Feasibility of Repairing Mr. Brett Corsentino's

Holita Dam, DAMID: 160214

Water Division 2, Water District 16

As Required by

State of Colorado, Department of Natural Resources,

Division of Water Resources, Office of the State Engineer,

Dick Wolfe, P.E., DWR Director/State Engineer

Certified Mail: 7004 0550 0001 0704 4803

SUBJECT: Reservoir Storage Restriction

Dated: October 2, 2014

Prepared by:

Walter G. Bland, Engineering Technician
and
Nicholas F. Koch, P.E.
Agricultural Engineer
217 East Grand Avenue
La Junta, CO 81050

31 May 2017

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.

7/7/17
Date

Signed

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: Brett Corsentino

Authorized Agent &Title: Corsentino Dairy Farm Inc

Address: 2689 State Hwy 10, Walsenburg Co 81089

Phone: (719) 568-0429 | Email: bcorsentino@Hotmail.com

Organization Type: ☑ Ditch Co, ☐ District, ☐ Municipality ☑ other: Dairy Farm

Incorporated? ☒ YES ☐ NO
Farm is Coop

County: Huerfano

Water District: Upper Huerfano District

Number of Shareholders/Customers Served:

Federal ID Number: 84073093 4

Number of Shares/Taps:

Avg. Water Diverted/Yr 540 acre-feet

Current Assessment per Share $ 740,00 (Ditch Co)

Average monthly water bill $ _____ (Municipality)

Contact Information

Project Representative: Walt Bland

Phone: (719) 940-2960 | Email: N/A

Engineer: Nick Koch

Phone: (719) 469-6530 | Email: KochDeer@Yahoo.com

Attorney:

Phone: ( ) | Email:

Project Information

Project Name: Holita Reservoir

Brief Description of Project: (Attach separate sheets if needed)

See attached 9 page report titled:
Feasibility of Repairing Mr. Brett Corsentino's, Holita Dam,
DAMID: 160214 Water Division 2, Water District 16
dated 31 May 2017

General Location: (Attach Map of Area)

~ see 9 page attachment ~

Estimated Engineering Costs: see attachment

Estimated Construction Costs: see attachment

Other Costs (Describe Above): see attachment

Estimated Total Project Costs: see attachment

Requested Loan Amount: $93,600

Requested Loan Term (10, 20, or 30 years): For 10, 15, 20, & 30 Years (comparison options)

Project Start Date(s) Design: Now Completed Construction: Oct 2017

Signature

Brett Corsentino

President / sec 5-31-17
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

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31 May 2017

Table of Contents

Overview

Mr. Brett Corsentino received a State of Colorado Dam Safety Branch Engineer's Inspection Report letter dated September 2, 2014 which assigned an UNSATISFACTORY Overall Condition to his Holita dam. The subject letter titled Reservoir Storage Restriction is detailed in the following information below:

1. In accordance with Colorado's Revised Statute 37-87-107, the Holita dam reservoir storage level is hereby restricted to elevation 6,117.5 feet, which is approximately 5 feet below the low point of the west dam crest noted from the reservoir capacity survey dated May 10, 2013 by Wachob & Wachob Inc., P.L.S. This storage restriction will result in a loss of approximately 224 acre-feet of water from the current 498 acre-feet of dam storage at the current spillway elevation which is 1.6 feet below the current dam crest. The existing spillway is currently not safe and part of the State of Colorado's restriction is the spillway shall be permanently lowered to a storage level which would then contain 274 acre-feet of water (498 – 224 = 274). This newly constructed spillway would need to have a minimum width of 16 feet.

2. The intent of the State of Colorado's storage restriction is to eliminate uncontrolled seepage from exiting on the dam's downstream slope which could lead to a dam failure if not corrected.

