

CWCB FEASIBILITY STUDY FOR HYATT LAKE DAM DAM ID 070136

**Sponsored by the
Farmers' High Line Canal and Reservoir Company
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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.

Zach Salin

 Digitally signed by Zach Salin
Date: 2025.11.21 08:47:25 -07'00'

Signed

Date

**FEASIBILITY STUDY
HYATT LAKE DAM REHABILITATION
ARVADA, COLORADO**

TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY	1
2.0	INTRODUCTION.....	2
2.1	Sponsor	2
2.2	Purpose – Need for the Project.....	2
2.3	Project Service Area and Facilities	3
2.4	Previous Studies.....	3
3.0	WATER RIGHTS	4
4.0	PROJECT DESCRIPTION: ANALYSIS OF ALTERNATIVES & SELECTED ALTERNATIVE	5
4.1	Analysis of Alternatives.....	5
4.2	Selected Alternative:	6
4.3	Cost Estimate	7
4.4	Implementation Schedule	8
5.0	FINANCIAL FEASIBILITY ANALYSIS AND CREDIT WORTHINESS.....	8
5.1	Credit Worthiness:	9
5.2	Institutional Feasibility	9
5.3	Permitting	10
5.4	Social and Physical Impacts	10
6.0	CONCLUSIONS AND RECOMMENDATIONS.....	10
7.0	REFERENCES	11

LIST of FIGURES

Figure 1: Vicinity Map

List of APPENDICES

- Appendix A: Articles of Incorporation and By Laws
- Appendix B: Photos of Existing Conditions
- Appendix C: Drawings
 - C1: Preliminary Spillway Lowering
 - C2: SEO Approved Toe Drain Rehabilitation
- Appendix D: Financial Statements 2022-2024
- Appendix E: Farmers' High Line Canal and Reservoir Company Shareholders List
- Appendix F: Project Cost Estimate (Engineer's Opinion of Construction Costs)
- Appendix G: CWCB Loan Application
- Appendix H: Wetlands Investigation Memo
- Appendix I: Case Numbers for Direct Flow Rights and Hyatt Reservoir Storage
- Appendix J: SEO Inspection Report and Reservoir Storage Restriction Letter

1.0 EXECUTIVE SUMMARY

Hyatt Lake Dam, owned and operated by the Farmers' High Line Canal and Reservoir Company (FHL), is a homogenous earthen dam in the City of Arvada, Jefferson County, Colorado. The reservoir provides irrigation water and recreational benefits.

Routine inspections by the Colorado Division of Water Resources, Dam Safety Branch (SEO), identified seepage issues at the dam. In response, the SEO imposed a 5.6-foot storage restriction on Hyatt Reservoir, limiting storage in the reservoir to a gage height of 14 feet (elevation 5,562.2 feet).

To address these deficiencies as well as provide improved access for inspection and maintenance equipment, FHL hired Schnabel Engineering LLC (Schnabel) to evaluate three alternatives:

1. **No Action** – Continue operating the reservoir under the current restriction.
2. **Spillway Modification** - Lower the spillway crest from elevation 5,567.0 feet to 5,562.2 feet to increase spillway capacity and reduce the storage capacity of the reservoir.
3. **Toe Drain Rehabilitation** - Replace the existing, underperforming drains with a system meeting modern engineering standards.

Following feasibility review, FHL and Schnable, with input from the SEO, selected **Alternative 3: Toe Drain Rehabilitation** because a Probable Failure Mode Analysis risk evaluation identified seepage and piping as the highest-probability failure modes, and Alternative 3 best addresses those risks while restoring the reservoir's safety rating to satisfactory. After selection, Schnabel developed a full design package, which was approved by the SEO on July 10, 2025. Key project elements include the following:

- Replacement of the existing toe drains with a modern engineered system.
- Abandonment of the north outlet pipe by pressure grouting, supplemented with a filter diaphragm.
- Installation of a filter diaphragm around the south outlet to intercept and control seepage along the outlet pipe.
- Extension of the south outlet pipe to reduce standing water downstream of the outlet discharge point and improve access for maintenance equipment downstream of the dam.

This rehabilitation will correct the observed seepage issues, restore the reservoir's safe operating capacity, and improve long-term reliability of the dam.

2.0 INTRODUCTION

Hyatt Lake Dam is located in the City of Arvada, in Jefferson County, Colorado, north of Eldridge Street and W. 58th Avenue (see **Figure 1**). Constructed in 1863, the earthen embankment is 1,110 feet long with a structural height of 22.6 feet at the outlet works. The spillway is an earth-lined channel at the south abutment, and the reservoir is filled via the Farmers' High Line Canal at its western edge.

The Colorado State Engineer's Office (SEO) classifies Hyatt Lake Dam as High Hazard, meaning loss of life is likely if the dam fails during normal pool conditions or overtops in a flood. As owners and stewards of this infrastructure, the Farmers' High Line Canal and Reservoir Company (FHL) aims to maintain the dam in safe condition, mitigate failure risk, and preserve storage rights for its shareholders.

With age, critical infrastructure has deteriorated, including the toe drains and outlet works. FHL hired dam design professionals at Schnabel Engineer LLC (Schnabel) to develop rehabilitation plans. The plans were approved by the SEO and FHL is seeking a CWCB loan to implement them.

2.1 Sponsor

FHL, founded in 1885, is a Colorado mutual ditch company and non-profit corporation with 70 shareholders collectively holding 1,110 shares. Water is delivered on a pro-rata basis, and about 85% of the operating budget is funded through annual shareholder assessments. Additional revenue comes from property leases, recreation rights, and crossing permit fees. A full shareholder list and water use categories are provided in **Appendix E**.

FHL diverts water from Clear Creek in Golden and conveys it through 33 miles of canal in Jefferson and Adams Counties to municipal, agricultural, and commercial shareholders. Historically, the system irrigated thousands of acres of farmland, but urban development in the Denver metro area has shifted demand. Today, Westminster, Thornton, Northglenn, and Arvada collectively own about 82% of company shares, and most deliveries now support municipal supply.

The company's Articles of Incorporation and Bylaws are included in **Appendix A**.

2.2 Purpose – Need for the Project

The Colorado SEO has rated Hyatt Lake Dam as "Unsatisfactory," and has imposed a storage restriction at a gage height of 14 feet, approximately 8.6 feet below the dam crest and 5.6 feet below the emergency spillway crest. See **Appendix J** for the 2024 Dam Inspections performed by the SEO and an official letter from the SEO, dated October 8, 2018, mandating the storage restriction. FHL is implementing improvements to correct these deficiencies, enhance public safety, and restore full use of the reservoir's historic storage capacity.

The existing toe drains do not meet modern standards and are partially plugged, creating persistent seepage along the downstream toe. See **Appendix B** for existing condition photos documenting the deficiencies. This condition poses safety risks, including:

- Potential for progressive piping failure through the embankment.
- Elevated risk of erosion and piping along the two outlet pipes which lack filters diaphragms.

- Reduced slope stability from elevated groundwater in the embankment.
- Restricted maintenance access due to saturated conditions and dense vegetation, which can hide seepage problems until they worsen.

In addition, updated hydrologic standards and continued development in the basin have raised the inflow design flood (IDF) requirements. Hyatt Lake's spillway, once capable of safely passing the Probable Maximum Precipitation (PMP) event, no longer meets current high-hazard dam criteria.

This project will modernize Hyatt Lake Dam, address identified safety concerns, and enable FHL to maintain its full storage rights.

2.3 Project Service Area and Facilities

The FHL Canal is an approximately 33-mile-long, primarily earthen canal located in Jefferson and Adams Counties, Colorado. Its historic service area covers roughly 96 square miles, extending from Golden to Todd Creek (an unincorporated town in Adams County near Brighton). Land use within the service area is approximately 55% developed municipal land, 25% irrigated farmland, with the remaining 20% undeveloped. System wide water use is roughly 72% municipal, 22% agricultural, and 6% commercial.

Roughly 70% of the water diverted into the FHL Canal is used to fill Standley Lake. Key canal structures include:

- The diversion dam and headgate at Clear Creek.
- A long piped section beneath the Coors Brewery facility.
- Siphons under Van Bibber and Ralston Creeks.
- The Croke Canal crossing and turnout to Standley Lake.
- The Standley Lake Bypass Facilities Diversion.
- A siphon beneath the Burlington Northern Railroad; and
- Several extended culverts.

This requested CWCB loan-funded project focuses on Hyatt Lake Dam, an off-channel reservoir filled by the Farmer's High Line Canal. The City of Arvada is the primary user of water released from Hyatt Reservoir, which is mainly used to irrigate recreational areas such as public parks and ball fields. The area surrounding Hyatt Reservoir is primarily low-density residential, with small commercial and industrial areas. Hyatt Reservoir's drainage basin covers 0.66 square miles. Due to upstream drainage features, the unnamed creek feeding the reservoir remains dry except during heavy runoff events.

2.4 Previous Studies

In October 2010, Deere and Ault Consultants, Inc. (D&A, incorporated into Schnabel Engineering in 2020) completed a feasibility study of the FHL Canal and developed a master plan for infrastructure repair and replacement. The study identified ten immediate concerns, including replacement of a drain pipe, repair or replacement of siphons, rehabilitation of the diversion dam and headgate structures, erosion control, and removal of hazardous trees. It also recommended installing a SCADA control system to enable

remote flow monitoring and headgate operation. The CWCB provided FHL with a loan to implement these improvements, which were completed, and FHL has been repaying the loan.

The last major modifications to Hyatt Lake Dam took place in 1988 and 1989 based on a design report prepared by Rocky Mountain Consultants. Work at this time included:

- Upstream slope improvements, including tree and vegetation removal and riprap repairs
- Downstream slope improvements, including installation of a toe drain and a stability berm.
- Slip lining of both outlets.

In 2025, the SEO, with consultant AECOM, and FHL completed a Comprehensive Dam Safety Evaluation Report using Potential Failure Modes Analysis (PFMA) risk framework. This evaluation informed the prioritization of repairs included in the plans for this loan request and described the hydraulic loading conditions for Hyatt Reservoir's drainage basin.

An engineering design report was also prepared in 2025 to support the proposed toe drain rehabilitation at Hyatt Reservoir, including a technical analysis of the selected repair option.

3.0 WATER RIGHTS

FHL holds both direct flow and storage water rights from Clear Creek, a tributary of the South Platte River. **Table 3.0** summarizes FHL's direct flow rights, with diversions typically occurring each year between March 20th and November 10th. Hyatt Lake is one of FHL's reservoirs contributing to its storage rights portfolio. From 2014 to 2024, average annual diversion from Clear Creek into the FHL canal was 31,702 acre-feet.

Table 3.0: FHL Direct Flow Rights from Clear Creek

Priority No.	Appropriation Date	Rate (cfs)	Cumulative Rate (cfs)
1	2/25/1860	0.275	0.275
3	5/16/1860	1.000	1.275
5	5/31/1860	3.281	4.556
9	7/1/1860	29.800	34.356
30	5/28/1863	1.610	35.966
32	6/20/1863	2.750	38.716
42	4/23/1865	2.890	41.606
48	11/2/1865	0.807	42.413
54	5/24/1870	0.330	42.713
57	4/1/1872	154.000	196.743
68	4/1/1886	191.000	387.743
69	4/23/1895	335.860	723.603

Hyatt Lake's original storage right was appropriated eight years after the dam's construction, on December 31, 1871, for a storage volume of 400 acre-feet. The capacity was later expanded under an

October 1, 1889 decree to 693.4 acre-feet. Currently, Hyatt Lake has a storage capacity of approximately 760 acre-feet at gauge height 19.6, which corresponds to the spillway crest. Above this elevation, any additional water will flow out the spillway. Under the restricted storage level imposed by the SEO (gauge height 14), the reservoir holds 370 acre-feet. These storage rights, derived from Clear Creek, are designated for municipal irrigation, primarily for parks and sports fields. Details, including case numbers for direct flow and storage rights are provided in **Appendix I**.

4.0 PROJECT DESCRIPTION: ANALYSIS OF ALTERNATIVES & SELECTED ALTERNATIVE

4.1 Analysis of Alternatives

Schnabel evaluated three alternatives for improving dam safety:

1. No Action – Continue operating the reservoir under the current restriction.
2. Spillway Modification – Lower the spillway crest from elevation 5,567.0 feet to 5,562.2 feet to limit maximum reservoir storage to the level of the current restriction and to increase spillway capacity.
3. Toe Drain Rehabilitation – Replace the existing, underperforming toe drains with a system meeting modern engineering standards.

Alternative 1 - No Action

Under this option, the reservoir would continue to operate at its current restricted level as permitted by the SEO. Seepage issues would persist, hindering routine maintenance and inspections along the dam toe, including mowing and removal of large vegetation. These limitations reduce the ability to detect critical issues such as concentrated seepage or animal burrows. Dam safety concerns would remain elevated due to continued risk of internal erosion (piping), slope instability, and potential overtopping during flood events. This alternative is not considered a viable long-term solution, as the dam's "Unsatisfactory" rating could lead to additional storage restrictions, potential loss of water rights, and reduced recreational value.

Alternative 2 – Spillway Modification

Alternative 2 addresses increased upstream and downstream development and updated precipitation and runoff standards, which reclassified Hyatt Lake Dam as high hazard and increased the design inflow design flood (IDF) to a probable maximum precipitation (PMP) event. Current State of Colorado criteria indicate the dam does not meet spillway capacity requirements for a high hazard classification. Hydraulic modeling using 2D HEC-RAS shows overtopping could produce downstream flooding with depths and velocities sufficient to cause loss of life. The surrounding area includes primarily residential development with some commercial and public park elements.

The proposed spillway modification, which advanced to a 30% design level, would lower the spillway crest approximately 5 feet to a gauge height of 14 feet, consistent with the current SEO storage restriction. The emergency spillway would be an earth-lined trapezoidal channel with a 120-foot bottom width and 10:1 (H:V) side slopes, armored with grouted riprap for erosion protection. A concrete sill wall would be constructed at the upstream end, and riprap sizing was based on velocities and depths associated with the 0.01% annual exceedance probability (AEP) storm. This design also incorporated some toe drain and outlet improvements described in Alternative 3. Refer to **Appendix C1** for the spillway modification design plans.

Alternative 3 – Toe Drain Rehabilitation

The dam's toe drains were last updated in 1988 using 4-inch slotted PVC pipe encased in a 14-inch single-stage sand filter of ASTM C-33 fine aggregate. A stability berm was constructed over the drains. Older, poorly documented clay tile drains were encountered during installation, but records are insufficient to confirm connections. The clay tile drains were clogged and ineffective at the time.

Since installation, the toe drains have experienced damage and blockage, likely due to tree roots, with increased issues noted during inspections over the past 10 years. Seepage and wet areas at the dam toe are documented in SEO inspection reports and contribute to the current storage restriction. The existing drains no longer function as intended. Refer to **Appendix C2** for the toe drain rehabilitation design plans.

Proposed Improvements:

1. Replace the 4-inch drains with 8-inch slotted PVC pipe within a two-stage soil filter meeting modern filter design criteria. Installation includes manholes and cleanouts for maintenance and observation.
2. Replace the toe drain discharge pipe and measuring weir with a new discharge pipe, concrete headwall (to allow measurement using a bucket and stopwatch), and new measuring weir.
3. Regrade the downstream channel to reduce wet areas and improve maintenance access between the dam and Eldridge Street.
4. Partially remove and abandon the North Outlet, including the upstream gate (if located) and incorporate a filter diaphragm to control seepage along the outlet and direct it into the new toe drain.
5. Remove trees and roots near the South Outlet discharge. Upgrade the South Outlet by extending the pipe, replacing the inundated earth-lined channel with a concrete channel, installing a new measuring flume, and adding a bypass pipe to divert flows to the natural channel when the ditch lateral is not calling for water. Install a filter diaphragm to convey seepage into the new toe drain.

4.2 Selected Alternative:

FHL and Schnabel selected the toe drain rehabilitation (Alternative 3) based on the Comprehensive Dam Safety Evaluation conducted by the SEO, AECOM, and FHL. This evaluation used the Potential Failure Modes Analysis (PFMA) risk framework, which plots the likelihood of failure (annualized probability) against the consequences (probable loss of life) for different failure modes, as shown in **Figure 4.1**.

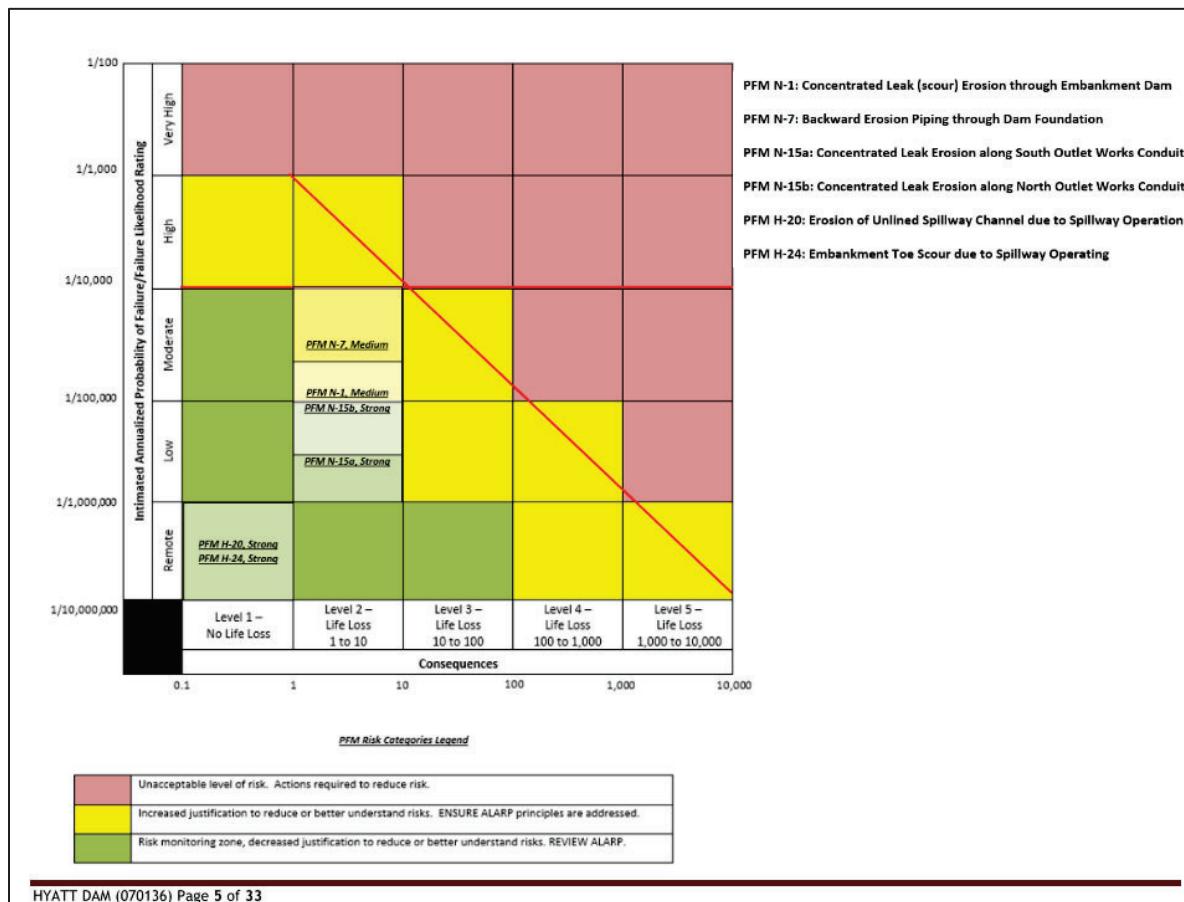


Figure 4.1: 2025 PFMA for Hyatt Lake Dam, Colorado SEO, AECOM, and FHL

The PFMA results identified backward erosion piping and concentrated leaks as the highest-probability events with the greatest potential consequences. Spillway-related failures were ranked as remote, indicating limited justification for risk reduction measures focused on the spillway. The report notes that overtopping would require a flood event with a return period exceeding 1 in 10 million years with the reservoir at the spillway crest.

To address the most significant risks identified by the PFMA, the selected alternative emphasizes controlling seepage through the embankment and along the outlet pipes, which are the primary pathways for potential failure.

4.3 Cost Estimate

The estimated cost for the selected alternative is **\$672,000**. The design is complete and approved by the SEO, the Sponsor has already selected FRE Civil Constructors as the contractor and Schnabel Engineering for construction oversight. These costs are based on firm contract numbers, with additional contingency funds included for permitting and potential construction change orders. **Table 4-1** presents a cost summary for the construction costs. A detailed cost summary is provided in **Appendix F**.

Table 4-1: Anticipated Construction Costs

Item	Description	Subtotal
1	Mobilization/Demobilization	\$ 11,000
2	Toe Drain Replacement	\$ 293,000
3	Toe Drain Removal and Abandonment	\$ 26,000
4	South Outlet Repair	\$ 89,000
5	North Outlet Abandonment	\$ 34,000
6	Miscellaneous	\$ 38,000
7	Survey (Construction staking and as-built survey)	\$ 12,000
Construction Subtotal		\$ 503,000
Miscellaneous and Unlisted Items (10% construction)		\$ 51,000
Construction Related Engineering, including as-built report		\$ 97,500
Total Construction Including Engineering (used for SEO review fee)		\$ 651,500
Permitting and Planning (estimated)		\$ 20,000.00
Estimated Total Cost		\$ 672,000.00
<i>Costs rounded to nearest \$1000</i>		

4.4 Implementation Schedule

Design for the selected alternative has been completed and approved by the SEO. FRE Civil Constructors has been selected as the prime contractor, and the reservoir has been drained in preparation for construction. Work is scheduled to begin as soon as funding is available, with an anticipated duration of approximately two to two and a half months, depending partially on winter weather conditions. The goal is to complete construction and obtain SEO approval in time to refill the reservoir during the spring runoff of 2026.

