION COMPANY

JOHN U. CARLSON

By Mary Mead Hammond

John U. Carlson, #2649
Mary Mead Hammond, #9851
1700 Lincoln Street, #2750
Denver, CO 80203

ATTORNEYS FOR FORBES TRINCHERA INC.

DISTRICT COURT, WATER DIVISION 3, STATE OF COLORADO
CASE NO. W-3148
CERTIFICATE OF MAILING

I do hereby certify that on the 28th day of May, 1986, I personally deposited in the United States Mail a signed copy of the foregoing Findings of Fact, Conclusions of Law, Judgment and Decree in a sealed envelope bearing sufficient postage properly addressed to:

Jeris A. Danielson
State Engineer
1313 Sherman Street
Denver, CO 80203

Steven Vandiver
Division Engineer
Water Division 3
P. O. Box 269
Alamosa, CO 81101

Richard A. Kadinger
LUCERO & KADINGER, P.C.
P. O. Drawer 3002
Alamosa, CO 81101-3002

Mary Mead Hammond
JOHN U. CARLSON, P.C.
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Denver, CO 80203

Trinchera Irrigation Company
c/o Jerry Smith
P. O. Box 41
Blanca, CO 81123

Forbes Trinchera, Inc.
Fort Garland, CO 81133

Carol S. Dalpiaz
Clerk of the Water Court
Water Division 3

STATE OF COLORADO,)
: ss.
COUNTY OF COSTILLA.)

IN THE DISTRICT COURT

NO. 1067

THE TRINCHERA IRRIGATION DISTRICT, a Municipal corporation,

Plaintiff,

-vs-

TRINCHERA RANCH, INC., a corporation, M. C. HINDERLIDER, as State Engineer of the State of Colorado, W. D. CARROLL, as Irrigation Division Engineer of Division No. 3 of the State of Colorado, GEORGE OPINCAR as Water Commissioner of Water District No. 35 of the State of Colorado, DAMACIO VIGIL, NONA CALKINS, C. L. FOOTE, as Trustee, JESSE M. DENTON, ALMA DENTON, WILLIAM HANSEN, HENRY L. ABERNATHY, THEODORE WIRTHMAN, GEORGE W. LINGER, VIRGINIA M. WELLINGTON, SAMUEL M. DENTON, ALMA CLARK, COLEY M. KING, and all unknown persons who claim any interest in and to the subject matter of this action,

Defendants.

JUDGMENT AND DECREE

The above matter coming on to be heard in open court, the plaintiff appearing by his attorney, Benjamin Griffith, the defendant Trinchera Ranch, Inc., appearing by its attorneys, Jean S. Breitenstein and John G. Reid.

Thereupon, the Court examines the files and proceedings herein and finds and determines that each and all of the defendants above named have been duly served with summons and process herein, either by personal service, or by publication, as

by law provided; that each and all of said defendants, except the defendant, Trinchera Ranch, Inc., are in default for failure to appear, plead or answer to the complaint within the period required by law, or at all; that Trinchera Ranch, Inc., has filed its answer herein, to which answer plaintiff has filed its replication, and the case comes on for trial upon the issues so joined.

The Court further finds that plaintiff filed its affidavit herein alleging that it was unable to determine whether the defendants so in default were or were not in the military service of the United States, whereupon the Court appointed Wayne Marbell of Alamosa, Colorado, attorney at law, to represent said defendants, who may be in the military service, and said attorney was present at the trial of this case and represented such defendants.

Thereupon, and on motion of plaintiff, the default of each and all of the defendants, except Trinchera Ranch, Inc., was entered for failure to appear, plead or answer to the complaint.

Thereupon the Court hears the evidence and the arguments of the parties, and the Court being well advised in the premises, doth find the issues joined herein in favor of the plaintiff and DOTH FIND:

1. On January 4, 1915 in case no. 659 on the docket of this Court a general adjudication decree, decreeing rights and priorities to the use of water in Water District No. 35 of the State of Colorado was duly made and entered by this Court and in said decree the plaintiff herein, The Trinchera Irrigation District, was awarded Reservoir Priority no. 1 of date December 4, 1906, for 19150 acre feet of water for the Mountain Home Reservoir, and Reservoir Priority no. 2 of date April 8, 1911,

for 5,000 acre feet for the Smith Reservoir. Both the Mountain Home and the Smith Reservoirs are located on and take their supply of water from Trinchera Creek and its tributaries in said water district.

2. By the terms of said decree of January 4, 1915, it was specifically provided as to the Mountain Home Reservoir that the claimants thereof are entitled to receive into said reservoir "not to exceed 15,100 acre feet during the non-irrigating season" and as to the Smith reservoir it was specifically provided that the claimants thereof are entitled to receive into said reservoir not to exceed 5,000 acre feet "during the non-irrigating season."

3. By paragraph Eleventh of said decree of January 4, 1915, it was further provided:

> "Eleventh: Wherever in this decree the term 'irrigating season' is used, it shall be taken, deemed and held as covering the period extending from the 1st day of April in any year to the first day of the following November, and wherever in this decree the term 'non-irrigating season' is used, it shall be taken, deemed and held as covering the period extending from the 1st day of November in any year to the 1st day of April of the following year."

4. The defendant Trinchera Ranch, Inc., and the plaintiff The Trinchera Irrigation District are the largest owners and users of water in Water District No. 65, and for many years have been engaged in a prolonged series of law suits and disputes over the administration of water in said water district and the construction and effect of the decrees adjudicating priorities to the rights of use of such water. On March 1, 1941, the defendant Trinchera Ranch, Inc., and the plaintiff The Trinchera Irrigation District for the purpose and with the intent of settling those

long standing controversies entered into an agreement, an executed copy of which was introduced in evidence herein, and which is hereby approved by the Court, and by the terms of which Trinchera Ranch, Inc., has consented to the modification of the aforesaid adjudication decree dated January 4, 1915 in exchange for the conveyance by The Trinchera Irrigation District to it of certain water and the consent by The Trinchera Irrigation District to the changing by Trinchera Ranch, Inc., of the points of diversion of the water so conveyed and of certain other water owned and used by Trinchera Ranch, Inc., and by which agreement the said defendant, Trinchera Ranch, Inc., has consented that the plaintiff Trinchera Irrigation District may change the points of diversion of certain water rights owned by plaintiff, as in said agreement set forth. The Court finds that said agreement is fair and equitable and that it is to the best interests of both parties to settle and forever put at rest the disputes which have existed as to their respective rights to the use of water in said Water District No. 55.

5. The modification of the decree of January 4, 1915, so as to remove the provision limiting or restricting the right of the plaintiff as the owner of the Mountain Home and Smith Reservoirs to store water therein during the non-irrigating season and to permit the plaintiff to store water in said reservoirs, in accordance with their priorities at all times of the year will affect no persons, association, corporation, or other owner or user of water in Water District No. 55, except the defendant Trinchera Ranch, Inc.

6. The plaintiff is entitled to a decree modifying and

reforming the said decree of January 5, 1915, by cancelling and expunging therefrom any and all portions restricting or limiting the rights of storage in the Mountain Home and Smith reservoirs to a particular season of the year, which reformation accords with the statutes and laws of the State of Colorado, as construed by the decisions of the Supreme Court of this State.

IT IS ACCORDINGLY CONSIDERED, ORDERED, ADJUDGED AND DECREED That the decree of this Court entered on January 4, 1915 be and the same hereby is reformed and modified by cancelling and expunging therefrom the following:

1. (a) All of Paragraph Eleventh, as hereinabove set forth.

(b) In the last line of the last paragraph of subdivision No. 94 (which relates to the Mountain Home Reservoir) the phrase "during the non-irrigating season".

(c) In the last line of the last paragraph of subdivision No. 95 (which relates to the Smith Reservoir) the phrase "during the non-irrigating season".

(d) Any and all provisions and terms of said decree which provide that ditches and canals awarded priorities therein shall receive water from their respective sources of supply "during the irrigating season".

2. That all ditches, canals, and reservoirs awarded priorities by said decree of January 4, 1915 shall have the right to take water from their respective sources of supply at all times of the year in accordance with their priorities;

3. The defendant water officials of the State of Colorado, their employees, agents and successors are enjoined and re-

quired in carrying out the said decree of January 4, 1915, to distribute water according to the respective priorities at all times of the year and without regard to either the "irrigating" or "non-irrigating season".

DONE in open Court at San Luis, in Costilla County, State of Colorado, this 23rd day of June, A. D. 1941.

BY THE COURT:

Johnson J. Palmer
JUDGE.

Entered in Book 16 Pg 574
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State of Colorado,)
) SS. In the District Court thereof.
County of Costilla.)

In the matter of the Adjudication of the Priority of right to the use of water for irrigation, in Water District No. 35, in the State of Colorado. Decretal Order.

Now on this 4th day of January, A.D. 1915, this Matter coming on for final hearing and adjudication upon the report of William R. Pyke, Referee heretofore appointed, and to whom this matter was, by order of this Court herein, entered upon the 8th day of June A.D. 1913, referred for the purposes in said order mentioned, as well as upon the evidence taken by and before the said Referee in this Matter, all of which findings, evidence and an abstract of said testimony have been and are duly filed among the records of this Court; and the Court having been fully advised in the premises and being fully satisfied, from the several returns of notices, certificates of publication, affidavits and certificates of the said Referee, that the said testimony returned and upon which the findings herein returned have severally been made, was taken upon due and lawful notice in all respects according to the provisions of the statutes in such case made and provided and the rules and several orders of this Court in that behalf in this Matter made and entered; and further, that the notice of the time set for filing exceptions herein to said report and findings, and of the time set for the final hearing thereof and of this cause, have been duly served upon all parties entitled thereto; and, further, that all interested in this proceeding and entitled to notice in any stage of the proceedings therein have at all times been duly notified, according to law and the orders of this Court; and the report of the said Referee, William R. Pyke together with the returns of service of notices, affidavits, lists, indices and findings, having

been found to be in due form, and the Court having now here in open court heard all parties and their attorneys, as far as they desired to be heard respectively, touching the several matters herein, and being fully advised in the premises;

It is hereby ordered, adjudged and decreed by the said Court, that the several findings of the Referee, reported to and filed in this Court, be in all things approved and confirmed, and that they be taken, deemed and held in all respects, as the findings of this Court in this matter; and further, that all and singular, the ditches canals and reservoirs hereinafter set forth be ordered, adjudged and decreed to have the several rights, numbers and priorities of the waters of the several streams respectively, as hereinafter more particularly set forth, subject, however, to the following next mentioned provisions, to-wit:

First;- No part of this decree shall in any case be taken, deemed or held to confirm, impair or in any manner affect any claim of right or property held or claimed by any person, association or corporation in or to any ditch, structure or canal, meaning the structure itself, or any part thereof, or the land or any part thereof on which any of the same may be situated, or the land held or claimed as right of way of any of them; or any right, interest or claim of property whatever in or relating to any of them.

Second;- No part of this decree shall be taken, deemed or held as affecting in any manner any question or claim of right between the owners or claimants of any such ditch, as between themselves, whether as part owners or stockholders herein, or as stockholders in any corporation, or joint stock company, claiming or to claim the same or any part thereof; nor shall it affect the rights, interests or claims of any consumers of water for irrigation, manufacturing or domestic purposes, whether as part owner, lessee, shareholder or

stockholder in any corporation holding or controlling the same, or as purchaser of water therefrom, as against the rights, interests or claims of any other party or parties interested, or claiming interest or right in or to such ditch, as owner, lessee, or part owner thereof, or as shareholder, or stockholder in any corporation claiming the same, or as purchaser of water therefrom; neither shall it affect any claim of priority made, or resisted as between parties using water for said purposes from the same appropriation in any ditch, as to such water, except as hereinafter designated.

Third;- This decree shall not affect any claim, interest or right of any corporation as to the right of property in any ditch, or the ground on which the same may be situated, or any question which may arise between the stockholders thereof, or between them and the State, people, or any party, upon the dissolution of such corporation by expiration of its charter, or otherwise, as to any appropriation of water, or rights secured by condemnation proceedings, by such corporation during its legal existence.

Fourth;- No part of this decree shall affect in any way any right, claim, or interest now or hereafter held, or claimed to any appropriation of water made after the closing of testimony touching the construction or enlargement of, or in any manner relating to, the ditch by means of which such appropriation may have been made.

Fifth;-No part of this decree shall be taken or held as adjudicating to any claimants, or present or future representatives of any claim to any ditch, or party holding, using or controlling the same, any right to take and carry by means of any ditch herein mentioned, or by virtue of any appropriation herein adjudged, any water from any natural stream, except to be applied to the use for which such appropriation has been made; nor to allow any excessive use or waste of water whatever, nor to allow any diversion of water, except for lawful and beneficial uses.

Sixth; This decree shall be taken, deemed and held as intended to determine and establish the several priorities of right by appropriation of water from the streams of said Water District No. 35, for irrigation, of the several ditches canals and reservoirs in said district, concerning which testimony has been offered in this matter, with the amount of water held to have been appropriated through the said ditches canals and reservoirs respectively, except as hereinafter conditioned.

Seventh;- The priorities hereby established are granted and made absolute, except so far as hereinafter conditioned, but the user of the respective amounts of water hereby granted and decreed is restricted to the practicable utilization thereof, by the parties entitled thereto, and water is only allowed to flow into said ditches in such ratio and proportion as the land under the same respectively shall be actually irrigated, that is to say, tilled land, meadow or good pasture land; and as actually needed and utilized therefor.

Eighth;- Throughout said District No. 35 one cubic foot of water per second of time is hereby adjudged and decreed to be sufficient in amount to properly irrigate 40 acres of land, save and except certain decrees herein, wherein the evidence, upon which said decrees are based, tends to show that a less amount of water than the amount above specified, is sufficient to properly irrigate said land; and provided further, that where the land for which any ditch is constructed is less in quantity than 40 acres, said ditch is allowed in this decree one cubic foot of water per second of time.

Nineth;- It is hereby found that the Ute, Sangre de Christo, Trinchera, Ojita, Sand, Minas, Barbara, Bear, Blanca, North Zapato, Middle Zapato, South Zapato, Slag, Middle Uracca, South Uracca and Spring (being the next creek North of Ute creek) Creeks, and Palmer springs, South Swamp, North Swamp and San Luis Lake, hereinafter mentioned, from which priorities of right to the use of water are herein decreed, are natural streams and natural bodies of water of the State of Colorado.

Tenth:-- This decree shall not be taken or held as establishing or decreeing any priorities of right to the use of water in Water District No. 35, which will conflict with, or in any manner affect the priorities heretofore decreed in this Water District, but all priorities herein decreed shall be Junior and subsequent to all priorities then so decreed.

Eleventh;- Wherever in this decree the term "irrigating season" is used, it shall be taken, deemed and held as covering the period extending from the first day of April in any year, to the first day of the following November, and wherever in this decree the term "non-irrigating season" is used, it shall be taken deemed and held as covering the period extending from the first day of November in any year to the first day of April of the following year.

Twelfth;- Subject to said several provisions the said several ditches hereinafter named are numbered and given Priorities as follows, that is to say;-

Appropriations by Original Construction (only)

The several ditches and canals, claiming rights in this proceeding, are hereby numbered and decreed rights, during the irrigation season, according to priority of appropriation of water thereby made by the original construction thereof, with the dates of said priorities and amounts of water decreed thereon to be as follows:

No. of Priority.	Name of Ditch or Canal.	Date of Priority	Amount Cubic Feet Per Second.
42	Canon Blanca Ditch	Dec.31st, 1867	5
43	Minas Creek Ditch	Dec.31st, 1867	2
44	Caldwell Ditch No. 1	Dec.31st, 1887	2
45	Caldwell Ditch No. 2	Dec.31st, 1887	2
46	Denton Ditch	Dec.31st, 1887	3
47	Lascano Ditch	May 31st, 1888	2
48	Lucero Ditch No. 1	Dec.31st, 1888	2.5
49	Old Hillside Ditch	Dec.31st, 1890	1
50	Hoffman Ditch	Dec.31st, 1891	2
51	Little Alta Ditch	Dec.31st, 1891	½
52	Arellano Ditch	May 20th, 1892	1
53	Barbara Ditch	May 15th, 1893	2.5
54	Lastre Ditch	April 1st,1898	5
55	The Zapato Ditch	July 1st, 1901	25
56	Salame Arrogon Ditch	May 31st, 1902	2
57	Denton Ditch No. 1	Dec. 31st,1905	1.31
58	Denton Ditch No. 2	Dec. 31st,1905	1.31
59	Medina Ditch	May 1st, 1907	1.
60	Cascade Ditch (from Little Bear Creek)	July 27th,1907	14.2
60	Cascade Ditch (From Blanca Creek)	July 27th,1907	3
61	Supply Ditch No. 4	Apr. 5th, 1908	5
62	The Medano Sand Creek Ditch	July 1st, 1908	40
63	Trinchera-Garland Canal	Nov. 31st, 1908	171.89

64	Zapato Ditch No. 3	Feb. 19th, 1909	16
65	San Luis Lake Overflow Ditch	Apr. 30th, 1909	1.33
66	Amended Ute Creek High Line Ditch	Aug. 30th, 1910	47.1
67	The Trinchera High Line Ditch	Dec. 6th, 1910	64.2
68	South Swamp Ditch	Feb. 10th,1911	53
69	North Swamp Ditch	Feb. 14th,1911	53
70	Dorothy Ditch	Mar. 31st,1911	4
71	Sangre de Christo Ditch	Apr. 17th,1911	45
72	King Ditch No. 2	July 20th,1911	4
73	J.M.Hughes Ditch	Sept.13th,1911	1
74	Minas Ditch No. 2	Mar. 29th,1912	1
75	Hansen Ditch	July 8th,1912	1.5
	Ute Creek Ditch and Pipe Line	No decree	0
	Ute Creek High Line Ditch	No decree	0
	Smith Reservoir Outlet Flume & Ditch,	No decree	0
	Indian Creek Ditch	No decree	0

Reservoir Appropriations.

The several reservoirs claiming rights in this proceeding, are hereby numbered and decreed rights, according to priority of appropriation of water thereby made, by the original construction thereof, with the dates of said priorities and amounts of water decreed thereon, to be as follows:

No. of Priority.	Name of Reservoir	Date of Priority.	Amount acre Feet.
1	Mountain Home Reservoir	Dec. 4th, 1906	19150
2	Smith Reservoir	Apr. 8th, 1911	5000
	Indian Creek Reservoir	No decree.	
	Enlargement of Smith Reservoir	No decree.	
	O'Niel Reservoir	No decree.	
	West End Reservoir	No. decree.	

List of Priorities by Appropriation.

The several appropriations of water from the several ditches, canals and reservoirs, claiming rights in this proceeding, are hereby numbered and decreed rights, with the dates of said priorities and amounts of water decreed thereon, to be as follows:

No. of Priority.	Name of Ditch, Canal or Reservoir.	Date of Priority.	Cubic Feet Per Second Amount.
48	Canon Blanca Ditch	Dec.31st, 1867	5
49	Minas Creek Ditch	Dec.31st, 1867	2
50	Caldwell Ditch No. 1	Dec.31st, 1887	2
51	Caldwell Ditch No. 2	Dec.31st, 1887	2
52	Denton Ditch	Dec.31st, 1887	3
53	Lascano Ditch	May 31st, 1888	2
54	Lucero Ditch No. 1	Dec.31st, 1888	2.5
55	Old Hillside Ditch	Dec.31st, 1890	1
56	Hoffman Ditch	Dec.31st, 1891	2
57	Little Alta Ditch,1st Appr'n	Dec.31st, 1891	½
58	Arellano Ditch	May 20th,1892	1
59	Barbara Ditch	May 15th, 1893	2.5
60	Lastre Ditch	Apr. 1st, 1898	5
61	The Zapato Ditch	July 1st,1901	25
62	Salame Arrogon Ditch	May 31st, 1902	2
63	Denton Ditch No. 1	Dec.31st, 1905	1.31
64	Denton Ditch No. 2	Dec.31st, 1905	1.31
65	Medina Ditch	May 1st, 1907	1
66	Cascade Ditch,from Bear Creek,	July 27th,1907	14.2
67	Cascade Ditch,from Blanca Creek,	July 27th,1907	3
68	Supply Ditch No. 4	Apr. 5th, 1908	5
69	The Medano Sand Creek Ditch	July 1st, 1908	40

70	Engl & Extension of Garland Ditch, From Sangre de Christo,	July 11th, 1908	143.7
71	Enlg & Extension of Garland Ditch, From Ute Creek	July 11th, 1908	133
72	Trinchera Ditch Extension	Sept.26th, 1908	213
73	Miller Enlg of Fred Etter Ditch	Nov. 1st, 1908	1
74	Trinchera-Garland Canal	Nov.21st, 1908	171.89
75	Zapato Ditch No. 3	Feb. 19th,1909	16
76	Little Alta Ditch,2nd Appr'n,	Apr. 11th,1909	½
77	Old Hillside Ditch,2nd Appr'n,	Apr. 11th,1909	1
78	San Luis Lake Overflow Ditch	Apr.30th, 1909	1.33
79	Amended Ute Creek High Line Ditch,	Aug. 30th, 1910	47.1
80	The Trinchera High Line Ditch	Dec. 6th, 1910	64.2
81	South Swamp Ditch	Feb. 10th, 1911	53
82	North Swamp Ditch	Feb. 14th, 1911	53
83	Dorothy Ditch	Mar. 31st, 1911	4
84	Barbara Ditch Extension;Minas Creek;	Apr.15th,1911	2
85	Barbara Ditch Ext.Barbara Creek;	Apr. 15th, 1911	2
86	Sangre de Christo Ditch	Apr. 17th, 1911	45
87	King Ditch No. 2	July 20th, 1911	4
88	J.M.Hughes Ditch	Sept.13th, 1911	1
89	W.H.Meyer Enlg.Fred Etter Ditch	Jan. 15th, 1912	3
90	Arellano Ditch, 2nd Appr'n	Mar. 15th, 1912	1
91	Minas Ditch No. 2	Mar. 29th, 1912	1
92	Hansen Ditch	July 8th, 1912	1.5
93	Enlg.No.3 of Fred Etter Ditch	Mar. 14th,1914	3
94	Mountain HomeReservoir	Dec. 4th, 1906	19,150 acre ft
95	Smith Reservoir	Apr. 8th, 1911	5,000 acre ft

With reference to said several ditches and canals particularly, subject to the provisions hereinbefore contained, the Court doth find, order, adjudge and decree as follows: No. 48

Canon Blanca Ditch.

