



Notice of Regular Meeting
Cherry Creek Basin Water Quality Authority
Board of Directors Meeting
Thursday, July 20, 2023 at 9:00 a.m.

The meeting will be conducted in-person and virtually as set forth below.

In-Person: SEMSWA
7437 S. Fairplay St.
Centennial, CO 80112

Virtual: Zoom
<https://us06web.zoom.us/j/87425775963> Passcode: CCBWQA
Phone (646)931-3860 Mtg ID 874 2577 5963# Passcode: #815374

CCBWQA Board of Directors Meeting Documents can be found online at the link below.

https://drive.google.com/drive/folders/1KqGcDC9eS_gMEdSiXPPPBGefAHTib7pf?usp=share_link

1. Call to Order and Pledge of Allegiance
2. Consent Agenda (5 minutes)
(Items on the consent agenda can be approved with a single motion or, items can be requested to be moved from the consent agenda and moved to the "discussion" or "direction and/or action" section.)
 - a. Approval of the June 15, 2023 Minutes (enclosed)
 - b. Acceptance of the Schedule of Cash Position Dated July, 2023 (enclosed)
 - c. Acceptance of the Paid Claims for June, 2023 (enclosed)
 - d. Approval of Unpaid Claims as of July, 2023 (enclosed)
3. Direction and/or Action (5 minutes)
 - a. Approval of Castle Pines Urban Renewal Authority Agreement (Flynn/Ruzzo, enclosed)
4. Discussion (20 minutes)
 - a. Updated Bylaws (Flynn, enclosed)
 - b. Lakeview Drive in Cherry Creek State Park Update (Ruzzo)
5. Presentations (45 minutes)
 - a. Presentation to the WQCC on CCBWQAs 2022 Annual Report on Activities (Clary)
 - b. Background Phosphorus in Cherry Creek Groundwater (Woodling)
 - c. June Storm Event and Monitoring/Reporting Implications (Stewart)
6. Board Member Items
7. Updates (25 minutes)
 - a. Technical Manager (Clary)
 - i. Site Specific Standards Update
 - ii. Watershed Plan Update
 - iii. Land Use Referral Requests
 - b. Cherry Creek Stewardship Partners Update and [Events](#) (Davenhill)
 - i. Cherry Creek Watershed Conference - August 24, 2023 at the Parker Arts, Culture, and Events Center
 - c. TAC (Erickson)
 - d. Contract Staff (see enclosed memos)
 - i. PAPM
 - a. CIP Status Report (Borchardt)
 - b. Maintenance and Operations Status Report (Goncalves)
 - ii. [Water Quality Update](#) (Stewart)
 - iii. Regulatory (DiToro)
 - iv. Land Use Referrals - [2023 Tracking](#) (Endyk)
 - e. Legal
 - f. Other - Reminder of Watershed Plan Process Workshop - September 21, 2023 8:30-11:30 am
8. Executive Session pursuant to Section 24-6-402(4) C.R.S., if necessary.
9. Adjournment



**Cherry Creek Basin Water Quality Authority
Minutes of the Board of Directors
Thursday, June 15, 2023 at 9:00 a.m.**

Board Members Present

Bill Ruzzo, Assistant Secretary, Governor's Appointee
Geoff Blue, City of Castle Pines - Alternate
Jessica LaPierre, City of Aurora - Alternate
John Woodling, Governor's Appointee
Luis Tovar, Special District Representative
Margaret Medellin, Governor's Appointee
Max Brooks, Town of Castle Rock
Mike Anderson, City of Lone Tree
Mike Sutherland, City of Centennial - Alternate
Roger Hudson, City of Castle Pines
Ryan Adrian, Douglas County - Alternate
Tom Downing, Governor's Appointee

TAC Members Present

Alex Mestdagh, Town of Parker (zoom)
Ashley Byerley, SEMSWA
Caitlin Gappa, Douglas County Health Department (zoom)
Casey Davenhill, Board Appointee, Cherry Creek Stewardship Partners
David Van Dellen, Town of Castle Rock
Jacob James, City of Lone Tree (zoom)
James Linden, SEMSWA - Alternate (zoom)
Jeremiah Unger, CDOT (zoom)
Lisa Knerr, TAC Vice Chair, Arapahoe County (zoom)
Marty Easter, Arapahoe County Public Health - Alternate (zoom)
Rick Goncalves, Board Appointee
Steve Chevalier, Arapahoe County Public Health (zoom)

Others Present

Alan Leak, RESPEC
Dan Olson, SEMSWA
Erin Stewart, LRE Water
Jane Clary, Wright Water Engineers, CCBWQA Technical Manager
Lisa Pastore, Fiscal Focus Partners (zoom)
Mike Prado, CDOT
Richard Borchardt, R2R Engineers
Tim Flynn, Collins Cole Flynn Winn & Ulmer, PLLC (zoom)
Val Endyk, CCBWQA

1. Call to Order and Pledge of Allegiance

Director Ruzzo called the meeting to order at 9:01 am and led in the pledge of allegiance.

2. Consent Agenda

- a. **Approval of the May 18, 2023 Minutes**
- b. **Acceptance of the Schedule of Cash Position dated June, 2023**
- c. **Acceptance of the Paid Claims for May, 2023**
- d. **Approval of Unpaid Claims as of June, 2023**
- e. **Authorization of IGA Amendment for Cherry Creek at Arapahoe Road**

Director Ruzzo moved agenda item 2d from Consent Agenda to Direction and/or Action for the purpose of discussing the Ingersoll Rand invoice.

Director Downing moved to approve the consent agenda as amended. Seconded by Director Medellin. The motion carried.

3. Direction and/or Action

- a. **Approval of Unpaid Claims as of June, 2023 (*Moved from Consent Agenda*)**

Director Ruzzo recommended to pull the Ingersoll Rand invoice listed on the Unpaid Claims and postpone until the July Board meeting where Rick Goncalves and Bill Ruzzo will report to the Board on the RDS piping repair warranty questions raised at the May Board meeting.

Director Brooks moved to approve the Unpaid Claims as amended. Seconded by Director Blue. The motion carried.

- b. **Presentation and Acceptance of 2022 Audit**

Lisa Pastore with Fiscal Focus Partners presented the [2022 Audit](#) and [Representation Letter](#).

Legal counsel for the Authority noted that the 2022 Audit contains the auditor's opinion that the Authority's 2022 financial statements represent the financial condition of the Authority in all material respects and is accepted by the Board. Fiscal Focus Partners will file the 2022 Audit with the State Auditor's Office.

Director Anderson moved to accept the 2022 Audit. Seconded by Director Sutherland. The motion carried.

4. Presentations

- a. **MS4 Annual Report**

Ashley Byerley presented the [2022 MS4 Annual Report](#).