5.0 FINANCIAL FEASIBILITY ANALYSIS AND CREDIT WORTHINESS

FHL is applying for a loan from the Colorado Water Conservation Board (CWCB) to cover 90% of project costs. Funding sources are summarized below:

Table 5.0: Sources of Funding

Entity	Loan	Percent Participation
CWCB	\$ 604,800	90%
FHL	\$ 67,200	10%
Totals	\$ 672,000	100%

FHL is requesting a 10-year loan from CWCB. Financial elements of the project are summarized below:

Table 5-1: Financial Summary

Project Cost	\$ 672,000
Loan Amount (90% of Project Cost)	\$ 604,800
Number of Shareholders	70
Number of Shares of Stock	1,110.9
Current Assessment per Share per Year	\$ 765
Additional Assessment per Share to Fund New CWCB Loan (Annually, excluding interest)	\$ 54.42

Loan proceeds will directly fund the engineering and construction of the Hyatt Lake Dam Toe Drain Rehabilitation project.

5.1 Credit Worthiness:

FHL maintains a positive net operating position, as shown in its most recent financial statements. The organization currently holds one active loan with the CWCB (#150281) and is current on all payments.

FHL benefits from multiple reliable sources of income, including:

- Annual assessments per share
- Stock transfer fees
- Utility Crossing Fees
- Other miscellaneous Income

To support FHL's creditworthiness and loan eligibility, the following documents are provided:

Appendix D: Three years of financial statements (2022–2024)

Appendix E: Shareholder list, including owner name, number of shares, and classification as agricultural, municipal, or commercial.

Appendix F: Detailed Engineer's Opinion of Construction Costs

Appendix G: Completed CWCB Loan Application

This financial track record, combined with limited liabilities and diversified revenue streams, demonstrates that FHL is a low-risk borrower with strong institutional capacity to manage and repay the proposed loan.

5.2 Institutional Feasibility

FHL is a well-established ditch company with a strong history of timely repayment on past capital expenditures and financing obligations. Its diverse shareholder base distributes costs broadly, minimizing financial burden on any single user. Approximately 82% of shareholders are large municipal users, including the Cities of Westminster, Thornton, Northglenn, and Arvada, with the ability to pass costs on to end users. The requested CWCB loan for the Hyatt Lake Dam Toe Drain Rehabilitation project will increase annual assessments by approximately 7% for a period of 10 years.

5.3 Permitting

In preparation for construction FHL has obtained the following permits.

- Colorado Department of Public Health and Environment construction stormwater discharge permit. Certification number COR428696
- Jefferson County grading permit. Permit number 25-120444GP

FHL and Schnabel expect to be exempt from Section 404 permitting (Clean Water Act, permitting of discharges of dredge or fill material into waters of the US). A section 404 permit may be required when a project encounters areas classified as wetlands. On a site visit on October 1, 2025, Schnabel performed a preliminary wetlands delineation investigation using Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0, 2008) (USACE 2008). A memo summarizing the findings of Schnabel's preliminary wetlands delineation is attached in **Appendix H**. Schnabel's findings indicate there are no wetlands requiring a Section 404 permit.

5.4 Social and Physical Impacts

The project area has limited public access under a lease with the local homeowners' association (HOA). During construction, FHL will coordinate with the HOA to restrict access to active work zones, and safety measures will be implemented and maintained to limit exposure to open excavations, heavy equipment, and other hazards. Work will be conducted during weekday business hours to minimize disruption to recreational users.

The project will improve dam safety, providing a direct social benefit for downstream communities. It will also ensure continued municipal irrigation for parks, recreational facilities, and natural areas. Hyatt Lake Reservoir offers recreational opportunities for HOA members, including fishing and walking along adjacent nature trails. Upon completion, disturbed areas will be reseeded with native grasses, restoring conditions to near pre-project appearance, but with reduced saturated conditions along the downstream toe and the ability to restore the lake to full capacity.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed toe drain rehabilitation project is both technically and financially feasible. Plans have been approved by the SEO, and a contractor has been engaged for construction. FHL has the capacity, through assessments, to service the requested CWCB loan. The project will enhance dam safety, protect downstream communities, and support continued municipal irrigation.

7.0 REFERENCES

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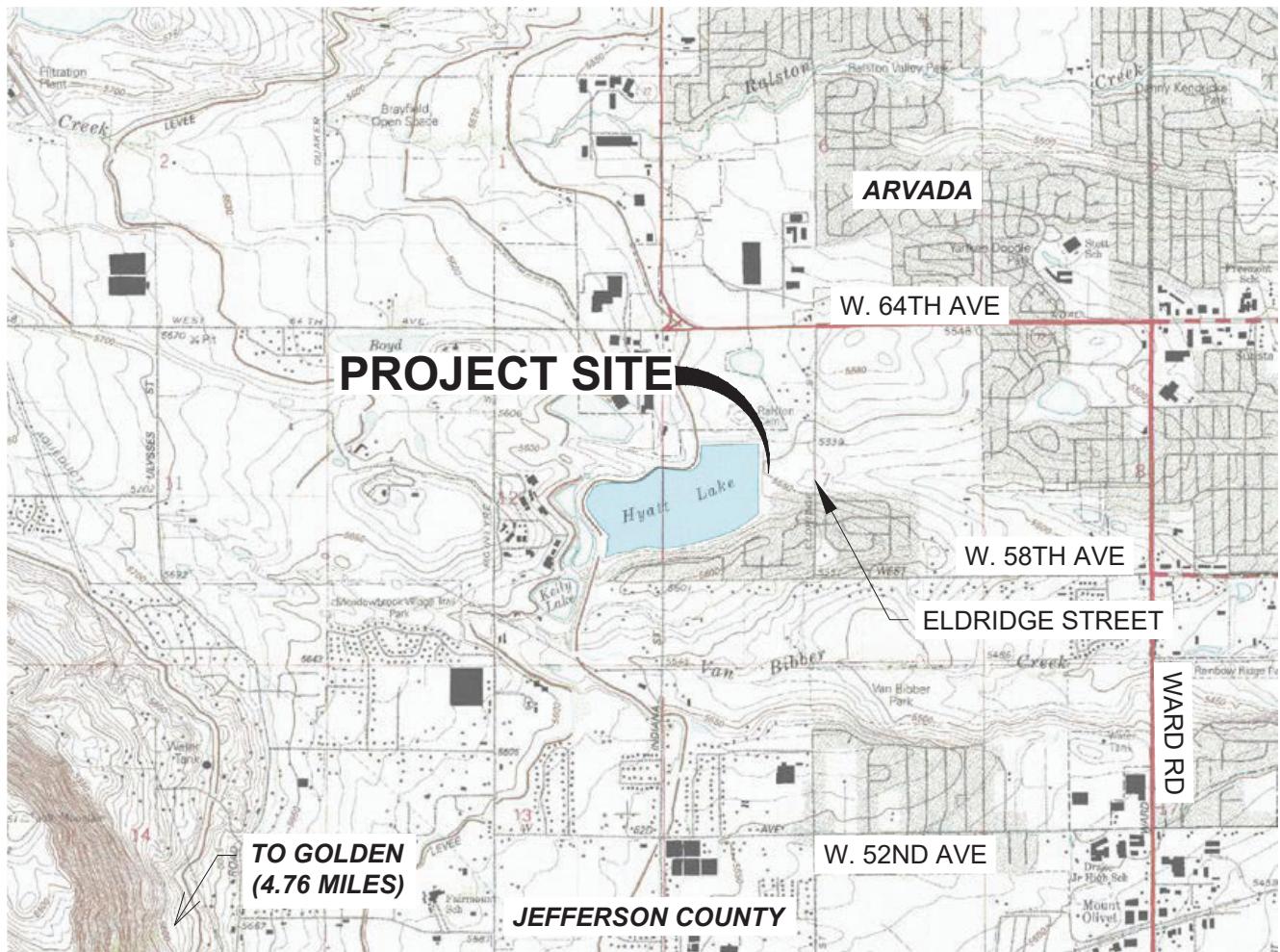
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FIGURES



VICINITY MAP



0 1000 2000
SCALE IN FEET

APPENDIX A

ARTICLES OF INCORPORATION AND BYLAWS



STATE OF COLORADO
DEPARTMENT OF
STATE
CERTIFICATE

I, NATALIE MEYER, Secretary of State of the State of Colorado hereby certify that the prerequisites for the issuance of this certificate have been fulfilled in compliance with law and are found to conform to law.

Accordingly, the undersigned, by virtue of the authority vested in me by law, hereby issues A RESTATED CERTIFICATE OF INCORPORATION WITH AMENDMENTS TO THE FARMERS HIGH LINE CANAL AND RESEVOIR COMPANY.

Dated: JUNE 23, 1992

A handwritten signature in black ink, appearing to read "Natalie Meyer", is written over a horizontal line. Below the line, the text "SECRETARY OF STATE" is printed in a small, capital-letter font.

FILED

JUN 23 1992

AMENDED AND RESTATED ARTICLES OF INCORPORATION
OF THE FARMERS HIGH LINE CANAL AND RESERVOIR COMPANY
STATE OF COLORADO
DEPARTMENT OF STATE

I. The name of the Company is The Farmers High Line Canal and Reservoir Company.

II. The objects and purposes for which the Company is organized and created are as follows:

First To purchase, own, operate, and maintain the ditch property formerly known as the Golden Canal together with its branches, reservoirs, franchises, water appropriations, etc. as formerly owned and operated by the Golden Canal Company. The line of said Golden Canal is fully described as follows, to-wit: Beginning on the left, that is the north bank of Clear Creek, in Section twenty-seven in Township two (2) South of Range Seventy (70) West in Jefferson County, Colorado, at a point near the east boundary of Golden City, Jefferson County, Colorado, and running thence through what was on July 6th, 1872, the land of J. W. Booth, Michael Bagley Stewart, Joseph Palmer, Thomas Clark, Allen Lewis, Elizabeth A. Wannamaker, William A. H. Loveland, Jonas Heivener, James W. Clayton, Ransom Slater, John A. Higgins and Nils Ahlstrom, thence in a northwesterly direction upon the divide between Dry Creek and Ralston Creek, following the line of said ditch as now constructed for a more particular and definite description. Also from a point commencing at the terminus of what was formerly known as the Golden City and Arapahoe Ditch Company's ditch as constructed on December 20th, 1873, on the South Side of Ralston Creek in

the County of Jefferson in the State of Colorado in Section One (1) in Township three (3) South of Range Seventy (70) West, running thence northwardly and eastwardly across Ralston Creek by a dam, and a pool, and thence through Section One, also through Section thirty six (36) in Township two (2) South, Range Seventy (70) West, also through Sections thirty one (31), thirty two (32), thirty three (33), thirty four (34), thirty five (35), twenty seven (27) and twenty eight (28) in Township two (2) South of Range Sixty nine (69) West to a point on the South line of the northeast quarter of said Section twenty eight (28), fifty one (51) rods west of the Southwest corner of said quarter Section, and to enlarge said ditch to a carrying capacity of Six hundred (600) cubic feet, and to operate the same together with its extensions and branches for mining, milling, irrigation, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

Second To construct an extension to the said Golden Canal beginning at its terminus in the northeast quarter of Section twenty eight in Township Two (2) South of Range Sixty nine (69) West, and continuing thence in a northeasterly direction upon the most practicable route, touching the following Sections in the order given, viz: Sections twenty eight (28), twenty seven (27), twenty three (23) and twenty four (24), all in Township Two (2) South of Range Sixty nine (69) West in Jefferson County, Colorado,

and thence easterly and northeasterly through Sections Thirty (30), Thirty one (31), Thirty two (32), twenty nine (29), twenty eight (28), twenty one (21), twenty (20), Seventeen (17), Sixteen (16), fifteen (15), nine (9), ten (10), and three (3) in Township two (2) South of Range Sixty nine (69) West and the southeast quarter of Section thirty four (34) in township one (1) South of Range Sixty eight (68) West in Adams County, Colorado.

Third To construct an extension to the said Golden Canal beginning at its terminus in the northeast quarter of section twenty eight (28) aforesaid, and continuing on or near said quarter section line, eastwardly into a lake near the Southeast corner of the northwest quarter of Section twenty seven (27), thence by a natural water course into a lake in the northeast quarter of Section twenty six (26), twenty three (23) and twenty four (24) on most practicable route to the line between Jefferson and Adams Counties, and thence on the most feasible route along the South slope of Dry Creek to the mouth thereof. Said ditch occupies as reservoirs a lake near the west line of Section twenty four (24). Also a lake lying partly in Section fourteen (14) all in township two (2) South, of Range Sixty nine (69) West, in Jefferson County.

Fourth In connection with its said ditches to construct, maintain, own and use reservoirs for the storage of water at the following named places and locations a lake near the west line of section twenty four (24), also a lake lying partly in Section fourteen (14), all in township two (2) South of Range Sixty nine

(69) West, in Jefferson County; together with other reservoirs at such other places adjacent to or under the line of said ditch on any laterals or extensions at which it may be found practicable or expedient to construct, maintain and use such reservoirs; and to use each and all of said reservoirs for the accumulation and storage of water therein for irrigation, milling, mining, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

Fifth To purchase or lease and operate any other ditches or reservoirs, accessible to said main ditch, and to construct, hold, maintain and keep in repair such other branches of our said main ditch and its branches and extensions, as the wants of the public or the interests of this company may justify.

Sixth To do all and everything necessary, suitable, or proper for the accomplishment, attainment, or exercise of any of the objects and purposes set forth herein, and to do every other act or thing incidental or appurtenant to or growing out of or connected with those objects and purposes.

III. The Capital Stock of our Company shall consist of two classes: Common Stock and Class B Stock.

A. Common Stock shall consist of eleven hundred (1100) authorized shares, each with a par value of One Hundred Dollars (\$100.00), and such stock shall be assessable. No assessment shall, however, be made unless the question of making such

assessment shall first be submitted to the holders of the Common Stock of the corporation at the annual meeting, or at a special meeting called for that purpose, and a majority of the holders of Common Stock, either in person or by proxy voting thereon, shall vote in favor of making such assessment.

The object and purpose of increasing the Common Stock from \$75,000.00 to \$110,000.00, as accomplished by a prior amendment to these Articles, was not for sale purposes but was and is for the purpose of issuing such increased stock under the order of the Board of Directors of the Company to the owners of what is known as statutory water rights and to the owners of present special contract water, and thereby enable the owners of such statutory and present special contract water rights to become stockholders in the Company and such increased issue of stock shall be issued for no other purpose whatsoever.

B. Class B Stock shall consist of twenty-five (25) authorized shares, without par value, and such stock shall be fully assessable. The Board of Directors may authorize the issuance of Class B Stock only in exchange for the relinquishment of all rights and claims under the Bomberger Contract dated March 22, 1873, and recorded in Book L, Page 410, of the records of the Clerk and Recorder of Jefferson County, Colorado, at the ratio of not less than twenty (20) inches of Schedule Water for one (1) share of Class B Stock, or proportionate parts thereof. Schedule Water shall be that water furnished to the Parties of the Third Part,

their heirs, successors, and assigns for the irrigation of schedule lands as provided for and limited by the Bomberger Contract. Class B Stock may be issued only upon the Board of Directors' finding, upon such proof as it may require, good and marketable title to the claim to be relinquished under the Bomberger Contract and vested application of use of water under the tendered claim for irrigation of schedule land under the terms and in conformance with the aforesaid Bomberger Contract, without lapse, forfeiture, surrender or abandonment thereof.

C. Each share of Stock, Common and Class B, shall entitle its holder under such rules as may be adopted by the Company, to the use each year of a pro rata share of all the water in the Company's ditches and reservoirs available to the stockholders. No water shall be sold or leased to persons other than stockholders beyond the amount to which persons other than stockholders have become entitled by reason of the purchase thereof prior to the organization of our Company.

D. The following terms and provisions shall govern Common Stock and Class B Stock:

(a) The relative rights, privileges, and limitations of Class B Stock shall be in all respects identical, share for share, to Common Stock including the right to receive pro rata according to stock ownership water from the ditches and reservoirs of the Company, except that:

(i) Voting power for the election of directors, for the fixing of assessments, and for all other purposes vested in the stockholders of the Company by the laws of Colorado, these Articles, or the Bylaws of the Company as from time to time amended, shall be vested exclusively in the holders of Common Stock. Holders of Class B Stock shall not have any voting power in the affairs of the Company, and shall not be entitled to receive any notice of meetings of stockholders.

(ii) Class B Stock shall be liable for assessments duly levied or imposed on outstanding stock of the Company on the same basis, share for share, as fixed for the Common Stock.

(iii) Class B Stock shall be permanently limited to irrigation uses, including municipal irrigation. Municipal irrigation may be accomplished by delivery through municipal systems deriving water from the ditches and reservoirs of the Company, provided that the Class B Stockholder seeking to make municipal irrigation use of water obtains prior approval from the Board of Directors of the Company and further provided that such use through a

municipal system is accomplished pursuant to accounting procedures satisfactory to the Board of Directors of the Company. Such prior approval from the Board of Directors shall be a condition precedent to a Class B Stockholder obtaining a change of water right decree therefor. Said accounting procedures shall adequately assure that the amount of water attributable to Class B Stock does not exceed that amount of water used for irrigation on the lands on which it is entitled to be used.

(iv) Class B Stock shall be permanently limited to irrigation use, including municipal irrigation, on those lands described on the legend imposed on each certificate issued for Class B Stock. In issuing Class B Stock, the Company, acting through its Board of Directors, shall identify the parcel or parcels to which water was appurtenant under the terms of the Bomberger Contract.

(v) Class B Stock shall be deliverable to holders thereof from the mainline of the Farmers High Line Canal or from the Company's reservoirs at such delivery points as the Board of Directors may fix.

(vi) Class B Stock certificates shall bear a legend stating the restrictions applicable thereto, including the limits on nature and place of use to which water delivered under the stock is permanently restricted, and including a description of the lands on which water delivered under Class B Stock is entitled to be used.

(b) The object and purpose of authorizing the issuance of Class B Stock is not for sale purposes, but is for the purpose of issuing such Class B Stock in the discretion of and by the order of the Board of Directors of the Company to the bona fide claimants of schedule water arising under the aforesaid Bomberger Contract, and thereby enable the claimants of such schedule water by relinquishment of such claims to become stockholders in the Company. Class B Stock shall be issued for no other purpose.

(c) The Board of Directors of the Company shall be the final judge of whether to afford claimants the privilege of exchanging claims to schedule water for Class B Stock.

IV. This corporation shall have perpetual existence.

V. The affairs, concerns, business and management of our said company, and the control of the assets thereof, shall be under the direction, control and management of Seven directors. The

directors of this company shall have and exercise all the powers necessary and requisite to carry into effect the objects and purposes for which the company is formed and they shall have power to borrow money and pledge its franchises and property, real and personal, for the payment of the same.

VI. The Directors of our said company shall have full power to make such prudential bylaws as they may deem proper and necessary for the management, conduct and control of the affairs, business, and property of the company.

VII. The principal business of the Company shall be carried on in the Counties of Jefferson and Adams in the State of Colorado.

VIII. These Amended and Restated Articles of Incorporation correctly set forth the provisions of the Articles of Incorporation, as amended and restated, they were approved by a vote of the holders of the Common Stock of the Company, the number of shares which voted for approval was sufficient, and they supersede the original Articles of Incorporation and all amendments thereto.

In Witness Whereof we do hereunto set our hands and our seals and execute this certificate in duplicate on this 17th day of June, A.D. 1992.

FARMERS HIGH LINE CANAL AND RESERVOIR COMPANY

By: John Ehler
John Ehler, President

By: Doris Payne
Doris Payne, Secretary

STATE OF COLORADO)
)
COUNTY OF Adams) ss.
)

The foregoing instrument was acknowledged before me this
17th day of June, 1992, by John Ehler as
President and Doris Payne as Secretary of the Farmers High Line
Canal and Reservoir Company.

Witness my hand and official seal.

My commission expires:


Pennie Sue Harcsa
Notary Public

My Commission expires August 19, 1995
Pennie Sue Harcsa
25 S. 4th Ave., Brighton, CO 80601

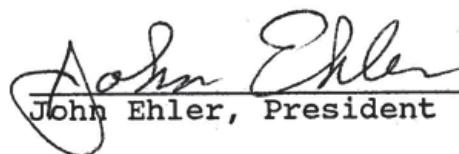
RESOLUTION

RESOLVED, that the Board of Directors of the Farmers High Line Canal and Reservoir Company proposes to amend the Amended and Restated Articles of Incorporation of the Farmers High Line Canal and Reservoir Company. The proposed amendments are as set forth below:

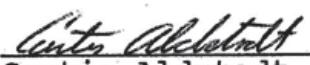
Article II, First Section would be amended to add "industrial" as an approved use of water available under the Common Stock. This Article currently provides: "... and to operate the same together with its extensions and branches for mining, milling, irrigation, domestic, and municipal purposes ...". As amended this Article would provide: "... and to operate the same together with its extensions and branches for mining, milling, industrial, irrigation, domestic, and municipal purposes ...".

Article II, Fourth Section also would be amended to add "industrial" as an approved use of water available under the Common Stock. This Article currently provides: "... for the accumulation and storage of water therein for irrigation, milling, mining, domestic, and municipal purposes ...". As amended this Article would provide: "... for the accumulation and storage of water therein for irrigation, milling, mining, industrial, domestic, and municipal purposes ...".

The Board of Directors hereby directs that the matter of the above-described amendments be submitted to a vote at the annual meeting of the stockholders to be held at the Westminster City Park Recreation Center Community Room, 10455 Sheridan Boulevard, Westminster, Colorado on Tuesday, March 9, 1993, at 10:30 a.m.