That the names of the claimants of said ditch are Eustacio Lucero and Margarito Lucero. The post office address of each one of said claimants is Blanca, Colorado.

That said ditch takes its supply of water from Canon Blanca Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the north bank of the Canon Blanca Creek, from which said ditch draws its supply of water, at a point whence the northeast corner of section 23, Township 29 south, Range 73 west bears south 4 degrees, 39 minutes west 2892 feet.

That said ditch is entitled, by original construction thereof, to Priority No. 48, of date December 31st, 1867.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch from said Canon Blanca Creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 48, not to exceed five (5) cubic feet of water per second of time, during the irrigating season.

No. 49

Minas Creek Ditch.

That the names of the claimants of said ditch are Eustacio Lucero and Margarito Lucero. The post office address of each one of said claimants is Blanca, Colorado: That said ditch takes its supply of water from Minas Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the north bank of Minas creek, from which said ditch draws its supply of

water, at a point whence the northeast corner of Section 35, Township 39 south, Range 73 west, Sixth P.M. bears north 19 degrees, 39 minutes west 59.4 feet. That said ditch is entitled by original construction thereof,to Priority No. 49, of date December 31st, 1867.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch from said Minas creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 49, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 50.

Caldwell Ditch No. 1.

That the name of the claimant of said ditch is Absalom P. Caldwell, whose post office address is Blanca, Colorado. That said ditch takes its supply of water from the North Branch of Middle Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the North bank of the North Branch of Middle Creek, from which said ditch draws its supply of water, at a point whence the southwest corner of Section 20, Township 28 south, Range 73 west, Sixth P.M. bears south 4 degrees, 36 minutes west 1015 feet. That said ditch is entitled by original construction thereof, to Priority No. 50, of date December 31st, 1887.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said North Branch of Middle Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 50, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 51.

Caldwell No. 2 Ditch.

That the name of the claimant of said ditch is Absalom P.Caldwell, whose post office address is Blanca, Colorado. That said ditch takes

its supply of water from a branch of Middle creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35 on the south bank of a branch of Middle Creek, from which said ditch draws its supply of water, at a point whence the southwest corner of Section 20, Township 28 south, Range 73 west, Sixth P.M. bears south 1 degree, 30 minutes west 484 feet. That said ditch is entitled by original construction thereof, to Priority No. 51, of date December 31st, 1887.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said branch of Middle Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 51, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 52

Denton Ditch.

That the names of the claimants of said ditch are Jesse M. Denton and Alma Denton, the post office address of each one of whom is Hooper, Colorado, and also Blanca, Colorado. That said ditch takes its supply of water from South Uracoa Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Alamosa, in Water District No. 35, on the north bank of South Uracoa Creek, from which said ditch draws its supply of water, whence the south west corner of Section 31, Township 28 south, Range 73 west Sixth P.M. bears north 87 degrees 45 minutes west 2651 feet. That said ditch is entitled by original construction thereof, to Priority No. 52, of date December 31st, 1887.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said South Uracoa Creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto under Priority No.52, not to exceed three (3) cubic feet of water per second of time, during the irrigating season.

No. 53.

Lasoano Ditch.

That the name of the claimant of said ditch is Josefita Lasoano, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Ute Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the east bank of the Ute Creek, from which said ditch draws its supply of water whence the west ¼ corner of Section 15, Township 30 south, Range 7 3 west, Sixth P.M. bears south 34 degrees, 7 minutes west 1211.13 feet. That said ditch is entitled by original construction thereof, to Priority No. 53, of date May 31st, 1888.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 53, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 54.

Lucero Ditch No. 1.

That the names of the claimants of said ditch are Eustacio Lucero and Margarito Lucero, the post office address of each one of whom is, Blanca, Costilla, County, Colorado. That said ditch takes its supply of water from Blanca Creek. It is used for the irrigation of lands,

The headgate of said ditch is located at a point on the south bank of Blanca Creek, from which said ditch draws its supply of water, whence the northeast corner of Section 27, Township 29 south, Range 73 West bears north 44 degrees, 45 minutes west 3186 feet. That said ditch is entitled by original construction thereof, to Priority No. 54, of date December 31st, 1888.

And it is hereby ordered, adjudged and decreed, that there be allowedto flow into said ditch, from said Blanca Creek, for the use afore said and for the benefit of the parties lawfully entitled thereto, under

Priority No. 54, not to exceed two and five-tenths (2.5) cubic feet of water per second of time, during the irrigating season.

No. 55

Old Hillside Ditch.

That the name of the claimant of said ditch is William Hansen, whose post office address is Alamosa, Colorado. That said ditch takes its supply of water from Middle Zapato Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the west bank of Middle Zapato Creek, from which said ditch draws its supply ofwater, whence the southeast corner of Section 4, Township 39 south, Range 73 west, Sixth P.M. bears south 41 degrees, 37 minutes west 1988 feet. That said ditch is entitled by original construction thereof, to Priority No. 55, of date December 31st, 1890.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Middle Zapato Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under priority No. 55, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

And it is hereby further ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Zapato Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 77, of date April 11th, 1909, being Second Appropriation, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

No. 56.

The Hoffman Ditch.

That the name of the claimant of said ditch is Joseph Hoffman, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Trinchera Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the north bank of Trinchera Creek, from which said ditch draws its supply of water, whence the southwest corner of Section 35, Township 30 South Range 72 west, bears south 47 degrees, 14 minutes west 1930.2 feet. That said ditch is entitled by original construction thereof, to Priority No. 56, of date December 31st, 1891.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch from said Trinchera Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 56, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 57.

The Little AltaDitch.

That the name of the claimant of said ditch is William Hansen, whose post office address is Alamosa, Colorado. That said ditch takes its supply of water from Slag Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, on the north bank of Slag Creek, from which said ditch draws its supply of water, whence the southeast corner of section 4, Township 28 south, Range 73 west bears north 69 degrees and 13 minutes west 1773.4 feet. That said ditch is entitled by original construction thereof, to Priority No. 57, of date December 31st, 1891.

And it is hereby ordered, adjudged and decreed, that there be allowedto flow into said ditch, from said Slag Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under priority No. 57, not to exceed one-half ($\frac{1}{2}$) cubic foot of water per second of time, during the irrigating season.

And it is hereby further ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Slag Creek, for the use

aforesaid, and for the benefit of the party lawfully entitled thereto, under Priority No. 76, of date April 11th, 1909, being Second Appropriation, not to exceed one-half (½) cubic foot of water per second of time, during the irrigating season.

No. 58.

The Arellano Ditch.

That the name of the claimant of said ditch is William Hansen, whose post office address is Alamosa, Colorado. That said ditch takes its supply of water from Barbara Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, Stateof Colorado, in said Water District No. 35, on the east bank of Barbara Creek, from which said ditch draws its supply of water, whence the east quarter corner of Section 24, Township 29 south, Range 73 west Sixth P.M. bears south 82 degrees, 35 minutes east 2476.7 feet. That said ditch is entitled by original construction thereof, to Priority No. 58, of date May 20th, 1892.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Barbara Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 58, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

And it is hereby further ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Barbara Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 90, of date March 15th, 1913, being Second Appropriation, not to exceed one(1) cubic foot of water per second of time, during the irrigating season.

No. 59.

The Barbara Ditch.

That the names of the claimants of said ditch are Eustacio Lucero and Margarito Lucero, the post office address of each one of whom is Blanca, Colorado. That said diton takes its supply of water from

Barbara Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35,on the north bank of Barbara Creek, from which said ditch draws its supply of water whence the northeast corner of Section 26, Township 29 South, Range 73 west, Sixth P.M. bears south 63 degrees, 7 minutes west 2616 feet. That said ditch is entitled by original construction thereof, to Priority No. 59, of date May 15th, 1893.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Barbara Creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 59, not to exceed two and five-tenths (2.5) cubic feet of water per second of time, during the irrigating season.

No. 60.

The Lastre Ditch.

That the names of the claimants of said ditch are Henry L. Abernathy and Theodore Werthman, the post office address of each one of whom is Hooper, Colorado. That said ditch takes its supply of water from the east branch of Sand Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, on the west bank of the East Branch of Sand Creek, from which said ditch draws its supply of water, whence the northwest corner of Section 13, township 40 North, Range 11 East N.M.P.M. bears north 22 degrees, 57 minutes west 1937.3 feet. That said ditch is entitled by original construction thereof, to Priority No. 60, of date April 1st, 1898.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said East Branch of Sand Creek, for the use aforesaid for the benefit of the parties lawfully entitled thereto under Priority No. 60, not to exceed five (5) cubic feet of water per second of time, during the irrigating season.

No. 61.

The Zapato Ditch.

That the name of the claimant of said ditch is George W. Linger, whose post office address is Hooper, Colorado. That said ditch takes its supply of water from the North and Middle Zapato Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Alamosa, State of Colorado, on the south bank of the North and Middle Zapato Creek, from which said ditch draws its supply of water, whence the southwest corner of Section 32, Township 37 south, Range 73 west of the Sixth P.M. bears south 70 degrees, 11 minutes west 2155 feet. That said ditch is entitled by original construction thereof, to Priority No. 61, of date July 1st, 1901.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said North and Middle Zapato Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 61, not to exceed twenty-five (25) cubic feet of water per second of time, during the irrigating season.

No. 62.

The Salame Arrogon Ditch.

That the name of the claimant of said ditch is William H. Meyer, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Ute Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the west bank of Ute Creek, from which said ditch draws its supply of water, whence the west quarter corner of Section 15, Township 30 south, Range 72 west, Sixth P.M. bears north 82 degrees, 51 minutes east 813.6 feet. That said ditch is entitled by original construction thereof, to Priority No. 62 of date May 31st, 1902.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use

aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 62, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 63.

Denton Ditch No. 1.

That the name of the claimant of said ditch is Jesse M. Denton, whose post office address is Hooper, Colorado, and also Blanca, Colorado. That said ditch takes its supply of water from Uracca Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Alamosa, in said Water District No. 35, on the North Bank of a branch of Uracca Creek, from which said ditch draws its supply of water, whence the east quarter corner of Section 20, Township 38 south, Range 73 west Sixth P.M. bears south 77 degrees west 700 feet. That said ditch is entitled by original construction thereof, to Priority No. 63, of date December 31st, 1905.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Branch of Uracca Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 63, not to exceed one and thirty-one-one-hundredths (1.31) cubic feet of water per second of time, during the irrigating season.

No. 64.

Denton Ditch No. 2.

That the name of the claimant of said ditch is Jesse M. Denton, whose post office address is Hooper, Colorado, and also Blanca, Colorado. That said ditch takes its supply of water from Uracca Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Alamosa, in said Water District No. 35, on the south bank of Uracca Creek from which said ditch draws its supply of water, whence the west quarter corner of Section 20, Township 38 south, Range 73 west, Sixth

P.M. bears south 6 degrees, 24 minutes west 480 feet. That said ditch is entitled by original construction thereof, to Priority No. 64, of date December 31st, 1905.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Uracca Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 64, not to exceed one and thirty-one-one-hundredths (1.31) cubic feet of water per second of time, during the irrigating season.

No. 65.

The Medina Ditch.

That the name of the claimant of said ditch is William H. Meyer, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Spring Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, in said Water District No. 35, on the northwest bank of Spring Creek, from which said ditch draws its supply of water, whence the southwest corner of Section 16, Township 30 south, Range 72 west Sixth P.M. bears south 56 degrees, 2 minutes west 1733 feet. That said ditch is entitled by original construction thereof, to Priority No. 65, of date May 1st, 1907.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Spring Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 65, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

No. 66.

The Cascade Ditch.

That the names of the claimants of said ditch are Stephen Calkins, F. M. Hare, S. F. Peters, Sam Caldwell and S. T. Kisterson, the post office address of each one of whom is Blanca, Costilla County, Colorado.

That said ditch takes its supply of water from Little Bear Creek and from Blanca Creek. It is used for the irrigation of lands.

The headgate No. 1 of said ditch is located at a point on the west bank of Little Bear Creek, from which said ditch draws its supply of water whence the southwest quarter of Section 16, Township 29 south, Range 73 west, Sixth P.M. bears south 36 degrees, 6 minutes west 11670 feet. That said ditch is entitled by original construction thereof, to Priority No. 66, of date July 27th, 1907.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Little Bear Creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 66, not to exceed fourteen and two-tenths (14.2) cubic feet of water per second of time, during the irrigating season.

The headgate No. 2 of said ditch is located at a point, in the County of Costilla, State of Colorado, whence the same bears north 32 degrees east 545 feet from the southeast corner of the west½ of the northwest ¼ of section 29, Township 29 S.R. 73 west Sixth P.M., the said headgate being located on the south bank of Blanca Creek, sometimes called White Mountain Creek (from which stream the said headgate No. 2 receives its supply of water) the southeast corner of Section 30, Township 29 south, Range 73 west Sixth P.M. bears north 59 degrees and 38 minutes east 4370 feet. That said ditch is entitled by original construction thereof, to Priority No. 67 , of date July 27th, 1907.

And it is further hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Blanca Creek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 67, not to exceed three (3) cubic feet of water per second of time, during the irrigating season. .

No. 68.

The supply Ditch No. 4, (a tributary of the Sierra Blanca Ditch).

That the name of the claimant of said ditch is Virginia M. Wellington whose post office address is Alamosa, Colorado. That said ditch takes its supply of water from South Zapato Creek. It is used for the irrigation of lands.

The headgateof said ditch is located at a point, in the County of Costilla, State of Colorado, on the left bank of South Zapato Creek, from which said stream draws its supply of water, whence the southeast quarter corner of Section 8, Township 38 south, Range 73 west Sixth P.M. bears south 73 degrees west 7151 feet. That said ditch is entitled by original construction thereof, to Priority No. 68, of date April 5th, 1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said South Zapato Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 68, not to exceed five (5) cubic feet of water per second of time, during the irrigating season.

No. 69.

The Medano Sand Creek Ditch.

That the name of the claimant of said ditch is George W. Linger, whose post office address is Hooper, Colorado. That said ditch takes its supply of water from Sand Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Alamosa, Stateof Colorado, on the southeast bank of Sand Creek, from which said ditch draws its supply of water, whence the northeast corner of Section 6, Township 40 North, Range 12 East N.M.P.M. bears south 13 degrees, 32 minutes west 2623 feet. That said ditch is entitled by original construction thereof, to Priority No. 69, of date July 1st,1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Sand Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 69, not to exceed forty (40) cubic feet of water per second of time during the irrigating season.

No. 70.

Enlargement & Extension of Garland Ditch, From Sangre de Cristo Creek. That the name of the claimant of said ditch is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from Sangre de Cristo Creek, through Headgate No. 1, and from Ute Creek, through Headgate No. 2. It is used for the irrigation of lands.

Headgate No. 1 of said ditch is located at a point, in the County of Costilla, State of Colorado, on the right, or north bank of Sangre de Cristo Creek, from which said ditch draws its supply of water, whence the west quarter corner of Section 33, Township 30 south, Range 72 west, Sixth P.M. bears south 86 degrees 58 minutes west 3461.8 feet. That said ditch is entitled by Appropriation, to Priority No. 70, of date July 11th, 1908.

Headgate No. 2 of said ditch is located at a point, in the County of Costilla, State of Colorado, on the right, or west bank of Ute Creek, from which said ditch draws its supply of water, whence the west quarter corner of Section 31, in said township and range, bears south 80 degrees, 30 minutes west 1740.2 feet. That said ditch is entitled by Appropriation, to Priority No. 71, of date July 11th, 1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Sangre de Cristo Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 70, not to exceed one hundred forth-three and seven-tenths (143.7) cubic feet of water per second of time, during the irrigating season.

And it is further, hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 71, not to exceed one hundred twenty-three (123) cubic feet of water per second of time, during the irrigating season..

No. 72.

Trinchera Ditch Extension.

That the name of the claimant of said ditch is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from the Rio Trinchera. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, on the south bank of the Rio Trinchera, from which said ditch draws its supply of water, whence the southwest corner of Section 35, Township 30 south, Range 72 west of the Sixth P.M. bears south 53 degrees, 43 minutes west 2137 feet. That said ditch is entitled by Appropriation, to Priority No. 72, of date September 26th, 1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Rio Trinchera, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 72, not to exceed two hundred twelve (212) cubic feet of water per second of time, during the irrigating season.

No. 73.

Miller Enlargement of Fred Etter Ditch.

That the name of the claimant of said ditch is W.S.Miller, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Ute Creek. It is usedfor the irrigation of lands.

The headgate of said ditch is located at a point on the south bank of Ute Creek, in Water District No. 35, from which said ditch draws its supply of water, whence the northwest corner of Section 15, Township 30, south, Range 72 west Sixth P.M. bears north 78 degrees, 4 minutes west 1409.5 feet. That said ditch is entitled by Appropriation, to Priority No. 73, of date November 1st, 1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 73, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

No. 74.

Trinchera - Garland Canal.

That the name of the claimant of said Canal is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said Canal takes its supply of water from Trinchera Creek. It is used for the irrigation of lands.

The headgate of said Canal is located at a point, in the County of Costilla, State of Colorado, on the right bank of Trinchera Creek, from which said Canal draws its supply of water, whence the southwest corner of Section 35, Township 30 south, Range 72 west of the Sixth P.M. bears south 9 degrees, 6 minutes west 1163.5 feet. That said Canal is entitled, by original construction, to Priority No. 74, of date Nov. 21st, 1908.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said Canal, from said Trinchera Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 74, not to exceed one hundred seventy-one and eighty-nine-one-hundredths (171.89) cubic feet of water per second of time, during the irrigating season.

No. 75.

Zapato Ditch No. 3.

That the name of the claimant of said ditch is George W. Linger, whose post office address is Hooper, Colorado, and Denver, Colorado. That said ditch takes its supply of water from South Zapato Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Alamosa, State of Colorado, on the North bank of South Zapato Creek, from which said ditch draws its supply of water, whence the southwest corner of Section 16, Township 38 south, Range 73 west bears north 48 degrees 35 minutes west 1330 feet distant; being at the foot of Zapato falls.

That said ditch is entitled by original construction, to Priority No. 75, of date February 19th, 1909.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said South Zapato Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 75, not to exceed sixteen (16) cubic feet of water per second of time, during the irrigating season.

No. 78.

San Luis Lake Overflow Ditch.

That the name of the claimant of said ditch is Jesse M. Denton, whose post office address is Hooper, Alamosa County, Colorado. That said ditch takes its supply of water from an overflow drain, or creek, from San Luis Lake. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the south bank of an overflow drain or creek, from which said ditch draws its supply of water, whence the northwest corner of Section 2, Township 39 North, Range 11 west, bears north 45 degrees, 45 minutes.

That said ditch is entitled by original construction, to Priority No.78, of date April 30th, 1909.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch from said overflow drain or creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 78, not to exceed one and thirty-three-one-hundredths (1.33) cubic feet of water per second of time, during the irrigating season.

No. 79.

Amended Ute Creek High Line Ditch.

That the name of the claimant of said ditch is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from Ute Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, on the west bank of Ute Creek, from which said ditch draws its supply of water, whence the northeast corner of

Section 16, Township 30 south, Range 72 west, Sixth P.M. bears north 45 degrees 10 minutes west 1092 feet. That said ditch is entitled by Appropriation, to Priority No. 79, of date August 30th, 1910.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 79, not to exceed forty-seven and one-tenth (47.1) cubic feet of water per second of time, during the irrigating season.

No. 80.

The TrinoheraHigh Line Ditch.

That the name of the claimant of said ditch is The Trinohera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from Trinohera Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, on the south bank of Trinohera Creek, from which said ditch drawsits supply of water, whence the east quarter corner of Section 35, Township 30 south, Range 72 west, Sixth P.M. bears north 44 degrees, 35 minutes east 946 feet. That said ditch is entitled by original construction, to Priority No. 80, of date December 6th,1910.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Trinohera Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 80, not to exceed sixty-four and two-tenths (64.2) cubic feet of water per second of time, during the irrigating season.

No. 81.

South Swamp Ditch.

That the name of the claimant of said ditch is The Trinohera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from certain swamp lands. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, whence the north quarter corner of Section

26, Township 30, south, Range 73 west of the Sixth P.M. bears north 5 degrees, 48 minutes east 1106.5 feet. That said ditch is entitled by original construction, to Priority No. 81, of date February 10th, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch from said swamp lands, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 81, not to exceed fifty-three (53) cubic feet of water per second of time, during the irrigating season.

No. 82.

North Swamp Ditch.

That the name of the claimant of said ditch is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from certain swamp lands. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, whence the north quarter corner of Section 28, Township 30 South, Range 73 west of the Sixth P.M. bears north 61 degrees 45 minutes west 1423 feet. That said ditch is entitled by original construction, to Priority No. 82, of date February 14th, 1911.

Andit is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said swamp lands, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 82, not to exceed fifty-three (53) cubic feet of water per second of time, during the irrigating season.

No. 83.

The Dorothy Ditch.

That the name of the claimant of said ditch is Linnie R. King, whose post office address is Hooper, Alamosa County, Colorado. That said ditch takes its supply of water from Canon Blanca Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the north bank of Canon Blanca Creek, from which said ditch draws its supply of water,

whence the southeast corner of section 14, Township 29 south, Range 73 west, Sixth P.M. bears south 4 degrees, 30 minutes west 2890 feet. That said ditch is entitled by original construction, to Priority No. 83, of date March 31st, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Canon Blanca Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 83, not to exceed four (4) cubic feet of water per second of time, during the irrigating season.

No. 84.

Barbara Ditch Extension, from Minas Creek.

That the names of the claimants of said ditch are Absalom P. Caldwell and Sam. Denton, the post office address of each one of whom is Blanca, Costilla County, Colorado. That said ditch takes its supply of water from Minas Creek. It is used for the irrigation of lands.

Headgate No. 1 is located at a point on the North bank of Minas Creek, from which said ditch draws its supply of water, whence the ¼ corner between sections 24 and 25, Township 29 south, Range 73 west, Sixth P.M. bears north 48 degrees, 24 minutes west 1416 feet.

Headgate No. 2 is located at a point on the north bank of Barbara Creek, from which said ditch draws its supply of water, whence the ¼ corner between sections 24 and 25, Township 29 south, Range 73 west, bears south 28 degrees, 54 minutes east 773 feet. That said ditch is entitled by Appropriation, to Priority No. 84, of date April 15th, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Minas Creek, for the use aforesaid and for the benefit of the parties lawfully entitledthereto, under Priority No. 84, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

That The Barbara Ditch Extension, from Barbara Creek, is entitled by Appropriation, to Priority No. 85, of date April 15th, 1911.