Mike Prado with CDOT reported on the Water Quality Swale Infiltration Study within the Cherry Creek Basin.

- b. **Emerging Technologies in Nutrient Remediation and Colorado Watershed Projects**

Erin Stewart provided a presentation on [emerging technologies in nutrient remediation](#) which included updates on projects in the Bear Creek Watershed and the City of Denver's efforts in Sloan's Lake. The presentation highlighted EutroSORB (Lanthanum) applications for possible consideration by the Board for future Authority projects that may benefit from these emerging technologies.

- Jane Clary reported on the ongoing BMP Effectiveness study related to traditional methods of nutrient removal.
- The Annual Watershed Conference will highlight phosphorus reduction activities in "sister" watersheds.

5. Board Member Items

Director Ruzzo updated the Board that Director Downing and Director Hatami are up for reappointment and Director Woodling who has served two full terms will be seeking a third term.

6. Updates (25 minutes)

- a. **Technical Manager (Clary)**

- i. **Partners Field Trip to Cherry Creek and Piney Creek**

Jane updated the Board on the successful site visit to Cherry Creek and Piney Creek with potential funding partners for stream restoration projects identified in the Muller study. The site visit was well attended and participants engaged with good questions to Muller and project manager, Rich Borchardt.

Jane updated the Board that the Authority will continue communications with CPW on restoration projects within Cherry Creek State Park after the May flood event.

ii. Watershed Model

The Modeling Subcommittee has conducted two productive meetings. Next steps include Alan Leak from RESPEC running potential models after additional input related to treatment technologies from WWTPs (particularly for nitrogen) and reporting back to the Subcommittee. Future updates on the Watershed Model will be provided to the Board when available.

iii. Site-specific Standards

Jane Clary updated the Board that Christine Hawley (Hydros) has begun working on a site-specific standards evaluation for the reservoir using our Cherry Creek data.

b. Cherry Creek Stewardship Partners Update and [Events](#) (Davenhill)

i. Cherry Creek Watershed Conference - August 24, 2023 at the Parker Arts, Culture, and Events Center

Casey provided an update to the Board on the planning efforts for the Annual Conference and highlighted upcoming events.

Casey is working to help update the Water Quality Brochure distributed at Cherry Creek State Park.

c. TAC (Clary)

As a result of the US Supreme Court's ruling in Sackett vs. EPA in May 2023, CDPHE prepared a "[gap waters](#)" [policy](#) (CW-17 Enforcement of Unpermitted Dischargers of Dredge and Fill Materials into State Waters). There was a short two-week window for comment, which did not provide adequate time for CCBWQA to provide comment. Jane noted that several TAC members submitted comments on behalf of their organizations. The Board requested the TAC to report further details on the gap waters policy at a future meeting. (Note: following the meeting, a [Google Drive Folder](#) was created to provide this information to Board and TAC members.)

d. Contract Staff (see enclosed memos)

i. PAPM

a. [CIP Status Report](#) (Borchardt)

b. [Maintenance and Operations Status Report](#) (Goncalves)

ii. [Water Quality Update](#) and [Memo](#) (Stewart)

Erin provided a brief update on the recent water quality in the watershed and Cherry Creek Reservoir. The repairs to the sites from the May flood will hopefully be completed by the end of the month, pending lower water levels at CC-10 for installation of the instream equipment.

iii. Regulatory (Clary)

Jessica DiToro attended the first Reg 72 Stakeholder meeting. Jane Clary will attend the meeting in August.

iv. Land Use Referrals - [2023 Tracking](#) (Endyk)

e. Legal

Updated Bylaws will be on the July agenda, following the May Board discussion.

f. Other - Reminder: Watershed Plan Process Workshop - September 21, 2023 8:30-11:30 am

7. Executive Session pursuant to Section 24-6-402(4) C.R.S., if necessary.

8. Adjournment

There being no further business to come before the Board, Director Ruzzo adjourned the meeting at 10:27 am.

[Board Binder](#)

Cherry Creek Basin Water Quality Authority
Schedule of Cash Position
June 30, 2023
as of July 13, 2023

	General Fund	Pollution Abatement Fund	Enterprise Fund	Total
<u>1st Bank - Checking Account</u>				
Balance as of 06/30/23	\$ 31,714.31	\$ 26,954.61	\$ 5,813.09	\$ 64,482.01
Subsequent activities:				
07/13/23 VISA Charges to date	(370.75)	-	-	(370.75)
<i>Anticipated Activities</i>				
<i>Transfer from ColoTrust for bills</i>	41,000.00	156,000.00	17,000.00	214,000.00
<i>Bill.com open claims</i>	(44,756.18)	(145,687.19)	(16,833.53)	(207,276.90)
<i>July XCEL ACH</i>	-	(10,781.06)	-	(10,781.06)
<i>July Verizon ACH</i>	(51.45)	-	-	(51.45)
<i>Anticipated balance</i>	<u>\$ 27,587.38</u>	<u>\$ 26,486.36</u>	<u>\$ 5,979.56</u>	<u>\$ 60,053.30</u>
<u>ColoTrust General - (8001)</u>				
Balance as of 06/30/23	\$ 1,173,938.66	\$ 2,707,863.00	\$ 1,536,647.36	\$ 5,418,449.02
Subsequent activities:				
07/10/23 Ptax Arapahoe Cty (Jun)	307,887.72	-	-	307,887.72
07/10/23 Ptax Douglas Cty (Jun)	469,808.77	-	-	469,808.77
07/13/23 Deposits Dev Checks (as of date)	-	-	42,164.00	42,164.00
<i>Anticipated Activities</i>				
<i>Monthly Transfer for AP</i>	(41,000.00)	(156,000.00)	(17,000.00)	(214,000.00)
<i>Anticipated balance</i>	<u>\$ 1,910,635.15</u>	<u>\$ 2,551,863.00</u>	<u>\$ 1,561,811.36</u>	<u>\$ 6,024,309.51</u>
<u>ColoTrust Pollution Abatement - (8002)</u>				
Balance as of 06/30/23	\$ -	\$ 55,745.02	\$ -	\$ 55,745.02
<i>Anticipated balance</i>	<u>\$ -</u>	<u>\$ 55,745.02</u>	<u>\$ -</u>	<u>\$ 55,745.02</u>
<u>CSAFE - Savings Account</u>				
Balance as of 06/30/23	\$ 859,161.30	\$ 42,246.04	\$ 386,563.24	\$ 1,287,970.58
<i>Anticipated balance</i>	<u>\$ 859,161.30</u>	<u>\$ 42,246.04</u>	<u>\$ 386,563.24</u>	<u>\$ 1,287,970.58</u>
Total funds available as of date above	<u><u>\$ 2,797,383.83</u></u>	<u><u>\$ 2,676,340.42</u></u>	<u><u>\$ 1,954,354.16</u></u>	<u><u>\$ 7,428,078.41</u></u>