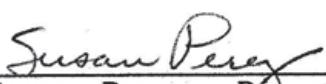
John Ehler, President



Curtis Aldstadt, Director



Kelly DiNatale, Vice President



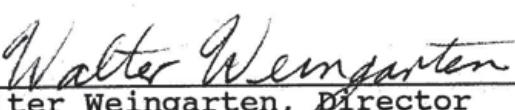
Susan Perez, Director



Dan Strietelmeier, Treasurer



Evan Ela, Director



Walter Weingarten, Director

approved 3/9/93

PROPOSED AMENDMENTS OF ARTICLES OF INCORPORATION

Present Article II, The objects and purposes for which the Company is organized and created are as follows:

First To purchase, own, operate, and maintain the ditch property formerly known as the Golden Canal together with its branches, reservoirs, franchises, water appropriations, etc. as formerly owned and operated by the Golden Canal Company. The line of said Golden Canal is fully described as follows, to wit: Beginning on the left, that is the north bank of Clear Creek, in Section twenty-seven in Township two (2) South of Range seventy (70) West in Jefferson County, Colorado, at a point near the east boundary of Golden City, Jefferson County, Colorado, and running thence through what was on July 6th, 1872, the land of J. W. Booth, Michael Bagley Stewart, Joseph Palmer, Thomas Clark, Allen Lewis, Elizabeth A. Wannamaker, William A. H. Loveland, Jonas Heivener, James W. Clayton, Ransom Slater, John A. Higgins and Nils Ahlstrom, thence in a northwesterly direction upon the divide between Dry Creek and Ralston Creek, following the line of said ditch as now constructed for a more particular and definite description. Also from a point commencing at the terminus of what was formerly known as the Golden City and Arapahoe Ditch Company's ditch as constructed on December 20th, 1873, on the South Side of Ralston Creek in the County of Jefferson in the State of Colorado in Section One (1) in Township three (3) South of Range seventy (70) West, running thence northwardly and eastwardly across Ralston Creek by a dam, and a pool, and thence through Section one, also through Section thirty-six (36) in Township two (2) South of Range seventy (70) West, also through Sections thirty-one (31), thirty-two (32), thirty-three (33), thirty-four (34), thirty-five (35), twenty-seven (27) and twenty-eight (28) in Township two (2) South, Range sixty-nine (69) West to a point on the South line of the northeast quarter of said Section twenty-eight (28), fifty-one (51) rods west of the Southwest corner of said quarter Section, and to enlarge said ditch to a carrying capacity of Six hundred (600) cubic feet, and to operate the same together with its extensions

and branches for mining, milling, irrigation, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

Proposed First To purchase, own, operate, and maintain the ditch property formerly known as the Golden Canal together with its branches, reservoirs, franchises, water appropriations, etc. as formerly owned and operated by the Golden Canal Company. The line of said Golden Canal is fully described as follows, to wit: Beginning on the left, that is the north bank of Clear Creek, in Section twenty-seven (27) in Township two (2) South of Range Seventy (70) West in Jefferson County, Colorado, at a point near the east boundary of Golden City, Jefferson County, Colorado, and running thence through what was on July 6th, 1872, the land of J.W. Booth, Michael Bagley Stewart, Joseph Palmer, Thomas Clark, Allen Lewis, Elizabeth A. Wannamaker, William A. H. Loveland, Jonas Heivener, James W. Clayton, Ransom Slater, John A. Higgins and Nils Ahlstrom, thence in a northwesterly direction upon the divide between Dry Creek and Ralston Creek, following the line of said ditch as now constructed for a more particular and definite description. Also from a point commencing at the terminus of what was formerly known as the Golden City and Arapahoe Ditch Company's ditch as constructed on December 20th, 1873, on the South Side of Ralston Creek in the County of Jefferson in the State of Colorado in Section one (1) in Township three (3) South of Range Seventy (70) West, running thence northwardly and eastwardly across Ralston Creek by a dam, and a pool, and thence through Section One, also through Section thirty-six (36) in Township two (2) South, Range Seventy (70) West, also through Sections thirty-one, thirty-two (32), thirty-three (33), thirty-four (34), thirty-five (35), twenty-seven (27) and twenty-eight (28) in Township two (2) South of Range Sixty-nine (69) West to a point on the South line of the northeast quarter of said Section twenty-eight (28), fifty-one (51) rods west of the Southwest corner of said quarter Section, and to enlarge said ditch to a carrying capacity of Six hundred (600) cubic feet, and to operate the same together with its extensions

and branches for mining, milling, industrial, irrigation, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

Fourth In connection with its said ditches to construct, maintain, own and use reservoirs for the storage of water at the following named places and locations a lake near the west line of Section twenty-four (24), also a lake lying partly in Section fourteen (14), all in township two (2) South of Range Sixty-nine (69) West, in Jefferson County; together with other reservoirs at such other places adjacent to or under the line of said ditch on any laterals or extensions at which it may be found practicable or expedient to construct, maintain and use such reservoirs; and to use each an all of said reservoirs for the accumulation and storage of water therein for irrigation, milling, mining, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

Proposed Fourth In connection with its said ditches to construct, maintain, own and use reservoirs for the storage of water at the following named places and locations a lake near the west line of section twenty-four (24), also a lake lying partly in Section fourteen (14), all in township two (2) South of Range Sixty-nine (69) West, in Jefferson County; together with other reservoirs at such other places adjacent to or under the line of said ditch on any laterals or extensions at which it may be found practicable or expedient to construct, maintain and use such reservoirs; and to use each an all of said reservoirs for the accumulation and storage of water therein for irrigation, milling, industrial, mining, domestic, and municipal purposes (in the case of Common Stock), and for irrigation purposes, including municipal irrigation, as limited herein (in the case of Class B Stock).

**BYLAWS OF THE FARMERS' HIGH LINE
CANAL AND RESERVOIR COMPANY**

**ARTICLE I.
MEETINGS**

Sec. 1. The annual meeting of the stockholders of this Company shall be held on the Second Tuesday in March of each year. Public notice of the time and place of holding such meeting shall be published as required by the laws of the State of Colorado in a local newspaper and the election of the Board members shall be made by such of the holders of the Common Stock as shall attend for that purpose, either in person or by proxy.

Sec. 2. Special meetings shall be called at any time by the President and Secretary upon request by a majority of the Board of Directors, or upon written request duly signed by a majority of the Board, or upon request in writing signed by holders of 25% or more of the outstanding Common stock. Notice of any special meeting shall be given to holders of Common Stock as in the case of the annual meeting. In all cases of special meetings for which a particular mode of giving notice is or may be prescribed by statute, statutory mode of giving notice shall be followed.

Sec. 3. At all meetings of the Company the owners of a majority of the Common stock issued, represented in person or by proxy shall constitute a quorum for the transaction of business, and if at any such meeting a majority of the Common stock is not represented, such a meeting may be adjourned from time to time until a quorum is present, and at such meetings of the Company each holder of Common Stock present shall be entitled to as many votes as he or she represents shares of stock, either as owner or as proxy; but the appointment as proxy must be in writing.

Sec. 4. Each holder of Common Stock shall have the right to vote in person or by proxy the number of shares owned by such holder of Common Stock, and in balloting for directors such holder of Common Stock of record shall have the right to vote in person or by proxy the number of shares standing in his name for each director to be elected. At the election of directors of the corporation, the directors shall be elected by a majority vote of the holders of Common Stock and the cumulative system of voting of shares of stock shall not be permitted.

Only holders of Common Stock of record shall be entitled to vote at the regular and special meetings of the stockholders. Holders of Class B Stock shall not have any voting power in the affairs of the Company, and shall not be entitled to receive any notice of meetings of stockholders.

Sec. 5. Robert Rules of Order shall be followed at all meetings of stockholders and Board of Directors meetings.

**ARTICLE II.
BOARD OF DIRECTORS AND OFFICERS**

Sec. 1. The affairs and management of this Company shall be under the control of a board of seven (7) directors, who shall respectively be holders of Common Stock in the Company, but no director shall be a regular employee of FARMERS' HIGH LINE. They shall be annually elected by the holders of Common Stock at their annual meeting. All elections shall be by ballot. The seven persons receiving the greatest number of votes shall be directors, and shall hold their offices until their successors are elected and qualified. Vacancies in the Board of Directors may be filled by the Board.

Sec. 2. The Board of Directors shall elect from among their members a President, Vice-President and Treasurer, and shall also employ a Secretary who may or may not be a member of the Board of Directors, which officers, together with the Board of Directors, shall constitute the officers of the Company, and shall

hold their offices until their successors are elected and qualified. They shall also employ a Superintendent, and through him a headgate man and ditch riders as may be necessary and any other employee the Board feels necessary to carry on the business of the ditch Company.

Sec. 3. The Board of Directors shall meet monthly and the President and three directors may call a special meeting of the Board at any time, provided notice is given to the directors of such special meeting by personal notification or by mailing notices to their respective addresses, as shown on the books of the company, not less than two days before such meeting.

Sec. 4. A majority of the Board of Directors shall constitute a quorum for the transaction of business, but less number may be adjourned from time to time until there is a quorum present.

ARTICLE III. DUTIES OF OFFICERS

Sec. 1. It shall be the duty of the President to preside at all meetings of the Board of Directors, to sign certificates of stock, to sign the annual report of the affairs of the Company, to sign all contracts, deeds, mortgages, trust deeds, and other instruments of writing made by this Company, and to perform such other duties as usually belong to his office.

Sec. 2. The Vice-President shall perform all the duties of the President during his absence or inability or refusal to act.

Sec. 3. It shall be the duty of the Secretary to keep accurate records of the proceedings of the Company and of the Board of Directors; to keep accounts and conduct the correspondence of the Company, retaining copies of all letters sent by him; to keep a file containing the names and addresses of the stockholders, number of shares owned by each as required by law: to number, issue and attest all certificates of stock and countersign all vouchers for the payment of money that may be authorized by the Board of Directors; to give public notice of the time and place of the annual and special meetings as provided in Article 1, Sec. 1 and 2; to have charge of the corporate seal and all the books and papers belonging to the Company, and to turn the same over to his successor on the expiration of his term of office; to receive all moneys paid to the Company and forthwith deposit same in the bank designated by the Board of Directors to the order of the Company; to have charge of all collections for carriage of water, assessments and all other moneys due the Company and the issuing of receipt therefor, and to countersign all papers required to be signed by the President; to make and file in the proper offices all reports required by law; to furnish a detailed statement of the affairs of the Company to the stockholders at their annual meeting and a report to the Board of Directors at each monthly meeting, showing the amount received by him during the month and the amount paid over to the Treasurer; he shall give such bond for the faithful discharge of his duty and receive such salary as may be determined by the Board of Directors.

Sec. 4. It shall be the duty of the Treasurer to have custody of all moneys of the Company and to pay the same out, countersigned either by the President or the Vice-President upon approval of the Board of Directors. He shall make a report of the moneys so received and paid out with the balance on hand monthly to the Board of Directors and to the stockholders at their annual meeting, and shall give such bond for the faithful discharge of his duty as the Board of Directors may require.

ARTICLE IV. DUTIES OF THE SUPERINTENDENT

Sec. 1. The Superintendent shall, under the direction of the Board of Directors, have control of the construction, care and management of the ditch and reservoir, and the distribution of water carried through

the Company's ditch or canal, and he may appoint one or more assistants, subject to the approval of the Board of Directors, and the Superintendent and all assistants and employees shall receive such salary as the Board of Directors may determine.

Sec. 2. It shall be the duty of the Superintendent immediately after the close of the fiscal year to make and transmit to the Board of Directors his annual report in writing, showing the amount of water received in our canal during the fiscal year, and in detail the amount of Schedule, Statutory, Contract and Common and Class B Stock water delivered together with the Secretary's orders therefor.

Such report shall also contain a statement of such repairs to the Company's property as may, in his judgment, be necessary before the next irrigating season, together with an estimate thereof. He shall report to the Board of Directors such other information and recommendations as should properly be laid before it.

ARTICLE V. RUNNING OF WATER

Sec. 1. Application for water must be made to the Secretary or Superintendent, either orally or in writing, and payments for water must be current. The Secretary shall deliver a receipt for the amount paid and mail or deliver an order to the Superintendent for the delivery of the water. The Superintendent will not, in any case, put in boxes or turn on water without the approval of the Board of Directors.

Sec. 2. The user of water shall not let it run to waste, and whenever he is done irrigating, he shall shut it off from his own lateral. He shall leave a notice at the box from which his water is supplied, informing the Company when he is done irrigating, and also shall inform the Company, in the same manner, when he again requires it — giving at least twenty-four hours notice.

Sec. 3. The water shall be delivered in quantities of not less than ten (10) inches by the Company into any new lateral ditch or subsidiary canal provided by the user, and connected with the Company's main canal, and through a box or measuring device satisfactory to the Company, and the manner of delivering, measuring and regulating the supply to the user shall be prescribed by the Company, and shall at all times be under its control.

Sec. 4. All boxes must be set by the Company's Superintendent or under his supervision, but at the expense of the consumer, and no other person will be permitted, under any circumstances, to cut the banks of the canal for the purpose of putting in boxes or taking out water.

Sec. 5. A charge shall be made for changing water from one lateral to another; charge to be determined by the Board of Directors.

Sec. 6. All headgates in the Company shall be operated, maintained and under the exclusive control of the Company, and no stockholder or any person shall have the right to interfere with, reconstruct, repair, change or alter said headgates, in any manner whatsoever. Every stockholder shall have the privilege to open his headgate at any time whenever the same is not locked by the ditch rider and also close the same whenever the water supply carried in the Company's canal is normal. Under no condition however shall a stockholder close his headgate whenever the head of water is such that a closing thereof would endanger the ditch by overflow or otherwise, and regardless of the cause of the large head of water in the ditch i.e., from cloudbursts, heavy rains, or any other cause over which the Company shall have no control.

Sec. 7. No dams or obstructions of any kind will be allowed in the Company's canal, without the approval of the Board of Directors.

Sec. 8. In case of the Company's canal shall be unable to carry and distribute a volume of water equal to its estimated capacity, either from casual or unforeseen or unavoidable accident; or if the volume of water prove insufficient from the drouth, or from any other cause beyond the control of said Company, the Company shall not be liable in any way for shortness or deficiency of supply occasioned by any of said causes. Nor shall the Company be liable, in any case, for loss or damage by reason of any leakage, seepage or overflow from any of the canals, ditches, laterals or reservoirs, not in conflict with laws of the State of Colorado.

Sec. 9. If by reason of any cause the supply of water shall be insufficient to fill or flow through the Company's canal according to its estimated capacity, or if from any cause beyond the control of the Company, the supply shall be insufficient to furnish the amount equal to all the water to be furnished for the year, the Company shall have the right to distribute such water pro-rata as may flow through the canal, to all persons entitled thereto; and, for the purpose of so doing, may establish and enforce such rules and regulations as may be deemed necessary or expedient.

Sec. 10. Use of water attributable to Class B Stock shall be in accordance with the Amended and Restated Articles of Incorporation of the Company.

ARTICLE VI. SCHEDULE AND STATUTORYWATER

Sec. 1. Persons entitled to the use of Schedule water under what is known as the Bomberger Contract, shall be required to make written application therefor to the Secretary of the Company, stating the amount they desire to purchase and the land upon which the same is to be used, not later than March 15th of each year, and shall be required to pay running charges thereon before any order is delivered to such applicant, and the same shall be used only upon the land scheduled in said Bomberger Contract to which the right has not been forfeited.

Sec. 2. Any person entitled to the use of Schedule, Statutory or Contract water upon designated land shall pay running charges for carriage thereon on or before May 15th of each year, and if not paid by that date an additional charge of one per cent per month or any fraction of a month shall be paid, and any Schedule, Statutory or Contract user who has failed for one year to pay the carriage charges for such water to which he is entitled, shall be required to pay the charges therefor for that year together with interest as above provided as a condition precedent to his receiving water for the following year, and any person entitled to the use of Schedule, Statutory or Contract water for use upon designated land who shall, for two successive years, fail to pay the charges for such water, shall be deemed to have abandoned his right thereto.

ARTICLE VII. ASSESSMENTS AND COLLECTION THEREOF: DIVISION OF WATER AND TRANSFER OF STOCK

Sec. 1. The Common Stock and Class B Stock of our Company shall be assessable for maintaining and operating the ditch and for other necessary expenses. No assessment shall be made without a majority vote of the Common stock of the Company represented at any annual meeting of the stockholders or at a special meeting called for that purpose. All assessments shall be made pro-rata upon all the Common Stock and Class B Stock of the Company, and the time or times of payment shall be provided in the vote or resolution levying or making such assessments.

Sec. 2. The Secretary shall mail to each stockholder of record at his post-office address as shown upon the books of the Company, a notice of such assessment, the amount thereof and the time or times when same is payable. If any stockholder shall not have registered his post-office address with the Secretary, he shall be deemed to have waived notice by mail of all assessments.

Sec. 3. The Company shall have a paramount lien on all the stock held by each stockholder, to secure payment of assessments levied on the stock of such stockholder, and all interest on such assessments and costs of collection of such assessments and interest, by sale, suit or otherwise. Any stockholder failing to pay any assessment on the stock owned by him or standing in his name on the Company's books, or any installment thereof, at the time fixed for the payment thereof, shall pay interest on all delinquent amounts at the rate of one per cent for every month or fraction thereof that such amounts shall remain unpaid; and in the case such default shall continue for a period of three (3) years, the Secretary shall report the same to the Board of Directors, who may order the sale to the highest bidder at public auction of the said stock or such part thereof as may be necessary to pay the amount due to the Company and the costs and expenses of such sale, notice of which sale shall be given by one publication in some legal newspaper in the County where said stock is being put to beneficial use.

The stock so sold shall be transferred on the Company's books to the purchaser at such sale; and after deducting from the proceeds of sale all assessments and accrued interest and other costs thereof owing to the Company by such delinquent stockholder, the surplus, if any shall be returned to the delinquent shareholder on the surrender of the original certificate representing the stock so sold; provided that in all cases no forfeiture of stock or of the amount paid thereon, shall be declared as against any estate or against any stockholder before demand shall have been made for the amount due thereon, either in person or by written or printed notice duly mailed, to the last known address of such stockholder as shown on the books of the Company, at least 30 days prior to the time when such forfeiture, or sale is to take effect. All notices under provision of this section shall be mailed by registered mail.

At the option of the Board, suit may be brought against any stockholder to recover the amount of any assessment or any part thereof remaining unpaid, and the interest thereon.

Sec. 4. No water shall be carried or delivered to parties who are not stockholders beyond the amount to which others have become entitled by reason of the purchase thereof prior to the organization of our Company, or their assigns, excepting as provided in Article VIII.

Sec. 5. Shares of Common Stock and Class B Stock shall be transferable only upon the books of the Company upon surrender of the original certificate properly endorsed, and no stock shall be transferred until all assessments, charges and arrearages thereon then due by terms of any resolution levying such assessment or charge, and all amounts due to the Company for carriage of water furnished on said stock, are duly paid. Class B Stock shall bear an appropriate legend stating the restrictions on nature and place of use applicable to such stock under the Amended and Restated Articles of Incorporation of the Company.

Sec. 6. For issuing each certificate of stock and entering same on the books of the Company, the Secretary shall charge a fee as determined by the Board of Directors, which shall be paid by the party on whose behalf the certificate is issued. All fees thus received to be paid into the treasury of the Company.

Sec. 7. The transfer books of the Company shall be closed for ten (10) days next preceding the annual stockholders meeting.

Sec. 8. In event of loss of Certificate of stock, the owner thereof may procure a new certificate by filing with the Secretary his affidavit showing circumstances of such loss and an indemnity bond executed by himself and a reliable Surety Company in such sum as the Board of Directors may determine.

Sec. 9. Each stockholder, upon receiving his certificate of stock, shall give his post-office address, and upon changing the same shall at once notify the Secretary, for the purpose of giving notice to members of meetings, assessments, etc. The address as shown upon the books of the Company shall be deemed the correct address.

ARTICLE VIII.
RUNNING OF FOREIGN WATER: STOCKHOLDERS ONLY MAY PERMIT

The Board of Directors of the Company shall make no agreements, arrangements or contracts whereby the capacity and availability to carry available decreed water of the Company would be impaired. The Board of Directors may contract and enter into such agreements to carry outside or foreign water through the Company ditch for a short term or period of time (not to exceed one year) utilizing excess capacity in the irrigation ditch, over and above the capacity necessary to carry the available decreed or free river water available to the stockholders of the Company. All such charges or contributions payable by the owner of such outside or foreign water shall be determined by the board of Directors.

All such contracts entered into by the Board of Directors shall be reported to the stockholders at the next following annual meeting of the stockholders. These provisions are not intended to apply to temporary exchange and consolidation of water rights between the Company ditch or other ditches and canals customary during the period of shortage or deficiency of water in Clear Creek or other public streams.

ARTICLE IX.
TRANSFER OF WATER

Water represented by ownership of Common or Class B Stock of the Farmers' High Line Canal and Reservoir Company or water represented by agreements, contracts or decrees standing or decreed in the name of the Company shall not be transferred, used or utilized by any stockholder or user of said water without first being diverted through the headgate of the Farmers' High Line Canal and Reservoir Company as presently constructed or as may be hereafter constructed.

ARTICLE X.
UNAUTHORIZED USE OF WATER

The board of Directors of the Company, may refuse to deliver to any stockholder an amount of irrigation water, not to exceed five (5) days delivery, who has been determined at fault by the Board of Directors of taking or causing to be delivered, irrigation water in excess of the amount authorized by the superintendent of the Ditch Company. For a second or subsequent offense, the board of Directors may withhold an amount of irrigation water, not to exceed ten (10) days delivery. The determination of the Board of Directors shall be final.

ARTICLE XI.
MAINTENANCE AND INSTALLATION OF HEADGATES

Any stockholder who shall be found responsible for breaking, or causing to be broken, any headgate lock shall be liable for double the cost of replacement of such lock and a penalty not to exceed five (5) days of delivery of irrigation water may be assessed by the Board of Directors. Such determination of the Board of Directors shall be final.

