

STATE OF
COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Cooley Reservoir-Fulton M-1999-034 AR3 Inspection

1 message

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Thu, Nov 21, 2024 at 4:55 PM

To: Wyatt Webster <wyatt.webster@holcim.com>

Hi Wyatt.

Please see the attached inspection report for the Cooley Acreage Release Request (AR3). As we discussed, the Division is denying the request at this time due to revegetation and sloping requirements in Rules 3.1.5(7) and 3.1.10. A decision notice will be sent under separate cover.

Kind regards,

--

Nikie Gagnon
Environmental Protection Specialist



COLORADO
Division of Reclamation,
Mining and Safety
Department of Natural Resources

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nikie.gagnon@state.co.us | <https://www.drms.colorado.gov>**INSP-REPORT_M1999034_Cooley Reservoir_AR3.pdf**
9716K



MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Cooley Reservoir & Fulton Wildlife Area	MINE/PROSPECTING ID#: M-1999-034	MINERAL: Sand and gravel	COUNTY: Adams
INSPECTION TYPE: Surety Release Inspection	WEATHER: Cloudy	INSP. DATE: October 30, 2024	INSP. TIME: 10:00
OPERATOR: Holcim - WCR, Inc.	OPERATOR REPRESENTATIVE: Wyatt Webster	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Surety Release Requested	BOND CALCULATION TYPE: None	BOND AMOUNT: \$1,510,800.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
INSPECTOR(S): Nikie Gagnon	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: November 21, 2024	

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>N</u>	(FN) FINANCIAL WARRANTY----- <u>N</u>	(RD) ROADS----- <u>N</u>
(HB) HYDROLOGIC BALANCE----- <u>N</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>N</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>N</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>N</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION-- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

OBSERVATIONS

This inspection was completed as part of acreage release request (AR3), submitted in accordance with Rule 4.17, received by the Division on September 18, 2024. Nikie Gagnon with the Division of Reclamation, Mining and Safety (Division/DRMS) conducted the inspection. Wyatt Webster, representing Holcim-WCR Inc. (Operator) along with Josh Redman and Jason Helms, representing the City of Thornton, accompanied the Division during the inspection.

The Cooley Site is a 112c operation permitted for 399.17 acres. Mining is complete and the site is in reclamation. The permit area is divided by the South Platte River. On the west side of the river, mining created three slurry walled water storage reservoirs, the South Cell, Middle Cell and North Cell. The City of Thornton operates the reservoirs. On the east side, the permitted area includes two wetland areas and the Jeronimus Lake area. The approved post mining land use is developed water resources, open space, wetlands, and wildlife habitat. The Operator is requesting a release of the three reservoirs (276.15 acres) on the west side of the permit area.

In 2013 and 2015, the South Platte River flooded, resulting in river flows overtopping the reservoirs. The City of Thornton conducted repairs to the reservoirs and completed the installation of flood control infrastructure in 2020. Earlier this year, the Division approved Technical Revision 4 which revised the Reclamation Plan to include the recertification of the slurry wall, a Flood Control Mitigation Plan, and the As-Built Drawings for the flood control features (spillways and streambank protections) which will remain after release of the reservoirs.

Grading and Slope Erosion

Rule 3.1.5(7) states that for lakes or ponds all slopes shall be no steeper than 2:1 except from 5 feet above to 10 feet below the expected water line where slopes shall not be steeper than 3:1. The Division observed the slopes of the reservoirs during this inspection. Overall, it appears the slopes of the three reservoirs were graded to the required slope after mining. However, since the cells have been utilized to store water for several years post mining, the shorelines show signs of wave cutting and water erosion and are steeper than the required slope in a few areas.