Effective monthly yield (as of 6/30/2023)

1st Bank - 0.100%* if Balance >\$20,000
ColoTrust Plus - 5.2484%
CSAFE - 5.14%

**Cherry Creek Basin Water Quality Authority
Paid Claim June 8, 2023 through July 13, 2023**

Process Date	Vendor	Invoice Number	Payment Reference	Amount
6/21/2023	CliftonLarsonAllen LLP	3760747	P23062001 - 3009033	5,053.68
6/21/2023	Colorado Community Media	86294	P23062001 - 3009026	46.80
6/21/2023	LRE Water	23085	P23062001 - 3009028	39,139.09
6/21/2023	Pinpoint Systems Inc.	9971	P23062001 - 3009036	453.75
6/21/2023	R2R Engineers, Inc.	2023-05	P23062001 - 3009038	18,766.23
6/21/2023	RESPEC	INV-0423-1323	P23062001 - 3009017	505.00
6/21/2023	RESPEC	INV-0423-1324	P23062001 - 3009017	225.00
6/21/2023	RG and Associates LLC	153192	P23062001 - 3009040	2,186.25
6/21/2023	Valerie Endyk	17	P23062001 - 3009030	5,718.75
6/21/2023	Wright Water Engineers, Inc.	66796	P23062001 - 3009022	3,044.05
6/21/2023	Wright Water Engineers, Inc.	66847	P23062001 - 3009022	14,902.25
6/21/2023	Wright Water Engineers, Inc.	66848	P23062001 - 3009022	1,895.25
			Subtotal	\$ 91,936.10
Other Payments				
6/16/2023	Jason's Deli		Visa	100.05
6/27/2023	Verizon		ACH	51.45
6/28/2023	Xcel Energy		ACH	7,772.53
7/3/2023	Get Streamline.com Website		Visa	200.00
7/7/2023	Zoom		Visa	160.02
7/12/2023	Alpine Trophies		Visa	10.73
			Subtotal	\$ 8,294.78
			Total Payments	\$ 100,230.88

**Cherry Creek Basin Water Quality Authority
Unpaid Claims as of 07/13/23**

Date	Vendor*	Invoice #	Account Description	Amount
7/6/2023	*Xcel Energy	835287244	117701 - Utilities - Reservoir Destratification	10,781.06
5/31/2023	Collins Cole Flynn Winn & Ulmer, PLLC	3637	107460 - Legal services	7,059.00
5/31/2023	Hydros Consulting Inc.	547-003	117440 - Management/administration	7,898.60
6/30/2023	Hydros Consulting Inc.	547-004	117440 - Management/administration	9,013.40
5/31/2023	Ingersoll-Rand Company	31061957	117702 - O&M - Reservoir Destratification	3,657.49
6/25/2023	LRE Water	23379	107999 - General Fund Accounts	29,612.18
7/12/2023	Mile High Flood District	INV02944	117886 - Happy Canyon: Jordan to Broncos Pkwy	88,000.00
5/20/2023	Muller Engineering Company	36594	117869 - Stream reclamation - Reservoir to LV Road	2,509.50
6/20/2023	Muller Engineering Company	36632	117869 - Stream reclamation - Reservoir to LV Road	7,044.00
6/30/2023	Pinpoint Systems Inc.	9996	107481 - Office expense	258.75
6/30/2023	R2R Engineers, Inc.	2023-06	107440 - Management/administration	3,510.00
6/30/2023	R2R Engineers, Inc.	2023-06	117440 - Management/administration	10,710.97
5/31/2023	RESPEC	INV-0523-1224	117728 - Reservoir Shoreline Stabilization - East Shade Shelter	1,036.25
5/31/2023	RESPEC	INV-0523-1225	117440 - Management/administration	1,022.98
6/30/2023	RG and Associates LLC	153266	107445 - TAC coordination	1,278.75
6/30/2023	RG and Associates LLC	153266	117999 - PA Fund Accounts	2,640.00
6/29/2023	Teledyne Isco	S020610308	407355 - Equipment	11,144.03
6/25/2023	Valerie Endyk	18	107010 - Administrative Assistant	3,037.50
6/30/2023	Wright Water Engineers, Inc.	67121	117999 - PA Fund Accounts	12,154.00
6/30/2023	Wright Water Engineers, Inc.	67122	407736 - Special Studies/Projects: BMP Effectiveness	5,689.50
Total Claims				<u>\$ 218,057.96</u>
				General Fund \$ 44,756.18
				Pollution Abatement Fund 156,468.25
				Enterprise Fund 16,833.53
Total Claims by Funding Source				<u>\$ 218,057.96</u>

* by vendor

Memorandum

William P. Ruzzo, PE, LLC
6641 West Hamilton Drive,
Lakewood, Colorado 80227
(303) 589.5358
bill.ruzzo@comcast.net

To: Timothy Flynn, Esq. Attorney, CCBWQA
CC: Jane Clary, Technical Manager, CCBWQA
From: William P. Ruzzo, Board Member, CCBWQA
Date: July 10, 2023
Re: Analysis of the Castle Pines West Commercial District URA

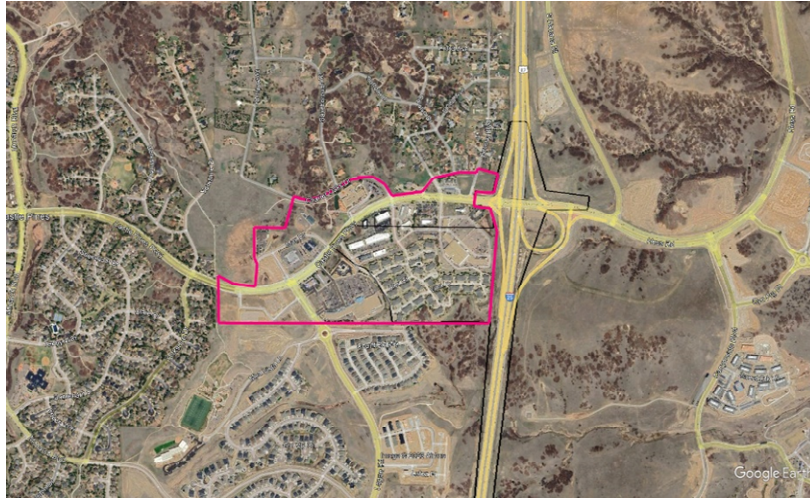
The Cherry Creek Basins Water Quality Authority (Authority) received a notice of proposed Castle Pines West Commercial District Urban Renewal Plan (URA project) and proposed tax increment financing agreement on June 1, 2023. The urban renewal authority requested the Authority approve the financing agreement which would, among other requirements, defer incremental property taxes for the plan life of 25-years. This memorandum addresses potential cost and phosphorus loading implications to the Authority if the financing agreement is approved.