If a headgate is not used for a period of five consecutive years, it will be considered abandoned, unless petitioned otherwise by the shareholder during the five year period, and the Company shall have no further responsibility for the maintenance, upkeep, repair or delivery of water through such headgate. A notice of all headgates proposed to be abandoned shall be sent out with annual assessment notices.

ARTICLE XII.
SEAL OF COMPANY

The Company adopts for its corporate seal a circular disk with the name "The Farmers' High Line Canal and Reservoir Company" around the outer edge, and the words "Incorporated December 12th, 1885" in the center.

ARTICLE XIII.
AMENDMENTS OF BY-LAWS

These By-Laws, or any of them, may be amended, changed, added to or revoked at any special or annual meeting of the stockholders by a majority vote.

In the event changes or amendments are to be made, the Secretary shall include a brief statement thereof in his printed notice of call for such meeting. All subsequent amendments must be dated.

Amended and adopted at the special stockholders meeting held June 11, 1992.

approved 3-9-93

RESOLUTION

RESOLVED, that the Board of Directors of the Farmers High Line Canal and Reservoir Company proposes to amend the Bylaws of the Company. The proposed amendments are as set forth below:

Article VIII would be amended to provide as follows (proposed deletions are depicted with a line through the material to be deleted, and proposed additions are depicted in capital letters):

The Board of Directors of the Company shall make no agreements, arrangements or contracts whereby the capacity and availability to carry available-decreed water of the Company would be impaired. The Board of Directors may contract and enter into such agreements to carry outside or foreign water through the Company ditch for a short term or period of time (not to exceed one year) utilizing ONLY THE excess capacity in the irrigation ditch, over and above the capacity necessary to carry the available THE COMPANY'S decreed or free river water available to CALLED FOR BY the stockholders of the Company. All such charges or contributions payable by the owner of such outside or foreign water shall be determined by the Board of directors.

All such contracts entered into by the Board of Directors shall be reported to the stockholders at the next following annual meeting of the stockholders. These provisions are not intended to apply to temporary exchange and consolidation of water rights between the Company ditch or other ditches and canals customary during the period of shortage or deficiency of water in Clear Creek or other public streams.

The Board of Directors hereby directs that the matter of the above-described amendments be submitted to a vote at the annual meeting of the stockholders to be held at the Westminster City Park Recreation Center Community Room, 10455 Sheridan Boulevard, Westminster, Colorado on Tuesday, March 9, 1993, at 10:30 a.m.

John Ehler
John Ehler, President

Kelly DiNatale
Kelly DiNatale, Vice President

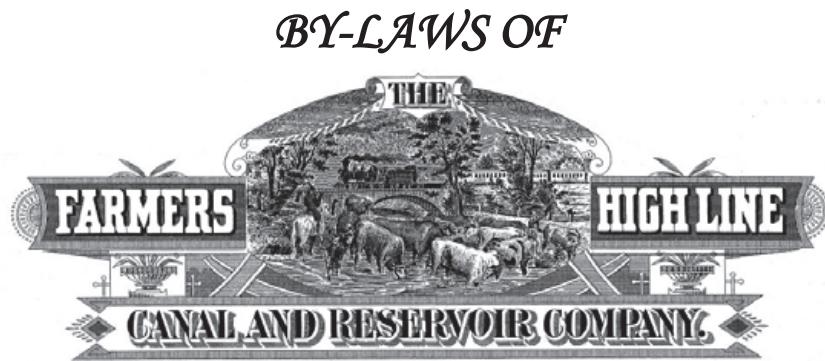
Dan Strietelmeier
Dan Strietelmeier, Treasurer

Curtis Aldstadt
Curtis Aldstadt, Director

Susan Perez
Susan Perez, Director

Walter Weingarten
Walter Weingarten, Director

Evan D. Ela
Evan Ela, Director



ARTICLE I.

MEETINGS

Section 1. The date of the Annual Meeting of the Stockholders of this Company shall be set by the Board of Directors each year, except that, without any such designation by the Board then it shall be held on the second Tuesday in March of each year. Public notice of the time and place of holding such meeting shall be published as required by the laws of the State of Colorado in a local newspaper and the election of the Board members shall be made by such of the holders of the Common Stock as shall attend for that purpose, either in person or by proxy.

Section 2. Special meetings shall be called at any time by the President and Secretary upon request by a majority of the Board of Directors, or upon written request duly signed by a majority of the Board, or upon request in writing signed by holders of 25% or more of the outstanding Common Stock. Notice of any special meeting shall be given to holders of Common Stock as in the case of the annual meeting. In all cases of special meetings for which a particular mode of giving notice is or may be prescribed by statute, statutory mode of giving notice shall be followed.

Section 3. At all meetings of the Company the owners of a majority of the Common Stock issued, represented in person or by proxy shall constitute a quorum for the transaction of business, and if at any such meeting a majority of the Common Stock is not represented, such a meeting may be adjourned from time to time until a quorum is present, and at such meetings of the Company each holder of Common Stock present shall be entitled to as many votes as he or she represents shares of stock, either as owner or as proxy; but the appointment as proxy must be in writing.

Section 4. Each holder of Common Stock shall have the right to vote in person or by proxy the number of shares owned by such holder of Common Stock, and in balloting for directors, such holder of Common Stock of record shall have the right to vote in person or by proxy the number of shares standing in his name. At the election of directors of the corporation, the directors shall be elected by a majority vote of the holders of Common Stock and the cumulative system of voting of shares of stock shall not be permitted.

Only holders of Common Stock of record shall be entitled to vote at the regular and special meetings of the stockholders. Holders of Class B Stock shall not have any voting power in the affairs of the Company, and shall not be entitled to receive any notice of meetings of stockholders.

Section 5. Roberts Rules of Order shall be followed at all meetings of stockholders and Board of Directors meetings.

ARTICLE II

BOARD OF DIRECTORS AND OFFICERS

Section 1. The affairs and management of this Company shall be under the control of a board of five (5) directors, who shall respectively be holders of Common Stock in the Company. No director shall be a regular employee of Farmers' High Line and no single entity or municipality may have more than three (3) representatives on the Board at any given time. They shall be annually elected by the holders of Common Stock at their annual meeting. All elections shall be by ballot. The five persons receiving the greatest number of votes shall be directors, and shall hold their offices until their successors are elected and qualified. Vacancies in the Board of Directors may be filled by the Board.

Section 2. The Board of Directors shall elect from among their members a President, Vice-President and Treasurer, and shall also employ a Secretary who may or may not be a member of the Board of Directors, which officers, together with the Board of Directors, shall constitute the officers of the Company, and shall hold their offices until their successors are elected and qualified. They shall also employ a General Manager, and through him a Superintendent headgate man and ditch riders as may be necessary and any other employee the Board feels necessary to carry on the business of the Ditch Company.

Section 3. The Board of Directors shall meet monthly and the President and two directors may call a special meeting of the Board at any time, provided notice is given to the directors of such special meeting by personal notification or by mailing notices to their respective addresses, as shown on the books of the company, not less than two days before such meeting.

Section 4. A majority of the Board of Directors shall constitute a quorum for the transaction of business, but less number may be adjourned from time to time until there is a quorum present.

ARTICLE III

DUTIES OF OFFICERS

Section 1. It shall be the duty of the President to preside at all meetings of the Board of Directors, to sign certificates of stock, to sign the annual report of the affairs of the Company, to sign all contracts, deeds, mortgages, trust deeds, and other instruments of writing made by this Company, and to perform such other duties as usually belong to his office.

Section 2. The Vice-President shall perform all the duties of the President during his absence or inability or refusal to act.

Section 3. It shall be the duty of the Secretary to keep accurate records of the proceedings of the Company and of the Board of Directors; to keep accounts and conduct the correspondence of the Company, retaining copies of all letters sent by him; to keep a file containing the names and addresses of the stockholders, number of shares owned by each as required by law: to number, issue and attest all certificates of stock and countersign all vouchers for the payment of money that may be authorized by the Board of Directors; to give public notice of the time and place of the annual and special meetings as provided in Article I, Section 1 and 2; to have charge of the corporate seal and all the books and papers

belonging to the Company, and to turn the same over to his successor on the expiration of his term of office; to receive all moneys paid to the Company and forthwith deposit same in the bank designated by the Board of Directors to the order of the Company; to have charge of all collections for carriage of water, assessments and all other moneys due the Company and the issuing of receipt therefor, and to countersign all papers required to be signed by the President; to make and file in the proper offices all reports required by law; to furnish a detailed statement of the affairs of the Company to the stockholders at their annual meeting and a report to the Board of Directors at each monthly meeting, showing the amount received by him during the month and the amount paid over to the Treasurer; he shall give such bond for the faithful discharge of his duty and receive such salary as may be determined by the Board of Directors.

Section 4. It shall be the duty of the Treasurer to have custody of all moneys of the Company and to pay the same out, countersigned by the President or the Vice-President upon approval of the Board of Directors. He shall make a report of the moneys so received and paid out with the balance on hand monthly to the Board of Directors and to the stockholders at their annual meeting, and shall give such bond for the faithful discharge of his duty as the Board of Directors may require.

ARTICLE IV.

DUTIES OF THE GENERAL MANAGER

Section 1. The General Manager shall, under the direction of the Board of Directors, have control of the construction, care and management of the ditch and reservoir, and the distribution of water carried through the Company's ditch or canal, and he may appoint one or more assistants, subject to the approval of the Board of Directors, and the General Manager and all assistants and employees shall receive such salary as the Board of Directors may determine.

Section 2. It shall be the duty of the General Manager immediately after the close of the fiscal year to make and transmit to the Board of Directors his annual report in writing, showing the amount of water received in our canal during the fiscal year, and in detail the amount of Schedule, Statutory, Contract and Common and Class B Stock water delivered together with the Secretary's orders therefor. Such report shall also contain a statement of such repairs to the Company's property as may in his judgment, be necessary before the next irrigating season, together with an estimate thereof. He shall report to the Board of Directors such other information and recommendations as should properly be laid before it.

ARTICLE V.

RUNNING OF WATER

Section 1. Application for water must be made to the Secretary or General Manager, either orally or in writing, and payments for water must be current. The Secretary shall deliver a receipt for the amount paid and mail or deliver an order to the General Manager for the delivery of the water. The General Manager will not, in any case, put in boxes or turn on water without the approval of the Board of Directors.

Section 2. The user of water shall not let it run to waste, and whenever he is done irrigating, he shall shut it off from his own lateral. He shall leave a notice at the box from which his water is supplies, informing the Company when he is done irrigating, and also shall inform the Company, in the same manner, when he again requires it – giving at least a twenty-four (24) hour notice.

Section 3. The water shall be delivered in quantities of not less than ten (10) inches by the Company into any new lateral ditch or subsidiary canal provided by the user, and connected with the Company's main canal, and through a box or measuring device satisfactory to the Company, and the manner of delivering, measuring and regulating the supply to the user shall be prescribed by the Company, and shall at all times be under its control.

Section 4. All boxes must be set by the Company's General Manager or under his supervision, but at the expense of the consumer, and no other person will be permitted, under any circumstances, to cut the banks of the canal for the purpose of putting in boxes or taking out water.

Section 5. A charge shall be made for changing water from one lateral to another; charge to be determined by the Board of Directors.

Section 6. All headgates in the Company shall be operated, maintained and under the exclusive control of the Company, and no stockholder or any person shall have the right to interfere with, reconstruct, repair, change or alter said headgates, in any manner whatsoever. Every stockholder shall have the privilege to open his headgate at any time whenever the same is not locked by the ditch rider and also close the same whenever the water supply carried in the Company's canal is normal. Under no condition, however, shall a stockholder close his headgate whenever the head of water is such that a closing thereof would endanger the ditch by overflow or otherwise, and regardless of the cause of the large head of water in the ditch, i.e.: from cloudbursts, heavy rains, or any other cause over which the Company shall have no control.

Section 7. No dams or obstructions of any kind will be allowed in the Company's canal, without the approval of the Board of Directors.

Section 8. In case of the Company's canal being unable to carry and distribute a volume of water equal to its estimated capacity, either from casual or unforeseen or unavoidable accident; or if the volume of water proves insufficient from the drought, or from any other cause beyond the control of said Company, the Company shall not be liable in any way for shortness or deficiency of supply occasioned by any of said causes. Nor shall the Company be liable, in any case, for loss or damage by reason of any leakage, seepage or overflow from any of the canals, ditches, laterals or reservoirs, not in conflict with laws of the State of Colorado.

Section 9. If by reason of any cause the supply of water shall be insufficient to fill or flow through the Company's canal according to its estimated capacity, or if from any cause beyond the control of the Company, the supply shall be insufficient to furnish the amount equal to all the water to be furnished for that year, the Company shall have the right to distribute such water pro-rata as may flow through the canal to all persons entitled thereto; and, for the purpose of so doing, may establish and enforce such rules and regulations as may be deemed necessary or expedient.

Section 10. Use of water attributable to Class B Stock shall be in accordance with the Amended and Restated Articles of Incorporation of the Company.

ARTICLE VI.

SCHEDULE AND STATUTORY WATER

Section 1. Persons entitled to the use of Schedule water under what is known as the Bomberger Contract, shall be required to make written application therefor to the Secretary of the Company, stating the amount they desire to purchase and the land upon which the same is to be used, not later than March 15th of each year, and shall be required to pay running charges thereon before any order is delivered to such applicant, and the same shall be used only upon land scheduled in said Bomberger Contract to which the right has not been forfeited.

Section 2. Any person entitled to the use of Schedule, Statutory or Contract water upon designated land shall pay running charges for carriage thereon on or before May 15th of each year, and if not paid by that date an additional charge of one per cent per month or any fraction of a month shall be paid, and any Schedule, Statutory or Contract user who has failed for one year to pay the carriage charges for such water to which he is entitled, shall be required to pay the charges therefor for that year together with interest as above provided as a condition precedent to his receiving water for the following year, and any person entitled to the use of Schedule, Statutory or Contract water who shall, for two successive years, fail to pay charges for such water, may be deemed to have abandoned their right thereto.

ARTICLE VII. ASSESSMENTS AND COLLECTION THEREOF: DIVISION OF WATER AND TRANSFER OF STOCK

Section 1. The Common Stock and Class B Stock of our Company shall be assessable for maintaining and operating the ditch and for other necessary expenses. No assessment shall be made without a majority vote of the Common Stock of the Company represented at any annual meeting of the stockholders or at a special meeting called for that purpose. All assessments shall be made pro-rata upon all the Common Stock and Class B Stock of the Company, and the time or times of payment shall be provided in the vote or resolution levying or making such assessments.

Section 2. The Secretary shall mail to each stockholder of record at his post- office address as shown upon the books of the Company, a notice of such assessment, the amount thereof and the time or times when same is payable. If any stockholder shall not have registered his post-office address with the Secretary, he shall be deemed to have waived notice by mail of all assessments.

Section 3. The Company shall have a paramount lien on all the stock held by each stockholder, to secure payment of assessments levied on the stock of such stockholder, and all interest on such assessments and costs of collection of such assessments and interest, by sale, suit or otherwise. Any stockholder failing to pay any assessment on the stock owned by him or standing in his name on the Company's books, or any installment thereof, at the time fixed for the payment thereof, shall pay interest on all delinquent amounts at the rate of one per cent for every month or fraction thereof that such amounts shall remain unpaid; and in the case default shall continue for a period of three (3) years, the Secretary shall report the same to the Board of Directors, who may order the sale to the highest bidder at public auction of the said stock or such part thereof as may be necessary to pay the amount due to the Company and the costs and expenses of such sale, notice of which sale shall be given by one publication in some legal newspaper in the County where said stock is being put to beneficial use.

The stock so sold shall be transferred on the Company's books to the purchaser at such sale; and after deducting from the proceeds of sale all assessments and accrued interest and other costs thereof owing to the Company by such delinquent stockholder, the surplus, if any shall be returned to the delinquent shareholder on the surrender of the original certificate representing the stock so sold; provided that in all cases no forfeiture of stock or of the amount paid thereon, shall be declared as against any estate or against any stockholder before demand shall have been made for the amount due thereon, either in person or by written or printed notice duly mailed, to the last known address of such stockholder as shown on the books of the Company, at least 30 days prior to the time when such forfeiture, or sale is to take effect. All notices under provision of this section shall be mailed by registered mail.

At the option of the Board, suit may be brought against any stockholder to recover the amount of any assessment or any part thereof remaining unpaid, and the interest thereon.

Section 4. No water shall be carried or delivered to parties who are not stockholders beyond the amount to which others have become entitled by reason or the purchase thereof prior to the organization of our Company, or their assigns, excepting as provided in Article VIII.

Section 5. Shares of Common Stock and Class B Stock shall be transferable only upon the books of the Company upon surrender of the original certificate properly endorsed, and no stock shall be transferred until all assessments, charges and arrearages thereon then due by terms of any resolution levying such assessment or charge, and all amounts due to the Company for carriage of water furnished on said stock, are duly paid. Class B Stock shall bear an appropriate legend stating the restrictions on nature and place of use applicable to such stock under the Amended and Restated Articles of Incorporation of the Company.

Section 6. For issuing each certificate of stock and entering same on the books of the Company, the Secretary shall charge a fee as determined by the Board of Directors, which shall be paid by the party on whose behalf the certificate is issued. All fees thus received to be paid into the treasury of the Company.

Section 7. The transfer books of the Company shall be closed for ten (10) days next preceding the annual stockholders meeting.

Section 8. In event of loss of Certificate of stock, the owner thereof may procure a new certificate by filing with the Secretary his affidavit showing circumstances of such loss and comply with the terms set forth by Colorado State Statute with regard to the reissuance of a lost stock certificate by a mutual ditch company.

Section 9. Each stockholder, upon receiving his certificate of stock, shall give his post-office address, and upon changing the same shall at once notify the Secretary, for the purpose of giving notice to members of meetings, assessments, etc. The address as shown upon the books of the Company shall be deemed the correct address.

Section 10. ~~That in all cases where the ownership of the Capital Stock of the Farmers' High Line Canal and Reservoir Company shall be for less than one half (1/2) there shall be a minimum assessment levied equal to the assessment of one half (1/2) of a share of Capital Stock. (Repealed at Shareholders Annual Meeting on 3-10-2011)~~

ARTICLE VIII. RUNNING OF FOREIGN WATER: STOCKHOLDERS ONLY MAY PERMIT

Section 1. The Board of Directors of the Company shall make no agreements, arrangements or contracts whereby the capacity and availability to carry decreed water of the Company would be impaired. The Board of Directors may contract and enter into such agreements to carry outside or foreign water through the Company ditch utilizing only the excess capacity in the irrigation ditch, over and above the capacity necessary to carry the Company's decreed water called for by the stockholders of the Company. All such charges or contributions payable by the owner of such outside or foreign water shall be determined by the Board of Directors.

All such contracts entered into by the Board of Directors shall be reported to the stockholders at the next following annual meeting of the stockholders. These provisions are not intended to apply to temporary exchange and consolidation of water rights between the Company ditch or other ditches and canals customary during the period of shortage or deficiency of water in Clear Creek or other public streams. *(Amended at Shareholders Annual Meeting March 9, 1993)*

ARTICLE IX. TRANSFER OF WATER

Section 1. Water represented by ownership of Common Stock or Class B Stock of the Farmers' High Line Canal and Reservoir Company or water represented by agreements, contracts or decrees standing or decreed in the name of the Company shall not be transferred, used or utilized by any stockholder or user of said water without first being diverted through the headgate of the Farmers' High Line Canal and Reservoir Company as presently constructed or as may be hereinafter constructed.

ARTICLE X. UNAUTHORIZED USE OF WATER

Section 1. The Board of Directors of the Company may refuse to deliver to any stockholder an amount of irrigation water, not to exceed five (5) days delivery, who has been determined at fault by the Board of Directors of taking or causing to be delivered, irrigation water in excess of the amount authorized by the General Manager of the Ditch Company. For a second or subsequent offense, the Board of Directors may withhold an amount of irrigation water, not to exceed ten (10) days delivery. The determination of the Board of Directors shall be final.

ARTICLE XI.

MAINTENANCE, INSTALLATION AND REMOVAL OF HEADGATES

Section 1. Any stockholder who shall be found responsible for breaking, or causing to be broken, any headgate lock shall be liable for double the cost of replacement of such lock and a penalty not to exceed five (5) days of delivery of irrigation water may be assessed by the Board of Directors. Such determination of the Board of Directors shall be final.

Section 2. If a headgate is not used for a period of five consecutive years, it will be considered abandoned, unless petitioned otherwise by the shareholder during the five year period, and the Company shall have no further responsibility for the maintenance, upkeep, repair or delivery of water through such headgate. A notice of all headgates proposed to be abandoned shall be sent out with annual assessment notices.

ARTICLE XII.

SEAL OF COMPANY

Section 1. The Company adopts for its Corporate Seal a circular disk with the name "The Farmers' High Line Canal and Reservoir Company" around the outer edge, and the words "Incorporated December 12th, 1885" in the center.



ARTICLE XIII.

AMENDMENTS OF BY-LAWS

Section 1. These By-laws, or any of them, may be amended, changed, added to or revoked at any special or annual meeting of the stockholders by a majority vote.

In the event changes or amendments are to be made, the Secretary shall include a brief statement thereof in his printed notice of call for such meeting. All subsequent amendments must be dated.

AMENDED AND ADOPTED AT THE ANNUAL STOCKHOLDERS MEETING HELD MARCH 12, 2019.

APPENDIX B

PHOTOS OF EXISTING CONDITIONS



PHOTO 1

DATE TAKEN: 6-6-2023

LOCATION:

South outlet facing south along the toe of the dam

COMMENTS:

Standing water at outlet and seepage near the toe of the dam limits access by maintenance equipment to be remediated by proposed work.