And it is further, hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said BarbaraCreek, for the use aforesaid and for the benefit of the parties lawfully entitled thereto, under Priority No. 85, not to exceed two (2) cubic feet of water per second of time, during the irrigating season.

No. 86.

Sangre de Cristo Ditch.

That the name of the claimant of said ditch is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said ditch takes its supply of water from Sangre de Cristo Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, on the left bank of Sangre de Cristo Creek, from which said ditch draws its supply of water, whence the west quarter corner of Section 27, Township 30 south, Range 72 west, of the Sixth P.M. bears south 32 degrees, 35 minutes west 588 feet. That said ditch is entitled, by original construction, to Priority No. 86, of date Apr. 17th, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Sangre de Cristo Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 86, not to exceed forty-five (45) cubic feet of water per second of time, during the irrigating season.

No. 87.

King Ditch No. 2.

That the name of the claimant of said ditch is Coley M. King, whose post office address is Blanca, Costilla County, Colorado. That said ditch takes its supply of water from Middle Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, Water District No. 35, on the north bank of Middle Creek, from which said ditch draws its supply of water, whence the south quarter

corner of Section 20, Township 38 south, Range 73 west, bears north 33 degrees, 12 minutes west 1405 feet. That said ditch is entitled by original construction, to Priority No. 87, of date July 20th, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Middle Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 87, not to exceed four (4) cubic feet of water per second of time, during the irrigating season.

No. 88.

J. M. Hughes Ditch.

That the claimant of said ditch is J. M. Hughes, whose post office address is Blanca, Colorado. That said ditch takes its supply of water from Barbara Creek, (sometimes called Spring Creek); It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the south bank of Barbara Creek, from which said ditch draws its supply of water, whence the quarter corner between Sections 24 and 25, Township 39 south, Range 73 west of the Sixth P.M., bears north 13 degrees, 50 minutes west 1942 feet. That said ditch is entitled, by original construction, to Priority No. 88, of date September 13th, 1911.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Barbara Creek, or Moffats Creek for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 88, not to exceed one (1) cubic foot of water per second of time, during the irrigating season.

No. 89.

W.H. Meyer Enlargement of Fred Etter Ditch.

That the name of the claimant of said ditch is William H. Meyer, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Ute Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the south bank of Ute Creek, from which said ditch draws its supply of water, whence the northwest corner of Section 15, Township 30 south, Range 72 west, Sixth P.M. bears north 78 degrees, 4 minutes west 1409.5 feet. That said ditch is entitled by Appropriation, to Priority No. 89, of date January 15th, 1913.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 89, not to exceed three (3) cubic feet of water per second of time, during the irrigating season.

No. 91.

Minas Ditch No. 2.

That the name of the claimant of said ditch is William Hansen, whose post office address is Alamosa, Colorado. That said ditch takes its supply of water from Minas Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point in the County of Costilla, State of Colorado, Water District No. 35, on the south bank of Minas Creek, from which said ditch draws its supply of water, whence the southeast corner of Section 24, Township 39 south, Range 73 west, Sixth P.M. bears north 75 degrees, 36 minutes west 333 feet. That said ditch is entitled, by original construction, to Priority No. 91, of date March 29th, 1913.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Minas Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 91, not to exceed one (1) cubic feet of water per second of time, during the irrigating season.

No. 93.

The Hansen Ditch.

That the name of the claimant of said ditch is William Hansen, whose post office address is Alamosa, Colorado. That said ditch takes its supply of

water from Blanca Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point, in the County of Costilla, State of Colorado, Water District No. 35, on the east bank of Blanca Creek, from which said ditch draws its supply of water, whence the northwest corner of Section 13, Township 39 south, Range 73 west, Sixth P.M., bears north 4 degrees, 33 minutes, 54 seconds west 1204.68 feet. That said ditch is entitled, by original construction, to Priority No. 92 of date July 8th, 1913.

And it is hereby ordered, adjudgedand decreed, that there be allowed to flow into said ditch, from said Blanca Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 92, not to exceed one and five-tenths (1.5) cubic feet of water per second of time, during the irrigating season.

No. 93.

Enlargement No. 3, Fred Etter Ditch.

That the name of the claimant of said ditch is William H. Meyer, whose post office address is Fort Garland, Colorado. That said ditch takes its supply of water from Ute Creek. It is used for the irrigation of lands.

The headgate of said ditch is located at a point on the south bank of Ute Creek, from which said ditch draws its supply of water, whence the northwest corner of Section 15, Township 30 south, Range 72 west, bears 78 degrees, 4 minutes west 1409.5 feet. That said ditch is entitled by Appropriation, to Priority No. 93, of date March 14, 1914.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said ditch, from said Ute Creek, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 93, not to exceed three (3) feet of water, per second of time, during the irrigating season.

No. 94.

The Mountain Home Reservoir.

That the name of the claimant of said reservoir is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address

is Blanca, Colorado. That said reservoir takes its supply of water from Trinchera Creek and its tributaries. It is used for the irrigation of lands.

The dam of said reservoir is located across Trinchera Creek, in the southwest quarter of Section thirty-six, Township 30 south, Range 73, west in Costilla County, Colorado.

And it is hereby ordered, adjudged and decreed, that there be allowed to flow into said reservoir, from said Trinchera Creek and its tributaries, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 94, being Reservoir Appropriation Priority No. 1, not to exceed nineteen thousand one hundred fifty (19,150) acre feet of water, during the non-irrigating season.

No. 95.

The Smith Reservoir.

That the name of the claimant of said reservoir is The Trinchera Irrigation District, a Colorado Public Corporation. Its post office address is Blanca, Colorado. That said reservoir takes its supply of water from Trinchera, Sangre de Cristo and Spring Creeks and their tributaries. It is used for the irrigation of lands.

The dam of said reservoir is located across Trinchera Creek, in Section 4, Township 31 south, Range 73 west, in Costilla County, Colorado.

And it is hereby ordered, adjudgedand decreed, that there be allowed to flow into said reservoir, from said Trinchera, Sangre de Cristo and Spring Creeks and their tributaries, for the use aforesaid and for the benefit of the party lawfully entitled thereto, under Priority No. 95, being Reservoir Appropriation Priority No. 2, not to exceed five thousand (5000) acre feet of water, during the non-irrigating season.

Claim No. 32, Indian Creek Reservoir, is allowed no decree, because not completed.

Claim No. 34, Enlargement of Smith Reservoir, is allowedno decree, because not completed.

Claim No. 35, O'Neil Reservoir, is allowed no decree, because not completed.

Claim No. 36, West End Reservoir, is allowed no decree, because not completed.

Claim No. 37, Ojita Creek Ditch, is allowed no decree, because said statement of claim sets forth, that said ditch empties into the Mountain Home Reservoir; and the evidence adduced is too indefinite and uncertain to warrant a decree, under this claim, for an appropriation from any natural stream.

Claim No. 42, Ute Creek Ditch and Pipe Line, is allowed no decree, because not completed.

Claim No. 43, Ute Creek High Line Ditch, is allowed no decree, because decree is awarded, under Priority No. 80, to Amended Ute Creek High Line Ditch. (79 in pencil)

Claim No. 47, Smith Reservoir Outlet Flume and Ditch, is allowed no decree, because said statement of claim sets forth, that said ditch derives its supply of water from the Smith Reservoir, an artificial body of water, and not from any natural stream, or body of water; and said Smith Reservoir is herein granted a decree, under Priority No. 95; being Reservoir Appropriation Priority No. 2, for not to exceed 5,000 acre feet of water, during the non-irrigating season.

Claim No. 49, Indian Creek Ditch, is allowed no decree, because not completed.

To the Honorable Jesse C. Wiley, Judge of the District Court, sitting within and for the County of Costilla, State of Colorado:-

I herewith submit the foregoing proposed findings and decree, in the above entitled Matter.

(Signed) W. R. Pyke,

Referee.

TRINCHERA CREEK WATER RIGHTS.

P.No	Date	Name of Ditch	Cu.ft owned by		Cu.Ft owned By District
2	May 31st 1863	Meadow Ditch	Turner	1.00	
4	May 31st 1863	Nenninger	"	1.33	
5	May 1st 1864	T.J.Toben			2.66
6	May 31st 1867	Walsen No. 1.			3.00
7	June 1st 1867	Walsen No. 3.			3.00
8½	Nov.15th 1867	Ford Ditch			3.33
9	May 31st 1869	Patrick Breen			5.33
10	June 30th 1869	Hughes Ditch No.1.	Turner	1.60	
14	May 1st 1871	Arragon Ditch			2.00
17	April 30th 1872	Le Testo Ditch			4.00
24	May 31st 1872	Nenninger No.2.	Turner	1.00	
25	Oct 31st 1872	Home Ditch	"	2.00	
26	May 1st 1873	Cowgill-McCarthy	"	3.70	
28	Sept 30th 1874	Johnny Ditch	"	1.50	
29	May 1st 1875	Valdez Ditch			4.00
32	June 1st 1878	Seyfried Ditch		16.00	
34	May 31st 1879	Walsen No. 2.			1.83
36	June 15th 1883	Spring Ditch	Turner	.50	
40	Dec.10th 1887	Trinchera Canal			76.00
42	April 30th 1889	Alamos Altos	Turner	1.20	
47	April 2nd 1901	Judge Ditch	"	2.00	
56	Dec.31st 1891	Hoffman	"	2.00	
67½	Nov 18th 1907	Ojito Creek Ditch			87.50
72	Sept 26th 1908	Trinchera Extension			212.00
74	Nov.21st 1908	Trinchera Garland			171.89
80	Dec 6th 1910	Trinchera High Line			64.21
81	Feb.10th 1911	South Swamp			53.00
82	Feb.14th 1911	North Swamp			53.00
94		Mt.Home Reservoir Cap 19150 A ft			
95		Smith Reservoir " 5000 A ft.			

SANGRE DE CRISTO CREEK WATER RIGHTS.

3----	May 31st 1863 --	John Francisco Ditch			8.66
33 ---	June 1st 1878 --	Manuel Vigil Ditch	-Brenneman	3.00	
38 ---	May 2nd 1886 ---	Martin Ditch			2.00
39 ---	Oct.31st 1887 --	Garland Ditch			51.00
43 ---	May 21st 1889 --	The John Ditch	Atencio	1.67	
44 ---	May 31st 1890 --	Walsen-Beckwith-Martin			
		Beckwith		4.00	3.00
	May 31st 1890 --	Changed from # 44 to Juel Ditch 2 feet Changed from # 44 to Beckwith ditch 2 feet			
45 ---	April 20th 1895 -	Juel ditch	Beckwith	2.00	
70 ---	July 11th 1908 --	Garland Extension			143.70
86 ---	April 17th 1911--	Sangre De Cristo			45.00

Total owned by district	253.36
Total owned by others	10.67
Total out of stream	264.03

APPENDIX D
SEO Inspections

ENGINEER'S INSPECTION REPORT

INSPECTOR: MP3

OFFICE OF THE STATE ENGINEER - DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH 1313 SHERMAN STREET, ROOM 818, DENVER, CO 80203, (303) 866-3581

DAM NAME:	MOUNTAIN HOME	T: 300S	R: 0720W	S: 36	COUNTY:	COSTILLA		DATE OF INSPECTION:	4/23/2015
DAM ID:	350102	YRCompl: 1908		DAM HEIGHT(FT):	127.0	SPILLWAY WIDTH(FT):	200.0	PREVIOUS INSPECTION:	6/25/2014
CLASS:	High hazard			DAM LENGTH(FT):	490.0	SPILLWAY CAPACITY(CFS):	24000.0	NORMAL STORAGE (AF):	17964.0
DIV:	3	WD: 35		CRESTWIDTH(FT):	20.0	FREEBOARD (FT):	8.7	SURFACE AREA(AC):	597.0
EAP:	6/12/2012			CRESTELEV(FT):	8213.0	DRAINAGE AREA (AC.):	45120.0	OUTLET INSPECTED:	4/23/2015

CURRENT RESTRICTION: -- NONE --

OWNER:	TRACY KESTER,	OWNER REP.:	TRACY KESTER
ADDRESS:	TRINCHERA IRRIGATION CO.	CONTACT NAME:	WAYNE SCHWAB
	BLANCA CO 81123-0000	CONTACT PHONE:	(719) 379-3467X

INSPECTION PARTY	MARK PERRY	WAYNE SCHWAB	
REPRESENTING :	SEO Dam Safety Branch	Trinchera Irrigation Co., Superintendent	

FIELD CONDITIONS OBSERVED

WATER LEVEL: BELOW DAM CREST ~51.8 FT. Below Spillway ~40.8 FT. GAGE ROD READING 58.2 ft

GROUND MOISTURE CONDITION: [x] DRY [ ] WET [ ] SNOWCOVER OTHER

DIRECTIONS: MARK AN X FOR CONDITIONS FOUND AND UNDERLINE WORDS THAT APPLY

UPSTREAM SLOPE

PROBLEMS NOTED [x] (0)NONE [ ] (1)RIPRAP - MISSING, SPARSE, DISPLACED, WEATHERED [ ] (2) WAVE EROSION - WITH SCARPS

[ ] (3) CRACKS WITH DISPLACEMENT [ ] (4) SINKHOLE [ ] (5) APPEARS TOO STEEP [ ] (6) DEPRESSION OR BULGES [ ] (7) SLIDES

[ ] (8) CONCRETE FACING - HOLES CRACKS, DISPLACED, UNDERMINED [ ] (9) OTHER

See 2013 inspection report for details regarding history and performance of the dam from our review of the file.

- no depressions or sinkholes observed on the upstream slope or groins.

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

CREST

PROBLEMS NOTED [x] (10) NONE [ ] (11 RUTS OR PUDDLES [ ] (12) EROSION [ ] (13) CRACKS - WITH DISPLACEMENT [ ] (14) SINKHOLES

[ ] (15) NOT WIDE ENOUGH [ ] (16) LOW AREA [ ] (17) MISALIGNMENT [ ] (18) IMPROPER SURFACE DRAINAGE [ ] (19) OTHER

See 2013 inspection report for details regarding history and performance of the dam from our review of the file.

- No cracks, settlement or signs of distress were obseved.
- The owner has a crest movement survey performed annually since 2012 (prior to 2012 the last survey was done in 1994). We agreed that 5 years of annual surveys should be performed to establish a baseline, after which, if no significant movement is observed then surveys may be performed once every 5 years thereafter, in accordance with SEO Rule 15.3.2, 2-CCR 402-1.

PLEASE SUBMIT RESULTS OF SURVEY TO SEO DAM SAFETY BRANCH: results should tabulate x, y and z movement from previous surveys.

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

DOWNSTREAM SLOPE

PROBLEMS NOTED [x] (20) NONE [ ] (21) LIVESTOCK DAMAGE [ ] (22) EROSION OR GULLIES [ ] (23) CRACKS - WITH DISPLACEMENT [ ] (24) SINKHOLE

[ ] (25) APPEARS TOO STEEP [ ] (26) DEPRESSION OR BULGES [ ] (27) SLIDE [ ] (28) SOFT AREAS [ ] (29) OTHER

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

ENGINEER'S INSPECTION REPORT DATE. 4/23/2015

DAM NAME: MOUNTAIN HOME DAM I.D.: 350102

SEEPAGE

PROBLEMS NOTED ☐ (30) NONE ☐ (31) SATURATED EMBANKMENT AREA ☐ (32) SEEPAGE EXITS ON EMBANKMENT

☐ (33) SEEPAGE EXITS AT POINT SOURCE ☑ (34) SEEPAGE AREA AT TOE ☐ (35) FLOW ADJACENT TO OUTLET ☐ (36) SEEPAGE INCREASED / MUDDY

DRAIN OUTFALLS SEEN ☐ No ☑ Yes Show location of drains on sketch and indicate ☐ (37) FLOW INCREASED / MUDDY ☑ (38) DRAIN DRY / OBSTRUCTED

☐ (39) OTHER

Toe drain V-notch weir: ponded water, but no flow. Standing water below weirbox appears to be bypassing V-notch weir. Past reports indicate toe drain flow starts around Reservoir Stage 67-ft. In the SEO's 2010 inspection report, we recorded V-notch GH 0.17-ft (14 gpm) at Reservoir Stage 69.7 ft (weir found dry in 2012-2014 with reservoir below 67 ft). The 2010 inspection report also noted past accounts from the file regarding seepage bypassing the V-notch and exiting out the gravel zone.

Seepage flow at weir is monitored regularly by the dam owner and logged on their monthly inspection sheet. Please submit scan of monthly inspection sheets to the SEO Dam Safety Branch at least 1x/year in accordance with Rule 15.3.3, 2-CCR 402-1.

NOTE: Historically seepage has exited the left side of the Trinchera Creek canyon approximately 300-ft downstream of the dam, as indicated by lush vegetation and generally wet conditions. We are not aware of any studies that have determined the source of this seepage.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

OUTLET

PROBLEMS NOTED ☐ (40) NONE ☐ (41) NO OUTLET FOUND ☐ (42) POOR OPERATING ACCESS ☑ (43) INOPERABLE

☐ (44) UPSTREAM OR DOWNSTREAM STRUCTURE DETERIORATED (45) OUTLET OPERATED DURING INSPECTION ☐ YES ☑ NO

INTERIOR INSPECTED ☐ (120) NO ☑ (121)YES ☐ (46) CONDUIT DETERIORATED OR COLLAPSED ☐ (47) JOINTS DISPLACED ☑ (48) VALVE LEAKAGE

☑ (49) OTHER Dive inspection of intake pipes

See 2013 SEO Inspection report for details on history and performance of outlet works.

During the internal inspection of the concrete conduit, we observed the following deficiencies:
- crack along the crown (~0.3' deep) for the majority of its length with calcite precipitate indicated past seepage, although no seepage was observed during the current inspection.
- crack along the invert for ~100 ft downstream of the gate valves (0.3' deep).
- steel apron downstream of the gate valves is undermined and has voids behind it

Currently only 1 of 3 gate valves is operable and SEO calculations indicate at least 2 valves are needed to meet required discharge rate for emergency drawdown by Rule 5, 2-CCR 402-1 . Gate valves leak excessively, with leakage typically between 2-5 cfs.

STATUS: RJH Consultants and ASI Constructors are currently performing underwater dive inspections of the outlet intake structure, trash rack, and 30-inch intake pipes (upstream of gate valves). The divers were working on the day of this Dam Safety inspection, but were not able to locate the intake structure. During a subsequent dive they located it; however, they have not been successful at video or sonar inspections. RJH/ASI plans to install an upstream plug in one pipe, dewater it, and then video inspect one pipe. It is expected that the condition of one pipe will provide a good indication of condition.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☒ Poor

SPILLWAY

PROBLEMS NOTED ☑ (50) NONE ☐ (51) NO EMERGENCY SPILLWAY FOUND ☐ (52) EROSION WITH BACKCUTTING ☐ (53) CRACK - WITH DISPLACEMENT

☐ (54) APPEARS TO BE STRUCTURALLY INADEQUATE ☐ (55) APPEARS TOO SMALL ☐ (56) INADEQUATE FREEBOARD ☐ (57) FLOW OBSTRUCTED

☐ (58) CONCRETE DETERIORATED / UNDERMINED ☑ (59) OTHER see below

Owner cleared trees and brush from the spillway approach. THANK YOU.

NOTE: C-1739 As-built construction plans show the high point along the spillway return channel, located approximately 1350 ft downstream of the spillway control section, is approximately 2-ft lower in elevation than the spillway crest. According to the C-1739 plans, the spillway discharge rating was computed by accounting for tailwater effects.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MONITORING

EXISTING INSTRUMENTATION FOUND ☐ (110) NONE ☑ (111) GAGE ROD ☑ (112) PIEZOMETERS ☑ (113) SEEPAGE WEIRS / FLUMES
☑ (114) SURVEY MONUMENTS ☑ (115) OTHER automated reservoir gage
MONITORING OF INSTRUMENTATION ☐ (116) NO ☑ (117) YES PERIODIC INSPECTIONS BY: ☑ (118) OWNER ☐ (119) ENGINEER

Owner has been performing & recording routine monthly Dam Safety inspections. THANK YOU. Please submit monitoring reports to our the SEO Dam Safety Engineer at least 1x/year in accordance with Rule 15.3.3, 2-CCR 402-1.

Continue monitoring seepage at V-notch weir and visually monitor for any new or unusual uncontrolled seepage.

The owner has a crest movement survey performed annually since 2012 (prior to 2012 the last survey was done in 1994). We agreed that 5 years of annual surveys should be performed to establish a baseline, after which, if no significant movement is observed then surveys may be performed once every 5 years thereafter, in accordance with SEO Rule 15.3.2, 2-CCR 402-1. PLEASE SUBMIT RESULTS OF SURVEY TO SEO DAM SAFETY BRANCH: results should tabulate x, y and z movement from previous surveys.

Piezometer Readings during inspection:
P1A (2" dia): DRY, 113.7 ft BOH from souding (117-ft BOH from installation log)
P1B (3/4" dia): DRY, 49.5-ft BOH from sounding
P2: damp (appears to match FG-4 installation log, screened near embankment soil-rockfill interface) (84.4-ft BOH from soundingf, 78-ft BOH from installation log)
P3: DRY, 58.8-ft BOH from sounding (appears to match FG-2 installation log, screened near embankment soil-rockfill interface)

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MAINTENANCE AND REPAIRS

PROBLEMS NOTED ☐ (60 NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) LIVESTOCK DAMAGE
☑ (63) BRUSH ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE ☐ (64) TREES ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE
☐ (65) RODENT ACTIVITY ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE ☐ (66) DETERIORATED CONCRETE - FACING, OUTLET SPILLWAY
☑ (67) GATE AND OPERATING MECHANISM NEED MAINTENANCE ☐ (68) OTHER

- cut/spray brush on upstream slope, dam crest, and the upper portion of the downstream slope
- best practice is to clear brush along the groins of the dam (upstream and downstream) to allow good visual inspection for seepage, sinkholes, or other signs of distress along the dam's contact with the abutments

Owner performed maintenance over the past year:
- lowered ground level around V-notch weir box to prevent/minimize contamination by surface water
- cleared brush from downstream toe of the dam, allows good visual inspection for seepage
- cleared brush from spillway approach

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

Go to next page for Overall Conditions and Items Requiring Actions

OVERALL CONDITIONS

Conditionally Satisfactory rating is given due to the inoperable condition of 2 of 3 outlet gates. Repair or rehabilitation of the outlet gates is required to meet SEO emergency drawdown requirements. Outlet rehabilitation should also consider condition of the intake pipes upstream of the gate valves, trash rack, and outlet conduit concrete. Modern industry standard is for upstream guard gates on intake pipes for redundancy and to allow maintenance & inspection.