Calculations were performed to estimate the impacts of the URA project relative to the potential loss of tax revenues. Redevelopment of the project area will increase imperviousness and therefore increase total phosphorus (TP) in runoff from the project which can have long term cost implications to the Authority.

Unless the increase in TP is mitigated by implementation of stormwater control measures (SCM or BMP) in accordance with Regulation No. 72, then the increase in TP would mean additional nutrient loads to Cherry Creek Reservoir. The Authority's statutory requirement is to preserve and protect water quality in the Reservoir through implementation of Pollutant Reduction Facilities (PRF) to reduce nutrient loads to the Reservoir, which are funded in part through property taxes. Deferring tax revenues from the URA project may impact the Authority's ability to design, construct and maintain future PRFs to reduce nutrient loads to the Reservoir.

Project Area: The CP URA project boundary is shown in the figure below. The URA project boundary was determined by tracing the URA boundary information from the Castle Pines community website. Note that the area as determined by Google Earth within the boundary polygon is about 121-acres, whereas information provided to the Authority by the CP URA suggest the area is 133-acres¹. Regardless of the correct URA area, the conclusions of the analysis herein are the same.

¹ Ricker Cunningham, April 2023. *Castle Pines West Commercial District Urban Renewal Plan*. Draft. 35-pages.



CALCULATIONS

Calculations to determine storm runoff volumes and TP loads were made using Excel spreadsheet, attached to this memorandum. Calculations performed for each worksheet are described below.

Existing Development. Using Google Earth (GE) aerial, the URA project was divided into similar land use area and the area determined using GE polygons. An estimate of the percent imperviousness for each sub area was made by comparing the land use from the aerial photography to the land use categories described in Table 6-3 in the MHFD Urban Storm Drainage Criteria Manual, Volume 1.

The imperviousness of the existing development is approximately 54%.

Future Development. Information regarding the land use for future development was provided to the Authority in a letter dated June 1, 2023². Future land use information was provided in terms of building gross area for grocery/retail, retail/service, and office employment. Hotel information was provided as number of rooms where residential information consisted of the number of lots. Castle Pines Parkway and Lagae Road were assumed to remain essentially as currently exists and was referred to as Major Roads.

To translate the building square footage, the number of hotel rooms, and residential lots to future land use areas, similar land uses nearby were evaluated and used to convert given information to project area in acres, as described in the calculations.

The imperviousness of the future URA project is estimated to be 61%.

² City of Castle Pines, June 1, 2023. Re: *Notice of Proposed Castle Pines West Commercial District Urban Renewal Plan and Proposed Tax Increment Financing Agreement. Draft*, 15-pages.

Pollutant Loads. The final calculation steps consisted of determining annual storm runoff volume and TP loads from existing and future development and comparing the results.

Storm runoff volume is approximated by multiplying land use area (ac) times 2-year runoff coefficient³ times mean annual precipitation (1-hour storm with a 1-year return period⁴, feet). TP loads are determined by multiplying storm runoff volume times event mean concentration (EMC, mg/L) of TP for each major land use category (i.e.: industrial, commercial, residential, undeveloped) times a conversion factor for mg/L/AF to pounds. Since each land use has a different EMC, an area-weighted average EMC was determined and used in the calculation of phosphorus loads from future development.

Since the EMC values are based on minimal or no on-site BMPs in place for the specific land use, it was assumed that other stormwater management controls were in place for both existing and future land use conditions. Since the existing development is more than 20-years old⁵, an extended detention basin was assumed to be constructed that could reduce TP loads by 25% annually. For future development, more sophisticated BMPs are required by Regulation No. 72, such as full-spectrum detention basin with water quality capture volume (WQCV) that can reduce TP loads by 50%.

The calculations show that, under full future development that complies with Regulation No. 72 could reduce TP loads when compared to existing development conditions.

DISCUSSION OF FINDINGS

Calculations show that under the future URA development scenario, TP loads would be no greater than and possibly lower than TP loads from the existing development scenario. This result is primarily due to the requirement to implement stormwater control measures (SCM, BMP) that comply with Regulation No. 72, even though future development would have more (7%) impervious surfaces.

Therefore, deferment of incremental property taxes from the URA project would likely not create a financial burden on the Authority, since funding of future PRFs to mitigate for future TP loads from the URA project would not be required by CCBWQA because TP loads would be reduced over existing conditions at the URA site.

Redevelopment projects such as the URA project that substantially alter older developments and comply with Regulation No. 72 requirements (i.e.: retrofits to current standards) may be a viable watershed-wide option to reduce TP loads (and nutrients in general) from the watershed that are discharged to Cherry Creek Reservoir.

³ The Rational Method 2-year runoff coefficient approximates the amount of annual precipitation that results in runoff and varies with impervious area (%).

⁴ Mean annual storm for the CP URA determined from NOAA Atlas 14 using the nearest gage at Franktown.

⁵ 1999 GE image shows the site to be under development

CALCULATIONS, SHEET 1 OF 3

CHERRY CREEK BASIN WATER QUALITY AUTHORITY				
ESTIMATE OF TOTAL PHOSPHORUS CHANGE				
CASTLE PINES URBAN RENEWAL AUTHORITY				
Estimate of Existing Imperviousness				
Area	Description	Area (ac)	% IMP	Imp Area (ac)
OS-01	Open or undeveloped	4.7	2	0.09
OS-02	Open or undeveloped	2.9	2	0.06
OS-03	Open or undeveloped	6.7	2	0.13
OS-04	Open or undeveloped	2.0	2	0.04
OS-05	Open or undeveloped	9.0	2	0.18
OS-06	Open or undeveloped	1.7	2	0.03
OS-07	Open or undeveloped	3.5	2	0.07
Area 01	Commercial/Business	12.1	85	10.29
Area 02	School/Business	7.2	75	5.40
Area 03	School	5.4	70	3.78
Area 04	Commercial/Business	26.9	75	20.18
Area 05	Residential, HD	21.0	65	13.65
Area 06	Commercial/Business	1.3	70	0.91
Area 07	Major Roads	10.4	100	10.40
Totals		114.8		65.2
Adjust.		6.2	5	0.31
Adjusted total		121.0		65.5
Existing Imperviousness		54%		