PHOTO 2

DATE TAKEN: 6-6-2023

LOCATION:

Downstream toe along the south end of the dam.

COMMENTS:

Seepage and high ground water in summer during storage at gauge height 14 feet.

 Schnabel ENGINEERING	Hyatt Lake Reservoir Farmers' Highline Canal and Reservoir Company Arvada, Colorado PROJECT NO.: 20C26030.20	Photos of Existing Conditions
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PHOTO 3

DATE TAKEN: 12-31-2024

LOCATION:

Downstream toe along the south end of the dam.

COMMENTS:

South toe in winter during storage at gauge height 8.7 feet.



PHOTO 4

DATE TAKEN: 6-6-2023

LOCATION:

Downstream along toe drain discharge channel.

COMMENTS:

Seepage and high ground water.

 Schnabel ENGINEERING	Hyatt Lake Reservoir Farmers' Highline Canal and Reservoir Company Arvada, Colorado PROJECT NO.: 20C26030.20	Photos of Existing Conditions
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PHOTO 5

DATE TAKEN: 12-16-2024

LOCATION:

Spillway

COMMENTS:

Earth lined spillway.



PHOTO 6

DATE TAKEN: 8-20-2025

LOCATION:

Reservoir from drone.

COMMENTS:

Water drawn down to gauge height 7.1 in preparation for construction.



Hyatt Lake Reservoir
Farmers' Highline Canal and Reservoir Company
Arvada, Colorado
PROJECT NO.: 20C26030.20

Photos of Existing Conditions

APPENDIX C

DRAWINGS

APPENDIX C1

PRELIMINARY SPILLWAY LOWERING

APPENDIX C2

SEO APPROVED TOE DRAIN REHABILITATION

APPENDIX D

FINANCIAL STATEMENTS 2022-2024

Attached as a separate password protected file

APPENDIX E

FARMERS' HIGH LINE CANAL AND RESERVOIR COMPANY SHAREHOLDERS LIST

APPENDIX F

PROJECT COST ESTIMATE (ENGINEER'S OPINION OF CONSTRUCTION COSTS)

OPINION OF COST WITH FRE INPUT
HYATT RESERVOIR TOE DRAIN REPLACEMENT
FRE CIVIL BUDGET - APRIL 2025

Item	Description	Unit	Quantity	Unit Cost	Extension	Subtotal
1	Mobilization/Demobilization	LS	1	\$ 10,400	\$ 10,400	\$ 11,000
2	Full Dam Toe Drain Replacement					
a	Clearing, Grubbing (includes removing roots)	EA	1	\$ 5,000	\$ 5,000	
b	Toe Drain - Full Replacement	LF	745	\$ 206	\$ 153,470	
c	Manholes	EA	5	\$ 10,500	\$ 52,500	
d	Toe Drain Outfall Pipe	LF	315	\$ 206	\$ 64,890	
e	Toe Drain Outfall Discharge	EA	1	\$ 13,425	\$ 13,425	
f	Cleaning and camera inspection of entire toe drain	EA	1	\$ 3,000	\$ 3,000	
3	Toe Drain Removal					
a	Toe drain removal and Abandonment	LS	1	\$ 25,850	\$ 25,850	\$ 26,000
4	South Outlet Repair					
a	Clearing and Grubbing	LS	1	\$ 2,910	\$ 2,910	
b	10-Inch Diameter HDPE Outlet Pipe Extension	LF	100	\$ 107	\$ 10,700	
c	Concrete Flume Channel	LS	1	\$ 56,000	\$ 56,000	
d	Parshall Flume	EA	1	\$ 3,500	\$ 3,500	
e	Drain Pipe	LF	50	\$ 107	\$ 5,350	
f	Grouted Riprap	CY	17	\$ 559	\$ 9,503	
g	Cameral Inspection	LS	1	\$ 800	\$ 800	
5	North Outlet Abandonment					
a	Remove downstream end of north outlet and CMP	LS	1	\$ 6,209	\$ 6,209	
b	Grout outlet to abandon in place	LS	1	\$ 10,000	\$ 10,000	
c	Clear and grub north outlet channel	LS	1	\$ 2,500	\$ 2,500	
d	Grading to fill in abandoned channel	LS	1	\$ 2,000	\$ 2,000	
e	Cofferdam to Access Headgate	LS	1	\$ 8,000	\$ 8,000	
f	Abandon Headgate (if able to locate)	LS	1	\$ 4,625	\$ 4,625	
6	Miscellaneous					
a	Clear Vegetation on Upstream Face of Dam	LS	1	\$ 2,000	\$ 2,000	
b	Site Grading, Seeding & Reclamation	Acre	5	\$ 4,000	\$ 20,000	
c	Grading and Road Base Along the Dam Crest	LS	1	\$ 3,000	\$ 3,000	
d	Erosion and Stormwater Control During Construction	LS	1	\$ 12,450	\$ 12,450	
7	Survey (Construction staking and as-built survey)	LS	1	\$ 12,000	\$ 12,000	\$ 12,000

	Construction Subtotal	\$ 503,000
	Miscellaneous and Unlisted Items (10% construction)	\$ 51,000
	Construction Related Engineering	\$ 97,500
Total Construction Including Engineering (used for SEO review fee)	\$ 651,500	
	Permitting and Planning (estimated)	\$ 20,000
	Estimated Total Cost	\$ 672,000
	<i>Costs rounded to nearest \$1000</i>	

APPENDIX G

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: Farmers' High Line Canal and Reservoir Company

Authorized Agent & Title: Mike Bollinger, General Manager

Address: 8399 W 89th Ave Westminster, CO 80021

Phone: (303-451-7604 Email: fhl.gm.mike@gmail.com

Organization Type: Ditch Co, District, Municipality
Other: _____ Incorporated? YES
 NO

County: Jefferson Number of Shares/Taps: 1,110.9 shares

Water District: Division 1, District 7 Avg. Water Diverted/Yr 31,702 acre-feet

Number of Shareholders/Customers Served: Current Assessment per Share \$ 765 (Ditch Co)

70 shareholders Average monthly water bill \$ _____ (Municipality)

Contact Information

Project Representative: Brianna Crotty

Phone: (770) 378-2589 Email: bcrotty@schnabel-eng.com

Engineer: Walter Kramb

Phone: (303) 651-1468 Email: wkramb@schnabel-eng.com

Attorney: Brice Steele

Phone: (303) 659-3172 Email: brice@steelepc.com

Project Information

Project Name: Hyatt Lake Dam Toe Drain Rehabilitation

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

Replacement of existing toe drain with toe drains that meet modern design standards. New toe drain measuring structure.

South Outlet - Extension outlet with pipe and concrete channel to remove areas of standing water. Filter diagram attached to toe drain

North outlet - Partial removal near toe. Grout abandonment in place for remainder. Filter diagram attached to toe drain

Removal of trees and vegetation near the toe of the dam. Site grading to promote runoff and reduce areas of saturated soil

Reseed all disturbed areas. Planning and permitting (other costs)

General Location: (Attach Map of Area)

See attached Vicinity Map in figures section of report

Estimated Engineering Costs: \$97,500 Estimated Construction Costs: \$554,500

Other Costs (Describe Above): \$20,000 Estimated Total Project Costs: \$672,000

Requested Loan Amount:
(Limit 90% of Total Project Costs) \$604,800 Project Start Date(s)
Design: Complete Construction: October 2025

Signature

GENERAL MANAGER

09-24-25

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

APPENDIX H

WETLANDS INVESTIGATION MEMO

MEMORANDUM

TO:	Mike Bollinger	DATE:	October 7, 2025
COMPANY:	Farmers' High Line Canal and Reservoir Company	SUBJECT:	Hydric Soils Investigation at Hyatt Reservoir
ADDRESS:	PROJECT		Hyatt Reservoir Toe Drain Rehabilitation
	NAME/NO.:		20C26030.20
FROM:	Brianna Crotty, P.E.	CC:	

1.0 PURPOSE

Schnabel Engineering conducted a preliminary field investigation of the proposed work area for the Hyatt Reservoir Toe Drain Rehabilitation to determine whether any potential wetlands may be present. The project includes rehabilitation of existing reservoir infrastructure such as toe drains, outlet pipes, and ditch structures.

Hyatt Lake Dam is located in the City of Arvada, Jefferson County, Colorado, north of Eldridge Street and W. 58th Avenue.

2.0 BACKGROUND

Portions of the downstream area occasionally exhibit standing water in the spring and may appear to function as wetlands. However, Farmers' High Line Canal and Reservoir Company (FHL) regularly maintains these areas by mowing with a tractor and bush hog. This type of maintenance is typically infeasible in true wetlands due to soil softness and rutting.

The purpose of this investigation was to identify whether hydric soils or other wetland indicators exist within the work limits.

3.0 METHODS

A site inspection was performed on October 1, 2025 following procedures outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0, 2008) (USACE, 2008).

Soils were sampled in the wettest areas observed and compared to drier reference sites. The earthen embankment, originally constructed in 1863, is approximately 1,110 feet long with a structural height of 22.6 feet at the outlet works. Soil test locations are shown in the attached photo log.



Figure 5-1: Aerial Location Map of Wetlands Investigation

4.0 RESULTS AND DISCUSSION

According to USACE (2008), an area must meet all three criteria—hydrology, hydric soils, and hydrophytic vegetation—to be classified as a jurisdictional wetland.

1. Hydrologic soils:

- During the October 1, 2025 inspection, all areas downstream of the dam were dry (see Photos H4, H6, H8, H10, H11, and H14).
- Photos 8 and 9 (June 6, 2023) show temporary saturation and rutting following four consecutive days of measurable rainfall (0.1–0.5 inches/day).
- Rainfall data were obtained from the USDA NRCS National Water and Climate Center Interactive Map (2025) and confirmed by the Community Collaborative Rain, Hail & Snow Network (CoCoRaHS, 2025).
- The 2023 wet conditions were short-term and precipitation-driven, not indicative of sustained wetland hydrology.

2. Hydric Soils:

- Soils were evaluated at three potential wetland locations (Areas 1, 2, and 4) and one dry reference site (Area 3).
- At all sites, soils were dark brown, well-drained, non-odorous, and lacked mottling, gleying, or other redoximorphic features.
- No indicators of hydric conditions were observed.

3. Hydrophytic Vegetation:

- Vegetation consisted primarily of sparse weedy species dominated by *Dipsacus laciniatus* (cutleaf teasel), a Facultative Upland (FACU) species per Common Wetland Plants of Colorado's Eastern Plains (CNHP, 2018).
- No hydrophytic vegetation was observed outside the active toe drain channel.
- The channel area will undergo minor grading during construction but will remain similar in function and vegetation.

5.0 CONCLUSION

The investigation found no evidence of wetland hydrology, hydric soils, or hydrophytic vegetation within the proposed project area. Therefore, the site does not meet the criteria for jurisdictional wetlands per USACE (2008).

Accordingly, the project is exempt from Section 404 permitting under the Clean Water Act.

SIGNED:



Brianna Crotty, P.E.



PHOTO H1

DATE TAKEN: 8-20-2025

LOCATION:

Drone image of the area downstream of the toe.

COMMENTS:

Areas wetter than adjacent areas, especially in spring.



PHOTO H2

DATE TAKEN: 6-6-2023

LOCATION:

Downstream of the toe in channel for toe drain discharge. On the left, looking upstream

COMMENTS:

Area 3 - Tread marks in saturated soil, likely from a maintenance vehicle, filled with standing water. Presence of hydric soils was not observed



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos



PHOTO H3

DATE TAKEN: 6-6-2023

LOCATION:

Wet area with maintenance vehicle tracks near the downstream toe.

COMMENTS:

Soft soils indicating the presence of episodic saturated soil conditions. Presence of hydric soils conditions was not observed.

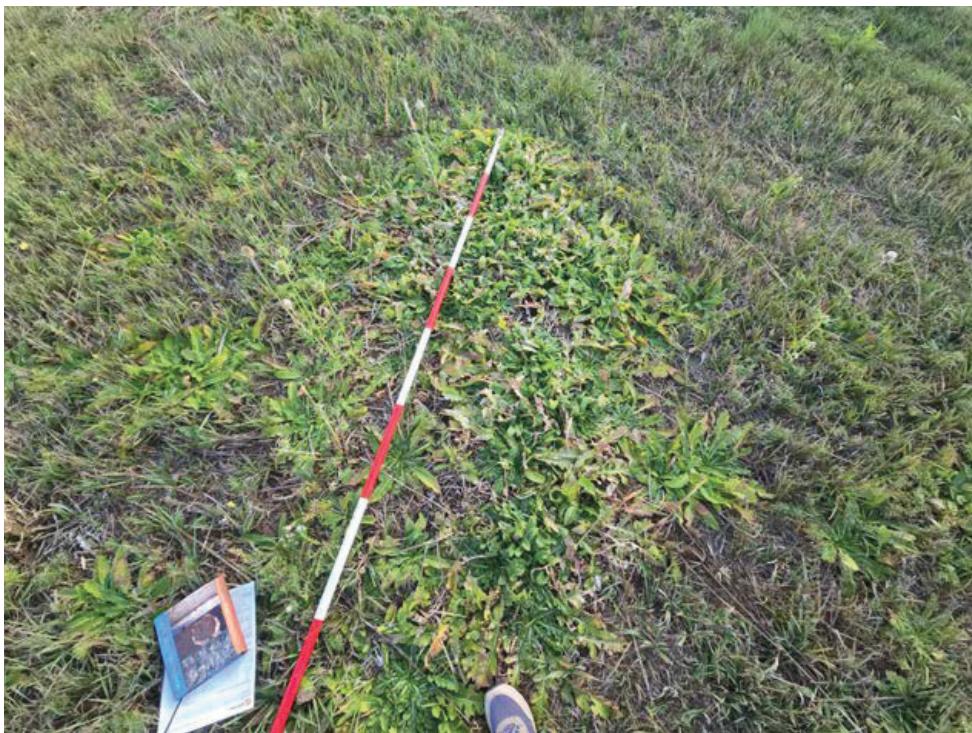


PHOTO H4

DATE TAKEN: 10-1-2025

LOCATION:

Area 1: Right
Downstream Toe

COMMENTS:

Denser than typical vegetation along downstream toe.



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos

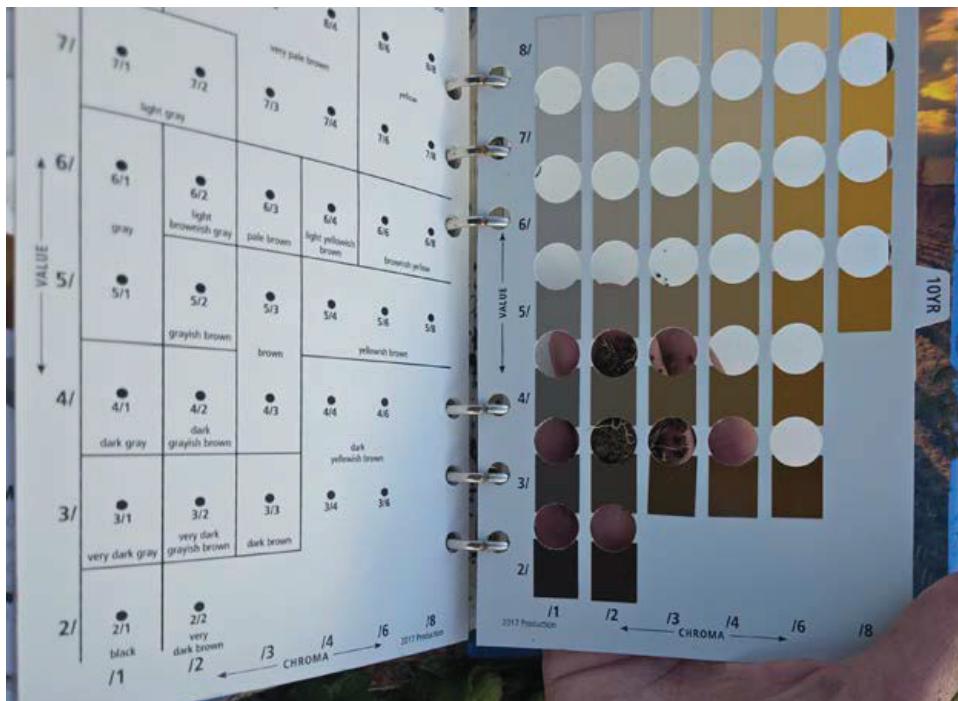


PHOTO H5

DATE TAKEN: 10-1-2025

LOCATION:

Area 1 Soils

COMMENTS:

Dark brown soil, lacking indication of anaerobic activity.
No odors detected.



PHOTO H6

DATE TAKEN: 10-1-2025

LOCATION:

Area 2: Downstream toe,
midway from right abutment to
dam centerline

COMMENTS:

Dense weedy vegetation
compared to surrounding areas
of sparse vegetation



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos



PHOTO H7

DATE TAKEN: 10-1-2025

LOCATION:

Area 2 Soils

COMMENTS:

Dark brown soil, similar to Area 1 soils, lacking indication of anaerobic activity. No odors detected.



PHOTO H8

DATE TAKEN: 10-1-2025

LOCATION:

Area 3: 1/4 up the downstream slope, midway from right abutment to dam centerline

COMMENTS:

Location is typically dry, according to previous dam inspections. It was selected for comparison to areas of historic wet conditions.



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos



PHOTO H9

DATE TAKEN: 10-1-2025

LOCATION:

Area 3 Soils

COMMENTS:

Dark brown soil, similar in color and texture to soils in Areas 1 and 2.

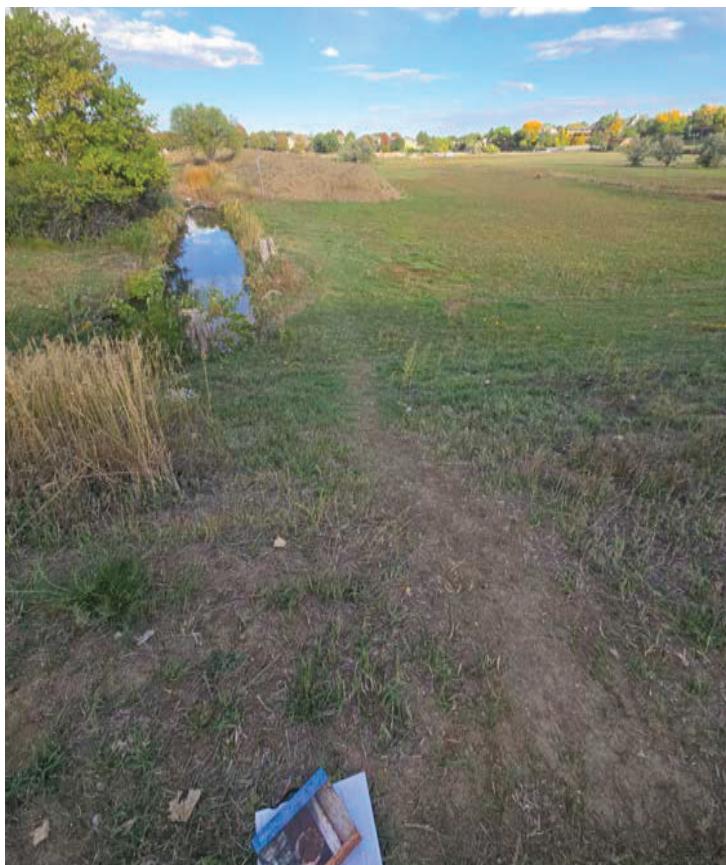


PHOTO H10

DATE TAKEN: 10-1-2025

LOCATION:

Area 4: Left downstream slope outlet ditch

COMMENTS:

Most likely location of wetlands, if any exist.



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos



PHOTO H11

DATE TAKEN: 10-1-2025

LOCATION:

Standing just upstream of Area 4 Soils

COMMENTS:

Looking left, across tall weedy vegetation

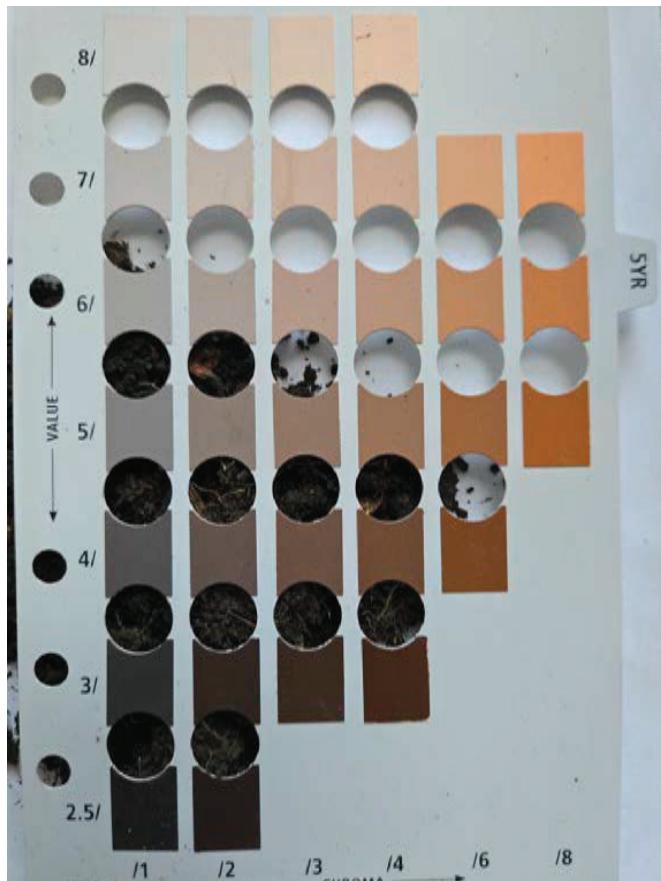


PHOTO H12

DATE TAKEN: 10-1-2025

LOCATION:

Area 4 Soils

COMMENTS:

Dark brown soil, slightly darker than soils found in areas 1-3. No indication of mottling, gleying, or other discoloration. No odors detected that would indicate hydric soils

 Schnabel ENGINEERING	Hyatt Lake Reservoir PROJECT NO.: 20C26030.20	Wetlands Investigation Photos
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PHOTO H13

DATE TAKEN: 10-1-2025

LOCATION:

Downstream of left toe, right of the flume

COMMENTS:

Weedy vegetation, typical along the downstream slope and continuing further downstream. Species *Dipsacus laciniatus* (cutleaf teasel), a FACU (Facultative Upland) species in the Western Mountains & Valleys/Colorado region.