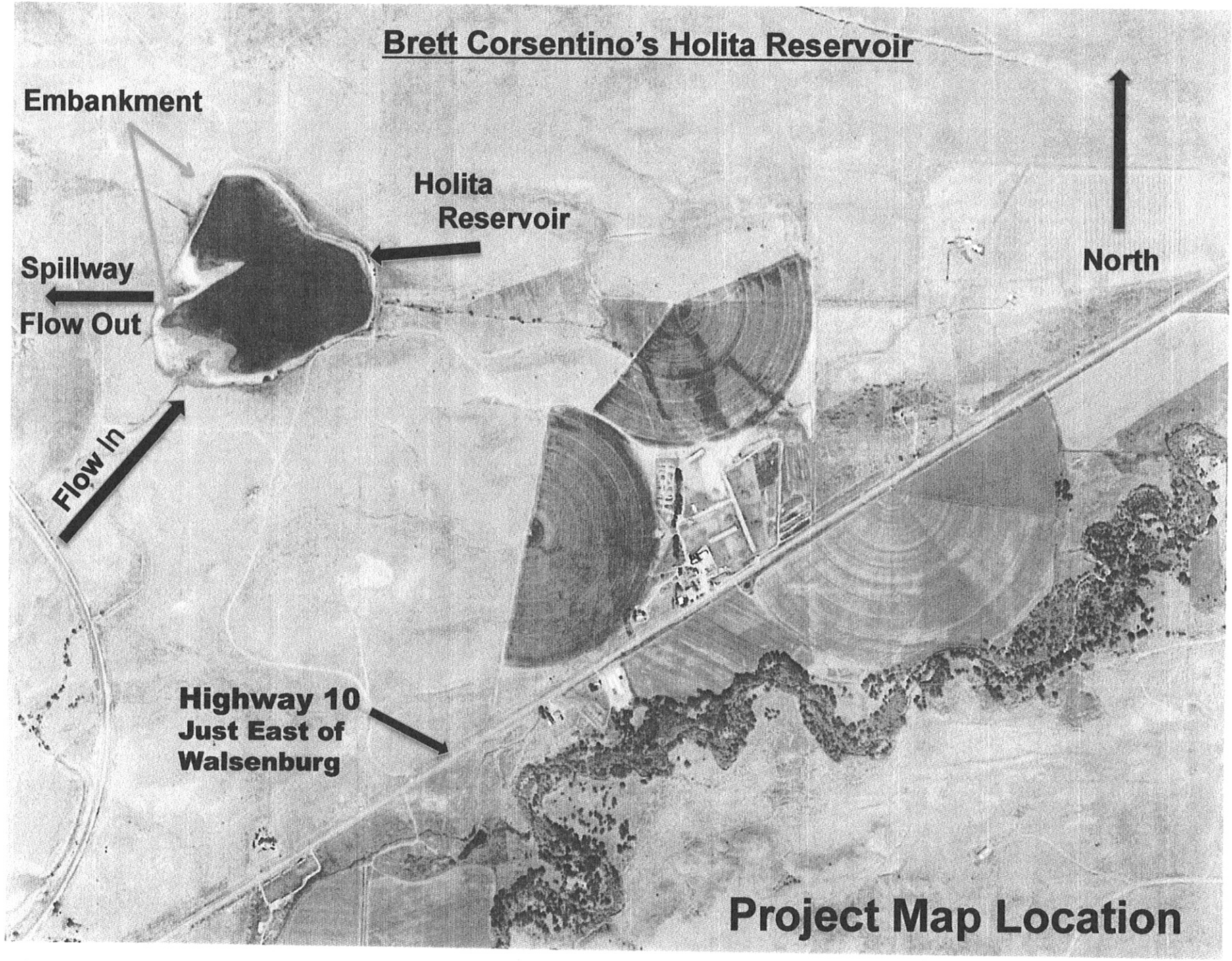
3. There apparently has been a history of non-compliance with the Colorado State Engineer's Orders concerning this dam. In 1972 the State Engineer required the dam spillway to be lowered and issued a storage restriction order in 1977. Then in 2007 the State Engineer's Dam Safety Branch recommended a 5 foot restriction. The dam spillway was not lowered, as required, in 1972 and it appears the owner has stored in excess of restrictions when water has been available.

4. The Division 2 Engineer is directed to enforce this Reservoir Storage Restriction and the owner, Mr. Brett Corsentino, is the responsible person to ensure compliance occurs. Failure to comply with this order will result in the State Engineer's Office initiating legal action in accordance with Colorado Revised Statute (C.R.S.) 37-87-114. This court action could result in the imposition of a fine of not less than $500 per day and a District Court Order requiring the breach of the Holita Dam.