CALCULATIONS SHEET 2 OF 3

CHERRY CREEK BASIN WATER QUALITY AUTHORITY						
ESTIMATE OF TOTAL PHOSPHORUS CHANGE						
CASTLE PINES URBAN RENEWAL AUTHORITY						
Estimate of Future Imperviousness						
		Year 2047				
Area	Description	Value	Gross Area	% Total Area	% Imp	Imp Area
			(ac)			(ac)
1	Grocery Retail (sf)	86000	7.7	6.2%	85	6.6
2	Retail/Service (sf)	200000	15.0	12.1%	85	12.7
3	Office/Employment (sf)	200000	3.7	3.0%	80	3.0
4	Hotel (rooms)	150	9.9	8.0%	85	8.4
5	Residential (lots)	300	77.1	62.3%	45	34.7
	Major Roads		10.4	8.4%	100	10.4
	Total		123.9	100%		75.8
Future Imperviousness		61%				
Grocery Retail - Existing King Soopers area						
	Building A (sf) =	100000				
	Gross Area (ac) =	9.0				
	Gross Area/Bldg A (ac/sf) =	0.0900				
Retail/Service - Existing restaurant (Dukes, Pino's, Bundt)						
	Building A (sf) =	62850				
	Gross Area (ac) =	4.7				
	Gross Area/Bldg A (ac/1000 sf) =	0.0748				
Office/Employment (assume similar to Retail but with multiple floors)						
	Number of floors =	4.0				
	Building A (sf) =	251400				
	Gross Area (ac) =	4.7				
	Gross Area/Bldg A (ac/1000 sf) =	0.0187				
Hotel Town Plaza Mariot example						
	Number of floors =	4				
	Number of rooms =	52				
	Building A (sf) =	20000				
	Gross Area (ac) =	3.43				
	Gross Area/Bldg A (ac/1000 sf) =	0.172				
Residential Green Valley Circle Area						
	Lot size (ac) =	0.25				
	Gross Area (ac) =	18				
	# Lots =	70				
	Lots/ac =	3.9				

**AGREEMENT REGARDING CASTLE PINES URBAN RENEWAL AUTHORITY
TAX INCREMENT FINANCING**

This **AGREEMENT REGARDING CASTLE PINES URBAN RENEWAL AUTHORITY TAX INCREMENT FINANCING** (the “Agreement”) by and between the **CASTLE PINES URBAN RENEWAL AUTHORITY** (“CPURA”), an urban renewal authority and body corporate and politic of the State of Colorado, and the **CHERRY CREEK BASIN WATER QUALITY AUTHORITY**, a quasi-municipal corporation and political subdivision of the State of Colorado (the “District”), (each party individually referred to herein as a “Party” and collectively referred to herein as the “Parties”).

RECITALS

WHEREAS, pursuant to the Colorado Urban Renewal Law, Section 31-25-101, et seq., C.R.S. (the “Act”), the City Council of the City formed CPURA by Resolution No. 23-26; and

WHEREAS, pursuant to the Act, the City Council of the City is considering adoption of an urban renewal plan (the “Plan”) to carry out urban renewal projects within the Urban Renewal Plan Area (“Plan Area”) described with particularity in the Plan; and

WHEREAS, the District is a taxing entity whose boundary includes real property within the Plan Area, which real property is shown in **EXHIBIT A**, which is attached hereto and incorporated herein; and

WHEREAS, the Act authorizes and the Plan will provide for the use of tax increment financing by CPURA to assist with the development of projects pursuant to the Plan; and

WHEREAS, C.R.S. § 31-25-107(9.5) requires that CPURA and the District enter into an agreement regarding the sharing of incremental property tax revenue; and

WHEREAS, the Parties recognize that this Agreement satisfies the requirements of C.R.S. § 31-25-107(9.5).

AGREEMENT

NOW THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein, the mutual covenants and promises set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Incorporation of Recitals. The foregoing recitals are incorporated into and made a part of this Agreement.
2. District Mill Levy Allocation. The District agrees that CPURA may retain all incremental property tax revenues generated in the Plan Area solely as a result of the levy of the District’s mill levy upon taxable property within the Plan Area.

3. Term, Termination. The term of this Agreement shall commence on the date of mutual execution of this Agreement by the Parties, and shall run for a term of twenty-five (25) years following the formal adoption of the Plan unless terminated earlier due to the abolishment of CPURA or termination of the Plan. This Agreement may be terminated at any time upon the mutual written agreement of the Parties.

4. Modification. This Agreement may not be amended, modified, or changed, in whole or in part, without a written agreement executed by the Parties.

5. Assignment. No Party shall assign this Agreement or any interest hereunder in whole or in part, without the prior written consent of each of the other Parties. Any assignment attempted without the prior written consent of all Parties hereto, which consent shall not be unreasonably withheld, shall be deemed void, and of no force or effect. Consent to one assignment shall not be deemed to be consent to any subsequent assignment nor the waiver of any right to consent to such subsequent assignment. Notwithstanding the foregoing, this Agreement may be assigned to the successor entity of the District or to the District's constituent entities.

6. Notices. Any notices or other communications required or permitted by this Agreement or by law to be served on, given to or delivered to any Party hereto, by any other Party shall be in writing and shall be deemed duly served, given or delivered when personally delivered to the Party to whom it is addressed or in lieu of such personal service, upon receipt in the United States mail, first-class postage prepaid, addressed as follows:

To the District:

Cherry Creek Basin Water Quality Authority
Attn: Chair
P.O. Box 3166
Centennial, CO 80161

With a copy to:

Collins Cole Flynn Winn & Ulmer PLLC
Attn: Timothy J. Flynn
165 S. Union Blvd., Suite 785
Lakewood, CO 80228

To CPURA:

City of Castle Pines
Castle Pines URA
360 Village Square Lane, Suite B
Castle Pines, CO 80108

With a copy to:

Michow, Cox & McAskin, LLP
Attn: Linda C. Michow
6530 S. Yosemite St., Suite 200
Greenwood Village, Colorado 80111

Any Party may change its address for the purpose of this Paragraph by giving written notice of such change to the other Parties in the manner provided in this Paragraph.

7. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and together shall constitute one and the same instrument.

8. Binding Agreement. This Agreement shall inure to and be binding on the administrator, successors, and permitted assigns of the Parties hereto.

9. Entire Agreement. This Agreement constitutes the complete and exclusive statement of the agreement of the Parties with respect to the subject matter of this Agreement and supersedes all prior oral and written proposals, negotiations, representations, promises, agreements, warranties or understandings concerning such subject matter.

10. Severability. If any provision of this Agreement is determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Agreement shall nonetheless remain in full force and effect.

11. Governmental Immunity. Nothing in this Agreement shall be construed as a waiver of the rights and privileges of the Parties pursuant to the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S., as the same may be amended from time to time.

12. Authority to Enter Into Agreement. Each Party hereby confirms it is lawfully authorized to enter into this Agreement, has received legal counsel and advice as to the legal effect of this Agreement, and has taken all steps necessary to authorize the execution of the Agreement by the respective signatories below.