PHOTO H14

DATE TAKEN: 10-1-2025

LOCATION:

Downstream toe, looking right along the toe

COMMENTS:

Typical vegetative cover along the downstream slope. Weedy vegetation with some bare areas. Note that regular maintenance with tractor with pneumatic tires.



Hyatt Lake Reservoir
PROJECT NO.: 20C26030.20

Wetlands Investigation Photos

APPENDIX I

CASE NUMBERS FOR DIRECT FLOW RIGHTS AND HYATT RESERVOIR STORAGE

FHL Direct Flow Priorities

Priority No.	Appropriation Date	Adjudication Date	Case No.	Amount (cfs)	Cumulative Amount (cfs)	Comments
1	2/25/1860	10/4/1884	Elliott Decree*	0.275	0.275	Transferred from Wadsworth Ditch, CA 36990, Jun 6, 1907
3	5/16/1860	10/4/1884	Elliott Decree	1.000	1.275	Transferred from South Side Ditch, CA 46238, Apr 20, 1909
5	5/31/1860	10/4/1884	Elliott Decree	3.281	4.556	Transferred from Ouellette Ditch, CA 54718, Jan 22, 1913
9	7/1/1860	10/4/1884	Elliott Decree	39.800	44.356	
30	5/28/1863	10/4/1884	Elliott Decree	1.610	45.966	Transferred from Juchem and Ouellette Ditch, CA 47914, Feb 1, 1910
32	6/20/1863	10/4/1884	Elliott Decree	2.750	48.716	Transferred from Slater and Moody Ditch, CA 46707, Jun 28, 1909 and CA 40697 Jun 18, 1906
42	4/23/1865	10/4/1884	Elliott Decree	2.890	51.606	Transferred from Juchem and Ouellette Ditch, CA 47914, Feb 1, 1910
48	11/2/1865	10/4/1884	Elliott Decree	0.807	52.413	Transferred from Wadsworth Ditch, CA 36990, Jun 6, 1907
54	5/24/1870	10/4/1884	Elliott Decree	0.330	52.743	Transferred from Reno and Juchem Ditch, CA 36980, May 2, 1904
57	4/1/1872	10/4/1884	Elliott Decree	154.000	206.743	
68	4/1/1886	10/9/1895	CA21886	191.000	397.743	
69	4/23/1895	10/9/1895	CA21886	335.860	733.603	

* No Arapahoe County Civil Action Number was assigned to the original 10-4-1884 general adjudication. It is commonly referred to as the Elliott Decree after Judge Victor Elliott.

Hyatt Lake Priorities

Reservoir Priority No.	Appropriation Date	Adjudication Date	Case No.	Amount (AF)	Cumulative Amount (cfs)	Comments
3	12/31/1871	5/13/1936	CA 60052	400.0	400	Clear Creek and Little Dry Creek
8	10/1/1889	5/13/1936	CA 60053	693.4	1093.4	Clear Creek and Little Dry Creek

APPENDIX J

SEO INSPECTION REPORT AND RESERVOIR STORAGE RESTRICTION LETTER

ENGINEER'S INSPECTION REPORT

OFFICE OF THE STATE ENGINEER - DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH

INSPECTOR:

JPK

1313 SHERMAN STREET, ROOM 818, DENVER, CO 80203, (303) 866-3581

DAM NAME:	HYATT	T: 030S	R: 0690W	S: 7	COUNTY:	JEFFERSON	DATE OF INSPECTION:	1/12/2024	
DAM ID:	070136	YRCompl:	1863	DAM HEIGHT(FT):	22.0	SPILLWAY WIDTH(FT):	35.0	PREVIOUS INSPECTION:	2/14/2023
CLASS:	High hazard			DAM LENGTH(FT):	1110.0	SPILLWAY CAPACITY(CFS):	625.0	NORMAL STORAGE (AF):	760.0
DIV:	1	WD:	7	CRESTWIDTH(FT):	16.0	FREEBOARD (FT):	3.5	SURFACE AREA(AC):	73.0
EAP:	4/26/2021			CRESTELEV(FT):	5567.0	DRAINAGE AREA (AC):	350.0	OUTLET INSPECTED:	4/22/2008

CURRENT RESTRICTION: 5 ft below spillway crest

OWNER:	FARMERS HIGHLINE CANAL & RESERVOIR CO. (BOL)	OWNER REP.:	MIKE BOLLINGER
ADDRESS:	8399 W. 89TH AVENUE WESTMINSTER	CONTACT NAME:	MIKE BOLLINGER

INSPECTION PARTY:	Mike Bollinger	John Hunyadi, Jim K, Jason S, Mike W
REPRESENTING :	Farmer's Highline Canal	CO DWR

FIELD CONDITIONS OBSERVED	WATER LEVEL: BELOW DAM CREST	9.4	FT.	Below Spillway	5.9	FT.	GAGE ROD READING	13.1
	GROUND MOISTURE CONDITION:	<input checked="" type="checkbox"/> DRY	<input type="checkbox"/> WET	<input type="checkbox"/> SNOWCOVER	<input type="checkbox"/> OTHER			

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

UPSTREAM SLOPE

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

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

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

No changes from the previous inspection. The upstream slope appears to be uniformly graded with good coverage of angular, durable riprap. One 12-in erosional scarp was observed on the upstream slope near STA 3+00 near the restricted water level about 9 ft below the crest.

CONDITIONS OBSERVED: Good Acceptable Poor

CREST

PROBLEMS NOTED: (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 low spot at freeboard dike

No changes from the previous inspection. The crest has a layer of gravel serving as road base which is generally graded to drain towards the upstream slope. No low areas, erosion, or signs of instability were observed on the main dam today.

As stated in the 2017 EIR, there is an about 1 ft low spot in the north (freeboard) embankment near the left end.

CONDITIONS OBSERVED: Good Acceptable Poor

DOWNSTREAM SLOPE

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

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

No changes from the previous inspection. The downstream slope generally appears to be uniformly graded with good coverage of prairie grasses. The slope above the 8-ft wide berm is steeper at approx 2H:1V with an about 3H:1V berm slope. No signs of slope instability were observed.

CONDITIONS OBSERVED: Good 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 Yes Show location of drains on sketch and indicate (37) FLOW INCREASED / MUDDY (38) DRAIN DRY / OBSTRUCTED
 (39) OTHER

The south toe drain weir generally ranges from 3 to 7 gpm. A clear relationship with the reservoir level is not evident with minimal data available and a relatively consistent water level. The seepage conditions generally visually appeared to be slightly less than the previous year when the reservoir water level was 0.6 ft higher. Standing water was observed at the historical locations in the form of solid ice, however no flowing water was observed or significant soft areas. The temperature has been in the single digits two days leading up to the inspection. No signs of particle migration were observed.

Similar to previous inspections, the north toe drain outfall was flowing at a trickle. Unfiltered seepage was observed exiting the south outlet outfall pool slope. A void was observed near the waterline that undermines the slope, visually estimated at about 1 ft back at its maximum depth. This void could be from erosion during turbulent outlet operation as well as Backwards Erosion Piping. It was estimated less than 1 gpm seepage at the specific point observed above the water line, but any seepage under the tailwater pool would not be able to be observed. The soil generally appeared wet at this area but there is likely contributions from capillary forces in the soil above the tailwater. The seepage appears to be flowing under the north toe drain based on the As-Built cross section. It is also possible that the 1988 4-in PVC drain pipe is damaged or clogged as it collects much less water per unit length than the south toe drain.

The conditions observed on this day indicate that the seepage conditions are acceptable at the present restricted reservoir water level; however, known seepage concerns when the reservoir rises above the restricted level and the suspected flow obstruction within the south drain pipe are the purpose for the "Poor" condition rating.

REPEATED INFORMATION FOR RECORD KEEPING

Piezometer H10 at the maximum section toe experiences artesian conditions while the three piezometers about 5 ft upstream show water 4 ft below groundwater surface. These were installed by the owner in 2014 during repair of the toe drain in this section and it is unclear what they are screened in. It is possible that H10 is connected to the toe drain.

Piezometer H1 continues to behave somewhat erratically dropping about 2-3 ft late every summer that are not always correlated with the reservoir level. The crest surface casing could allow some water to enter from the top, but this would not explain the decreases and the top appeared to be in similar condition as the other piezometers. The other piezometers more closely follow the reservoir level.

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 large tree on south outfall structure

The outlet is regularly operated by the City of Arvada. The north outlet has been operationally abandoned since around 1990. There is standing water at the outfall and in the culvert to the downstream conveyance channel. The standing water could be from gate leakage, a pipe defect (unlikely), or seepage into the low area similar to what occurs at the south outfall.

The south outlet conduit outfall was inundated by tailwater and appears to leak a minor amount as is typical. A large tree is located immediately above the south outlet pipe, touches the pipe, and straddles the concrete outfall structure. The tree is likely to cause damage to the outlet pipe and outfall structure if continued to be allowed to grow.

An attempt was made to inspect both outlets with CO Dam Safety's rover. Both outfalls were inundated with tailwater.

The south outlet was generally inundated up to the hunches until about 25 ft. There is a small rise in the outlet from about 7 to 15 ft and 35-45 ft. This portion of the original 12-in Cast Iron Pipe was completely removed and replaced with the 10-in PE used to slip line the pipe. This downstream portion was backfilled with concrete and the vertical deviations could be from the pipe floating during concrete placement, or additional load caused by the tree. The remaining portion of the pipe appeared to be in good condition. No deficiencies were observed at the mechanical pipe clamp at 55 ft. The 12-in angled steel intake pipe from the gate to the conduit had some pitting but this is not a large concern as it is embedded in concrete. The gate was not able to be fully inspected from the downstream end but the little bit observed appeared to be in good condition.

The north outlet was inundated with murky water and the lens was somewhat covered throughout the inspection. The pipe was inundated to a similar depth throughout the inspection. The 1988 8-in PE pipe appeared to be in similar condition as the south pipe as observed through the distorted lens. The rover could not proceed beyond 40 ft due to an apparent obstruction. The camera rose and fell as the wheels climbed over it, but was not able to proceed. The As-Built drawings do not show any change in the pipe, although the water level appeared to drop somewhat at 40 ft, suggesting that there is an incline up that could also be stopping the camera from proceeding. The 1988 8-in SDR 17 (0.5-in thick) slip lined pipe may not have been able to be pushed through the carrier pipe if there was a significant bend. Regardless, the 40 ft of an apparent 125 total ft inspected appeared to be in acceptable condition. Based on the similar construction method and contractor of the south outlet pipe, it there is no reason to suspect any significant defects located in other portions of the pipe that were not able to be inspected today.

The north outfall should be excavated such that it freely discharges to allow for observation of the flow rate and identification of any potential sediment within the water. If a company is on-site to perform a similar inspection of the toe drain, the north outlet should be drained and inspected along its entire length to identify potential deficiencies.

The north outlet should be grouted to reduce the risk with this operationally abandoned open conduit through the dam.

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

No changes from the previous inspection. The spillway consists of a grass lined trapezoidal channel that extends beyond the toe through the right abutment. The spillway is clear and ready for flow. The owner has hired a consulting engineer to design a modification to the spillway for a low flow channel.

The spillway may be undersized since the dam was re-classified as high hazard in 2014. The spillway has a capacity of about 650 cfs at the dam crest, while the peak flow envelope curve shows a peak inflow of about 3,500 cfs. A 1995 hydrology analysis suggested that the dam could attenuate a storm with a peak inflow of 3,573 cfs and volume of 490 ac-ft with 0.6 ft of freeboard remaining. In which case the existing spillway could be satisfactory, but crest low spots would become critical.

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

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

No changes from the previous inspection. The owner routinely monitors the dam and records instrumentation data twice monthly. The data is stored using a shared spreadsheet with this Office and discussed in the SEEPAGE section. The seepage weir has consistently been measured since the last inspection which is appreciated and is crucial in evaluating the dam.

The south toe drain weir plate appears to have some water seeping around it that could be affecting the measurement. As discussed on-site, the owner has offered to repair it but this area may be disturbed during the upcoming project. If the project is significantly delayed, then a self-performed fix would be beneficial.

A pressure transducer at the reservoir and one at the downstream weir transmit the data to the web accessible to certain personnel but they are not linked to the CO DWR Stations system.

The staff gage does not have depth/elevation markings such that a lay person can record the reservoir level. The double notch marks 15 ft and every notch is one ft of elevation.

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 freeboard dam overgrown

No changes from the previous inspection. Farmer's continue to maintain the vegetation as able to. The upstream slope was sprayed by a contractor in October such that the remaining limited amount of woody vegetation should die.

The north/freeboard embankment is covered with trees and woody vegetation, with lesser amounts at the outlets and channels.

The vegetation at the downstream toe is mowed which is greatly appreciate to aid in seepage observations.

As noted in the OUTLET section, there is a tree over the south outlet outfall structure.

CONDITIONS OBSERVED: Good Acceptable Poor

Go to next page for Overall Conditions and Items Requiring Actions

OVERALL CONDITIONS

The dam appears to be in acceptable condition for the present water level; however, known adverse seepage conditions when the reservoir rises above the restricted storage level are the purpose for the "Unsatisfactory" overall condition assessment and the current reservoir restriction.

Farmer's has hired Schnabel (formerly Deere & Ault) to evaluate and design a re-habilitation of the dam. Since the June 2023 pre-design meeting, seepage has been observed through or under the north toe drain which should be considered in the design. The upcoming state-funded CDSE will help evaluate the dam and provide a solid path forward to help guide the re-habilitation efforts.

The development upstream of the reservoir that will convey it's storm water to the basin continues to be delayed and will help fund the re-habilitation project. The re-habilitation project continues to be delayed until the development progresses for funding purposes.

The EAP was updated in 2021 and includes some current contact information. It should be updated regularly to reflect the continuous turnover at various stakeholder positions.

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

MAINTENANCE - ORDINARY REPAIR - MONITORING

CLEAR TREES AND/OR BRUSH FROM

2/14/2023 - Any dead or sick trees and their rootballs should be removed ASAP to reduce potential for seepage, stability, and uproot failures. Remove tree from outfall structure under supervision of engineer. Please consult this Office and an engineer prior to removing large trees.

PROVIDE SURFACE DRAINAGE FOR

1/12/2024 - To help identify potential failure mode initiation, the north outfall should be excavated such that it freely discharges to allow for observation of the flow rate and identification of any potential sediment within the water. If a company is on-site to perform a camera inspection of the toe drain, the north outlet should be drained and inspected along it's entire length to identify potential deficiencies.

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO

PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE

7/27/2022 - The spillway may be undersized based on the Inflow Design Flood criteria Rule 7.2.1.

EMERGENCY ACTION PLAN

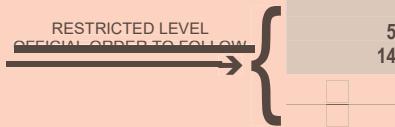
UPDATE EXISTING EMERGENCY ACTION PLAN

8/30/2019 - A draft EAP can be provided when you decide to update the outdated EAP. Please review draft EAP, make changes as necessary, and distribute to the appropriate parties.

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.

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

Adverse seepage conditions when the reservoir rises above GH 14.0.

ACTIONS REQUIRED FOR CONTINUED STORAGE AT THE RESTRICTED LEVEL:

Take actions to fully capture all seepage into a filter-compatible seepage collection system and eliminate daylighting seepage along the downstream toe of the dam. Evaluate capacity of spillway.

Engineer's
Signature

INSPECTED BY

Owner's
Signature

OWNER/OWNER'S REPRESENTATIVE

DATE: / /

See attached restriction letter

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.

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.

CONDITIONS OBSERVED - APPLIES TO SEEPAGE

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.

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 required.

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.

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.

OVERALL CONDITIONS

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.

FULL STORAGE

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

SAFE STORAGE LEVEL

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.

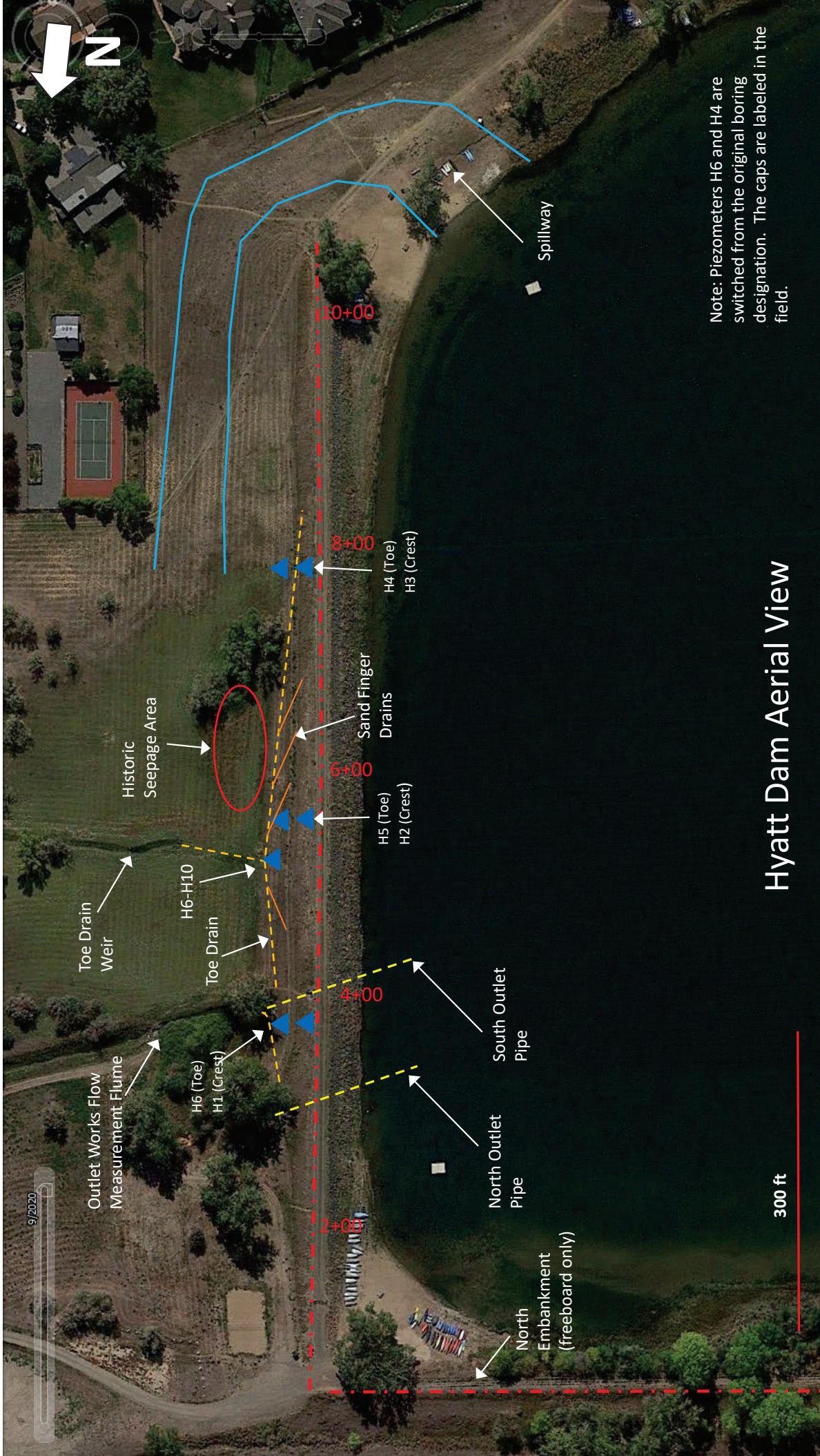
Significant hazard

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 line.

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.