EMERGENCY ACTION PLAN: Review EAP and update contact information as needed. Distribute updates to all EAP holders. MODERN dam breach inundation mapping is needed. The current inundation mapping is from the 1980's and uses out-dated methods. Modern breach inundation mapping is done in GIS and allows a GIS shape file to be provided to Emergency Managers. Modern dam breach and computer hydraulic models are used as well. We have enclosed an application for a cost-share grant from the State Dam Safety Branch to help with the cost of completing modern dam breach inundation mapping. The first step is to use the enclosed Scope of Work to solicit at least three proposals from qualified engineers. We have enclosed a list of engineers that have successfully completed similar projects for your use - the list is not intended to endorse any engineer or to exclude other qualified engineers.

Based on this Safety Inspection and recent file review, the overall condition is determined to be:

☐ (71) SATISFACTORY ☑ (72) CONDITIONALLY SATISFACTORY ☐ (73) UNSATISFACTORY

ITEMS REQUIRING ACTION BY OWNER TO IMPROVE THE SAFETY OF THE DAM

The State Engineer, by providing this dam safety inspection report, does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner or operator, who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam.

MAINTENANCE - MINOR REPAIR - MONITORING

☐ (80) PROVIDE ADDITIONAL RIPRAP:
☐ (81) LUBRICATE AND OPERATE OUTLET GATES THROUGH FULL CYCLE
☑ (82) CLEAR TREES AND/OR BRUSH FROM: **upstream slope, dam crest, and upper downstream slope. Best practice is to clear brush from groins (upstream & downstream) of the dam to allow good monitoring for seepage, sinkholes, etc.**
☐ (83) INITIATE RODENT CONTROL PROGRAM AND PROPERLY BACKFILL EXISTING HOLES:
☐ (84) GRADE CREST TO A UNIFORM ELEVATION WITH DRAINAGE TO THE UPSTREAM SLOPE:
☐ (85) PROVIDE SURFACE DRAINAGE FOR:
☑ (86) MONITOR: **Continue routine monthly inspections, continue V-notch weir seepage readings, continue annual crest movement surveys (see MONITORING section of this report).**
☑ (87) DEVELOP AND SUBMIT AN EMERGENCY ACTION PLAN: **update contacts in EAP & distribute updates to plan holders. Modern dam breach inundation mapping is needed. We have enclosed a grant application for dam breach inundation mapping.**
☐ (88) OTHER
☐ (89) OTHER

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO: (Plans and Specifications must be approved by State Engineer prior to construction.

☑ (90) PREPARE PLANS AND SPECIFICATIONS FOR REHABILITATION OF THE DAM: **Outlet rehabiliation to provide operable outlet works to meet SEO emergency. STATUS: Engineer/diver are performing inspections of intake pipes (see OUTLET section of this report) drawdown requirement.**
☐ (91) PREPARE AS -BUILT DRAWINGS OF:
☐ (92) PERFORM A GEOTECHNICAL INVESTIGATION TO EVALUATE THE STABILITY OF THE DAM:
☐ (93) PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE:
☐ (94) PREPARE PLANS AND SPECIFICATIONS FOR AN ADEQUATE SPILLWAY:
☐ (95) SET UP A MONITORING SYSTEM INCLUDING WORK SHEETS, REDUCED DATA AND GRAPHED RESULTS:
☑ (96) PERFORM AN INTERNAL INSPECTION OF THE OUTLET: **currently being performed by RJH Consultants & ASI**
☑ (97) OTHER: **repair reservoir staff gage to Division Engineer's requirements**
☐ (98) OTHER:
☐ (99) OTHER:

SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

☐ (101) FULL STORAGE
☑ (102) CONDITIONAL FULL STORAGE
☐ (103) RECOMMENDED RESTRICTION →
☐ (104) CONTINUE EXISTING RESTRICTION

_____ FT. BELOW DAM CREST
_____ FT. BELOW SPILLWAY CREST
_____ FT. GAGE HEIGHT
☐ NO STORAGE-MAINTAIN OUTLET FULLY OPEN

REASON FOR RESTRICTION

2 of 3 outlet gates are inoperable: cannot meet SEO drawdown rate for emergency drawdown. Gates leak ~2-4 cfs.

ACTIONS REQUIRED FOR CONDITIONAL FULL STORAGE OR CONTINUED STORAGE AT THE RESTRICTED LEVEL:

Submit plans & specifications for rehabilitation of the outlet works (see OUTLET and OVERALL CONDITIONS sections of this report).

Engineer's Signature _____ INSPECTED BY
Owner's Signature _____ OWNER/OWNER'S REPRESENTATIVE
DATE: ____/____/____

GUIDELINES FOR DETERMINING CONDITIONS

CONDITIONS OBSERVED - APPLIES TO UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, OUTLET, SPILLWAY

GOOD
In general, this part of the structure has a near new appearance, and conditions observed in this area do not appear to threaten the safety of the dam.

ACCEPTABLE
Although general cross-section is maintained, surfaces may be irregular, eroded, rutted, spalled, or otherwise not in new condition. Conditions in this area do not currently appear to threaten the safety of the dam.

POOR
Conditions observed in this area appear to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO SEEPAGE

GOOD
No evidence of uncontrolled seepage. No unexplained increase in flows from designed drains. All seepage is clear. Seepage conditions do not appear to threaten the safety of the dam.

ACCEPTABLE
Some seepage exists at areas other than the drain outfalls, or other designed drains. No unexplained increase in seepage. All seepage is clear. Seepage conditions observed do not currently appear to threaten the safety of the dam.

POOR
Seepage conditions observed appear to threaten the safety of the dam. Examples:
1) Designed drain or seepage flows have increased without increase in reservoir level.
2) Drain or seepage flows contain sediment, i.e., muddy water or particles in jar samples.
3) Widespread seepage, concentrated seepage, or ponding appears to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO MONITORING

GOOD
Monitoring includes movement surveys and leakage measurements for all dams, and piezometer readings for High hazard dams. Instrumentation is in reliable, working condition. A plan for monitoring the instrumentation and analyzing results by the owner's engineer is in effect. Periodic inspections by owner's engineer.

ACCEPTABLE
Monitoring includes movement surveys and leakage measurements for High and Significant hazard dams; leakage measurements for Low hazard dams. Instrumentation is in serviceable condition. A plan for monitoring instrumentation is in effect by owner. Periodic inspections by owner or representative. OR, NO MONITORING REQUIRED.

POOR
All instrumentation and monitoring described under "ACCEPTABLE" here for each class of dam, are not provided, or required periodic readings are not being made, or unexplained changes in readings are not reacted to by the owner.

CONDITIONS OBSERVED - APPLIES TO MAINTENANCE AND REPAIR

GOOD
Dam appears to receive effective on-going maintenance and repair, and only a few minor items may need to be addressed.

ACCEPTABLE
Dam appears to receive maintenance, but some maintenance items need to be addressed. No major repairs are requirecl

POOR
Dam does not appear to receive adequate maintenance. One or more items needing maintenance or repair has begun to threaten the safety of the dam.

OVERALL CONDITIONS

SATISFACTORY
The safety inspection indicates no conditions that appear to threaten the safety of the dam, and the dam is expected to perform satisfactorily under all design loading conditions. Most of the required monitoring is being performed.

CONDITIONALLY SATISFACTORY
The safety inspection indicates symptoms of structural distress (seepage, evidence of minor displacements, etc.), which, if conditions worsen, could lead to the failure of the dam. Essential monitoring, inspection, and maintenance must be performed as a requirement for continued full storage in the reservoir.

UNSATISFACTORY
The safety inspection indicates definite signs of structural distress (excessive seepage, cracks, slides, sinkholes, severe deterioration, etc.), which could lead to the failure of the dam if the reservoir is used to full capacity. The dam is judged unsafe for full storage of water.

SAFE STORAGE LEVEL

FULL STORAGE
Dam may be used to full capacity with no conditions attached.

CONDITIONAL FULL STORAGE
Dam may be used to full storage if certain monitoring, maintenance, or operational conditions are met.

RESTRICTION
Dam may not be used to full capacity, but must be operated at some reduced level in the interest of public safety.

HAZARD CLASSIFICATION OF DAMS

High hazard
Loss of human life is expected in the event of failure of the dam, while the reservoir is at the high water line.

Significant hazard
Significant damage to improved property is expected in the event of failure of the dam while the reservoir is at the high water line, but no loss of human life is expected.

Low hazard
Loss of human life is not expected, and damage to improved property is expected to be small, in the event of failure of the dam while the reservoir is at high water fine.

NPH hazard - No loss of life or damage to improved property, or loss of downstream resource is expected in the event of failure of the dam while the reservoir is at the high water line.

Photo 1- Upstream slope, slighting left to right along the water line at GH 58.2 ft. (note: diver's zodiac for the underwater outlet works inspection)

Photo 2 – Looking right across the upstream slope from the left abutment.

Photo 3 – Looking down the upstream, left groin/abutment contact. No signs of distress observed. Would aid visual inspection to remove brush from the dam's groins.

Photo 4 – Looking up the upstream, right groin/abutment contact. No signs of distress observed.

Photo 5 – Sighting across the dam crest, looking left from the right abutment.

Photo 6 – Downstream toe of the dam after owner cleared brush.

ENGINEER'S INSPECTION REPORT

INSPECTOR: MP3

OFFICE OF THE STATE ENGINEER - DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH 1313 SHERMAN STREET, ROOM 818, DENVER, CO 80203, (303) 866-3581

DAM NAME:	MOUNTAIN HOME	T: 300S	R: 0720W	S: 36	COUNTY:	COSTILLA		DATE OF INSPECTION:	6/7/2016
DAM ID:	350102	YRCompl: 1908		DAM HEIGHT(FT):	127.0	SPILLWAY WIDTH(FT):	200.0	PREVIOUS INSPECTION:	4/23/2015
CLASS:	High hazard			DAM LENGTH(FT):	490.0	SPILLWAY CAPACITY(CFS):	24000.0	NORMAL STORAGE (AF):	17964.0
DIV:	3	WD: 35		CRESTWIDTH(FT):	20.0	FREEBOARD (FT):	8.7	SURFACE AREA(AC):	597.0
EAP:	6/12/2012			CRESTELEV(FT):	8213.0	DRAINAGE AREA (AC.):	45120.0	OUTLET INSPECTED:	4/23/2015

CURRENT RESTRICTION: -- NONE --

OWNER:	TRACY KESTER,	OWNER REP.:	TRACY KESTER
ADDRESS:	TRINCHERA IRRIGATION CO.	CONTACT NAME:	WAYNE SCHWAB
	BLANCA CO 81123-0000	CONTACT PHONE:	(719) 379-3467X

INSPECTION PARTY: WAYNE SCHWAB; MARK PERRY

REPRESENTING: TRINCHERA IRR. CO.; SEO DAM SAFETY

FIELD CONDITIONS OBSERVED

WATER LEVEL: BELOW DAM CREST _____ FT. Below Spillway ~33.2 FT. GAGE ROD READING 65.8

GROUND MOISTURE CONDITION: [x] DRY [ ] WET [ ] SNOWCOVER OTHER _____

DIRECTIONS: MARK AN X FOR CONDITIONS FOUND AND UNDERLINE WORDS THAT APPLY

UPSTREAM SLOPE

PROBLEMS NOTED [x] (0)NONE [ ] (1)RIPRAP - MISSING, SPARSE, DISPLACED, WEATHERED [ ] (2) WAVE EROSION - WITH SCARPS

[ ] (3) CRACKS WITH DISPLACEMENT [ ] (4) SINKHOLE [ ] (5) APPEARS TOO STEEP [ ] (6) DEPRESSION OR BULGES [ ] (7) SLIDES

[ ] (8) CONCRETE FACING - HOLES CRACKS, DISPLACED, UNDERMINED [ ] (9) OTHER

See 2013 inspection report for details regarding history and performance of the dam from our review of the file.

- no depressions or sinkholes observed on the upstream slope or groins.

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

CREST

PROBLEMS NOTED [x] (10) NONE [ ] (11 RUTS OR PUDDLES [ ] (12) EROSION [ ] (13) CRACKS - WITH DISPLACEMENT [ ] (14) SINKHOLES

[ ] (15) NOT WIDE ENOUGH [ ] (16) LOW AREA [ ] (17) MISALIGNMENT [ ] (18) IMPROPER SURFACE DRAINAGE [ ] (19) OTHER

- The owner has a crest movement survey performed annually since 2012 (prior to 2012 the last survey was done in 1994). We agreed that 5 years of annual surveys should be performed to establish a baseline, after which, if no significant movement is observed then surveys may be performed once every 5 years thereafter, in accordance with SEO Rule 15.3.2, 2-CCR 402-1.

PLEASE SUBMIT RESULTS OF SURVEY TO SEO DAM SAFETY BRANCH: results should tabulate x, y and z movement from previous surveys.

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

DOWNSTREAM SLOPE

PROBLEMS NOTED [x] (20) NONE [ ] (21) LIVESTOCK DAMAGE [ ] (22) EROSION OR GULLIES [ ] (23) CRACKS - WITH DISPLACEMENT [ ] (24) SINKHOLE

[ ] (25) APPEARS TOO STEEP [ ] (26) DEPRESSION OR BULGES [ ] (27) SLIDE [ ] (28) SOFT AREAS [ ] (29) OTHER

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

SEEPAGE

PROBLEMS NOTED [ ] (30) NONE [ ] (31) SATURATED EMBANKMENT AREA [ ] (32) SEEPAGE EXITS ON EMBANKMENT

[ ] (33) SEEPAGE EXITS AT POINT SOURCE [ ] (34) SEEPAGE AREA AT TOE [ ] (35) FLOW ADJACENT TO OUTLET [ ] (36) SEEPAGE INCREASED / MUDDY

DRAIN OUTFALLS SEEN [ ] No [x] Yes Show location of drains on sketch and indicate [ ] (37) FLOW INCREASED / MUDDY [ ] (38) DRAIN DRY / OBSTRUCTED

[ ] (39) OTHER

V-notch weir (toe drain outfall, downstream toe): GH 0.09 ft (2.9 gpm). This is reasonably consistent with past reports that toe drain seepage starts around reservoir stage 67 ft. In the SEO's 2010 inspection report, we recorded V-notch GH 0.17-ft (14 gpm) at Reservoir Stage 69.7 ft (weir found dry in 2012-2014 with reservoir below 67 ft). The 2010 inspection report also noted past accounts from the file regarding seepage bypassing the V-notch and exiting out the gravel zone (bypassing flow was NOT observed during the current inspection).

Seepage flow at weir is monitored regularly by the dam owner and logged on their monthly inspection sheet. Please submit scan of monthly inspection sheets to the SEO Dam Safety Branch at least 1x/year in accordance with Rule 15.3.3, 2-CCR 402-1.

NOTE: Historically seepage has exited the left side of the Trinchera Creek canyon approximately 300-ft downstream of the dam, as indicated by lush vegetation and generally wet conditions.

CONDITIONS OBSERVED: [ ] Good [X] Acceptable [ ] Poor

OUTLET

PROBLEMS NOTED ☐ (40) NONE ☐ (41) NO OUTLET FOUND ☐ (42) POOR OPERATING ACCESS ☑ (43) INOPERABLE

☐ (44) UPSTREAM OR DOWNSTREAM STRUCTURE DETERIORATED (45) OUTLET OPERATED DURING INSPECTION ☐ YES ☑ NO

INTERIOR INSPECTED ☑ (120) NO ☐ (121)YES ☐ (46) CONDUIT DETERIORATED OR COLLAPSED ☐ (47) JOINTS DISPLACED ☑ (48) VALVE LEAKAGE

☐ (49) OTHER

Currently only 1 of 3 outlet valves is operable. Outlet valves must be made fully operable to meet required discharge rate for emergency drawdown by Rule 5, 2-CCR 402-1 . Gate valves leak excessively, with leakage typically between 2-5 cfs. ***See attached Memo of Meeting documenting our discussion about the outlet works requirements at the Trinchera Irrigation District Board Meeting held the same day as the dam inspection.***

RJH Consultants and ASI Constructors (dive team) performed an inspection of the valves in 2015 and inspected 1 of 3 intake conduits. RJH developed alternatives for rehabilitating the outlet works. See RJH Memo dated April 1, 2016, re: Mountain Home Reservoir Dam Outlet Works Rehabilitation Concept-Level Alternatives Memorandum (paid for in-part by a Roundtable WSRA grant).

We did not inspect the outlet tunnel during the current inspection because the irrigation delivery of 16 cfs made it unsafe to walk the tunnel.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☒ Poor

SPILLWAY

PROBLEMS NOTED ☑ (50) NONE ☐ (51) NO EMERGENCY SPILLWAY FOUND ☐ (52) EROSION WITH BACKCUTTING ☐ (53) CRACK - WITH DISPLACEMENT

☐ (54) APPEARS TO BE STRUCTURALLY INADEQUATE ☐ (55) APPEARS TOO SMALL ☐ (56) INADEQUATE FREEBOARD ☐ (57) FLOW OBSTRUCTED

☐ (58) CONCRETE DETERIORATED / UNDERMINED ☐ (59) OTHER

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MONITORING

EXISTING INSTRUMENTATION FOUND ☐ (110) NONE ☑ (111) GAGE ROD ☑ (112) PIEZOMETERS ☑ (113) SEEPAGE WEIRS / FLUMES

☑ (114) SURVEY MONUMENTS ☑ (115) OTHER automated resrevoir gage

MONITORING OF INSTRUMENTATION ☐ (116) NO ☑ (117) YES PERIODIC INSPECTIONS BY: ☑ (118) OWNER ☐ (119) ENGINEER

Owner has been performing & recording routine monthly Dam Safety inspections. THANK YOU. Please submit monitoring reports to our the SEO Dam Safety Engineer at least 1x/year in accordance with Rule 15.3.3, 2-CCR 402-1.

Continue monitoring seepage at V-notch weir and visually monitor for any new or unusual uncontrolled seepage.

The owner has a crest movement survey performed annually since 2012 (prior to 2012 the last survey was done in 1994). We agreed that 5 years of annual surveys should be performed to establish a baseline, after which, if no significant movement is observed then surveys may be performed once every 5 years thereafter, in accordance with SEO Rule 15.3.2, 2-CCR 402-1. PLEASE SUBMIT RESULTS OF SURVEY TO SEO DAM SAFETY BRANCH: results should tabulate x, y and z movement from previous surveys.

Piezometer Readings during inspection:
P1A (2" dia): 111.9 ft depth to water, (117-ft BOH from installation log)
P1B (3/4" dia): DRY, 49.6-ft BOH from sounding
P2: 78.5 ft DTW, (FG-4 installation log: screened near embankment soil-rockfill interface) (84.4-ft BOH from sounding, 78-ft BOH from installation log)
P3: DRY, 58.2-ft BOH from sounding (FG-2 installation log: screened near embankment soil-rockfill interface)

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MAINTENANCE AND REPAIRS

PROBLEMS NOTED ☐ (60 NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) LIVESTOCK DAMAGE

☑ (63) BRUSH ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE ☐ (64) TREES ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE

☐ (65) RODENT ACTIVITY ON UPSTREAM SLOPE, CREST DOWNSTREAM SLOPE, TOE ☐ (66) DETERIORATED CONCRETE - FACING, OUTLET SPILLWAY

☐ (67) GATE AND OPERATING MECHANISM NEED MAINTENANCE ☐ (68) OTHER

cut/spray brush on entire dam as routine maintenance

owner crews cleared brush from the downstream toe of the dam where the toe drain is located. Good.

- best practice is to clear brush along the groins of the dam (upstream and downstream) to allow good visual inspection for seepage, sinkholes, or other signs of distress along the dam's contact with the abutments

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

Go to next page for Overall Conditions and Items Requiring Actions

ENGINEER'S INSPECTION REPORT DATE. 6/7/2016

DAM NAME: MOUNTAIN HOME DAM I.D.: 350102

OVERALL CONDITIONS

Currently only 1 of 3 outlet valves is operable. Outlet valves must be made fully operable to meet required discharge rate for emergency drawdown by Rule 5, 2-CCR 402-1 . Gate valves leak excessively, with leakage typically between 2-5 cfs. See attached Memo of Meeting documenting our discussion about the outlet works requirements at the Trinchera Irrigation District Board Meeting held the same day as the dam inspection.

RJH Consultants and ASI Constructors (dive team) performed an inspection of the valves in 2015 and inspected 1 of 3 intake conduits. RJH developed alternatives for rehabilitating the outlet works. See RJH Memo dated April 1, 2016, re: Mountain Home Reservoir Dam Outlet Works Rehabilitation Concept-Level Alternatives Memorandum (paid for in-part by a Roundtable WSRA grant).

EMERGENCY ACTION PLAN: Please review and update contact notifications in EAP. We have provided a new EAP template (simplified format) for your use, as discussed.
> Please provide a pdf (electronic file) copy of the new digitized inundation mapping and a copy of the GIS shapefile of the inundation area to the SEO.

HAZARD CLASSIFICATION: No change is warranted.

Based on this Safety Inspection and recent file review, the overall condition is determined to be:

☐ (71) SATISFACTORY ☑ (72) CONDITIONALLY SATISFACTORY ☐ (73) UNSATISFACTORY

ITEMS REQUIRING ACTION BY OWNER TO IMPROVE THE SAFETY OF THE DAM

The State Engineer, by providing this dam safety inspection report, does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner or operator, who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam.

MAINTENANCE - MINOR REPAIR - MONITORING

- ☐ (80) PROVIDE ADDITIONAL RIPRAP:
- ☐ (81) LUBRICATE AND OPERATE OUTLET GATES THROUGH FULL CYCLE
- ☑ (82) CLEAR TREES AND/OR BRUSH FROM: **entire dam, especially dam crest and shoulders and groins of the dam.**
- ☐ (83) INITIATE RODENT CONTROL PROGRAM AND PROPERLY BACKFILL EXISTING HOLES:
- ☐ (84) GRADE CREST TO A UNIFORM ELEVATION WITH DRAINAGE TO THE UPSTREAM SLOPE:
- ☐ (85) PROVIDE SURFACE DRAINAGE FOR:
- ☑ (86) MONITOR: **see MONITORING section of this report**
- ☑ (87) DEVELOP AND SUBMIT AN EMERGENCY ACTION PLAN: **update EAP notifications. See new simplified EAP template attached for your use as discussed. Please provide new maps & GIS shapefile of inundation area to the SEO.**
- ☑ (88) OTHER **see MAINTENANCE section of this report**
- ☐ (89) OTHER

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO: (Plans and Specifications must be approved by State Engineer prior to construction.