[The remainder of this page is left intentionally blank. Signature page follows.]

IN WITNESS WHEREOF, the Parties hereto have duly executed this Agreement as of the day and year first above written.

**CASTLE PINES URBAN RENEWAL
AUTHORITY**, an urban renewal authority and
body corporate and politic of the State of Colorado:

Tracy Engerman, Chairperson

ATTEST:

By: _____

Its: _____

Approved as to form:

CPURA Counsel

**CHERRY CREEK BASIN WATER QUALITY
AUTHORITY**, a quasi-municipal corporation and
political subdivision of the State of Colorado

By: _____
Joshua Rivero, Chair

ATTEST:

John McCarty, Secretary

Approved as to form:

Timothy J. Flynn, General Counsel for
Cherry Creek Basin Water Quality Authority

EXHIBIT A
DISTRICT BOUNDARY

**RESTATED AND AMENDED BYLAWS
(REVISED APRIL 15, 2010 AND JULY 21, 2011)
OF THE
CHERRY CREEK BASIN WATER QUALITY AUTHORITY**

**ARTICLE I.
STATEMENT OF PURPOSE**

The statutory purpose and focus of the Cherry Creek Basin Water Quality Authority (“Authority”) is to improve, protect and preserve the water quality of Cherry Creek and the Cherry Creek Reservoir, and as enumerated in Section 25-8.5-101 et seq., C.R.S., as amended, to:

1. Exist for the public benefit and advantage of the people of the State of Colorado;
2. Benefit the inhabitants and landowners within the boundaries of the Authority by preserving water quality in Cherry Creek and Cherry Creek Reservoir;
3. Benefit the people of the State of Colorado by preserving waters for recreation, fisheries, water supplies, and other beneficial uses;
4. Promote the health, safety and welfare of the people of the State of Colorado;
5. Provide for effective efforts by the various counties, municipalities, special districts, and landowners within the boundary of the Authority in the protection of water quality; and
6. Provide that new development and construction pay its equitable proportion of the cost for water quality preservation and facilities.

**ARTICLE II.
MEMBERSHIP OF AUTHORITY**

The Members of the Authority shall consist of the following -entities and individuals:

A. Entity Members.

1. **County Members.** Each county that has property within the Authority’s boundaries; and
2. **Municipal Members.** Each municipality that has property within the Authority’s boundaries; and

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3. **Special District Member.** There shall be one ~~special-district~~**Special District** Member which shall be designated by all of the special districts organized pursuant to Article I of Title 32 C.R.S. which include in their service areas property within the Cherry Creek Basin and that own and operate wastewater treatment service facilities in the Cherry Creek Basin. For purposes of this Article II, wastewater treatment facilities shall mean a wastewater treatment facility with a design capacity to receive and treat more than two thousand gallons of sewage per day.

B. Individual Members. The Authority shall have seven Individual Members who shall be appointed by the Governor to represent ~~sportspersons~~**sportspersons** or recreational organizations that have members that use the reservoir. A minimum of two of these appointees shall be from bona fide citizen or environmental organizations interested in preserving water quality with members who use the reservoir or live within the Cherry Creek Basin, as provided in Section 25-8.5-105(1)(d), C.R.S., as amended.

C. Ex-Officio Members. Every soil conservation district of which more than two thirds of its territory is included within the Authority's boundaries shall be an ex-officio member of the Authority. The Authority reserves the right to designate or to remove, from time to time, as an ex-officio member of the Authority any nonprofit public interest group or association having an interest in the Cherry Creek Basin and any governmental or quasi-governmental agency, as provided in Section 25-8.5-108(1)(b) C.R.S. Ex-officio members shall be non-voting members of the Authority and shall not be entitled to designate a representative to sit on the Authority's Board of Directors. Ex-officio members shall be provided notice of Authority meetings and may appoint a liaison to the Authority. All such appointments or changes thereto shall be in writing and shall include the full name and mailing address of the liaison and shall be delivered to the Administrator of the Authority.

ARTICLE III. **OFFICES**

A. Principal Office. The Principal Office of the Authority shall be located within the State of Colorado at such location as designated by the Board of Directors from time to time. Notice of any change in the location of the Authority's Principal Office shall be provided in advance to all Members of the Authority.

B. Other Offices. The Authority may have such other offices and places of business within the State of Colorado as the Board of Directors may designate from time to time.

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ARTICLE IV.
BOARD OF DIRECTORS

A. **Governing Body and Powers.** The governing body of the Authority shall be a Board of Directors (hereinafter sometimes referred to as the “Board”) which shall exercise and perform all powers, rights, privileges, and duties ~~invested~~vested or imposed by Section 24.8-5-110, C.R.S., or as necessary, incidental to or implied there from.

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B. **Number, Tenure and Qualifications of Directors.**

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1. **Number of Directors.** The Authority’s Board shall consist of ~~17 members~~18 Members or such other number as may be required from time to time to comply with the provisions of Sections 25-8.5-105 and 106 C.R.S. as amended.

2. **Directors Representing County and Municipal Members.** Each ~~county~~County and ~~municipal~~Municipal Member of the Authority shall be entitled to appoint one primary representative and two alternate representatives to serve on the Board. Each primary representative shall be an elected official of the appointing Member. Alternate representatives shall be entitled to serve on the Board in the order of preference specified by the appointing County or Municipal Member and then only in the absence of the primary representative. Nothing herein contained shall prevent a ~~county~~County or ~~municipal~~Municipal Member’s primary representative from also serving as the alternative representative of another ~~county~~County or ~~municipal~~Municipal Member; provided, however, that under no circumstances shall any ~~member~~Member of the Board act as the representative for more than two Entity Members, as hereinafter defined, at any one time.

a. **Alternate Representatives.** Except for the elected official requirement stated above applicable to a County or Municipal Member’s primary representative, alternate representatives, whether they be for a County or Municipal Member shall be subject to all the requirements and limitations that apply to a primary representative, except that a County or Municipal Member’s alternative representative may also serve on the Board’s Technical Advisory Committee.

3. **Director Representing Special District Member.** The ~~special district~~Special District Member of the Authority shall be entitled to appoint one primary representative and two alternate representatives to serve on the Board; provided, however, such representatives shall be chosen by the unanimous consent of the special districts with service areas located within the Cherry Creek Basin as more particularly described in Sections 25-8.5-105(1)(c) as amended and 25-8.5-119 C.R.S. Alternate representatives shall be entitled to serve on the Board in the order of preference specified in the appointment and then only in the absence of the primary representative. The Special District alternate representative shall be subject to all the requirements and limitations that apply to the primary Special District representative, except that a Special

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District alternative representative may serve on the Board's Technical Advisory Committee.