Hyatt Dam Aerial View

Photo 1 - Looking north across US slope near STA 3+00



Photo 2 - Looking north across DS slope and crest



Photo 3 - Looking DS to frozen seepage



Photo 4 - Looking DS to historical seepage area

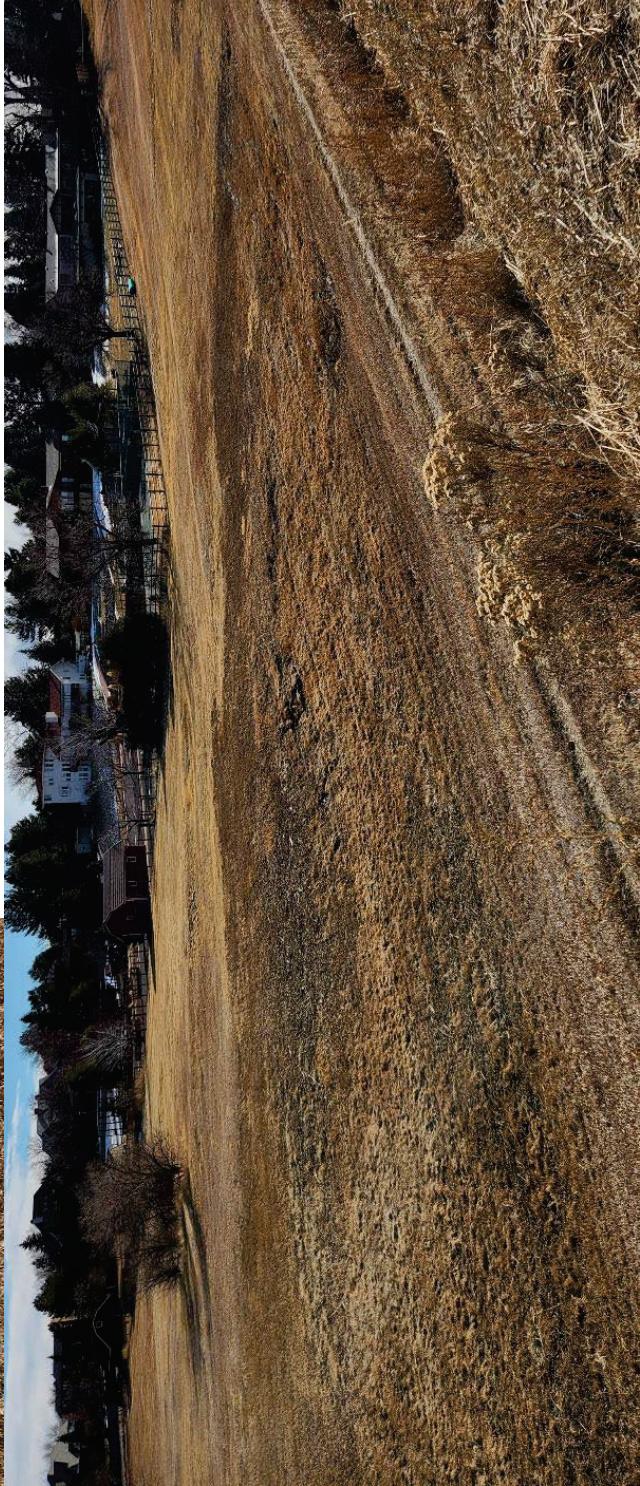




Photo 6 - Boring backfill and drill outrigger pad



Historic flowing water



Photo 5 - Historic flowing seepage



Photo 7 - Seepage at south outlet outfall

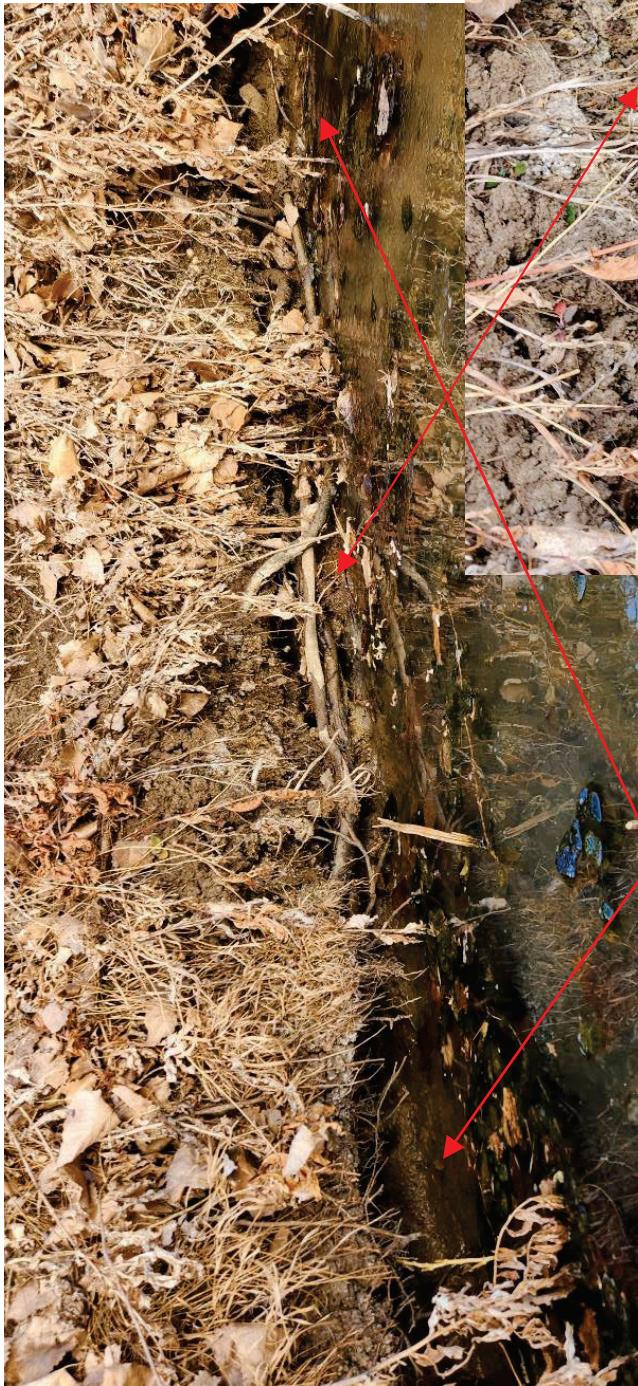


Photo 8 - Dripping seepage



Void just above water level



Void just above water level

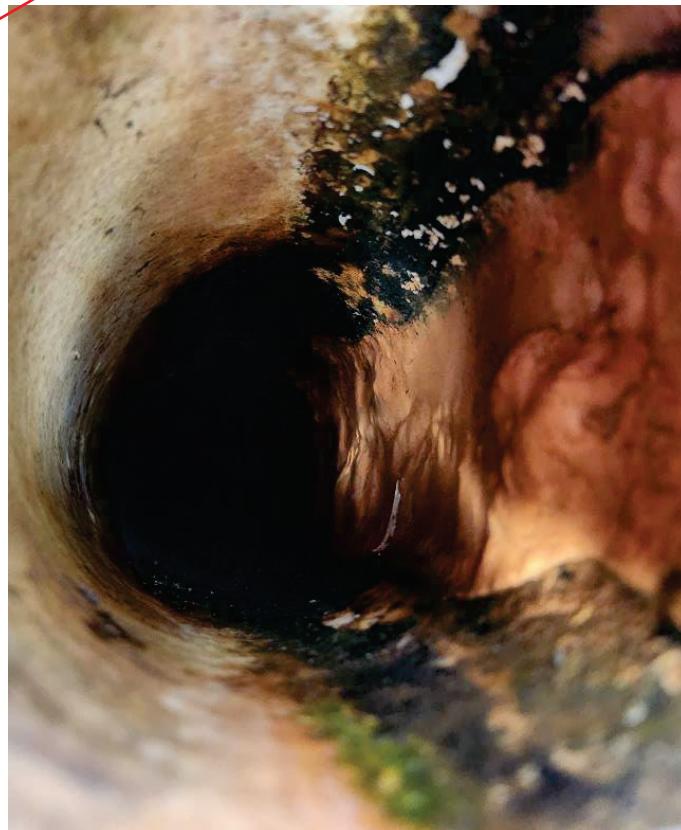


Photo 9 - Looking up north toe drain outfall

Photo 10 - South outlet outfall



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Photo 12 - Mechanical clamp at 55 ft

TREKKER PIPE TREKKER PAN:30 TILT:173 ROLL:-1 INCL:1 DIST:55

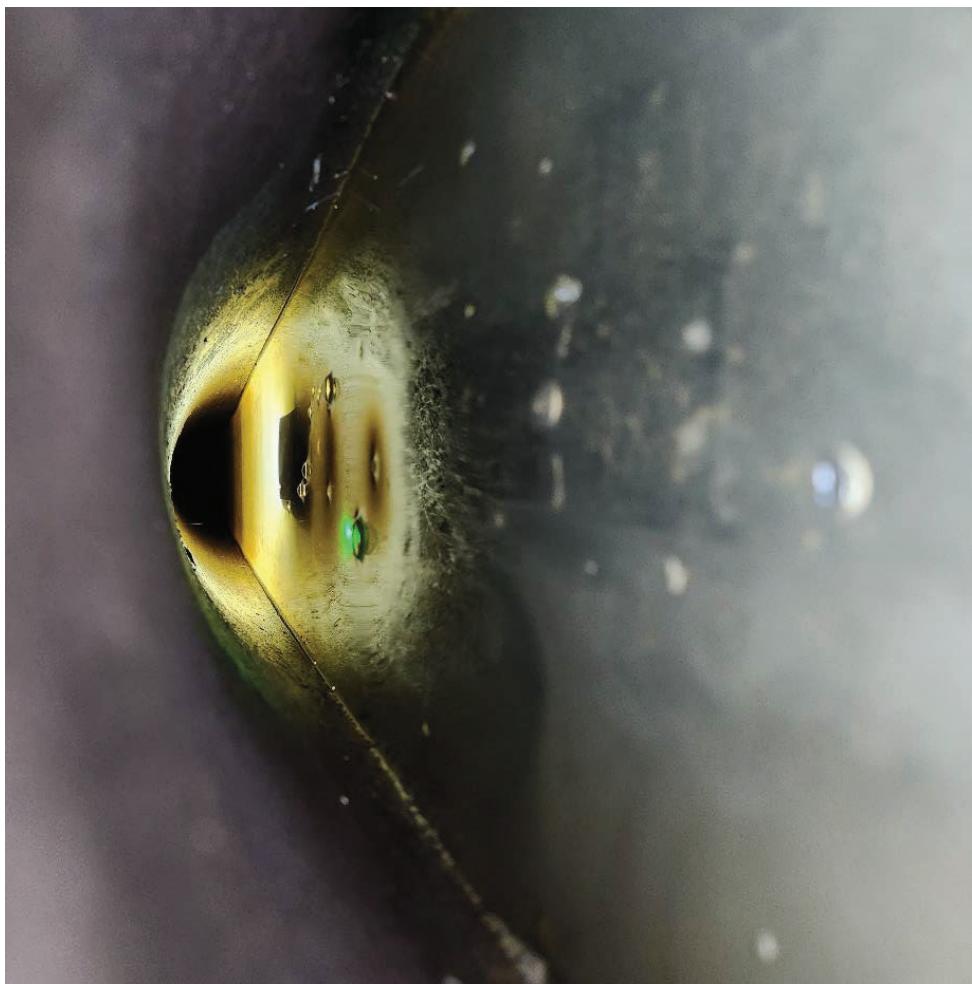


Photo 11 - Inundated rover in south pipe



Photo 13 - Typical PE welded joint and webbing

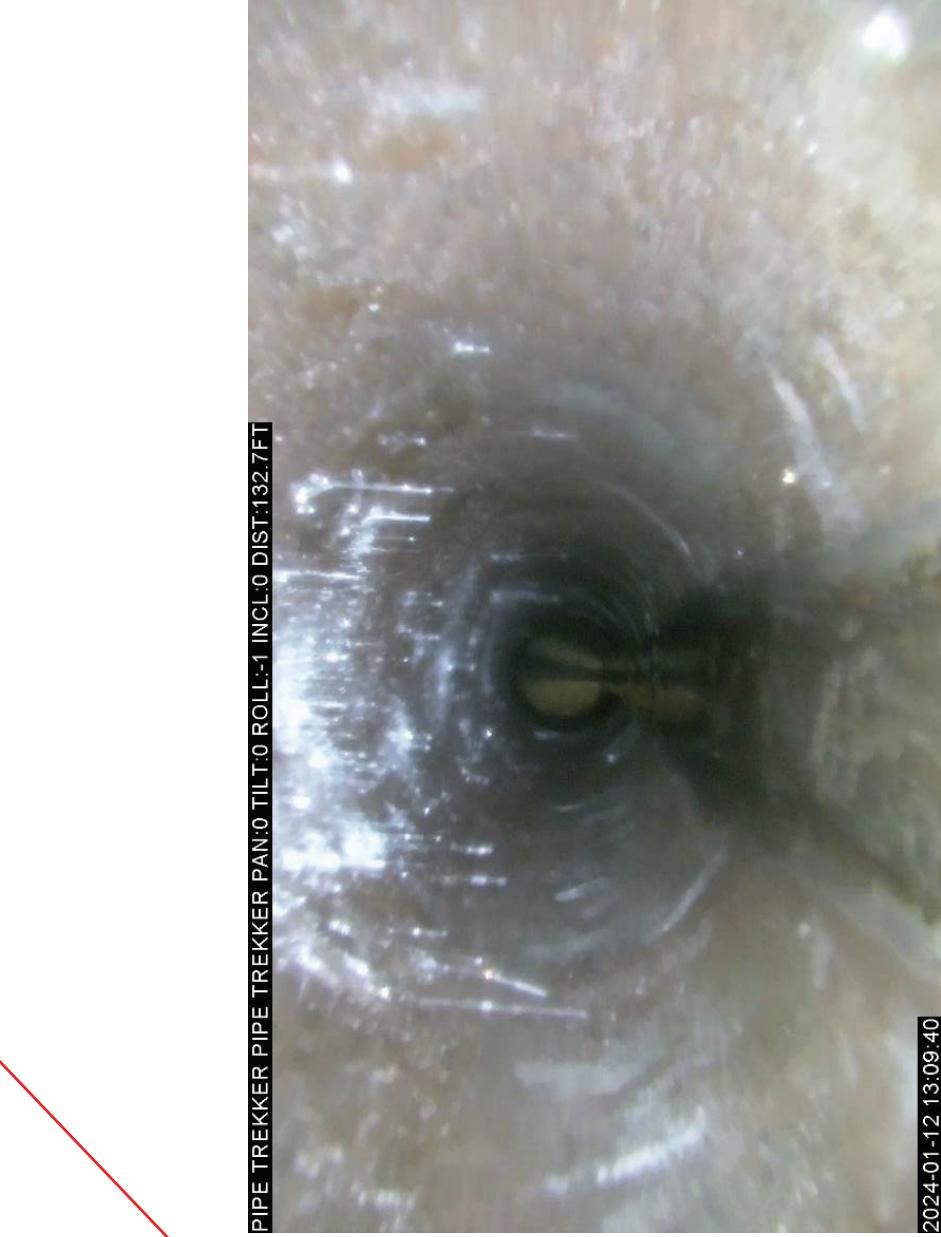
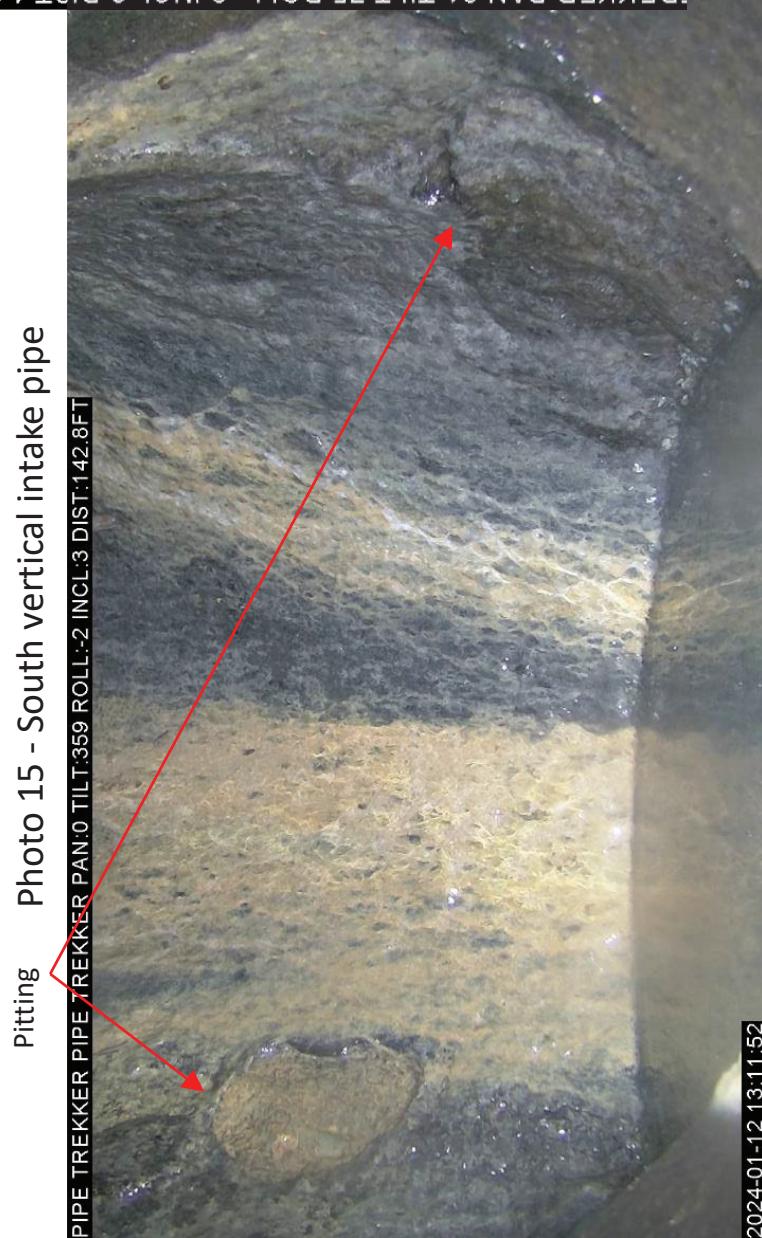