- ☑ (90) PREPARE PLANS AND SPECIFICATIONS FOR REHABILITATION OF THE DAM: **make all three outlet valves fully operable to meet SEO emergency drawdown requirements**
- ☐ (91) PREPARE AS -BUILT DRAWINGS OF:
- ☐ (92) PERFORM A GEOTECHNICAL INVESTIGATION TO EVALUATE THE STABILITY OF THE DAM:
- ☐ (93) PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE:
- ☐ (94) PREPARE PLANS AND SPECIFICATIONS FOR AN ADEQUATE SPILLWAY:
- ☐ (95) SET UP A MONITORING SYSTEM INCLUDING WORK SHEETS, REDUCED DATA AND GRAPHED RESULTS:
- ☐ (96) PERFORM AN INTERNAL INSPECTION OF THE OUTLET:
- ☑ (97) OTHER: **repair reservoir staff gage to Division Engineer's requirements**
- ☑ (98) OTHER: **Consider recommended outlet improvements from RJH Consultants Report (2015), possibly as a phased approach to full outlet rehabilitation**
- ☐ (99) OTHER:

SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

- ☐ (101) FULL STORAGE
- ☑ (102) CONDITIONAL FULL STORAGE
- ☐ (103) RECOMMENDED RESTRICTION →
- ☐ (104) CONTINUE EXISTING RESTRICTION

FT. BELOW DAM CREST
FT. BELOW SPILLWAY CREST
FT. GAGE HEIGHT
☐ NO STORAGE-MAINTAIN OUTLET FULLY OPEN

REASON FOR RESTRICTION

Only 1 of 3 outlet valves is operable.

ACTIONS REQUIRED FOR CONDITIONAL FULL STORAGE ~~OR CONTINUED STORAGE AT THE RESTRICTED LEVEL~~

Make all outlet valves fully operable in order to meet SEO emergency drawdown requirements.

Engineer's Signature _____ INSPECTED BY

Owner's Signature _____ OWNER/OWNER'S REPRESENTATIVE DATE: ___/___/___

GUIDELINES FOR DETERMINING CONDITIONS

CONDITIONS OBSERVED - APPLIES TO UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, OUTLET, SPILLWAY

GOOD
In general, this part of the structure has a near new appearance, and conditions observed in this area do not appear to threaten the safety of the dam.

ACCEPTABLE
Although general cross-section is maintained, surfaces may be irregular, eroded, rutted, spalled, or otherwise not in new condition. Conditions in this area do not currently appear to threaten the safety of the dam.

POOR
Conditions observed in this area appear to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO SEEPAGE

GOOD
No evidence of uncontrolled seepage. No unexplained increase in flows from designed drains. All seepage is clear. Seepage conditions do not appear to threaten the safety of the dam.

ACCEPTABLE
Some seepage exists at areas other than the drain outfalls, or other designed drains. No unexplained increase in seepage. All seepage is clear. Seepage conditions observed do not currently appear to threaten the safety of the dam.

POOR
Seepage conditions observed appear to threaten the safety of the dam. Examples:
1) Designed drain or seepage flows have increased without increase in reservoir level.
2) Drain or seepage flows contain sediment, i.e., muddy water or particles in jar samples.
3) Widespread seepage, concentrated seepage, or ponding appears to threaten the safety of the dam.

CONDITIONS OBSERVED - APPLIES TO MONITORING

GOOD
Monitoring includes movement surveys and leakage measurements for all dams, and piezometer readings for High hazard dams. Instrumentation is in reliable, working condition. A plan for monitoring the instrumentation and analyzing results by the owner's engineer is in effect. Periodic inspections by owner's engineer.

ACCEPTABLE
Monitoring includes movement surveys and leakage measurements for High and Significant hazard dams; leakage measurements for Low hazard dams. Instrumentation is in serviceable condition. A plan for monitoring instrumentation is in effect by owner. Periodic inspections by owner or representative. OR, NO MONITORING REQUIRED.

POOR
All instrumentation and monitoring described under "ACCEPTABLE" here for each class of dam, are not provided, or required periodic readings are not being made, or unexplained changes in readings are not reacted to by the owner.

CONDITIONS OBSERVED - APPLIES TO MAINTENANCE AND REPAIR

GOOD
Dam appears to receive effective on-going maintenance and repair, and only a few minor items may need to be addressed.

ACCEPTABLE
Dam appears to receive maintenance, but some maintenance items need to be addressed. No major repairs are requirecl

POOR
Dam does not appear to receive adequate maintenance. One or more items needing maintenance or repair has begun to threaten the safety of the dam.

OVERALL CONDITIONS

SATISFACTORY
The safety inspection indicates no conditions that appear to threaten the safety of the dam, and the dam is expected to perform satisfactorily under all design loading conditions. Most of the required monitoring is being performed.

CONDITIONALLY SATISFACTORY
The safety inspection indicates symptoms of structural distress (seepage, evidence of minor displacements, etc.), which, if conditions worsen, could lead to the failure of the dam. Essential monitoring, inspection, and maintenance must be performed as a requirement for continued full storage in the reservoir.

UNSATISFACTORY
The safety inspection indicates definite signs of structural distress (excessive seepage, cracks, slides, sinkholes, severe deterioration, etc.), which could lead to the failure of the dam if the reservoir is used to full capacity. The dam is judged unsafe for full storage of water.

SAFE STORAGE LEVEL

FULL STORAGE
Dam may be used to full capacity with no conditions attached.

CONDITIONAL FULL STORAGE
Dam may be used to full storage if certain monitoring, maintenance, or operational conditions are met.

RESTRICTION
Dam may not be used to full capacity, but must be operated at some reduced level in the interest of public safety.

HAZARD CLASSIFICATION OF DAMS

High hazard
Loss of human life is expected in the event of failure of the dam, while the reservoir is at the high water line.

Significant hazard
Significant damage to improved property is expected in the event of failure of the dam while the reservoir is at the high water line, but no loss of human life is expected.

Low hazard
Loss of human life is not expected, and damage to improved property is expected to be small, in the event of failure of the dam while the reservoir is at high water fine.

NPH hazard - No loss of life or damage to improved property, or loss of downstream resource is expected in the event of failure of the dam while the reservoir is at the high water line.

Photo 1- Upstream slope, slighting left to right along the water line at GH 65.8 ft.

Photo 2 – Looking down slope of right upstream groin.

Photo 3 – Dam crest looking left from the right abutment.

Photo 4 – Overview of downstream slope and toe. NOTE: slash piles from clearing brush from the downstream toe last year.

Photo 5 – Downstream slope looking right from the bench below the outlet valve house.

Photo 6 – Toe drain weir box. .

Memo of Meeting

Date: 6/7/2016
Dam: Mountain Home Dam (DAMID 35102)
Subject: Dam Safety discussion at Trinchera Irrigation District Board Meeting

Notes:

The Trinchera Irrigation District invited the SEO Dam Safety to discuss requirements for repairs to the Mountain Home Dam Outlet Works and to review RJH Consultants' memo dated April 1, 2016, re: MOUNTAIN HOME RESERVOIR DAM OUTLET WORKS REHABILIATION CONCEPT-LEVEL ALTERNATIVES MEMORANDUM.

We discussed that SEO Required Actions have been : (1) make all three outlet gates fully operable in order to meet SEO emergency drawdown requirements, and (2) inspect the steel intake conduits, which had not been inspected since original construction around 1908.

Trinchera Irrigation District hired RJH Consultants and ASI Constructors to inspect the outlet conduits and to develop concept level rehab alternatives for the outlet works (the work was partly funded with a WSRA grant from the Rio Grande Basin Roundtable). RJH Consultants alternatives included installing new upstream guard gates on the intake conduits, a new trash rack, lining the three intake conduits, and replacing the three regulating valves; estimated costs were around $2M. Only one of the three intake conduits was successfully inspected; that inspection did not find any holes, cracks, leaks or joint separations in the pipe. RJH stated the pipe is in advanced state of corrosion (note: the pipes are reportedly encased in concrete per the original construction plans), and they stated that it is reasonable to assume the other two intake pipes are in similar condition.

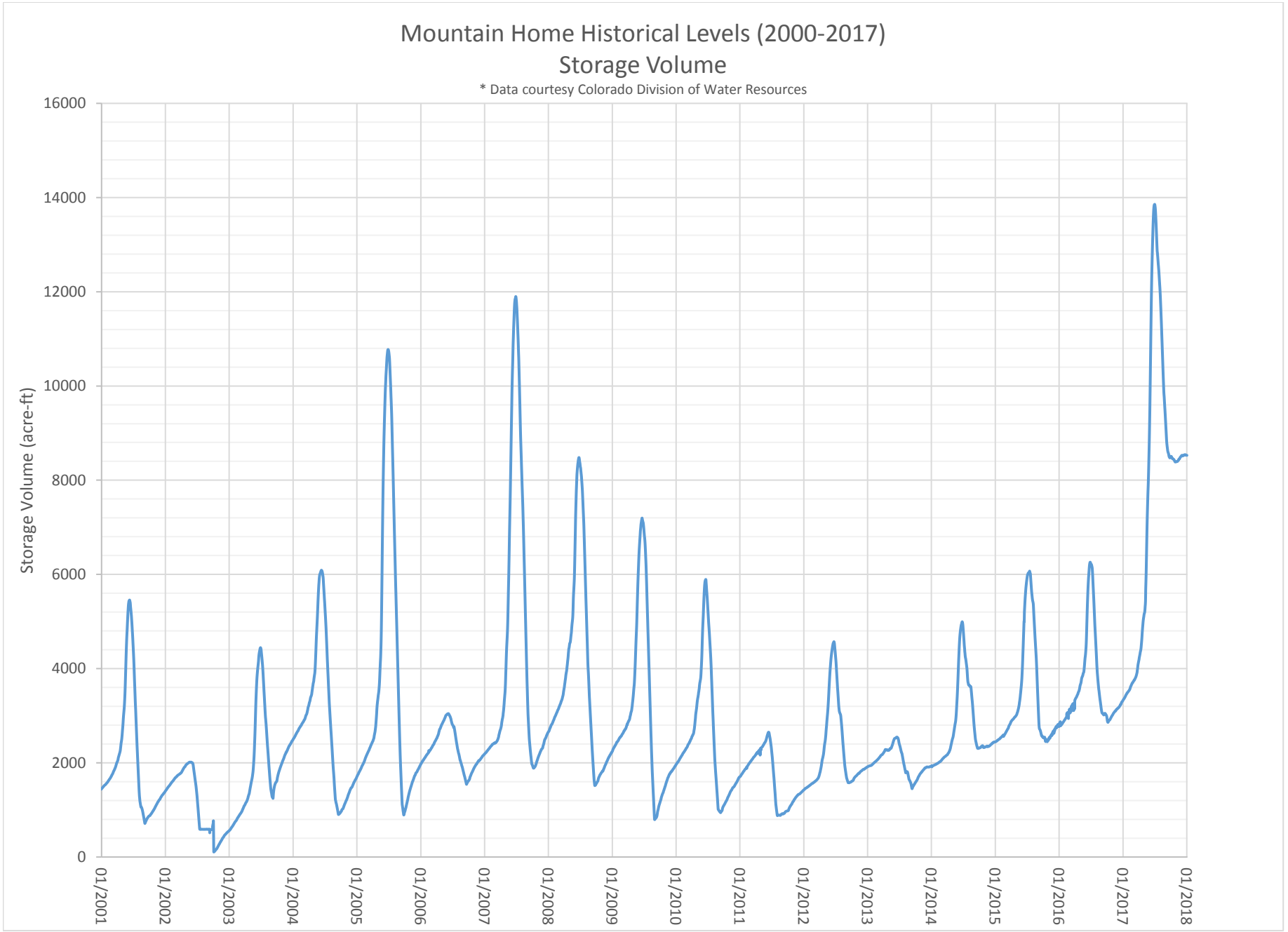
We discussed that RJH/ASI's inspection satisfied the SEO req't for the intake pipes and no immediate action appears to be warranted. So we agreed that rehabilitating the existing valves is the immediate SEO requirement, and that it may be possible to phase the other work over time. I expressed that I thought valve replacement would be more feasible than trying to rehab the existing 100+ year old valves. I also recommended they would be happy with new hydraulic operators and a HPU system.

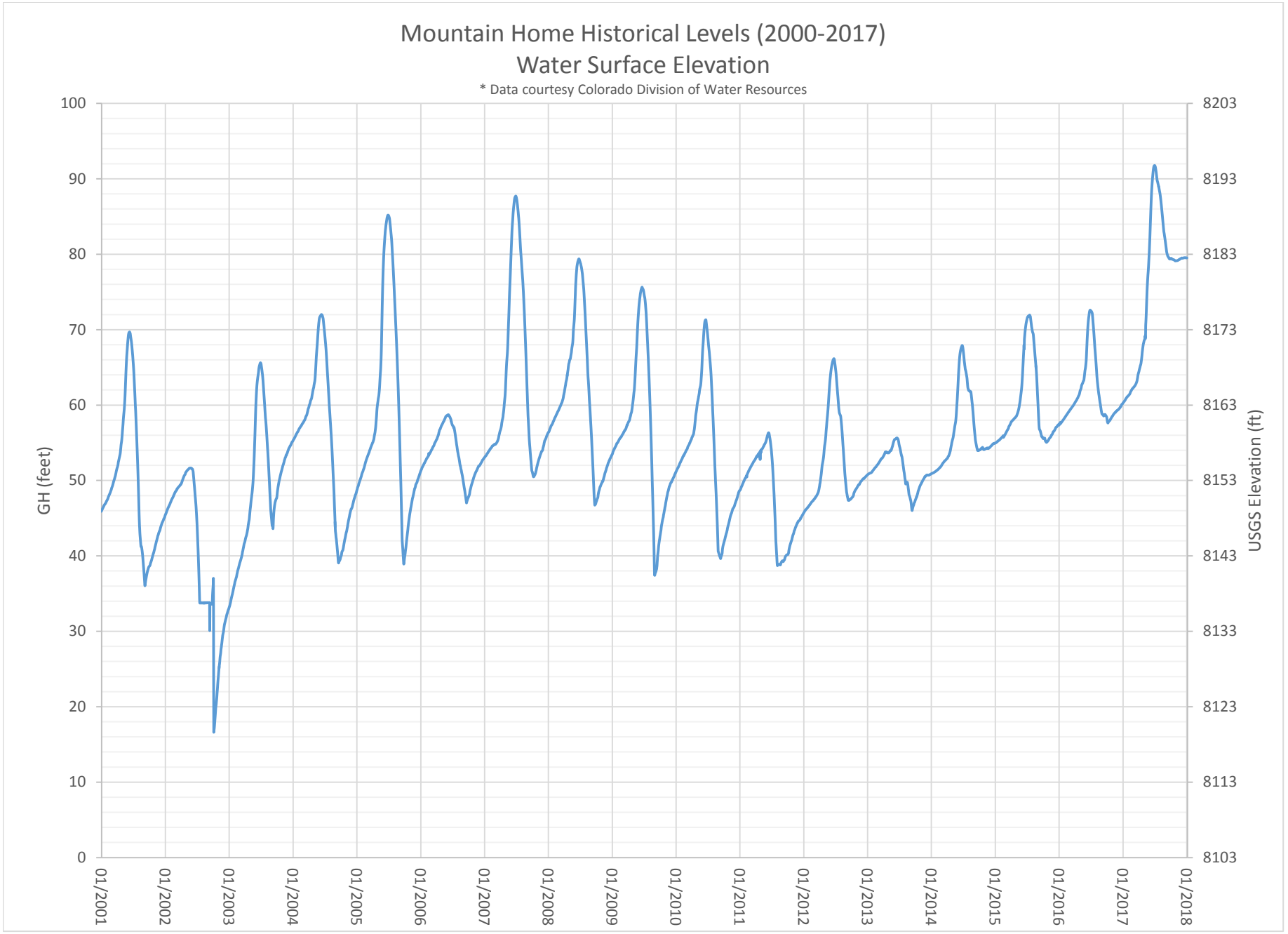
We discussed some possible alternatives for only replacing the valves including removing existing concrete and valves, installing pipe extensions and new valves downstream of the existing valves, or installing new valves on the upstream end (underwater). We discussed some possible pluses and minuses with each configuration. Further engineering evaluation is needed to determine the preferred alternative**.**

I brought up the requirement for modern dam breach inundation mapping. The board showed me that they worked with Costilla County GIS to digitize the old inundation maps (HB 1416 maps) into GIS and put them on new base mapping. Trinchera will provide the SEO with copies of the new inundations maps and with the GIS shapefiles of the digitized inundation area. This is probably a reasonable approach for now and has actually been proposed in some cases, particularly for rural Significant & High Hazard dams, by the SEO.

MAP

APPENDIX E
Historical Reservoir Levels


Mountain Home Historical Levels (2000-2017)
Storage Volume
* Data courtesy Colorado Division of Water Resources
Storage Volume (acre-ft)
16000
14000
12000
10000
8000
6000
4000
2000
0
01/2001
01/2002
01/2003
01/2004
01/2005
01/2006
01/2007
01/2008
01/2009
01/2010
01/2011
01/2012
01/2013
01/2014
01/2015
01/2016
01/2017
01/2018


Mountain Home Historical Levels (2000-2017)
Water Surface Elevation
* Data courtesy Colorado Division of Water Resources
GH (feet)
USGS Elevation (ft)
100
90
80
70
60
50
40
30
20
10
0
8203
8193
8183
8173
8163
8153
8143
8133
8123
8113
8103
01/2001
01/2002
01/2003
01/2004
01/2005
01/2006
01/2007
01/2008
01/2009
01/2010
01/2011
01/2012
01/2013
01/2014
01/2015
01/2016
01/2017
01/2018

APPENDIX F
Hydraulics

TABLE F.1

MOUNTAIN HOME RESERVOIR
STORAGE CAPACITY AND DRAWDOWN TIME
Existing Outlet Works (2 Functioning Conduits)

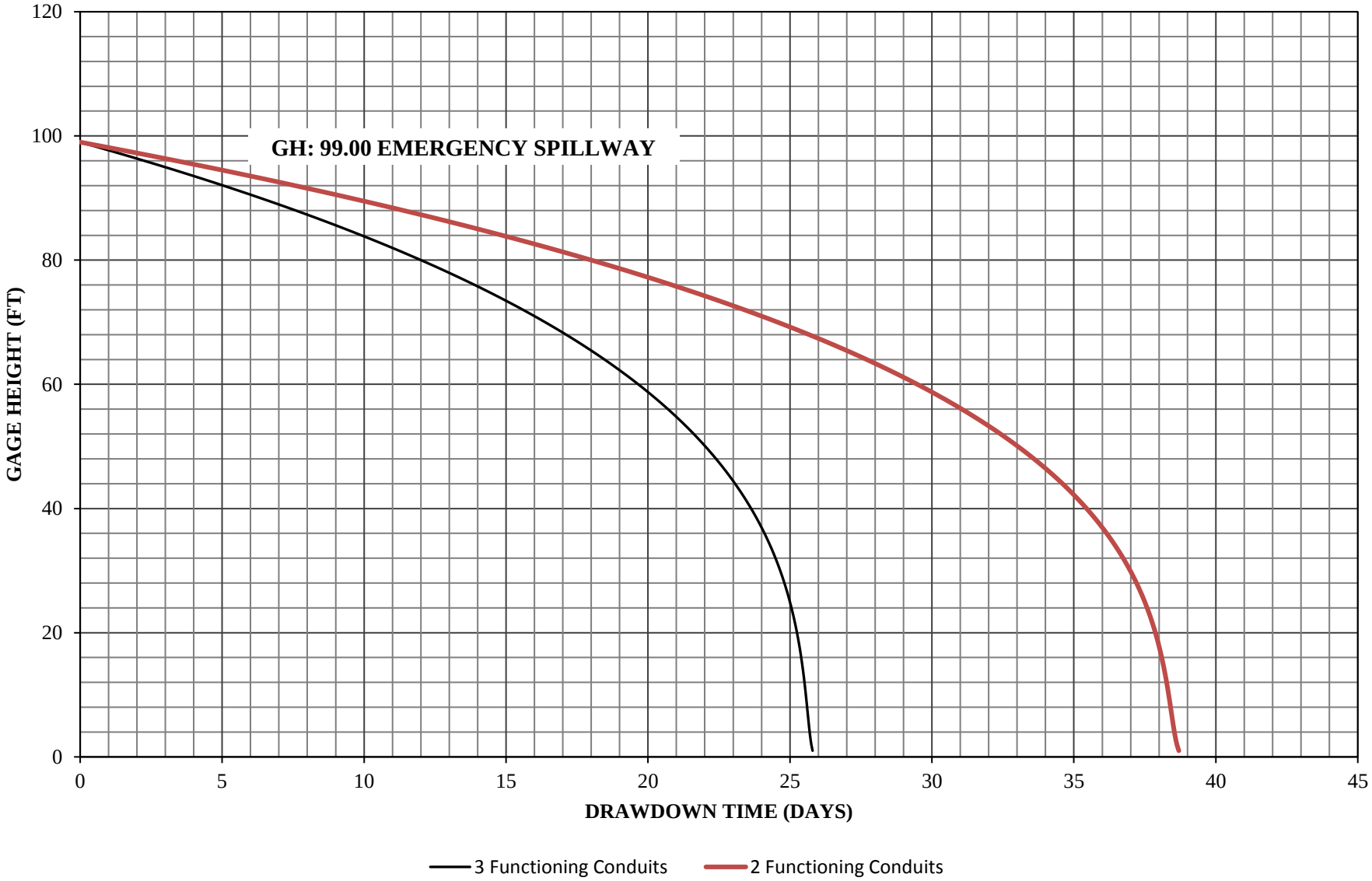
GH (FT)	VOLUME (AC-FT)	DISCHARGE (CFS)	Total Drain Time (Day)	
99.00	17794	274.4	0.00	EMERGENCY SPILLWAY
98.00	17169	273.2	1.15	
97.00	16561	271.8	2.28	
96.00	15969	270.2	3.39	
95.00	15392	268.8	4.47	
94.00	14832	267.4	5.52	
93.00	14286	266.0	6.56	
92.00	13756	264.6	7.57	
91.00	13240	263.2	8.56	
90.00	12739	261.8	9.52	
89.00	12252	260.2	10.47	
88.00	11779	258.8	11.39	
87.00	11320	257.4	12.29	
86.00	10874	255.8	13.16	
85.00	10441	254.4	14.02	
84.00	10022	252.8	14.86	
83.00	9615	251.4	15.68	
82.00	9220	249.8	16.47	
81.00	8837	248.2	17.25	
80.00	8467	246.8	18.01	
79.00	8108	245.2	18.74	
78.00	7760	243.6	19.46	
77.00	7424	242.0	20.16	
76.00	7099	240.4	20.85	
75.00	6784	239.0	21.51	
74.00	6480	237.4	22.16	
73.00	6186	235.6	22.78	
72.00	5902	234.0	23.40	
71.00	5628	232.4	23.99	
70.00	5364	230.8	24.57	
69.00	5109	229.2	25.13	
68.00	4863	227.4	25.68	
67.00	4626	225.8	26.20	
66.00	4397	224.2	26.72	
65.00	4178	222.4	27.22	
64.00	3966	220.6	27.70	
63.00	3763	219.0	28.17	
62.00	3567	217.2	28.62	
61.00	3379	215.4	29.06	
60.00	3199	213.6	29.49	
59.00	3026	211.8	29.90	
58.00	2860	210.0	30.30	
57.00	2701	208.2	30.68	
56.00	2549	206.4	31.05	
55.00	2403	204.6	31.41	
54.00	2263	202.6	31.76	
53.00	2130	200.8	32.10	
52.00	2003	199.0	32.42	
51.00	1881	197.0	32.73	
50.00	1765	195.0	33.03	
49.00	1655	193.0	33.32	
48.00	1550	191.2	33.59	
47.00	1450	189.0	33.86	
46.00	1355	187.0	34.12	
45.00	1265	185.0	34.36	
44.00	1179	183.0	34.60	
43.00	1098	180.8	34.83	
42.00	1021	178.8	35.04	
41.00	948	176.6	35.25	
40.00	880	174.4	35.45	
39.00	815	172.2	35.64	
38.00	754	170.0	35.82	
37.00	697	167.8	35.99	
36.00	643	165.4	36.15	
35.00	592	163.2	36.31	
34.00	545	160.8	36.46	
33.00	500	158.4	36.60	
32.00	459	156.0	36.74	
31.00	420	153.6	36.86	
30.00	384	151.0	36.98	
29.00	350	148.6	37.10	
28.00	319	146.0	37.21	
27.00	290	143.4	37.31	
26.00	263	140.6	37.40	
25.00	238	137.8	37.49	
24.00	215	135.0	37.58	
23.00	195	132.2	37.66	
22.00	175	129.4	37.73	
21.00	158	126.4	37.80	
20.00	142	123.4	37.87	
19.00	127	120.2	37.93	
18.00	113	117.0	37.99	
17.00	101	113.6	38.04	
16.00	90	110.2	38.09	
15.00	80	106.8	38.14	
14.00	71	103.2	38.19	
13.00	63	99.4	38.23	
12.00	55	95.6	38.27	
11.00	49	91.4	38.30	
10.00	43	87.2	38.34	
9.00	37	82.6	38.37	
8.00	32	78.0	38.41	
7.00	27	73.0	38.44	
6.00	23	67.4	38.47	
5.00	19	61.6	38.50	
4.00	15	55.0	38.54	
3.00	11	47.8	38.58	
2.00	7	39.0	38.63	
1.00	4	27.4	38.70	