4. **Individual Members Appointed by the Governor.** Each Individual Member of the Authority ~~Board~~ appointed by the Governor shall also be a ~~member~~Member of the ~~Authority's Board of Directors~~Authority.

5. **Tenure of Directors.**

a. **Individual Authority Members.** The Individual Members of the Authority who are appointed by the Governor shall serve a term, both as a Member of the Authority and as a member of the Board, of four years or until a successor is duly appointed; provided, however, that of the seven Individual Members initially appointed by the Governor in July of 2001, four shall serve an initial term of four years and three shall serve an initial term of two years.

b. ~~Directors~~**Representatives Designated by an Entity**~~Members. Each Entity Member's~~Member. The designated representative ~~on, whether the Board~~primary or an alternate representative for each County and Municipal Member, and for the Special District Member (each an "Entity Member") shall serve a term of two years or until a successor is duly appointed. Each Entity Member of the Authority shall provide written notice of its designated primary and alternate representatives to the recording secretary of the Authority. An Entity Member may in its discretion, remove its primary representative from the Board (and any alternate) at any time and designate a successor thereto by providing written notice to the Authority's recording secretary.

C. **Removal of a Director Following Unexcused Absences.** If any Entity Member of the Authority is unrepresented at two consecutive regular meetings of the Board, without the Board having entered upon its minutes an approval of such absences, the Board may submit a written request to such Member that either the Member's primary or one of its designated alternate representatives attend the next regular meeting of the Board. If following such request, no representative of the Entity Member attends the next regular meeting of the Board, the Board after consultation with the Entity Member may appoint an interim representative for that Entity Member from said Entity's jurisdiction. Said appointee shall serve until the Entity Member appoints a new primary and one or more new alternative representatives to serve on the Board as provided in Section 25-8.5-106(1), C.R.S. as amended.

D. **Officers.** At the first Board meeting of each calendar year or as soon thereafter as is reasonably practical, but in no event no later than March 31st of each calendar year, the Board shall elect from its ~~members~~Members, a Chair, a Chair Pro Tempore, a Secretary/Treasurer and one or more Assistant Secretaries. Said officers shall serve until their successors are duly elected.

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E. **Recording Secretary.** The Board may appoint and/or remove from time to time a ~~recording secretary~~**Recording Secretary**, who may, but does not have to be a member of the Board.

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1. **Chair.**

a. **Duties.** The Chair shall be the chief executive officer of the Authority and shall have general supervision of the business and activities of the Authority. The Chair shall preside at meetings of the Board and shall discharge the duties of a presiding officer.

b. **Term Limitation.** The term of the office of Chair of the Authority shall be one year. A Board member may serve a maximum of three consecutive terms as Chair. After serving three consecutive one year terms as Chair, a Board member shall not be eligible to serve as Chair for a period of one calendar year. (Amended by Resolution 2008-12-1)

2. **Chair Pro Tempore.** The Chair Pro Tempore shall have such powers and perform such duties as the Board may from time to time prescribe or as the Chair may from time to time delegate. At the request of the Chair, or in the event of the Chair's absence or inability to act, the Chair Pro Tempore may serve as acting Chair.

3. **Secretary/Treasurer.** The Secretary/Treasurer shall keep or cause to be kept accurate books and records of accounts including disbursement of all funds for Board approved payments. The Secretary/Treasurer shall be the custodian of the Authority's records, the Authority's seal, and shall perform all duties incident to the office of Secretary/Treasurer as may from time to time be assigned by the Board.

4. **Assistant Secretary/Treasurer.** In the absence or inability to act of the Secretary/Treasurer, an Assistant Secretary shall act with the same powers and shall be subject to the same restrictions as are applicable to the Secretary/Treasurer.

F. **Resignation.** Any officer may resign at any time by giving notice to the Chair and to the Secretary/Treasurer of the Authority. Such resignation shall take effect at the time specified therein, and unless otherwise specified, the acceptance of such resignation shall not be necessary to make it effective.

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G. **Vacancies.** Any vacancy occurring in an office for any reason, including but not limited to, an officer's resignation, may be filled at any regular or special meeting of the Board of Directors by a majority of the quorum present.

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H. **Removal.** At any meeting of the Board of Directors at which a majority of the Board of Directors are present and for which the agenda specifically lists officer removal as an agenda item, any one or more Authority officers may be removed, with or without cause, by a vote of the majority of the Board of Directors.

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ARTICLE V.
BOARD MEETINGS

A. **Regular Meetings.** Regular meetings of the Board of Directors shall be held monthly or at such other regular intervals and at such time and place as the Board shall determine.

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B. **Special Meetings.** Special meetings of the Board may be called at any time by the Chair, by resolution of the Board of Directors, or upon request of any two Board members.

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C. **Notices and Agendas.**

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1. **Statutory Notice.** Notice, including an agenda if available, to the public of regular and special meetings of the Board of Directors or any meeting of any advisory, policy-making, rulemaking, or formally constituted body of the Authority to which the Authority has delegated a governmental decision-making function shall be posted as required in Section 25-8.5-109 C.R.S. and/or Section 24-6-402(2)(e) C.R.S., as amended online in accordance with Section 24-6-402(2)I C.R.S. as amended provided, however, nothing herein contained shall preclude the Authority from also posting such notice in the office of the county clerk and recorder of each county having territory within the Authority's boundaries.

2. **Mailings.**

a. In addition to the posting of notice of regular and special meetings as required by online, in accordance with state statute, a meeting notice with appropriate enclosures, including an agenda, shall be mailed or emailed in advance of each meeting to each Board member at his or her address or email address as shown on the records of the Authority.

b. All ex-officio members shall receive copies of all notices, agendas, and appropriate enclosures at the address or email address of their designated representative.

c. The Administrator of the Authority shall maintain a list of persons who, within the previous two years, have requested notification of all meetings or of meetings when certain specified policies or subjects will be discussed and shall provide reasonable advance ~~notification~~notice by email or mail of such meetings, provided, however, that any unintentional failure to provide such advance notice will not nullify actions taken at an otherwise properly noticed meeting.

D. **Informal Meetings - Notices.** Informal meetings of ~~members~~three or more Members of the Board, at which no final decisions or formal ~~action~~actions can be taken, ~~may be~~may be held from time to time. Such meetings include study sessions,

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subcommittee meetings, or any ~~meeting~~meetings of three or more Board members at which Authority business is to be discussed. Such meetings shall be open to the public. Notice of any such ~~meeting~~meetings shall be given to all ~~members~~Members of the Board by email at least ~~72~~twenty-four (24) hours in advance of such meeting, unless such informal meeting was set and authorized by the Board at a regular or special Board meeting. Public notice of ~~the meetings~~such informal meetings shall be posted ~~in the one designated public posting place for the Authority~~on the Authority's website at least twenty-four (24) hours prior, to the informal meeting, in accordance with Section 24-6-402(2)(c) C.R.S.