5. The required Reservoir Storage Restriction is the minimum action required to improve the safety of the Holita Dam. The owner, Mr. Brett Corsentino, is reminded he is liable for the safety of this structure (dam) in accordance with C.R.S. 37-87-104 and this Reservoir Storage Restriction does not relieve him of that liability. Also, be aware that this Reservoir Storage Restriction is not a permanent solution to the condition of the dam and action by the owner, Mr. Brett Corsentino, to repair or breach the structure (dam) is required. The letter from

The State Engineer's Office titled "Transmittal of Dam Safety Inspection Report, for Required Actions to improve the condition of the dam dated September 26, 2014" discusses more dam repair details.

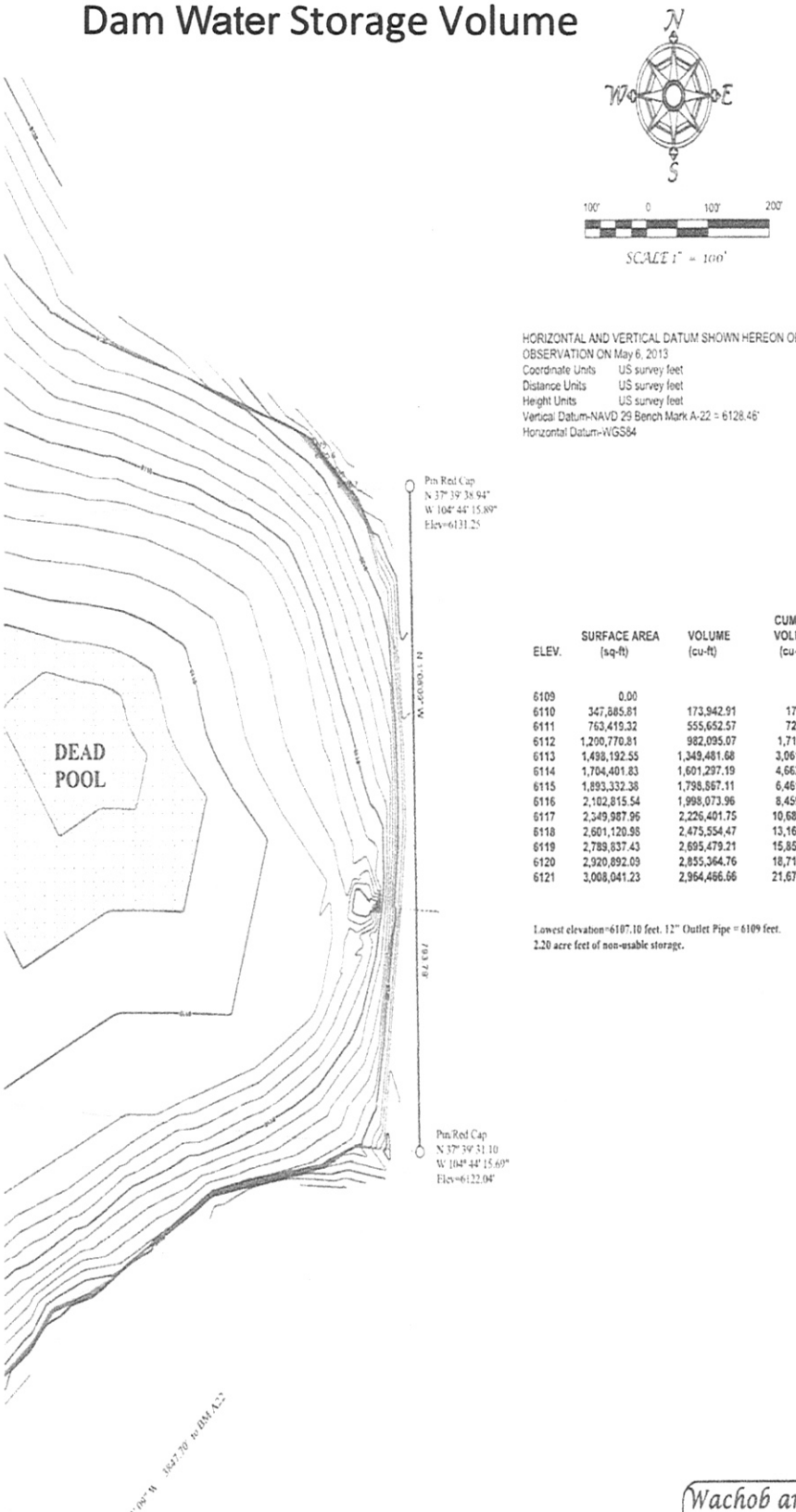
6. Mr. Mark Perry, P.E., Dam Safety Engineer, is the primary contact for questions and issues concerning this Reservoir Storage Restriction. He can be reached by calling 719-542-3368, extension 2109.