TABLE F.2

MOUNTAIN HOME RESERVOIR
STORAGE CAPACITY AND DRAWDOWN TIME
Existing Outlet Works (3 Functioning Conduits)

GH (FT)	VOLUME (AC-FT)	DISCHARGE (CFS)	Total Drain Time (Day)	
99.00	17794	411.6	0.00	EMERGENCY SPILLWAY
98.00	17169	409.8	0.77	
97.00	16561	407.7	1.52	
96.00	15969	405.3	2.26	
95.00	15392	403.2	2.98	
94.00	14832	401.1	3.68	
93.00	14286	399.0	4.37	
92.00	13756	396.9	5.05	
91.00	13240	394.8	5.70	
90.00	12739	392.7	6.35	
89.00	12252	390.3	6.98	
88.00	11779	388.2	7.59	
87.00	11320	386.1	8.19	
86.00	10874	383.7	8.78	
85.00	10441	381.6	9.35	
84.00	10022	379.2	9.91	
83.00	9615	377.1	10.45	
82.00	9220	374.7	10.98	
81.00	8837	372.3	11.50	
80.00	8467	370.2	12.00	
79.00	8108	367.8	12.50	
78.00	7760	365.4	12.98	
77.00	7424	363.0	13.44	
76.00	7099	360.6	13.90	
75.00	6784	358.5	14.34	
74.00	6480	356.1	14.77	
73.00	6186	353.4	15.19	
72.00	5902	351.0	15.60	
71.00	5628	348.6	15.99	
70.00	5364	346.2	16.38	
69.00	5109	343.8	16.75	
68.00	4863	341.1	17.12	
67.00	4626	338.7	17.47	
66.00	4397	336.3	17.81	
65.00	4178	333.6	18.14	
64.00	3966	330.9	18.47	
63.00	3763	328.5	18.78	
62.00	3567	325.8	19.08	
61.00	3379	323.1	19.37	
60.00	3199	320.4	19.66	
59.00	3026	317.7	19.93	
58.00	2860	315.0	20.20	
57.00	2701	312.3	20.46	
56.00	2549	309.6	20.70	
55.00	2403	306.9	20.94	
54.00	2263	303.9	21.17	
53.00	2130	301.2	21.40	
52.00	2003	298.5	21.61	
51.00	1881	295.5	21.82	
50.00	1765	292.5	22.02	
49.00	1655	289.5	22.21	
48.00	1550	286.8	22.40	
47.00	1450	283.5	22.57	
46.00	1355	280.5	22.74	
45.00	1265	277.5	22.91	
44.00	1179	274.5	23.07	
43.00	1098	271.2	23.22	
42.00	1021	268.2	23.36	
41.00	948	264.9	23.50	
40.00	880	261.6	23.63	
39.00	815	258.3	23.76	
38.00	754	255.0	23.88	
37.00	697	251.7	23.99	
36.00	643	248.1	24.10	
35.00	592	244.8	24.21	
34.00	545	241.2	24.31	
33.00	500	237.6	24.40	
32.00	459	234.0	24.49	
31.00	420	230.4	24.58	
30.00	384	226.5	24.66	
29.00	350	222.9	24.73	
28.00	319	219.0	24.80	
27.00	290	215.1	24.87	
26.00	263	210.9	24.94	
25.00	238	206.7	25.00	
24.00	215	202.5	25.05	
23.00	195	198.3	25.11	
22.00	175	194.1	25.16	
21.00	158	189.6	25.20	
20.00	142	185.1	25.25	
19.00	127	180.3	25.29	
18.00	113	175.5	25.33	
17.00	101	170.4	25.36	
16.00	90	165.3	25.40	
15.00	80	160.2	25.43	
14.00	71	154.8	25.46	
13.00	63	149.1	25.49	
12.00	55	143.4	25.51	
11.00	49	137.1	25.54	
10.00	43	130.8	25.56	
9.00	37	123.9	25.58	
8.00	32	117.0	25.60	
7.00	27	109.5	25.63	
6.00	23	101.1	25.65	
5.00	19	92.4	25.67	
4.00	15	82.5	25.69	
3.00	11	71.7	25.72	
2.00	7	58.5	25.75	
1.00	4	41.1	25.80	

FIGURE F.3
MOUNTAIN HOME RESERVOIR
DRAWDOWN TIME



APPENDIX G
Photographs

Dam crest, access road, and outlet control house. View taken looking north. Taken 3/13/17

Dam crest and upstream slope of dam. View taken looking northeast. Taken 3/13/17

Upstream slope of dam and reservoir elevation staff gauge(s). View taken looking east. Taken 3/13/17

Outlet works control house near station 2+00 of dam crest, view taken looking west. Taken 3/13/17

Concrete staff gauge on upstream slope of dam. View taken looking east. Taken 3/13/17

Typical concrete survey benchmark location. Taken 3/13/17

Dam crest stationing. View taken looking south. Taken 3/13/17

Outlet works gate valve controls inside control house. Taken 3/13/17

Downstream slope and channel of dam. View taken looking southwest. Taken 3/13/17

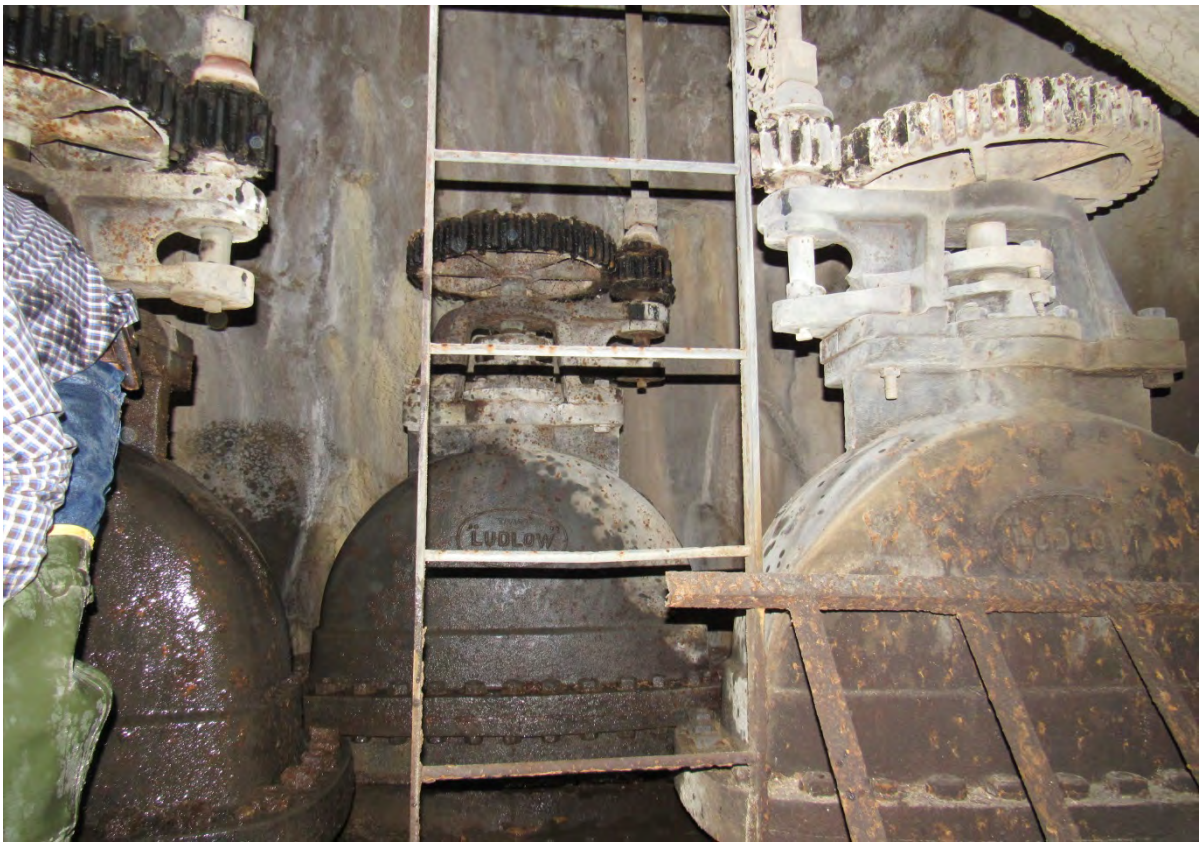
Downstream slope of dam and concrete outlet open channel. View taken looking west. Taken 3/13/17

Downstream slope of dam. View taken looking east. Taken 3/13/17

Concrete open channel of dam outlet. View taken looking east. Taken 3/13/17

Enclosed concrete outlet channel. View taken looking east. Taken 3/13/17

Concrete open channel of dam outlet. View taken looking west. Taken 3/13/17



Base of outlet control house at outlet gates. View taken looking east. Taken 3/13/17

Valve chamber below outlet control house. View taken looking up from outlet valves. Taken 3/13/17

Typical view outlet gate valve. Taken 3/13/17

Water leaking from top of gate valve No. 1. Taken 3/13/17

View of outlet discharge. View taken looking east. Taken 3/13/17

View of outlet discharge. View taken looking east. Taken 3/13/17

Steel wall liner near outlet valves. View taken looking east. Taken 3/13/17

View of Mountain Home Reservoir and Dam. View taken looking southwest. Taken 3/13/17

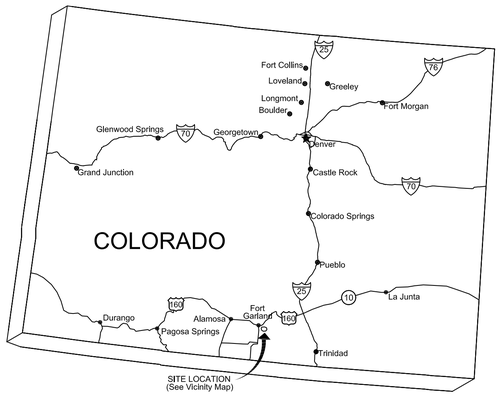
APPENDIX H
Drawings

MOUNTAIN HOME RESERVOIR OUTLET REPAIR

WATER DIVISION 3, WATER DISTRICT 35, COSTILLA COUNTY, COLORADO

DAM I.D. 350102

STATE MAP



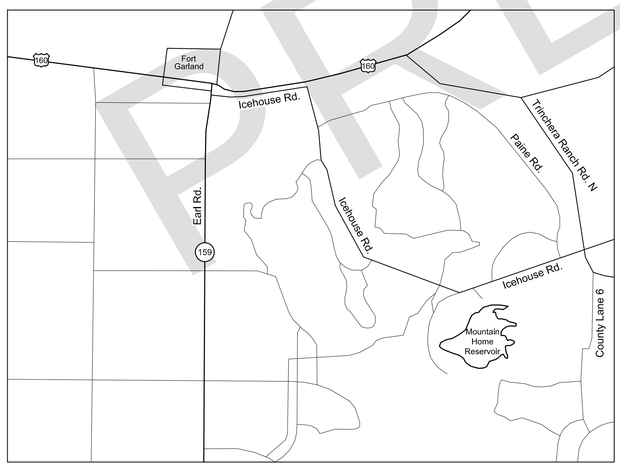
NOT TO SCALE

VICINITY MAP

LOCATED IN:
SECTION 36, T30S, R72W OF THE SIXTH P.M.
COSTILLA COUNTY, COLORADO
37.393256° N, 105.394047° W

NORTH

SCALE IN FEET
0 1500'



OWNER

TRINCHERA IRRIGATION COMPANY
610 MAIN STREET
P.O. BOX 41
BLANCA, CO 81123

ENGINEER

Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

CERTIFICATES

I HEREBY CERTIFY THAT THESE PLANS FOR THE MOUNTAIN HOME RESERVOIR OUTLET REPAIR WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION FOR THE OWNER THEREOF.

LESTER CLINTON BROWN, PE 40189

I, TRACY KESTER, PRESIDENT OF THE TRINCHERA IRRIGATION COMPANY, WHOSE ADDRESS IS 610 MAIN STREET, P.O. BOX 41, BLANCA, CO, 81123, HEREBY ACCEPT THESE PLANS FOR THE MOUNTAIN HOME RESERVOIR OUTLET REPAIR.

TRACY KESTER, PRESIDENT

APPROVED ON THE _____ DAY OF _____ 2018

STATE ENGINEER

BY: _____
WILLIAM T McCORMICK III
CHIEF, DAM SAFETY BRANCH
CO P.E. #29127

THESE PLANS REPRESENT THE AS-CONSTRUCTED CONDITIONS OF THE MOUNTAIN HOME RESERVOIR OUTLET REPAIR TO THE BEST OF OUR KNOWLEDGE AND JUDGMENT, BASED IN PART ON INFORMATION FURNISHED BY OTHERS AS OF THE

_____ DAY OF _____

LESTER CLINTON BROWN, PE 40189

GENERAL NOTES

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE UTILITIES PRIOR TO CONSTRUCTION. CALL COLORADO ONE CALL BEFORE YOU DIG (UTILITY LOCATES) 1-800-922-1987 OR 811.
2. CONTRACTOR MUST ENSURE THAT ALL EXISTING UTILITIES, ONSITE STRUCTURES, ADJACENT STRUCTURES AND SITES ARE PROTECTED DURING CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE ALL DAMAGE IS REPAIRED.
3. CONTRACTOR MUST ENSURE THAT ALL ENVIRONMENTAL CONDITIONS ARE PROTECTED THROUGHOUT CONSTRUCTION AND THE SITE IS RESTORED TO AN ACCEPTABLE STATE BY THE ENGINEER AND/OR CLIENT.
4. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT(S) FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY (COR-030000) FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT.

GENERAL STRUCTURAL NOTES

1. CODE: INTERNATIONAL BUILDING CODE, 2012 EDITION.
2. VERIFY THE LOCATION AND SIZE OF ALL OPENINGS THROUGH FLOORS, WALLS AND ROOFS WITH CIVIL, MECHANICAL AND ELECTRICAL DWG's AND WITH EQUIPMENT FURNISHED.
3. STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, DUCTS, ETC., UNLESS SPECIALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK AND MATERIALS RELATING TO DESIGN, CONSTRUCTION, ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORM WORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
5. ALL EXPOSED STEEL TO BE GALVANIZED AFTER FABRICATION.
6. SHOP WELD ALL FABRICATIONS UNO.

CONCRETE

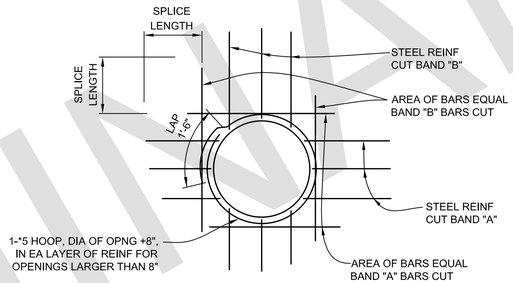
1. ALL CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM OF 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI, EXCEPT THAT CONCRETE SPECIFICALLY DETAILED AS CONCRETE FILL SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REINFORCING STEEL FOR ALL CONCRETE SHALL CONFORM TO ASTM A615, GRADE 60 DEFORMED BARS, UNLESS NOTED OTHERWISE. BAR PLACEMENT TO BE IN ACCORDANCE WITH ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND CRSI PUBLICATION "PLACING REINFORCING STEEL".
3. CLEARANCE FOR REINFORCEMENT BARS, UNLESS SHOWN OTHERWISE, SHALL BE:
   a. WHEN PLACED ON GROUND: 3"
   b. EXPOSED TO WATER, WEATHER, BACK FILL OR CONDENSATION: 2"
4. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE 90° STANDARD HOOK AS DEFINED IN LATEST EDITION OF ACI 318.
5. ALL WALL CORNER AND INTERSECTION REINFORCING BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMNS OR PILASTERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS AND HOOKED/LAPPED ON THE OPPOSITE FACE OF THE CONNECTING WALL. IN GENERAL, TYPICAL HORIZONTAL WALL REINFORCING IS SHOWN ON EACH FACILITY DWG. WALL CORNER AND INTERSECTION REINFORCING SHALL BE AS ON THE STRUCTURAL DETAILS.
6. UNLESS INDICATED OTHERWISE, CONTRACTOR MAY SPLICE SLAB OR WALL BARS AT LOCATIONS OF THEIR CHOOSING WITH THE ENGINEERS APPROVAL, EXCEPT THAT FOR SUSPENDED SLABS, TOP BARS SHALL BE SPLICED AT MID SPAN AND BOTTOM BARS SHALL BE SPLICED AT THIRD POINTS. SPLICE LOCATIONS SHALL BE ALTERNATED OR STAGGERED. ALL REINFORCEMENT, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING REQUIREMENTS:

DETAIL OF WALL AND SLAB REINFORCEMENT - LAP LENGTHS

BAR SIZE		#5 OR SMALLER	#6	#7	#8	#9	#10
CONCRETE DESIGN STRENGTH		4000 PSI					
GRADE	TOP BAR	25"	30"	48"	61"	75"	91"
60	OTHER BAR	20"	23"	37"	47"	58"	70"

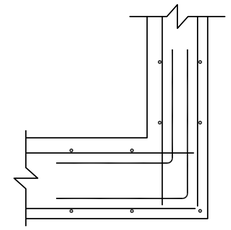
   a. TOP BARS ARE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
   b. TABLE APPLIES TO WALLS AND SLABS WITH 6 INCH MINIMUM CENTER TO CENTER SPACING BETWEEN BARS AND 2 INCH MINIMUM COVER.
   c. TABLE DOES NOT APPLY TO BEAMS OR COLUMNS.
   d. INCREASE LAP SPLICES BY 20% FOR EPOXY COATING.
8. ALL OPENINGS IN CONCRETE WALLS AND SLABS GREATER THAN OR EQUAL TO 8" SHALL BE PROVIDED WITH OPENING REINFORCEMENT PER STANDARD DETAIL.
9. CONCRETE CONSTRUCTION JOINTS SHALL BE CLEAN AND ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4".
10. WATERSTOP SHALL BE 6" PVC BY GREENSTREAK MODEL #722 CENTERED IN SLAB OR WALL SHALL BE INSTALLED IN ALL CONSTRUCTION JOINTS IN WALLS OF WATER HOLDING BASINS, CHANNELS, AND CONTAINMENT AREAS, EXCEPT WHERE INDICATED OTHERWISE.
11. REFER TO SPECIFICATIONS FOR COMPLETE REQUIREMENTS.
12. ALL JOINTS AT EXISTING CONCRETE TO BE ROUGHENED TO PROVIDE 1/4" AMPLITUDE.