During the inspection, the City of Thornton representatives shared a 2022 Slope Assessment with the Division (enclosed) which evaluated the slope conditions around the three reservoirs and identified areas that need repair. In the 2022 report, approximately 2400 feet on the east side South Cell is rated level 2, which indicates a high risk for damage to slurry wall and/or clay liner, roads, reservoir structures, or 3:1 slope. Additionally, approximately 1,200 feet of the Middle Cell shoreline is also rated level 2/high risk. These high-risk areas are located on the east side of the reservoirs, adjacent to the open space and South Platte River.

Based on observations during the inspection, the Division concurs with the 2022 Slope Assessment. The eastern shorelines of the South Cell (Photo 7) and Middle Cell (Photo 10) show signs of wave cutting and erosion and the slopes are nearly vertical in these areas. Therefore, the reservoirs do not meet the requirements of Rule 3.1.5(7) for a release. The representatives from the City indicated they are in the process of drawing down the South Cell to allow for repair of the eastern shoreline. It is anticipated to take a few years to complete all the recommended slope repairs due to the operation of the facility.

The 2022 report also lists three moderate risk areas on the reservoirs. One of these areas was repaired last in 2023. The Division observed a repaired, armored slope on the south/southwest side of the South Cell (Photo 2).

Revegetation

Rule 3.1.10 states that the land shall be revegetated in such a way as to establish a diverse, effective, and long-lasting vegetative cover that is capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer and is at least equal in extent of cover to the natural vegetation of the surrounding area.

The Division observed the vegetation around the three reservoirs. Near the entrance to the site, on the western shores of the South and Middle Cells, the vegetation is adequate to meet the Rule. However, the Division noted several other areas that need reseeding and weed control, including the southeast shoreline of the South Cell, near the spillway, the South Cell and Middle Cell shorelines that run through the center of the site, and the north shoreline of the North Cell. The Division recommends mowing to control annual weeds and reseeding of the shorelines with the approved seed mix to establish a diverse and long-lasting vegetative cover around the three reservoirs. The operator may consult with the local Conservation Service for recommendations on revegetation and best practices.

Based on the observations during this inspection, the Division will deny the request for a release of the 276.15 acres. A notice of the decision will be sent under separate cover.

A subset of photographs taken during the inspection are included below. Please contact Nikie Gagnon (303)866-3537 ext. 8126 or email at nikie.Gagnon@state.co.us if you have any questions regarding this report.

PHOTOGRAPHS



Photo 1: Looking across the South Cell from the northwest corner, near the entrance.



Photo 2: Looking south along the western shoreline of the South Cell. Arrows indicate where the shoreline was repaired and armored with rip/rap. This area is adequately sloped.



Photo 3: Looking north along the western shoreline of the South Cell.



Photo 4: Looking at the spillway constructed in the southeast corner of the South Cell.



Photo 5: Weeds and bare ground observed adjacent to the spillway on the south side of the South Cell.



Photo 6: Looking east along the shoreline of the South Cell. Middle cell on the left. Bare ground and weeds noted here.



Photo 7: Looking southeast along the eastern boundary of the South Cell. Shoreline erosion observed here. 2022 Assessment rates this area as high risk.



Photo 8: Looking at the southwest corner of the Middle Cell.



Photo 9: Looking east along the southern shoreline of the Middle Cell. Some moderate shoreline erosion/cutting observed.



Photo 10: Looking northeast along the eastern shoreline of the Middle Cell. Shoreline erosion observed here. 2022 Assessment rates this area as high risk.



Photo 11: Looking east from the western end of the Middle Cell.



Photo 12: A construction material stockpile area on the western side, between the Middle and North Cells.



Photo 13: Looking northeast across the North Cell. The shorelines are revegetated and adequately sloped on the south side of the reservoir.



Photo 14: Looking at armored shoreline along the south side of the North Cell. The shorelines are revegetated and adequately sloped here.



Photo 15: Looking at armored shoreline along the east side of the North Cell.



Photo 16: Looking at armored shoreline in the northeast corner of the North Cell. This area is weedy and some bare ground noted here.



Photo 17: Looking west along the northern shoreline of the North Cell.