Brett Corsentino's Holita Reservoir
Embankment
Holita
Reservoir
Spillway
Flow Out
Flow In
North
Highway 10
Just East of
Walsenburg
Project Map Location

HOLITA RESERVOIR

LOCATED IN SECTIONS 26 & 35, T 27 S, R 66 W, 6TH P.M.
HUERFANO COUNTY, COLORADO

Dam Water Storage Volume



HORIZONTAL AND VERTICAL DATUM SHOWN HEREON OBTAINED BY GPS OBSERVATION ON May 6, 2013
Coordinate Units US survey feet
Distance Units US survey feet
Height Units US survey feet
Vertical Datum-NAVD 29 Bench Mark A-22 = 6128.46'
Horizontal Datum-WGS84

ELEV.	SURFACE AREA (sq-ft)	VOLUME (cu-ft)	CUMM. VOLUME (cu-ft)	CUMM. VOLUME (ac-ft)
6109	0.00			
6110	347,885.81	173,942.91	173,942.91	3.99
6111	763,419.32	555,652.57	729,595.47	16.75
6112	1,200,770.81	982,095.07	1,711,690.54	39.30
6113	1,498,192.55	1,349,481.68	3,061,172.22	70.27
6114	1,704,401.83	1,601,297.19	4,662,469.41	107.04
6115	1,893,332.38	1,798,867.11	6,461,336.51	148.33
6116	2,102,815.54	1,998,073.96	8,459,410.47	194.20
6117	2,349,987.96	2,226,401.75	10,685,812.22	245.31
6118	2,601,120.98	2,475,554.47	13,161,366.69	302.14
6119	2,789,837.43	2,695,479.21	15,856,845.90	364.02
6120	2,920,892.09	2,855,364.76	18,712,210.66	429.57
6121	3,008,041.23	2,964,466.66	21,676,677.32	497.63

Lowest elevation=6107.10 feet. 12" Outlet Pipe = 6109 feet.
2.20 acre feet of non-usable storage.

Wachob and Wachob, Inc.		
Professional Land Surveyors, Colorado City, Colorado P.O. Box 19376, Zip 81019 Phone (719)-676-3665		
Job Name: 2013-044 TRV		
Scale 1" = 100'		Drawn By: W. S. B.
Date = 5-10-2013		
Job No. 2013-044		Sheet 1/1

Corsentino Dairy Farm, Inc

← Says Corsentino Dairy Farm, Inc.

There are 3 center pivot sprinklers located on the property. The oldest sprinkler is a 1985 Valley which irrigates 60 acres; the next is a 1993 Lockwood which irrigates 62 acres; and finally is a 1995 T & L which irigates 103 acres. Both the Lockwood and the T & L were purchased new and are in excellent condition. The Valley was purchased used and is in good condition for its age.

Holita Ditch

WATER RIGHTS:

1. Holita Ditch Reservoir
   Priority #22, Atwood Decree
   Appropriation Date: 3/20/1901
   Adjudication Date: 2/23/1898 and 10/15/1901
   Type: Storage
   Total Right: 540 Acre Feet
   % Owned: 23,280 Shares of 25,000 Shares ✓
   93.12% = 502.85 Acre Feet
   Incorporated: April 18, 1940

2. Holita Ditch Enlargement
   Priority #417 and 417C, Killian Decree
   Appropriation Date: 5/23/1910
   Adjudication Date: 10/10/1901 and 10/3/1921
   Type: Stoage
   Total right: 130 Acre Feet
   % Owned: 93.12% = 121.06 Acre Feet
   Junior right, not used at this time.

Water

From: Brett Corsentio
When we met Wednesday afternoon, 31 May 2017.
Walt Bland & Nick Koch

Project Description

The purpose of this project is to make the necessary repairs to meet or exceed the minimum State of Colorado dam safety requirements for a low hazard earthen dam.