SHEET INDEX

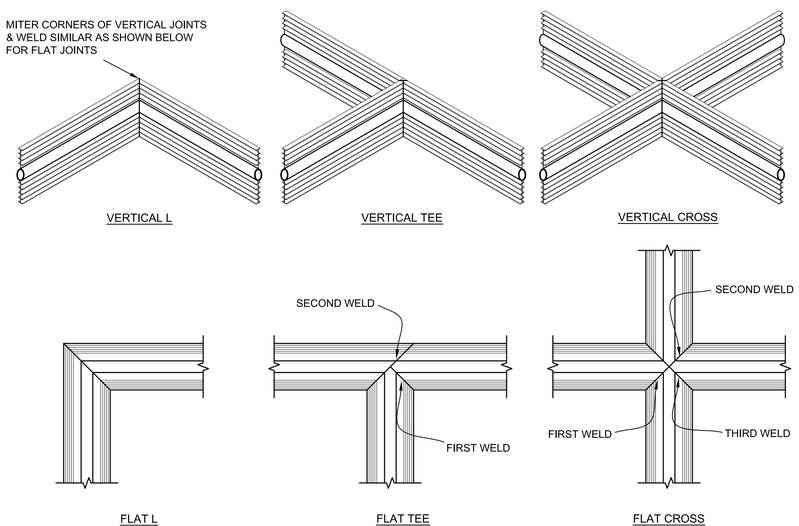


NOTES
1. ALL REBAR CUT BY AN OPENING SHALL BE REPLACED AT ALL SIDES TO PROVIDE THE SAME QUANTITY OF REBAR AS A WALL OR SLAB WITHOUT AN OPENING.
2. PLACE 'DIAGONAL' BARS AROUND THE OPENING AT EACH CORNER USING THE LARGEST SIZE REBAR CUT. LENGTH IS TWICE SPLICE LENGTH.

TYPICAL WALL AND SLAB OPENING DETAIL
NTS



TYPICAL CORNER JOINT DETAIL
NTS



WATERSTOP DETAIL
NTS

NOTE
ALL WELDS SHALL BE PER WATERSTOP MANUFACTURER'S RECOMMENDATIONS.

SCALE VERIFICATION:
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

REVISIONS

Revision	Date	Description
0	02/02/18	SEO REVIEW

Designed by:

Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

MOUNTAIN HOME OUTLET REPAIR

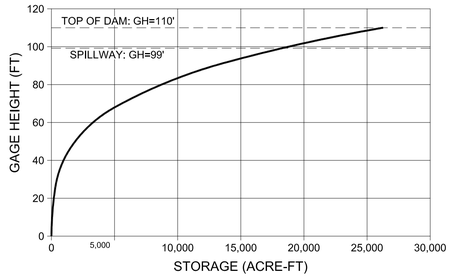
GENERAL NOTES AND DETAILS

Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018

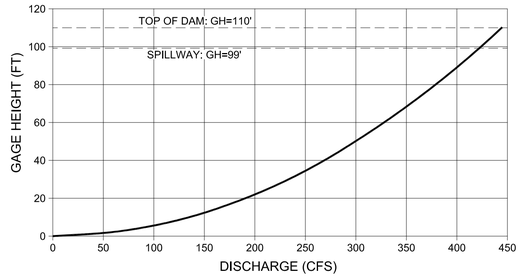
SHEETS	SHEET
8	2

C-1739-B

RESERVOIR STORAGE
GAGE HEIGHT VS. STORAGE



SPILLWAY DISCHARGE CURVE
GAGE HEIGHT VS. DISCHARGE



RESERVOIR STORAGE TABLE

GH (ft)	USGS ELEVATION (ft)	STORAGE (acre-ft)
0	8103	0
1	8104	0.5
2	8105	2
3	8106	4
4	8107	6
5	8108	10
6	8109	14
7	8110	19
8	8111	24
9	8112	31
10	8113	38
11	8114	46
12	8115	54
13	8116	64
14	8117	75
15	8118	86
16	8119	98
17	8120	111
18	8121	125
19	8122	140
20	8123	156
21	8124	173
22	8125	193
23	8126	214
24	8127	238
25	8128	263
26	8129	291
27	8130	321
28	8131	353
29	8132	387
30	8133	424
31	8134	463
32	8135	505
33	8136	551
34	8137	600
35	8138	653
36	8139	709
37	8140	768
38	8141	897
39	8142	931
40	8143	966
41	8144	1039
42	8145	1115
43	8146	1193
44	8147	1276
45	8148	1361
46	8149	1449
47	8150	1541
48	8151	1635
49	8152	1733
50	8153	1834
51	8154	1941
52	8155	2055
53	8156	2179
54	8157	2310
55	8158	2450

RESERVOIR STORAGE TABLE (CONT'D)

GH (ft)	USGS ELEVATION (ft)	STORAGE (acre-ft)	
56	8159	2599	
57	8160	2755	
58	8161	2920	
59	8162	3093	
60	8163	3275	
61	8164	3465	
62	8165	3663	
63	8166	3868	
64	8167	4082	
65	8168	4304	
66	8169	4534	
67	8170	4772	
68	8171	5018	
69	8172	5272	
70	8173	5533	
71	8174	5804	
72	8175	6086	
73	8176	6377	
74	8177	6679	
75	8178	6991	
76	8179	7314	
77	8180	7646	
78	8181	7989	
79	8182	8342	
80	8183	8706	
81	8184	9080	
82	8185	9466	
83	8186	9864	
84	8187	10273	
85	8188	10694	
86	8189	11127	
87	8190	11571	
88	8191	12027	
89	8192	12495	
90	8193	12974	
91	8194	13467	
92	8195	13975	
93	8196	14498	
94	8197	15037	
95	8198	15592	
96	8199	16162	
97	8200	16747	
98	8201	17347	
99	8202	17964	SPILLWAY
100	8203	18595	
101	8204	19246	
102	8205	19919	
103	8206	20617	
104	8207	21338	
105	8208	22085	
106	8209	22858	
107	8210	23658	
108	8211	24486	
109	8212	25343	
110	8213	26230	TOP OF DAM

SPILLWAY STORAGE TABLE

GH (ft)	USGS ELEVATION (ft)	OUTLET WORKS DISCHARGE (cfs)	CONTROL
0	8103	0.0	INLET
1	8104	37.9	INLET
2	8105	55.4	INLET
3	8106	73.2	INLET
4	8107	84.8	OUTLET
5	8108	94.6	OUTLET
6	8109	103.7	OUTLET
7	8110	112.1	OUTLET
8	8111	119.7	OUTLET
9	8112	127.1	OUTLET
10	8113	133.9	OUTLET
11	8114	140.6	OUTLET
12	8115	146.7	OUTLET
13	8116	152.8	OUTLET
14	8117	158.5	OUTLET
15	8118	164.2	OUTLET
16	8119	169.6	OUTLET
17	8120	174.7	OUTLET
18	8121	179.7	OUTLET
19	8122	184.6	OUTLET
20	8123	189.5	OUTLET
21	8124	194.2	OUTLET
22	8125	198.8	OUTLET
23	8126	203.2	OUTLET
24	8127	207.7	OUTLET
25	8128	211.9	OUTLET
26	8129	216	OUTLET
27	8130	220.2	OUTLET
28	8131	224.2	OUTLET
29	8132	228.3	OUTLET
30	8133	232	OUTLET
31	8134	235.9	OUTLET
32	8135	239.6	OUTLET
33	8136	243.5	OUTLET
34	8137	247	OUTLET
35	8138	250.7	OUTLET
36	8139	254.4	OUTLET
37	8140	257.8	OUTLET
38	8141	261.3	OUTLET
39	8142	264.7	OUTLET
40	8143	268.1	OUTLET
41	8144	271.3	OUTLET
42	8145	274.8	OUTLET
43	8146	278	OUTLET
44	8147	281.2	OUTLET
45	8148	284.4	OUTLET
46	8149	287.5	OUTLET
47	8150	290.5	OUTLET
48	8151	293.7	OUTLET
49	8152	296.7	OUTLET
50	8153	299.6	OUTLET
51	8154	302.6	OUTLET
52	8155	305.7	OUTLET
53	8156	308.5	OUTLET
54	8157	311.4	OUTLET
55	8158	314.3	OUTLET

SPILLWAY STORAGE TABLE (CONT'D)

GH (ft)	USGS ELEVATION (ft)	OUTLET WORKS DISCHARGE (cfs)	CONTROL	
56	8159	317.1	OUTLET	
57	8160	320	OUTLET	
58	8161	322.7	OUTLET	
59	8162	325.6	OUTLET	
60	8163	328.4	OUTLET	
61	8164	331.1	OUTLET	
62	8165	333.8	OUTLET	
63	8166	336.5	OUTLET	
64	8167	339.2	OUTLET	
65	8168	341.6	OUTLET	
66	8169	344.3	OUTLET	
67	8170	347	OUTLET	
68	8171	349.5	OUTLET	
69	8172	352.2	OUTLET	
70	8173	354.7	OUTLET	
71	8174	357.1	OUTLET	
72	8175	359.6	OUTLET	
73	8176	362.1	OUTLET	
74	8177	364.7	OUTLET	
75	8178	367.2	OUTLET	
76	8179	369.4	OUTLET	
77	8180	371.9	OUTLET	
78	8181	374.3	OUTLET	
79	8182	376.8	OUTLET	
80	8183	379.2	OUTLET	
81	8184	381.5	OUTLET	
82	8185	383.9	OUTLET	
83	8186	386.1	OUTLET	
84	8187	388.6	OUTLET	
85	8188	390.8	OUTLET	
86	8189	393	OUTLET	
87	8190	395.4	OUTLET	
88	8191	397.7	OUTLET	
89	8192	399.9	OUTLET	
90	8193	402.1	OUTLET	
91	8194	404.3	OUTLET	
92	8195	406.5	OUTLET	
93	8196	408.7	OUTLET	
94	8197	411	OUTLET	
95	8198	413.2	OUTLET	
96	8199	415.4	OUTLET	
97	8200	417.6	OUTLET	
98	8201	419.6	OUTLET	
99	8202	421.8	OUTLET	SPILLWAY
100	8203	424	OUTLET	
101	8204	426	OUTLET	
102	8205	428.1	OUTLET	
103	8206	430.1	OUTLET	
104	8207	432.3	OUTLET	
105	8208	434.3	OUTLET	
106	8209	436.5	OUTLET	
107	8210	438.5	OUTLET	
108	8211	440.5	OUTLET	
109	8212	442.6	OUTLET	
110	8213	444.6	OUTLET	TOP OF DAM

INLET CONTROL (PIPE OPENING AS ORIFICE)
$Q = C \ A \sqrt{(2\ g\ H)}$ - EQUATION FOR A SINGLE PIPE ENTRANCE

WHERE:
H= HEAD ABOVE CENTER OF PIPE
= GH - 1.25'
A= AREA OF OPENING
A_{30} = 4.91 ft² A_{16} = 1.40 ft²
C= 0.65 ORIFICE DISCHARGE COEFFICIENT
g= 32.2 ft/s² GRAVITATIONAL ACCELERATION

OUTLET CONTROL
MANNING'S EQUATION
$H = (2.87 n^2 L V^2) / D^{4/3} + K (V^2/2g)$

WHERE:
H= HEAD ON PIPE
= GH + 8103 - D/S W.S. ELEV
V= VELOCITY OF FLOW = Q/A ft/sec
A= AREA OF FULL PIPE
A_{30} = 4.91 ft² A_{16} = 1.40 FT²
n= MANNING'S ROUGHNESS COEFFICIENT
n = 0.013
L= LENGTH OF PIPE SECTION
L_{30} = 360 ft L_{16} = 5 ft
D= DEPTH OF FLOW
D_{30} = 30" D_{16} = 16"
K= SUM OF MINOR LOSS COEFFICIENT
K_{30} = 1.9 (FLOW THROUGH RIGHT/LEFT CONDUITS)
K_{30} = 0.7 (FLOW THROUGH CENTER CONDUIT)
K_{16} = 1.6

NOTES:
1. SUBSCRIPTS
30 = INDICATES FLOW THROUGH ONE 30-INCH GATE
16 = INDICATES FLOW THROUGH 16-INCH GATE

3. LENGTH THROUGH RIGHT AND LEFT CONDUIT EQUAL TO L_{30}
LENGTH THROUGH CENTER CONDUIT EQUAL TO $L_{30} + L_{16}$.

2. TOTAL FLOW DETERMINED BY SUMMING THE HEAD LOSSES THROUGH ALL THREE CONDUITS.

SCALE VERIFICATION:
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

REVISIONS

Revision	Date	Description
0	02/02/18	SEO REVIEW

Designed by:

Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

MOUNTAIN HOME
OUTLET REPAIR

HYDRAULICS

Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018
SHEETS	8
SHEET	3

C-1739-B

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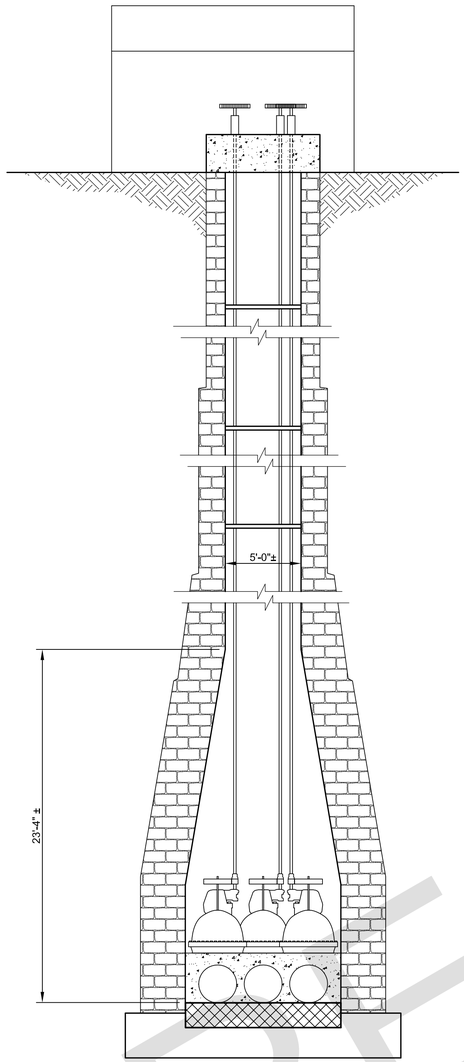
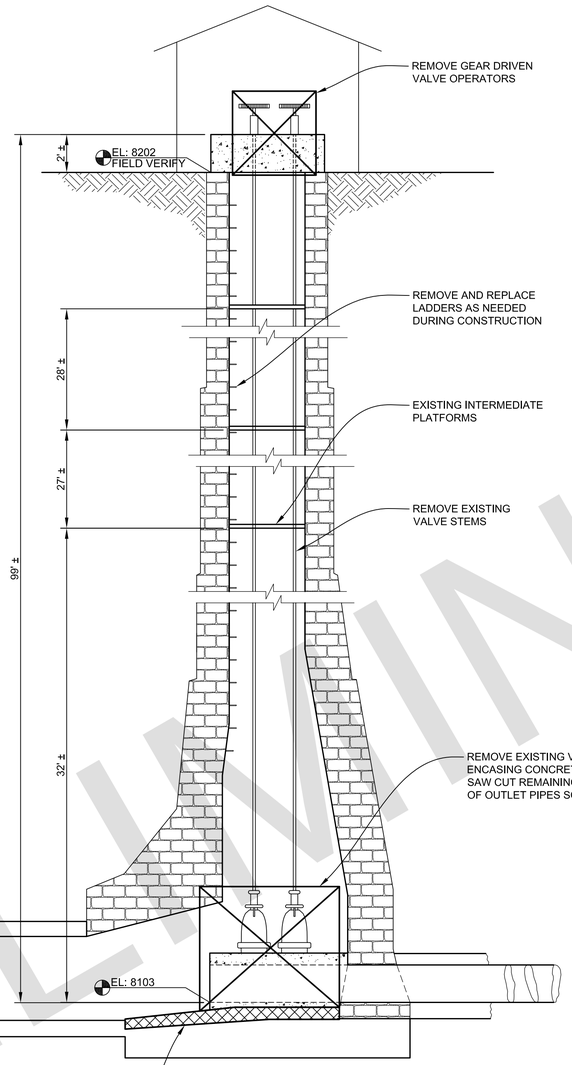
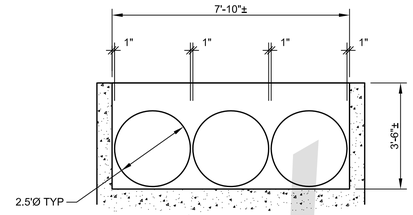
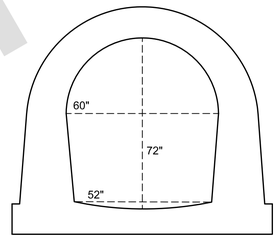




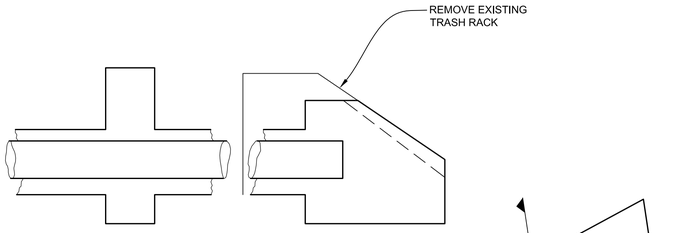


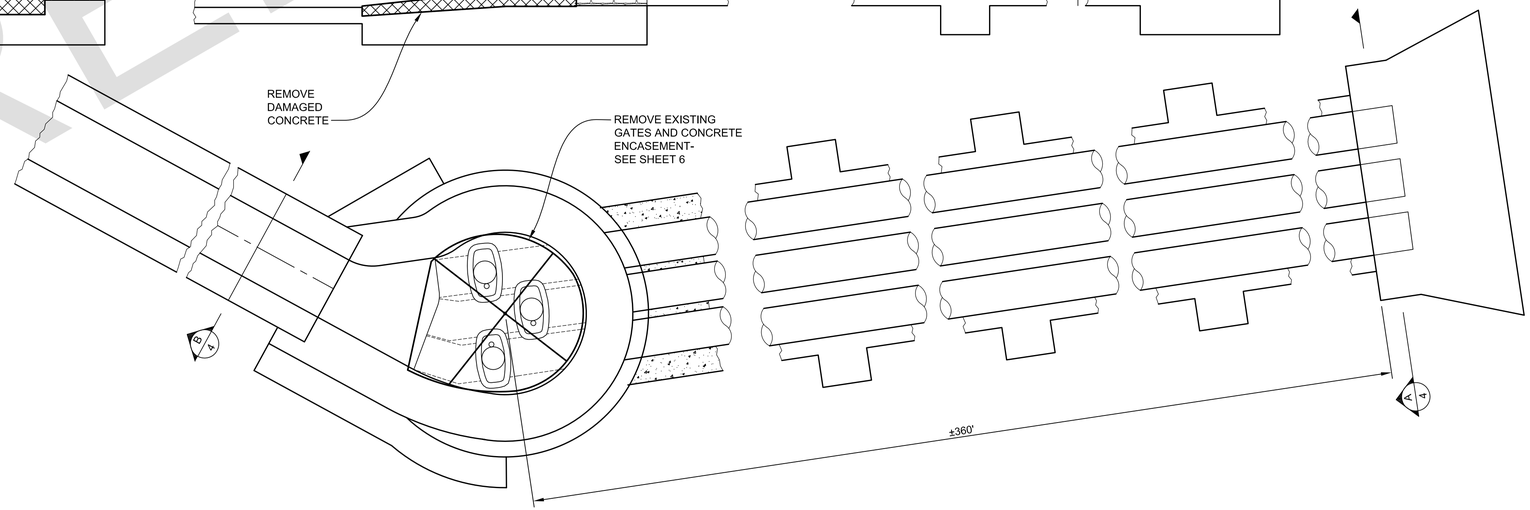
A/4 EXISTING OUTLET PIPE SECTION
SCALE: NTS

NOTE:
1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.