Photo 18: Looking south along the western end of the North Cell.

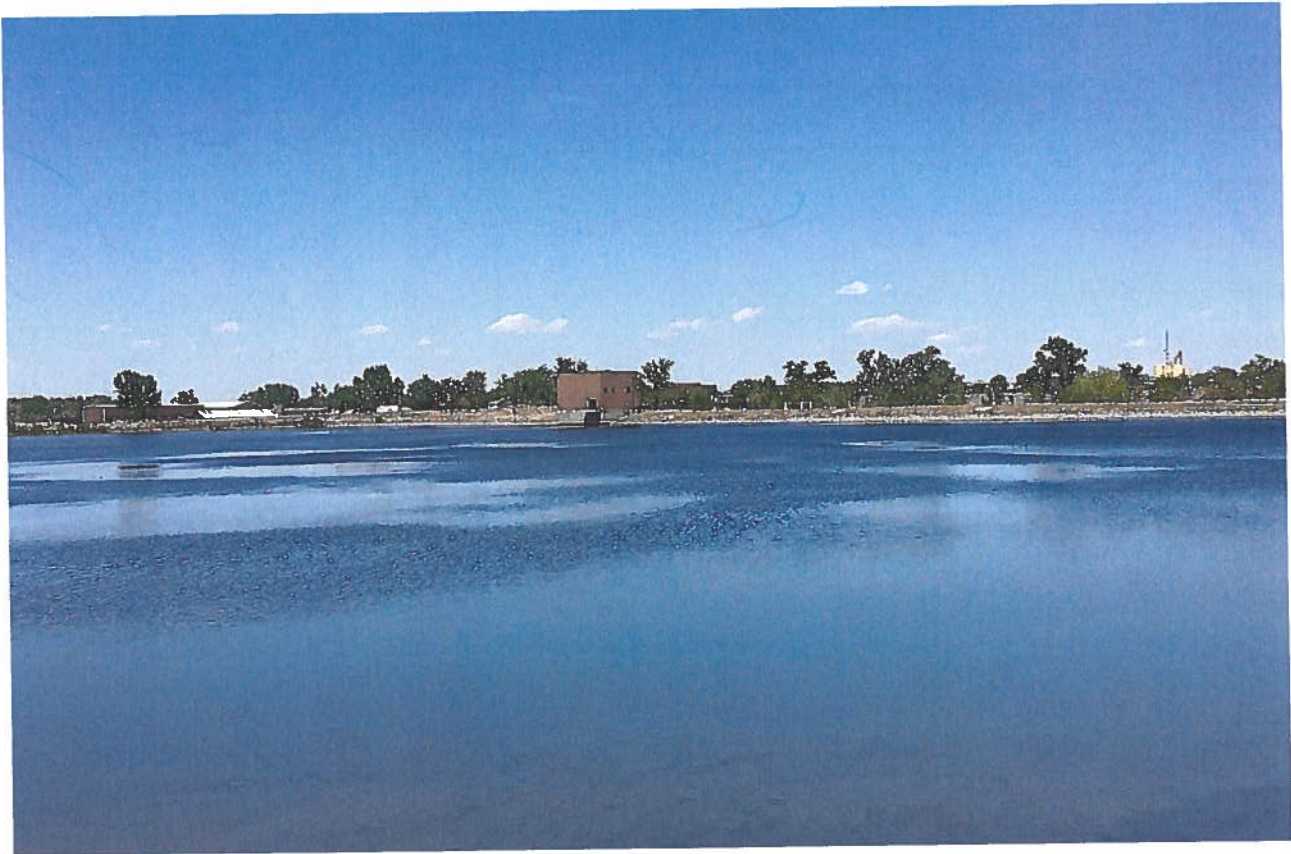
Inspection Contact Address

Wyatt Webster
Holcim - WCR, Inc.
1687 Cole Blvd., Suite 300
Golden, CO 80401

Enclosure: 2022 Thornton Reservoir Slope Assessment

CC: Jared Ebert, Senior EPS, DRMS

2022 Thornton Reservoir Slope Assessment



Prepared by:

Marc Storm Utility Supply Supervisor

8/25/2022

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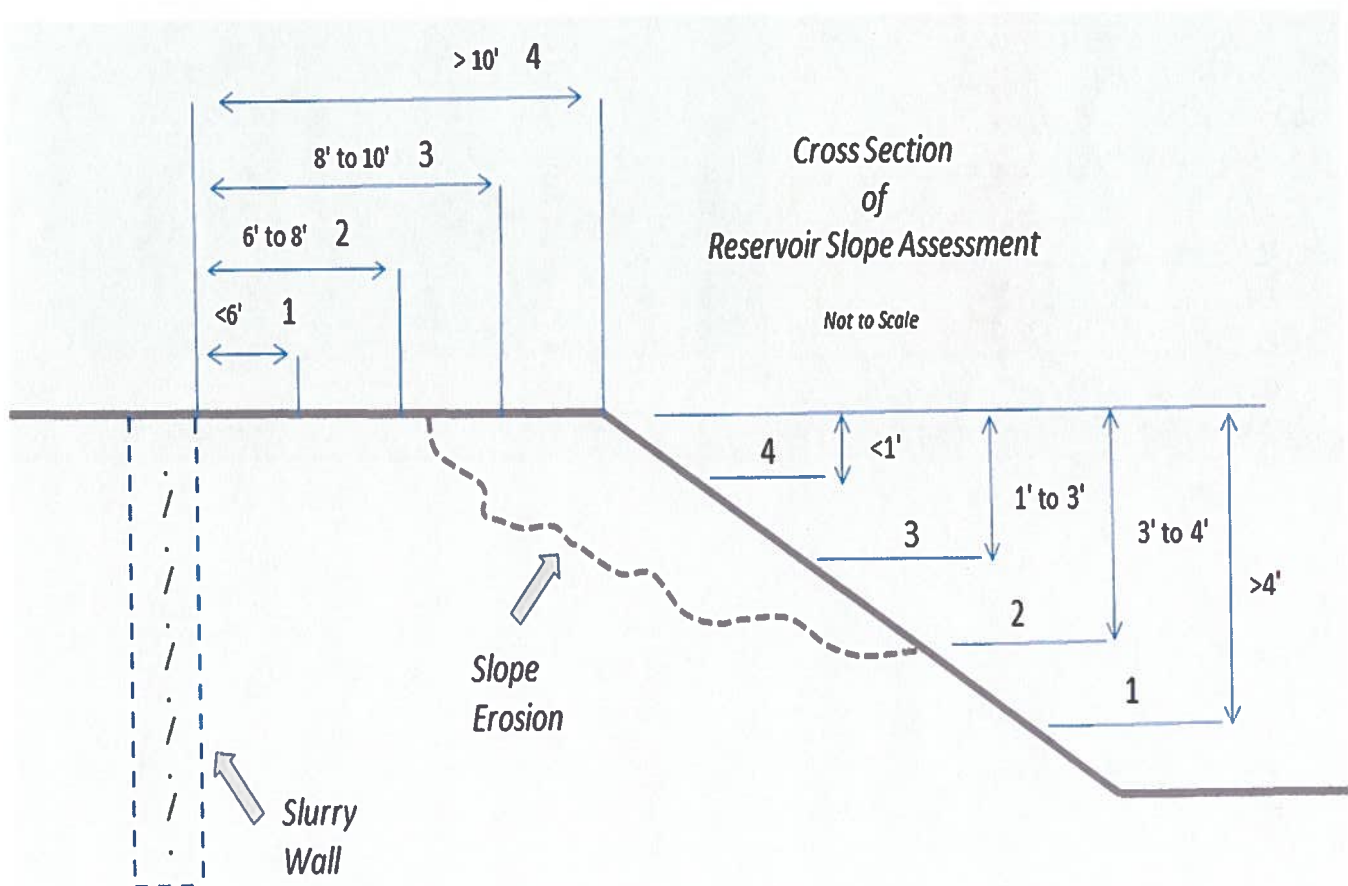
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Summary