Photo 14 - Typical webbing

Photo 16 - Looking up towards south gate



Photo 15 - South vertical intake pipe



Pitting



Photo 18 - North outlet rover set-up



Photo 17 - North outlet outfall



Photo 19 - Typical lens coverage in north outlet

PIPE TREKKER PIPE TREKKER PAN:0 TILT:356 ROLL:3 INCL:0 DIST:11.9FT

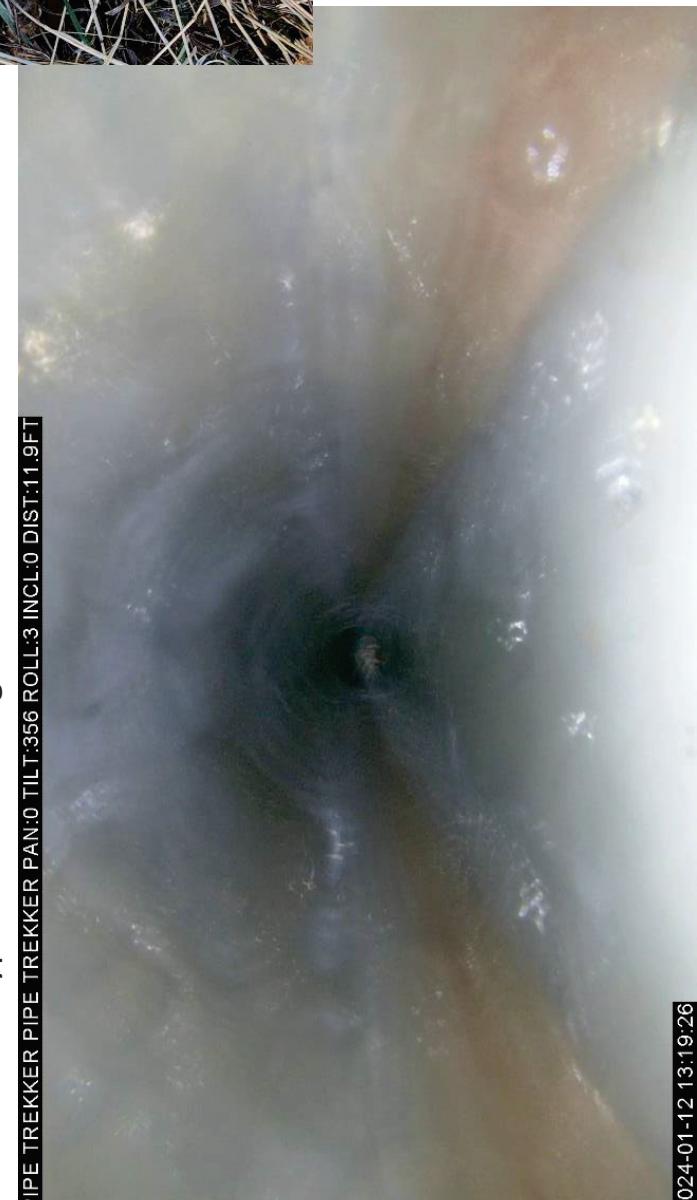
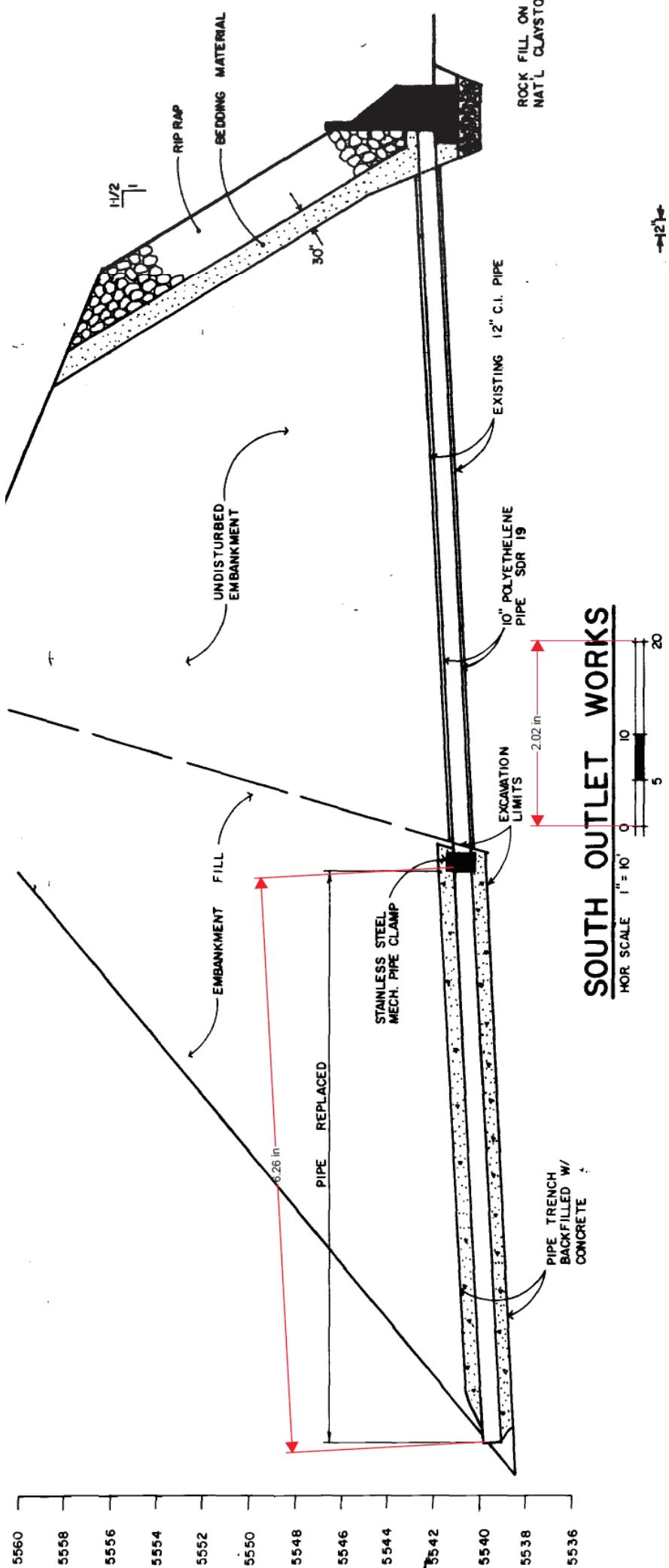
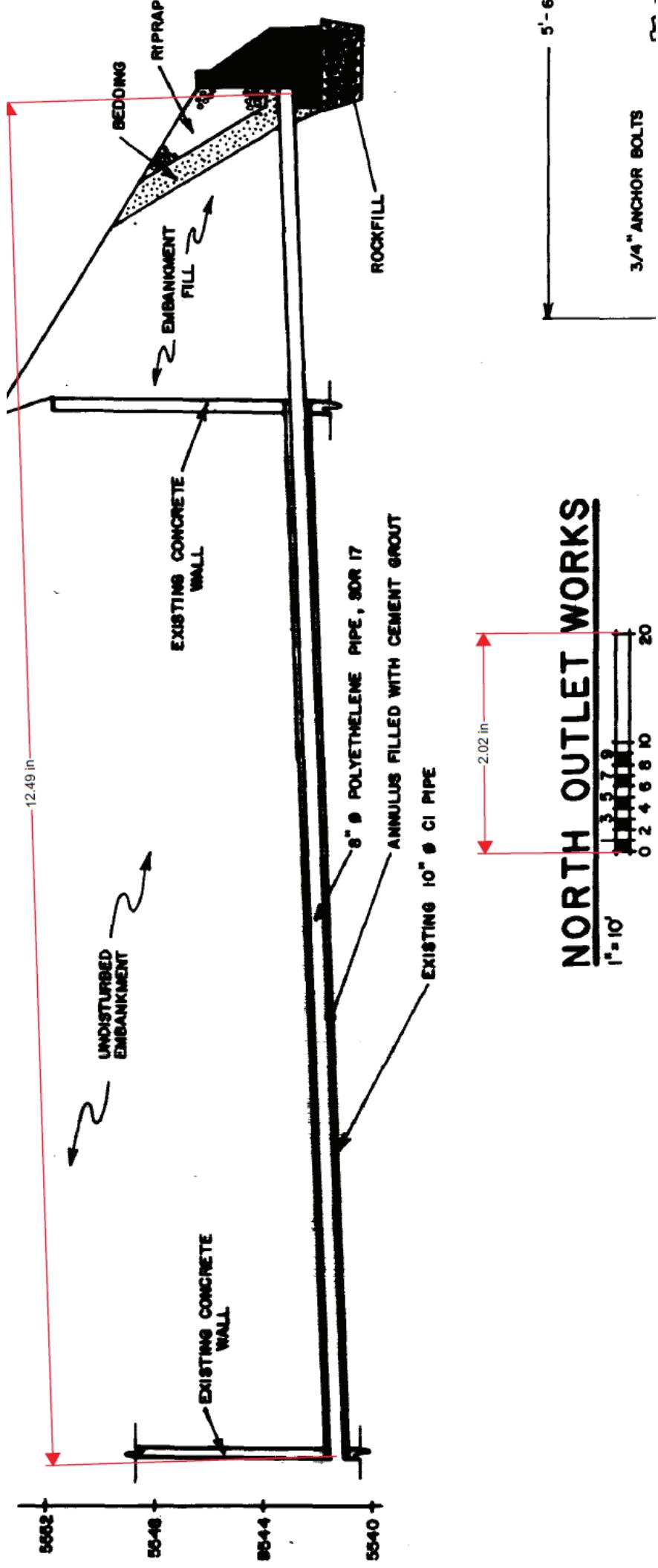
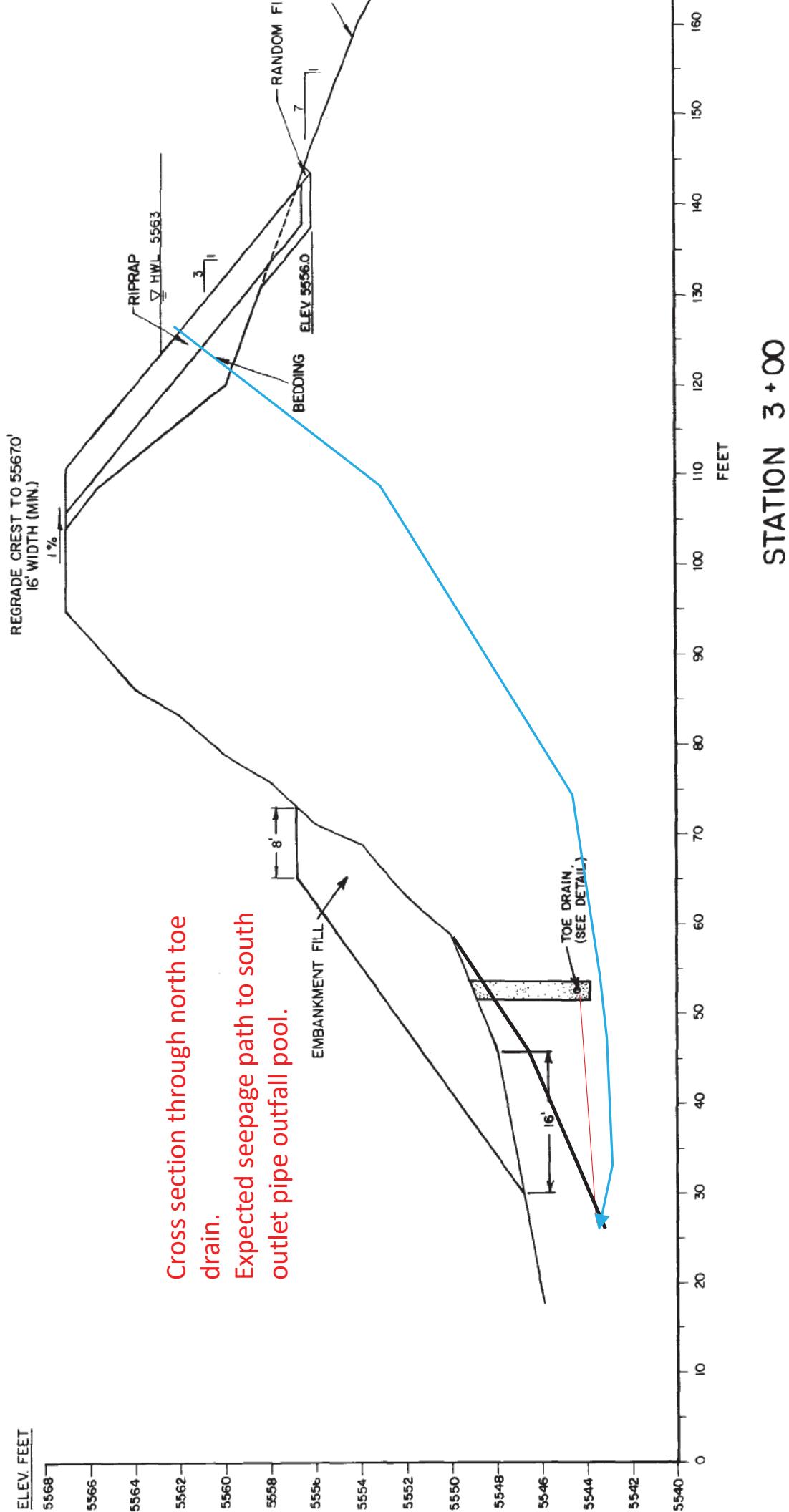


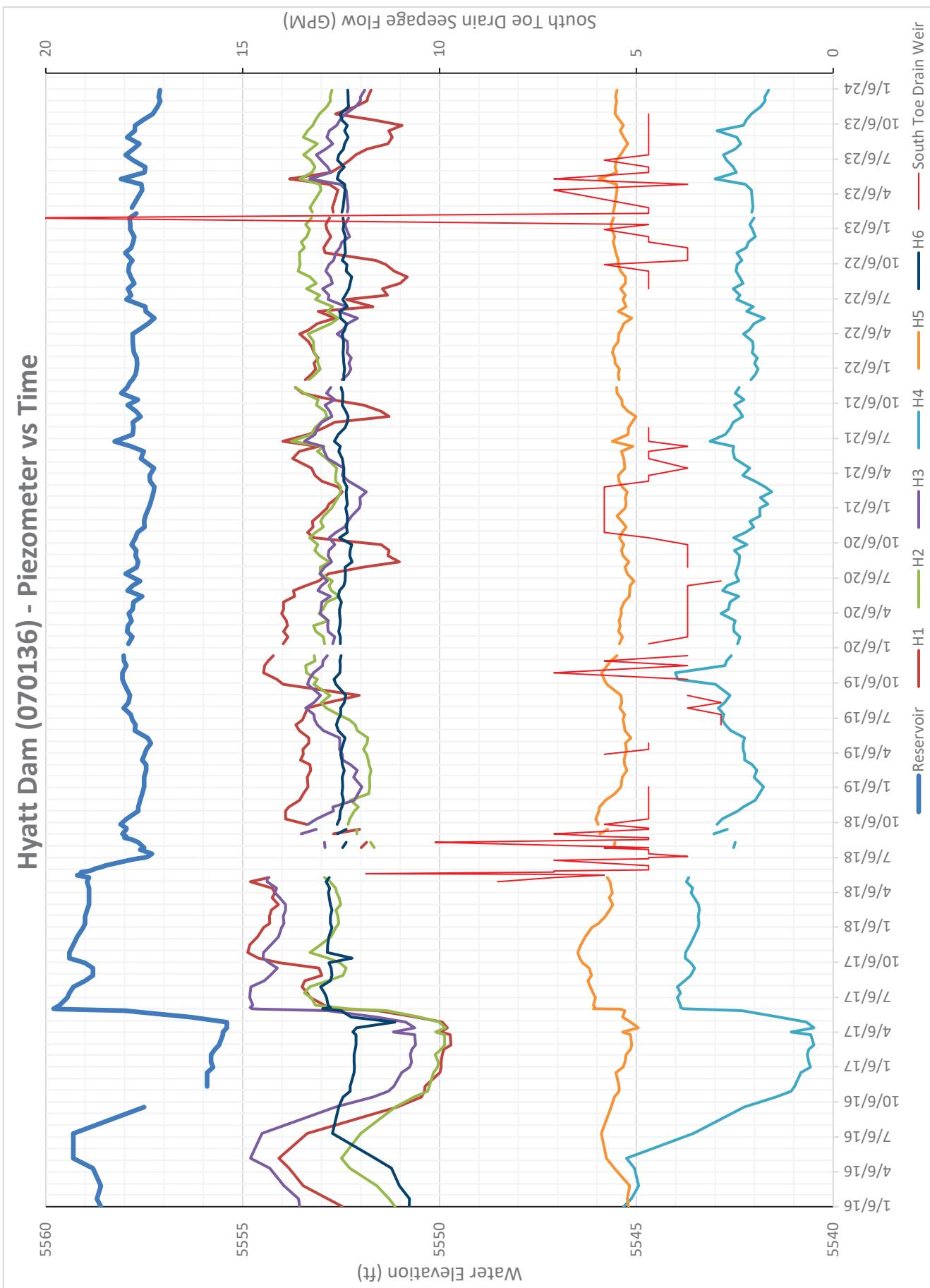
Photo 20 - North outlet operator

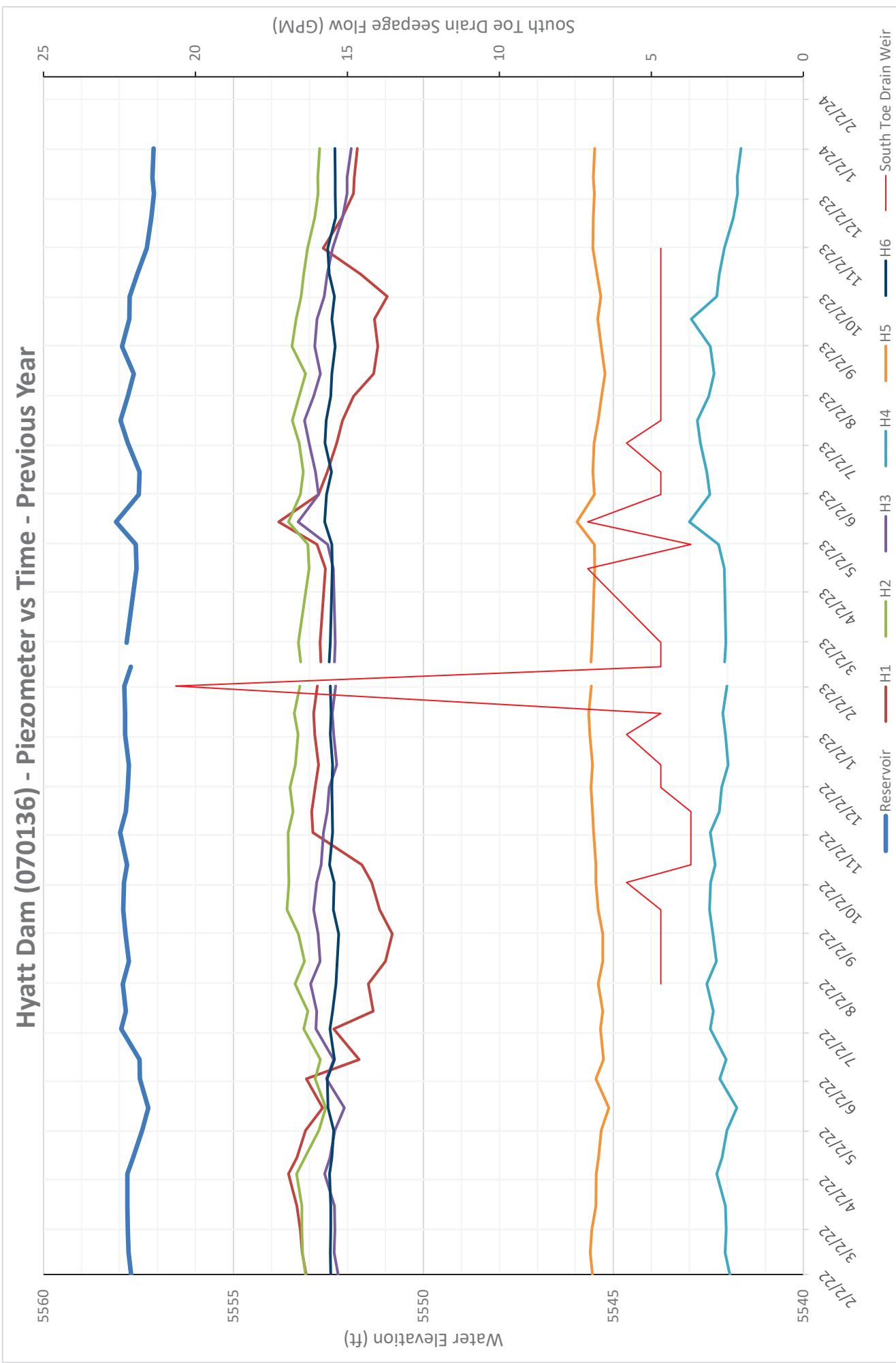
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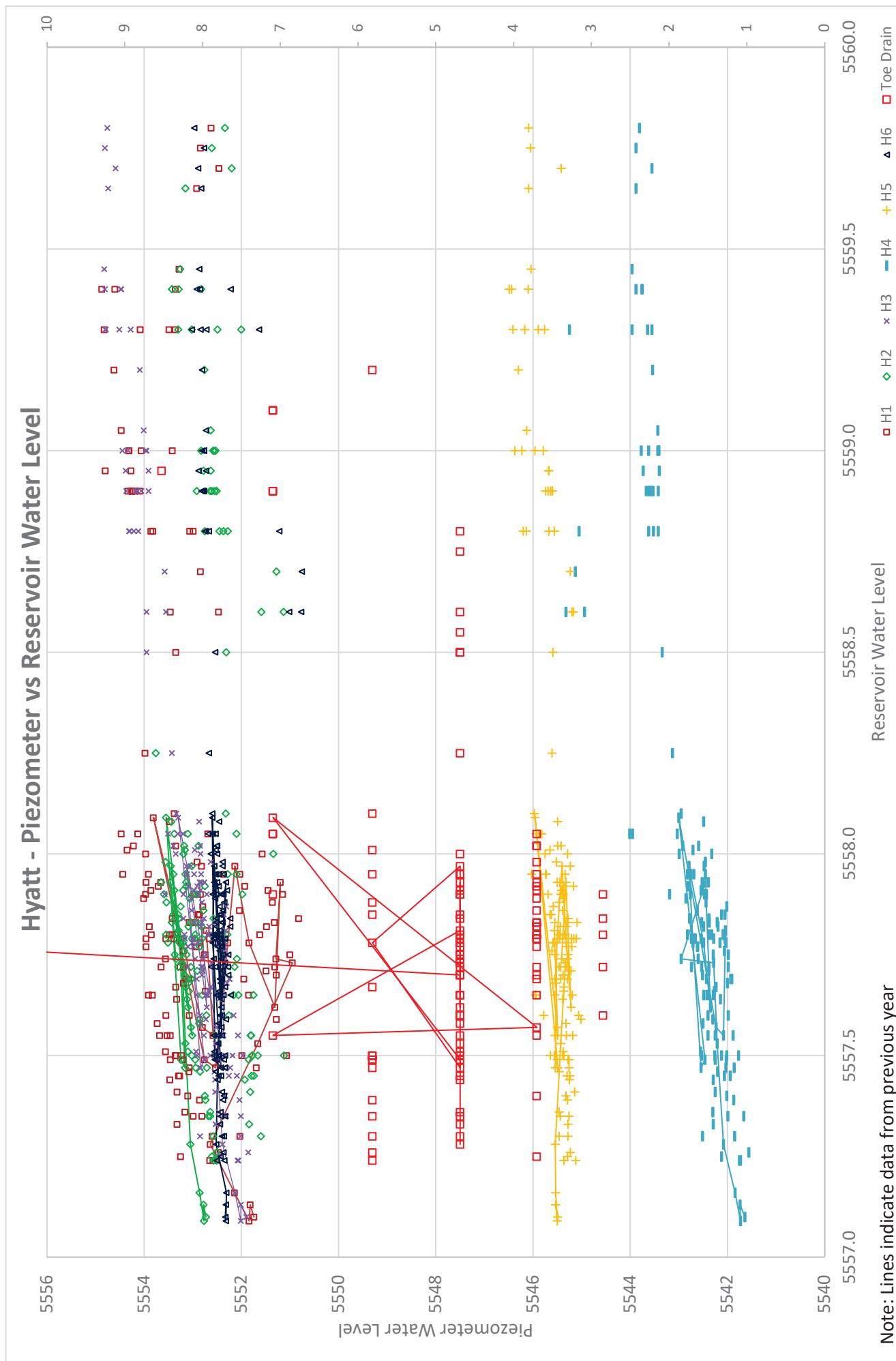














Certified Mail: 7015 0640 0007 6759 5644

Mr. Mike Bollinger
Farmer's Highline Canal and Reservoir Co.
725 Malley Drive
Northglenn, CO 80233
Also via email: fhl.gm.mike@gmail.com

When replying, please refer to:
HYATT DAM, DAMID 070136
Water Division 1, Water District 7

October 8, 2018

SUBJECT: Reservoir Restriction Order

Dear Mr. Bollinger,

Pursuant to Colorado Revised Statute 37-87-107, the State Engineer has the responsibility to determine the safe storage level for all reservoirs in the state. A dam safety inspection conducted on May 2, 2018, by Colorado Dam Safety staff revealed seepage discharging from the downstream toe of the dam in excess of historical observations indicating that adverse seepage conditions are progressing. The inspection report was previously provided to you and more fully describes and documents the seepage observed. If current seepage conditions are left unattended and allowed to progress further, an internal erosion failure is likely to occur. The dam is therefore considered unsafe for full reservoir storage in its current condition. A reservoir storage restriction is therefore necessary to manage the risk of failure of this High Hazard classification dam.

Since the May inspection, members of both yours and our offices have worked jointly to identify a reservoir level that reduces the seepage flow rate to a safe level. Based on those efforts, you are hereby **ORDERED TO RESTRICT THE LEVEL OF WATER STORED BY THE DAM TO FIVE (5) FEET BELOW THE SPILLWAY CREST**. Based on available information, this restricted level corresponds to reservoir gage height 14.0 feet with an allowable safely stored volume of approximately 420 acre-feet, and a lost volume of approximately 340 acre-feet.

Adherence to this restriction is the minimum action you can take to improve the safety of your dam. However, adherence to the restriction should not be considered a long-term action. We encourage you to work toward lifting the restriction by engaging an Engineer as that term is defined in Rule 4.2.9 of the Rules and Regulations for Dam Safety and Dam Construction, 2-CCR 402-1, to design a satisfactory repair to address the dam safety concerns identified here and in previously provided supporting documents. Plans and specifications that address the identified conditions must be submitted to our office for our review and approval prior to any construction.