B/4 EXISTING OUTLET TUNNEL SECTION
SCALE: NTS





SCALE VERIFICATION:
0 1"
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REVISIONS

Revision	Date	Description
0	02/02/18	SEO REVIEW

Designed by:

Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

MOUNTAIN HOME
OUTLET REPAIR

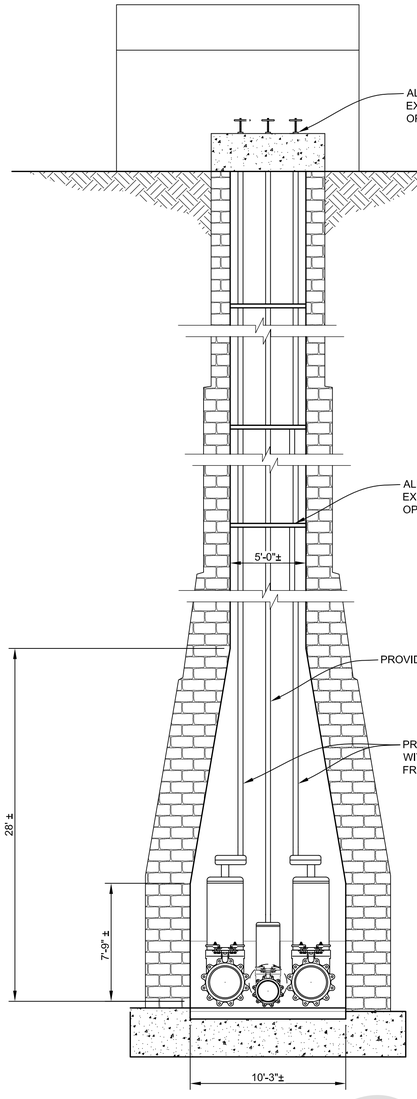
DEMOLITION
PLAN AND PROFILE

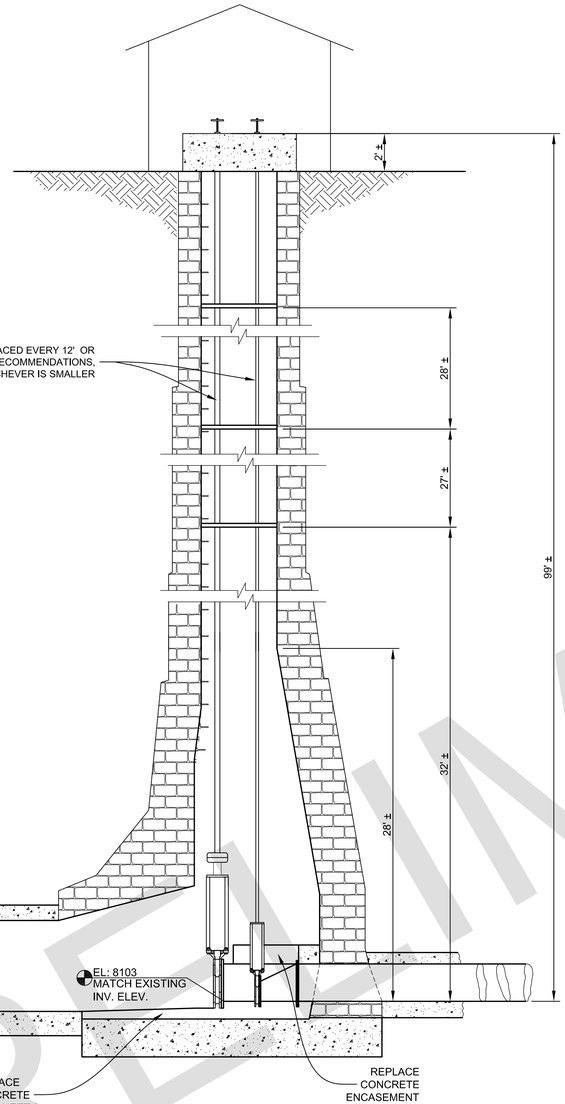
Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018

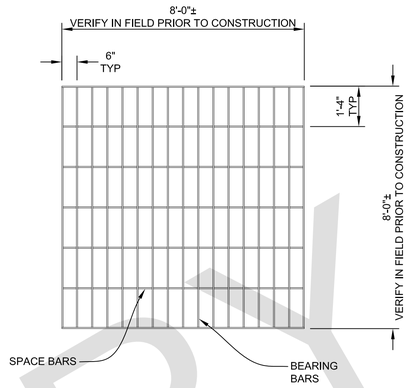
SHEETS	SHEET
8	4

C-1739-B

T:\110718 Mountain Home\Demo Plan.dwg SAVED:1/26/18 PRINTED:1/30/18



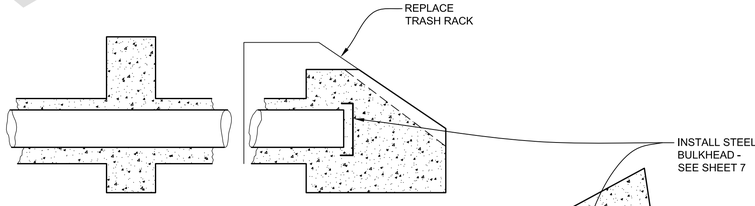


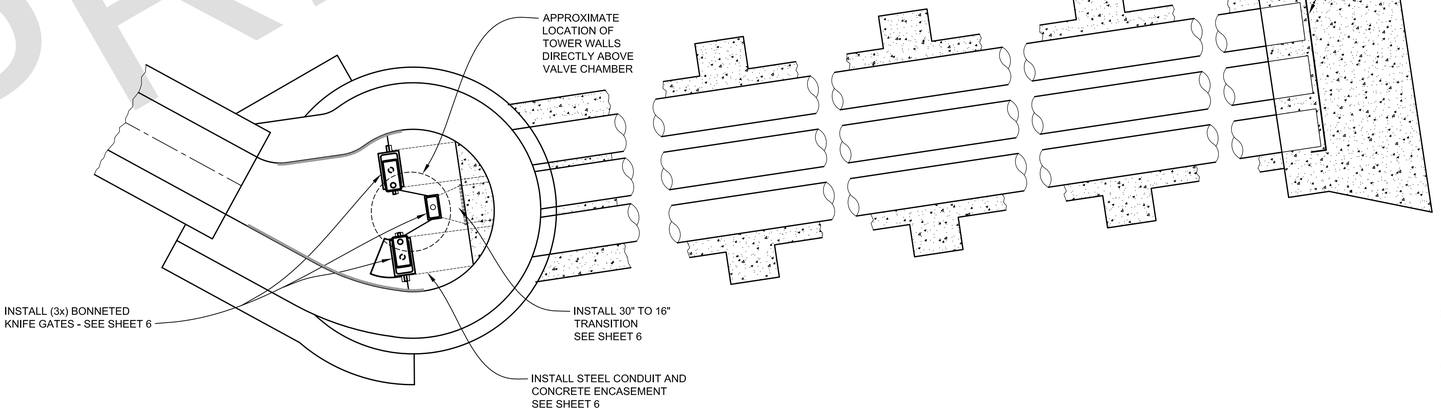


NOTES:

1. ALL DIMS ARE TO CENTER OF BAR.
2. BEARING BARS TO BE CONTINUOUS ACROSS SPAN.
3. ALL BARS TO BE 5"x1/2"xLENGTH.
4. WELD BOTH SIDES OF BARS AT INTERSECTIONS, GALVANIZED FINISH.

TRASH RACK DETAIL





NOTE:
GATES, STEMS, ACTUATORS, AND ACCOMPANYING PARTS MUST BE FROM SAME MANUFACTURER AS A PACKAGE. BEVELED GEARS MUST BE APPROPRIATE TO ENSURE THE MANUAL ACTUATORS CAN OPEN AND CLOSE THE RESPECTIVE GATES.

SCALE VERIFICATION:
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

REVISIONS

Revision	Date	Description
0	02/02/18	SEC REVIEW

Designed by:

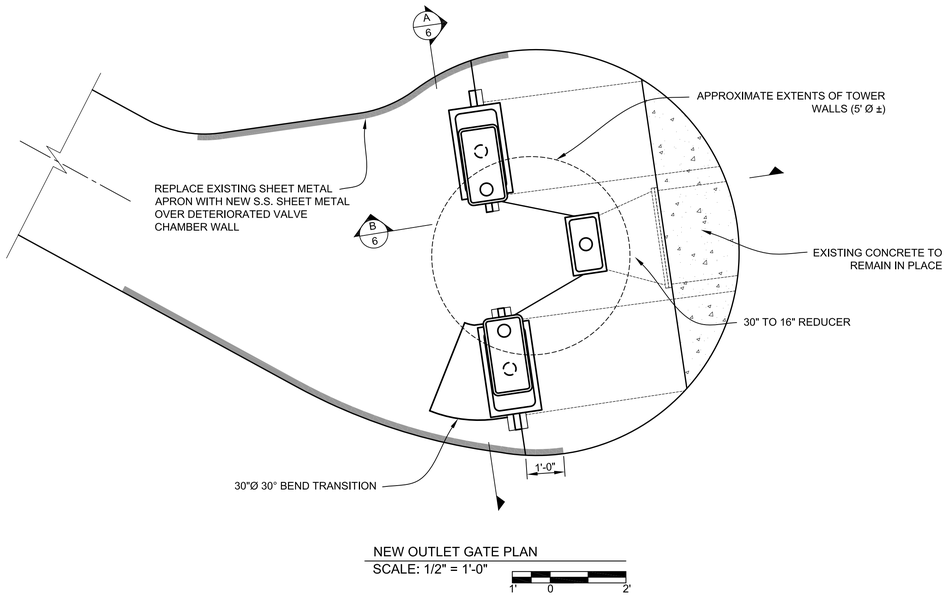
Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

MOUNTAIN HOME
OUTLET REPAIR

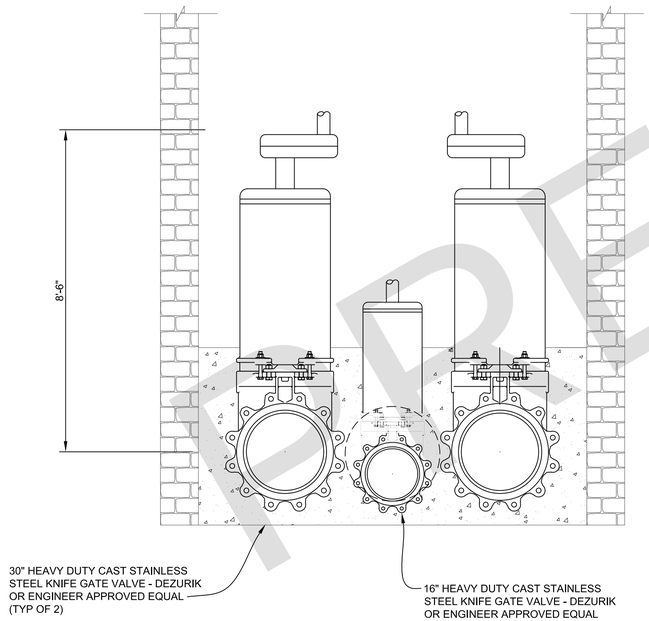
VALVE REPLACEMENT
PLAN AND PROFILE

Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018
SHEETS	8
SHEET	5

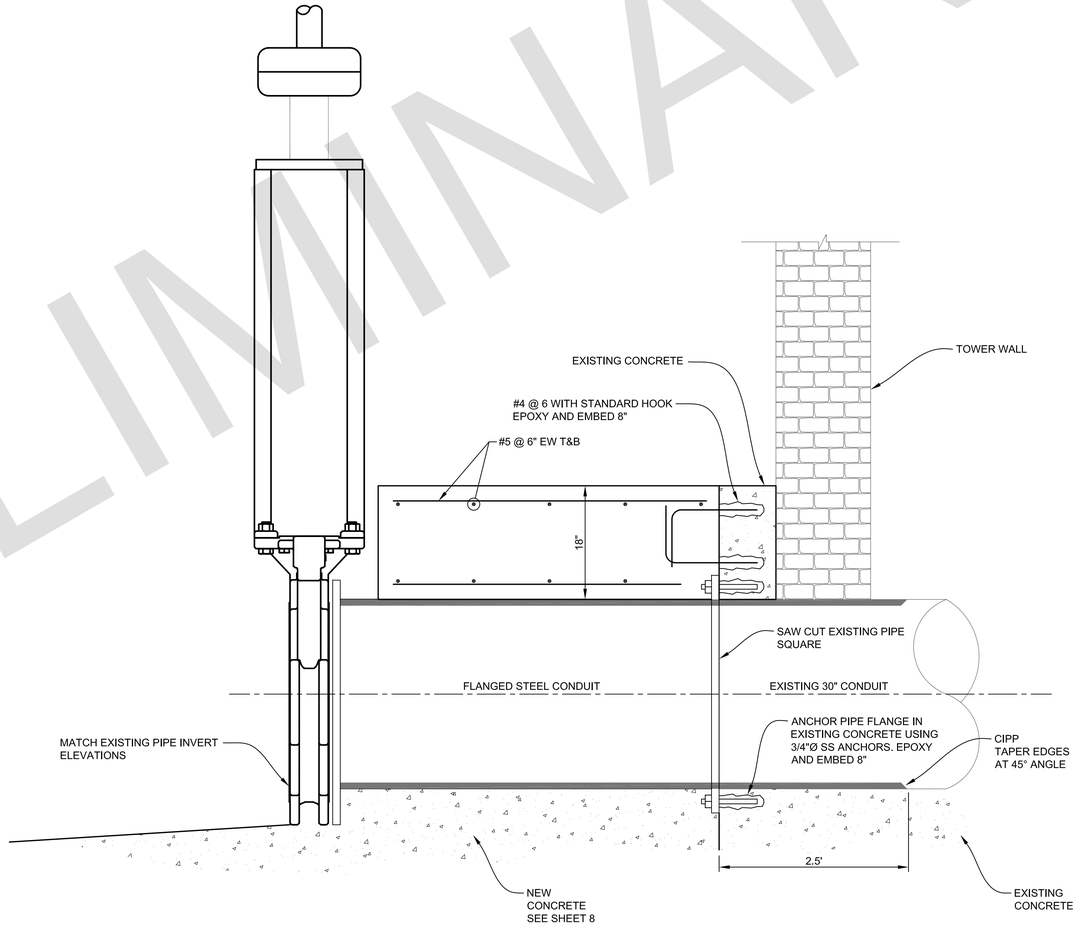
C-1739-B



NEW OUTLET GATE PLAN
SCALE: 1/2" = 1'-0"
1' 0 2'



A / 6 NEW OUTLET GATE SECTION
SCALE: 1/2" = 1'-0"
1' 0 2'



B / 6 PIPE ENCASEMENT SECTION
SCALE: 1" = 1'-0"
6" 0 1'

SCALE VERIFICATION:
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

REVISIONS

Revision	Date	Description
0	02/02/18	SEO REVIEW

Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

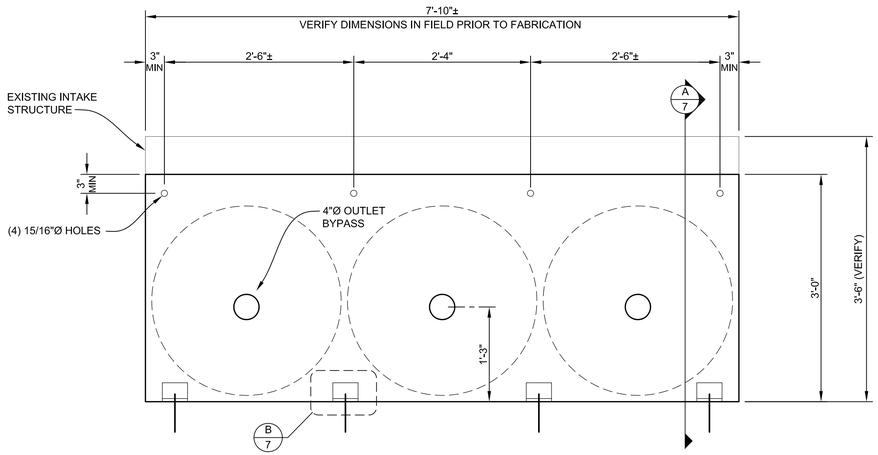
Designed by: RDP

MOUNTAIN HOME OUTLET REPAIR

VALVE REPLACEMENT DETAILS

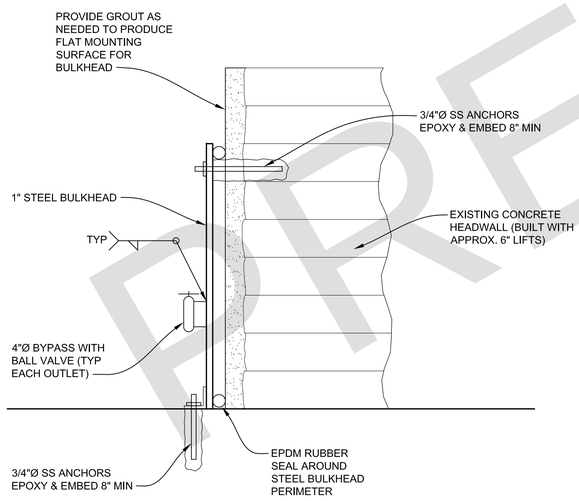
Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018
SHEETS	8
SHEET	6

C-1739-B



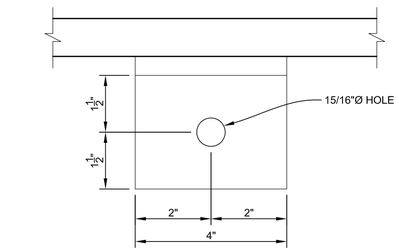
BULKHEAD ELEVATION
SCALE: 1" = 1'-0"

6" 0 1'

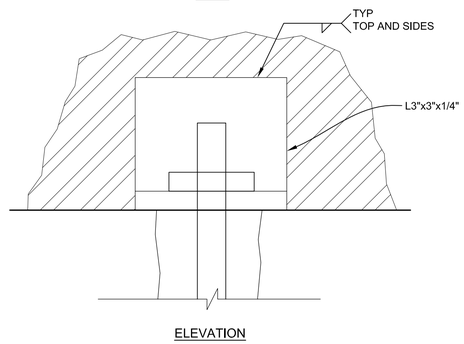


A / 7 BULKHEAD SECTION
SCALE: 1" = 1'-0"

6" 0 1'



PLAN



ELEVATION

B / 7 ANGLE CONNECTION DETAIL
SCALE: 2" = 1'-0"

1" 0 2"

SCALE VERIFICATION:
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

REVISIONS

Revision	Date	Description
0	02/02/18	SEC REVIEW

Designed by:
Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

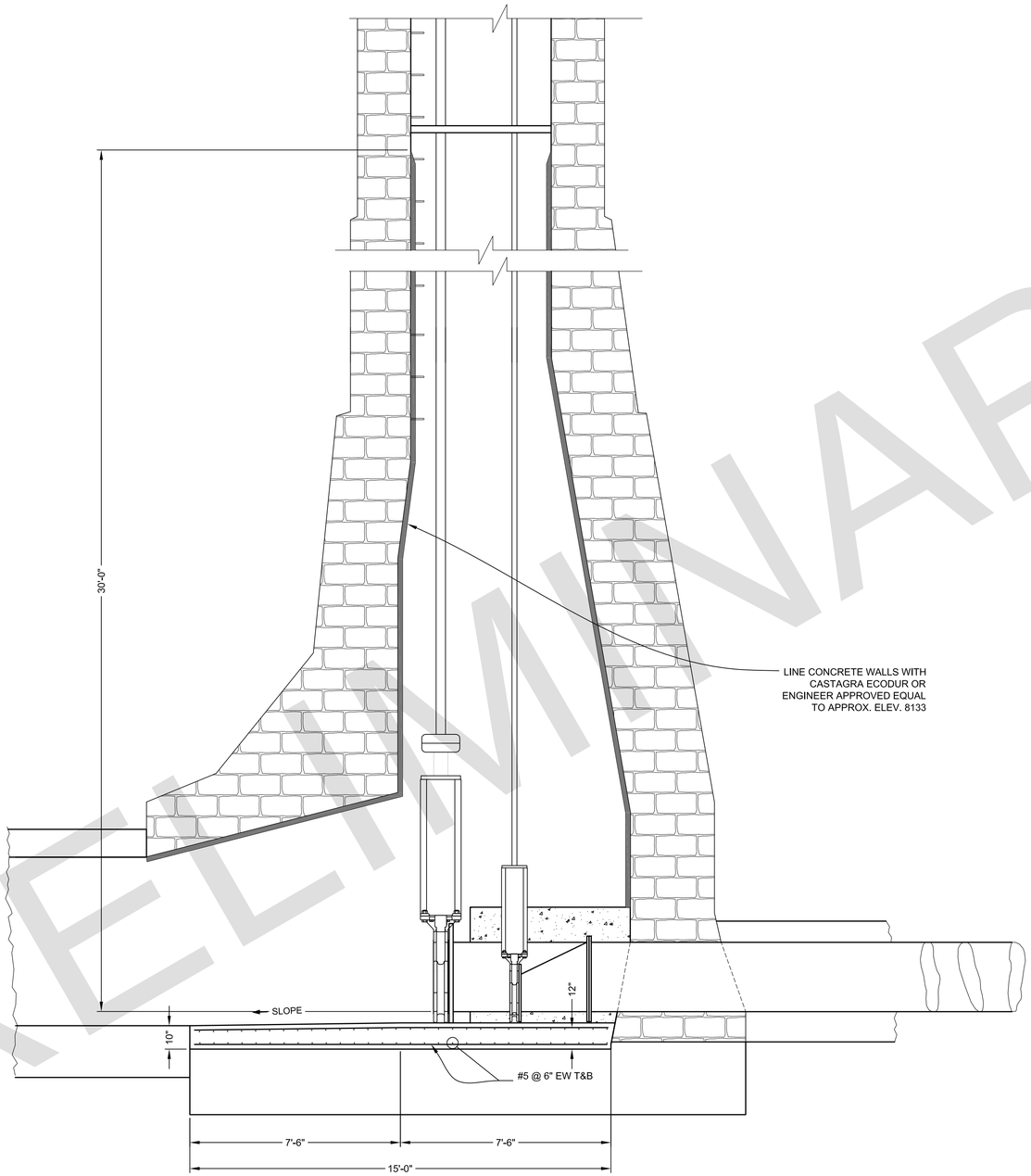
MOUNTAIN HOME
OUTLET REPAIR

BULKHEAD/ INTAKE
STRUCTURE DETAILS

Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018

SHEETS 8 | SHEET 7

C-1739-B



NOTE: VERIFY DIMENSIONS AND ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO WORK

SCALE VERIFICATION:
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REVISIONS

Revision	Date	Description
0	02/02/18	SEO REVIEW

Designed by:
Engineering Analytics, Inc.
1600 Specht Point Road, Suite 209
Fort Collins, CO 80525
(970) 488-3111

MOUNTAIN HOME
OUTLET REPAIR

TOWER AND TUNNEL
LINING DETAILS

Drawn by:	RDP
Designed by:	DCH
Checked by:	LCB
Scale:	As Shown
Project No.	110718
Date:	January 4, 2018

SHEETS	SHEET
8	8

C-1739-B

APPENDIX I
CWCB Loan Application

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Water Project Loan Program

Application Type

☑ Prequalification *(Attach 3 years of financial statements)* ☑ Loan Approval *(Attach Loan Feasibility Study)*

Agency/Company Information

Company / Borrower Name: Trinchera Irrigation Company

Authorized Agent &Title: Tracy Kester President

Address: 601 Main Street, Blanca, CO 81136

Phone: (719)379 3467 | Email: trinirr@gojade.org

Organization Type: ☑ Ditch Co, ☐ District, ☐ Municipality ☐ other: _____ | Incorporated? ☑ YES ☐ NO

County: Costilla | Number of Shares/Taps: 12,500

Water District: Rio Grande Basin Division 3 | Avg. Water Diverted/Yr 24,000 acre-feet

Number of Shareholders/Customers Served: 47 | Current Assessment per Share $ 23.00 (Ditch Co)

Federal ID Number: 84-0338590 | Average monthly water bill $ 0 (Municipality)

Contact Information

Project Representative: Wayne Schwab

Phone: (719) 298 1369 | Email: trincherairrigation2@gmail.com

Engineer: Clint Brown Engineering Analytics, Inc.

Phone: (970) 488 3111 | Email: cbrown@ enganalytics.com

Attorney: Erich Schwiesow

Phone: (719)589 6626 | Email:

Project Information

Project Name: Mountain Home Dam Outlet Works Rehabilitation - Phase III

Brief Description of Project: (Attach separate sheets if needed)

TIC will rehabilitate the outlet works' century-old gate valves at Mountain Home Reservoir to meet SEO drawdown requirements, restoring reliable water level elevation management and eliminating the annual leakage of over 2,000 AF of stored water. Funds will replace the existing gate valves, repair the concrete within outlet tunnel, and install mechanical-operated system & actuators for each valve.

General Location: (Attach Map of Area)

6 miles south east of Ft. Garland, CO

Estimated Engineering Costs: $80,000 | Estimated Construction Costs: $770,438

Other Costs (Describe Above): | Estimated Total Project Costs: $1,056,913

Requested Loan Amount: $300,000 | Requested Loan Term (10, 20, or 30 years): 30 years Years

Project Start Date(s) Design: May 2018 Construction: September 2018

Signature

Tracy S. Kester 1-30-18
Signature / Title Date

Return to: Finance Section Attn: Anna Mauss
1313 Sherman St #718
Denver, CO 80203
Ph. 303/866.3449
e-mail: anna.mauss@state.co.us