Thornton Water Resources staff developed this report to document the slope conditions of its water storage reservoirs. The slope characteristics and criteria were developed by Thornton Water Resources staff. These guidelines were considered when assessing the conditions of the reservoir slopes:

Reservoir Shoreline and Slope Ratings

- 4: Poses a low risk to slurry wall and/or clay liner, roads, reservoir structures, or 3:1 slopes**
- 3: Poses a moderate risk to slurry wall and/or clay liner, roads, reservoir structures, or 3:1 reservoir slope**
- 2: Poses a high risk to slurry wall and/or clay liner, roads, reservoir structures, or 3:1 slopes**
- 1: On-going damage to slurry wall and/or clay liner, roads, reservoir structures, or 3:1 slopes**



2022 Thornton Reservoir Slope Assessment and Recommendations

In May 2022, Thornton Water Resources staff performed site visits at each of Thornton's reservoirs to observe and evaluate the conditions of the reservoir slopes. The table below outlines the current slope conditions of each Thornton reservoir:

	Slope Assessment Rating				
	(Unprotected slopes)			(Existing Rip Rap)	
	1	2	3	4	4
West Gravel Lake #1				2,902	732
West Gravel Lake #2				2,812	4,390
West Gravel Lake #3			448	2,348	2,442
South Tani					13,870
South Dahlia		2,632	3,482	6,115	5,347
East Gravel Lake #4			2,714		8,315
North Dahlia					9,224
East Sprat Platte			2,600	5,058	200
Cooley West (South Cell)		2,400	1,200	5,174	300
Cooley West (Middle Cell)		1,200	2000	7,784	200
Cooley West (North Cell)			775	6,175	2,100
Brannan Lake (East Cell)				2,823	565
Brannan Lake (West Cell)				2,525	
Hammer Pit		2,750		8,452	6,180
West Sprat Platte			3,719	3,786	300
Cooley East				9,235	350
Rogers Pit			2,170	7,285	2,370
Total (Linear Feet)	0	8,982	20,119	72,164	56,995

Linear feet

2022 Thornton Reservoir Slope Assessment and Recommendations

In May 2022, Thornton Water Resources staff performed site visits at each of Thornton's reservoirs to observe and evaluate the conditions of the reservoir slopes. The areas of concern have pictures and captions for severe slope damage and need for rip rap protection.

South Cooley Recommendation

1st Location:

During the 2022 slope assessment, Water Resources staff observed erosion to the eastern and southern slope of South Cooley. Approximately 2,400 linear feet of shoreline was assessed as High Risk. The most noticeable areas are from Southwest to northeast, by the spillway into Middle Cooley's. The reservoir is now taking in additional flows due to common flood stages. The rivers flood risk into the reservoir is more common and effects the shoreline more often than in the past years.



View of southwest corner to spillway severe bank erosion



View of southeast section from spillway on the south riverside to our boat ramp northeast corner

Middle Cooley Recommendation

2nd Location:

During the 2022 slope assessment, Water Resources staff observed erosion at Middle Cooley along the east section and south shoreline. Most noticeable shoreline erosion is from the spillway on the south, to the exit spillway northeast to river. There is approximately 1,500 linear feet of shoreline was assessed as Moderate Risk and approximately 2,100 linear feet of shoreline was assessed as High Risk. We encounter more flood stages from the river more often now, than is past years.