The main problem identified is the dam seepage along and several feet above the downstream embankment toe. The existing dam is probably 100 years old and it most likely did not have a core trench installed.

The Holita Dam Repair/Upgrade Planned Sequence of Events are as follows:

1st: Drain the reservoir and let the existing embankment dewater itself for a week or longer depending on site and weather conditions.
2nd: Strip the top and downstream side of the existing embankment to remove all woody vegetation and other undesirable materials.
3rd: Excavate a trench with 1.5 to 1 side slopes, an 8 ft. bottom width, and at least a 6 ft. depth below the original ground level (in the deep section of the dam), as directed, which is basically located in the middle of the downstream embankment slope. This includes approximately 25% wet excavation.
4th: An existing steel pipeline runs through the embankment and needs to be cut through and plugged with a plug/concrete slurry or equivalent to remove seepage issues/problems as identified/required by the Colorado State Engineer. This task would probably be best accomplished when the excavated trench cuts through this pipeline.
5th: Use nearby approved soil/earthen fill to backfill the excavated core trench in 6 inch lifts and compacted with the hauling and spreading scrapers splitting there tracks when placing the earthen fill lifts, as directed.
6th: Complete the compacted earthen fill to the line and grades on the approved plans.
7th: Excavate the new emergency spillway to the line and grades on the approved plans.

Cost Estimate

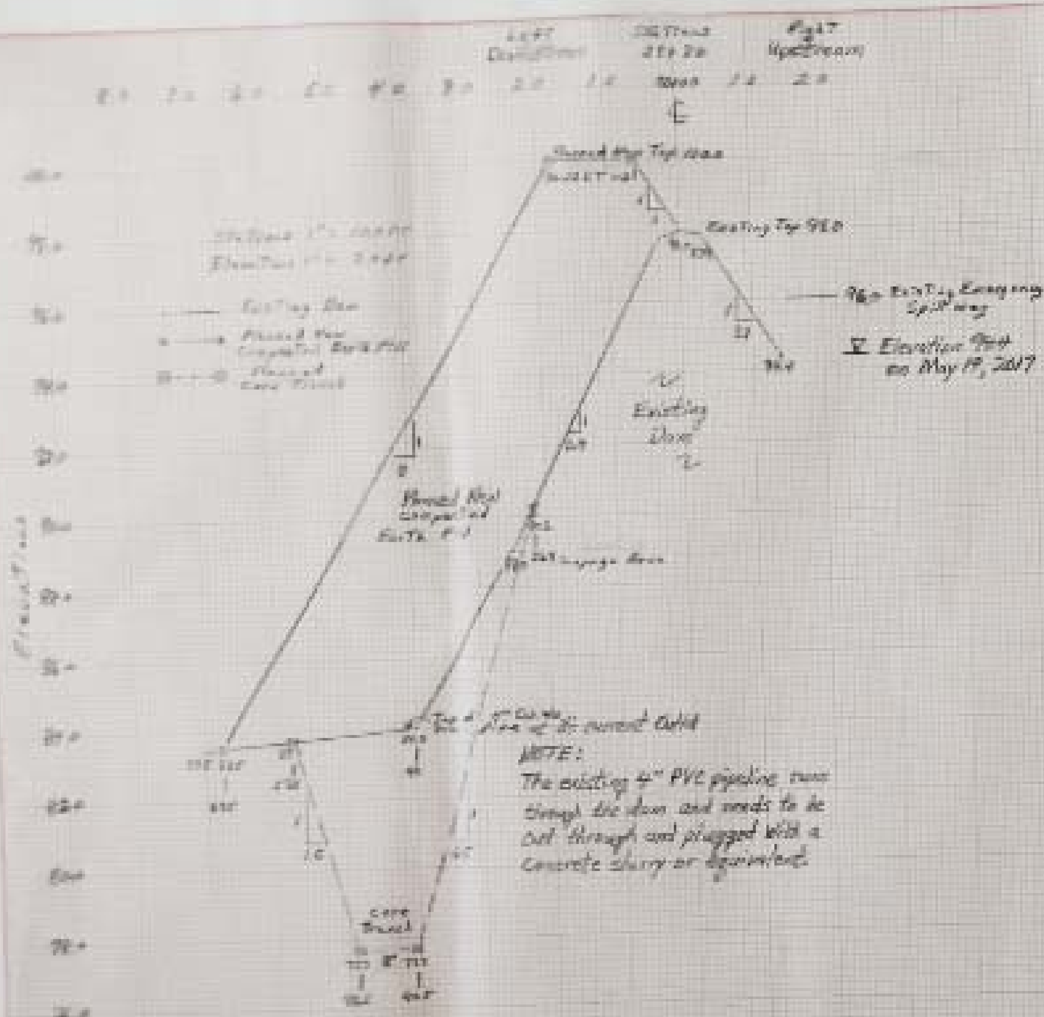
Items of Work	Quantity	Units	Unit Cost	Amount
Site Survey	1	Job	$ 1,000	$ 1,000
Drain the Reservoir, Open the Headgate	1	Job	$ 100	$ 100
Site Stripping & Removal of Undesirables	1	Job	$ 2,000	$ 2,000
Trench Excavation, with 25% Wet Excavation	4,800	CY	$ 5.00	$ 24,000
Plug Existing Pipeline thru Dam	1	Job	$ 1,000	$ 1,000
Embankment Compacted Fill Placement	19,200	CY	$ 2.50	$ 48,000
Excavate the Emergency Spillway	1	Job	$ 500	$ 500
Engineering Design	1	Job	$ 4,000	$ 4,000
Stakeout and Construction Checks	1	Job	$ 4,000	$ 4,000
Contingencies	10%	Job	$ 9,000	$ 9,000
			Total is	**$ 93,600**