East side of Middle Cooley from spillway at the south to the exit to the river



Middle Cooley southeast corner needing rip rap

Location Map

Reservoir Details

- Capacity: 1,227 AF
- Date reservoir brought online: 2008
- Slurry wall

Rip Rap Details

- Spillway locations only 400 feet complete in 2020
- Slope rating: 4 Low Risk (Solid green line)

Unprotected Shoreline Details

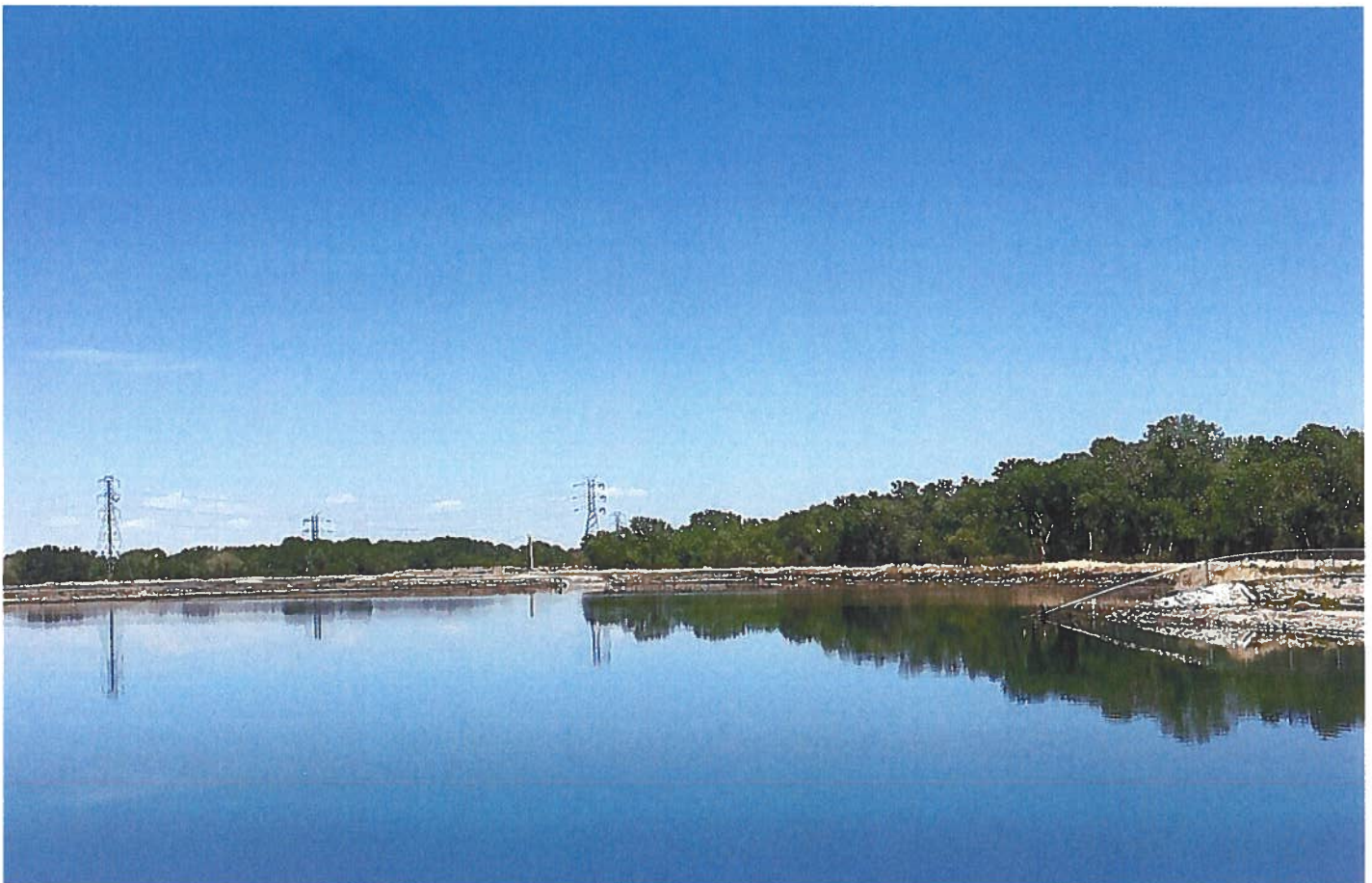
Thornton staff worked with the Federal Emergency Management Agency (FEMA), engineering firms, and eventually construction contractors to repair the damage. This work was complete in 2020.