Implementation Schedule

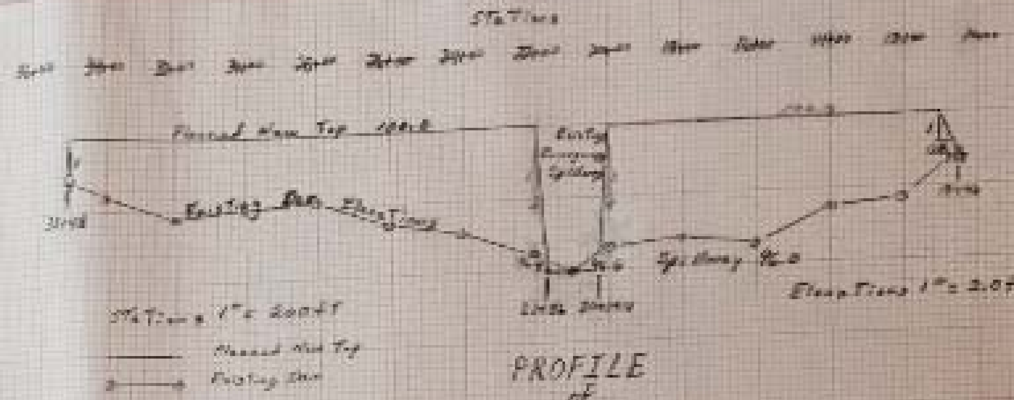
The final design has just been completed and Mr. Corsentino's Loan may be approved before the reservoir is drained after the last irrigation run this fall. Depending on the availability of a contractor and the weather conditions, construction should begin this fall and be completed before a hard freeze.

Conclusion

This much needed low hazard dam upgrade is technically feasible and restores 224 acre feet of water back to Mr. Corsentino.



TYPICAL CROSSECTION at STATION 28+36



PROFILE of Existing Dam and Planned Dam Repairs

Items of Work

	Quantity	Units
Site Survey	1	Job
Construction Stake Out	1	Job
Drain the Reservoir, Open the Headgate	1	Job
Site Stripping & Removal of Undesirables	1	Job
Trench Excavation, with 25% Wet Excavation	4,800	Cubic Yards
Plug Existing Pipeline thru Dam	1	Job
Dam Compacted Earth Fill Placement	19,200	Cubic Yards
Excavate the Emergency Spillway	1	Job
On Site Construction Checks	1	Job

Dam Repair
for
Holita Reservoir
on
Corsentino Dairy Farm Inc. Land
2689 State Highway 10
Walsenburg, Colorado

Dam Classification:
Designed by & date:
Approved by & date:

Sheet 1 of