- Slope Rating: 4 Low Risk (Solid green line) 1,574 feet
- Slope Rating: 3 moderate risk (solid yellow line) 1,200 feet
- Slope Rating: 2 High Risk (Solid orange line) 2,400 feet





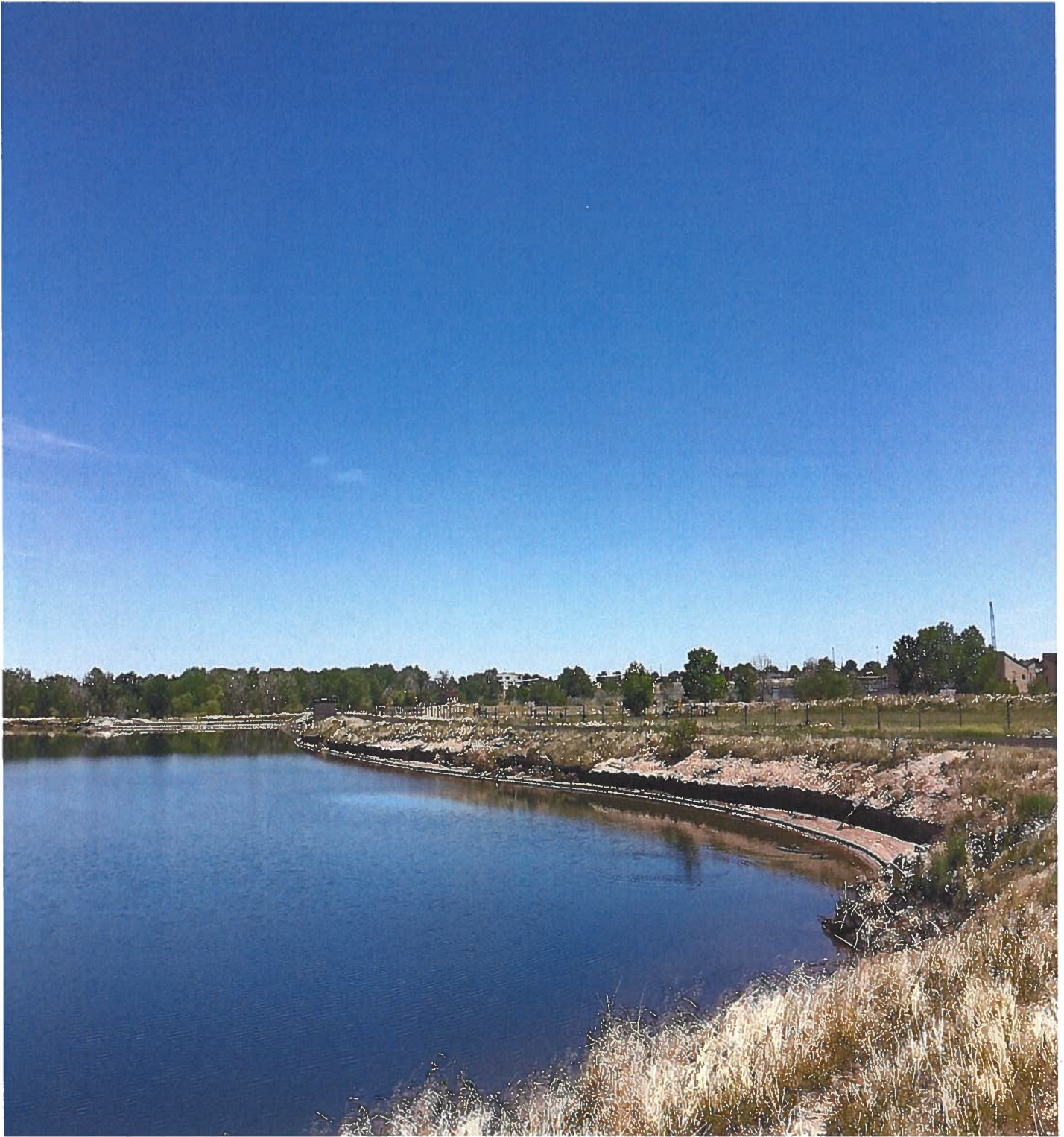
View of south and east shoreline, erosion of banks



View of spillway section along south end and eastern shoreline, with bank erosion



View of west banking, starting to show erosion



View of south shoreline to spillway with bank erosion

Cooley West South Cell

2022 Slope Assessment



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CITY OF THORNTON, COLORADO
12450 WASHINGTON STREET
THORNTON, COLORADO 80241-2409
(720) 577-6000
August 31, 2022

- Low risk shoreline not armored with rip rap (1,574 feet)
- High risk shoreline not armored with rip rap (2,400 feet)
- Shoreline not armored with rip rap (1,200 feet)

PROPOSED SHORELINE NOT TO SCALE
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Location Map

Reservoir Details

- Capacity: 1,340 AF
- Date reservoir brought online: 2008
- Slurry wall

Rip Rap Details:

- 400 feet protected at spillways complete in 2020

Unprotected Shoreline Details

Thornton staff worked with the Federal Emergency Management Agency (FEMA), engineering firms, and eventually construction contractors to repair the damage. This work was complete in 2020.

- Slope Rating: 4 Low Risk (Solid green line) 3,200 feet
- Slope Rating: 3 Moderate Risk (Solid yellow line) 2,000 feet
- Slope Rating: 2 High Risk (Solid orange line) 1,200 feet





View looking east on Middle Cooley, erosion starting at spillway back to southern shoreline



View looking to east from the west side of Middle Cooley



View looking west for the east side of Middle Cooley



View of east shoreline from south side of Middle Cooley with bank erosion

Cooley West Middle Cell 2022 Slope Assessment



CITY OF THORNTON, COLORADO

12450 WASHINGTON STREET
THORNTON, CO, COLORADO 80241-2405
(720) 977-6500

September 1, 2022

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any errors or omissions in this map or for any consequences arising
from its use. The City of Thornton is not responsible for any
damages or losses resulting from the use of this map.

- Low risk shoreline not armored with rip rap (4,584 feet)
- Moderate risk shoreline not armored with rip rap (2,000 feet)
- High risk shoreline not armored with rip rap (1,200 feet)



Cooley West (North Cell)

Reservoir Details

- Capacity: 1,715 AF
- Date reservoir brought online: 2008
- Slurry wall

Rip Rap Details

- 2,100 feet of the eastern shoreline is armored to the south
- Rip rap completed: 2013 and 2020
- Slope rating: 4 Low Risk (Dashed green line)

Unprotected Shoreline Details

Thornton staff worked with the Federal Emergency Management Agency (FEMA), engineering firms, and eventually construction contractors to repair the damage. This work was complete in 2020.

- Slope Rating: 3 Moderate Risk (Solid yellow line) 775 feet
- Slope Rating: 4 Low Risk (Solid green line) 3,735 feet

Location Map



View looking west from spillway at North Cooley



View looking to the north shoreline on North Cooley



View looking to the south shoreline on North Cooley, some erosion starting at end of rip rap

Cooley West North Cell 2022 Slope Assessment



CITY OF THORNTON, COLORADO

12450 WASHINGTON STREET
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(720) 977-8500
September 1, 2022

Map created by: [illegible]
City of Thornton, Colorado
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- Shoreline armored with rip rap (2,100 feet)
- Low risk shoreline not armored with rip rap (5,400 feet)
- Shoreline not armored with rip rap (775 feet)