ARTICLE VI.
VOTING/QUORUM

A. Members Entitled to Vote.

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1. **In General.** Except for ~~any vote regarding a change in~~ the -levy and collection of ad valorem taxes pursuant to Sections 25-8.5-107(5) and 25-8.5-111(1)(p)(I) C.R.S., each Entity Member of the Authority acting through its designated -representative and each Individual Member of the Authority shall be entitled to one vote on any matter coming before the Board. Any vote by the designated representative of the ~~special district~~Special District Member of the Authority shall reflect the majority of the represented ~~special districts~~Special Districts.

2. **Vote Regarding the Levy and Collection of Taxes.**

Notwithstanding any other provision contained in these Bylaws to the contrary, any vote regarding a change in the -levy and collection of taxes pursuant to Sections 25-8.5-107(5) and 25-8.5-111(1)(p)(I) C.R.S. shall be limited ~~solely to those Board members who represent municipal and county Member~~to and may be exercised only by the primary representative of each Municipal and County Member of the Authority.

B. Quorum. Fifty percent (50%) of all members of the Board must be physically present to constitute a quorum for the transaction of business at any meeting of the Board.

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C. Majority Vote Required for Action. Except for any vote regarding the levy and collection of taxes pursuant to Sections 25-8.5-107(5) and 25-8.5-111(1)(p)(I) C.R.S., or to take any Board action where a special majority vote is required as provided in Section 25-8.5-107(2) C.R.S. as amended, all actions of the Board for which a vote is required shall be made and decided by a majority vote of the quorum present.

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D. Special Majority Vote Required. An affirmative vote of a majority of the members of the Board shall be required for the Board to take action with regard to any of the following matters as enumerated in Section 25-8.5-107(2) C.R.S.:

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1. Proposed wasteload allocations;
2. Site location or site plans selected pursuant to Section 25-8-702
3. Discharge permits secured pursuant to Section 25-8-501 C.R.S. or the Clean Water Act;
4. Amendments to the Authority’s Wastewater Management Plan;
5. Authority budget and funding decisions.

C.R.S.;

E. Attendance by Electronic Media. ~~With the approval of the Chair, a Board member~~An Individual Member, or a representative of an Entity Member who is unable to be physically present for a Board meeting may attend by telephone or other electronic media ~~as long as the Board member so attending can hear what is occurring in the meeting and can be heard by the other Board members who are present at the meeting or otherwise attending by telephone.~~ Notwithstanding the foregoing, only those Individual Members and representatives of an Entity Member who are physically in attendance at an Authority Board meeting may vote on matters that come before the Board, except when attendance by telephone or other electronic media is necessary to establish a quorum due to weather or other extenuating circumstances and the Chair authorizes those so attending to vote.

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F. Disclosures and Abstentions. Each ~~Board member~~Individual Member and each representative of an Entity Member shall provide such disclosures, including potential conflict of interest disclosures, as may be required by state and federal law, including but not limited to, Section 25-8.5-107(4), C.R.S., Section 24-18-101, et seq., C.R.S. (standards of conduct for public officials), and Section 18-8-308, C.R.S. ~~Unless otherwise permitted by law, any Board member~~Individual Member and any representative of an Entity Member who has a personal or private interest in any matter proposed or pending before the Board after disclosure thereof, shall recuse himself or herself from the meeting, shall step to the back of the boardroom, and shall refrain from attempting to in any way influence the decision of the other members of the Board on the matter.

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G. Voting. No ~~Board member~~Individual Member or representative of an Entity Member shall abstain from voting unless abstention is required by law or because the ~~Board member~~Individual Member or Entity Member representative believes he or she has a potential conflict of interest. Unless a roll call vote is requested by ~~a Board~~

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~~member~~an Individual Entity Member or any Entity Member representative, any matter that can be decided by a majority of the quorum present shall be by a voice vote, except all special matters as enumerated in Article VI, Section D above shall be decided by a roll call vote.

ARTICLE VII.
ADVISORY COMMITTEES

A. Technical Advisory Committee.

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1. Appointment of Members.

a. **Entity Member Representatives.** Subject to the eligibility requirements set forth in subparagraph (b) below, each Entity Member of the Authority, including ex-officio ~~entity members~~Entity Members, may appoint one representative to serve on the Technical Advisory Committee. The Technical Advisory Committee shall perform such functions and duties as the Authority Board may direct from time to time. The Technical Advisory Committee shall have the authority to establish administrative rules and procedures governing its activities provided the same are not in conflict with these Bylaws or any direction or other limitation established by the Board from time to time. Each Entity Member of the Authority that appoints a representative to the Committee shall promptly notify the Administrator of the Authority in writing of its appointed representative and the representative's mailing address and any changes thereto.

b. **Eligibility for Membership.**

(1) **Representatives of Entity Members.** Each Entity Member may, from its staff, appoint one representative and one alternate to serve on the Technical Advisory Committee.

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(2) **Board Members May Not Serve.** ~~Members of the Board shall not be eligible to serve on the Technical Advisory Committee~~Individual Members and the primary representative for an Entity Member shall not be eligible to serve on the Technical Advisory Committee. Notwithstanding the foregoing, Individual Members and the primary representative for Entity Members may serve on one or more subcommittees of the Technical Advisory Committee. Nothing herein contained shall preclude an Entity Member's alternate representative from also being a member of the Board's Technical Advisory Committee; provided, however, that when the alternate representative serves in place of the primary Entity Member representative at an Authority Board meeting the alternate representative shall disclose such Technical Advisory Committee service to the Authority Board at the beginning of the meeting.

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(3) **Public Interest Group Representatives.** The Board may from time to time appoint to the Technical Advisory Committee individuals who represent educational or public interest groups having an interest in storm water drainage and water quality in the Cherry Creek Basin.

(4) **Local Government Representatives.** The Board may from time to time appoint to the Technical Advisory Committee individuals who represent local governments that are not members of the Authority, but who nonetheless have an interest in storm water drainage and water quality in the Cherry Creek Basin, such as, but not limited to, the Urban Drainage and Flood Control District, the South-East Metropolitan Storm Water Drainage Authority, and the Tri-County Health Department.

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2. **Chair.**

a. **Selection.** The Technical Advisory Committee shall by a majority vote select one of its members to serve as Chair and one of its members to serve as Vice Chair of the Technical Advisory Committee.

b. **Duties of the Chair.** The Chair of the Technical Advisory Committee shall preside at meetings of the Technical Advisory Committee and shall discharge the duties of presiding officer.

c. **Duties of Vice Chair.** The Vice Chair shall have such powers and perform such duties as the members of the Technical Advisory Committee may from time to time prescribe or as the Chair may from time to time delegate. At the request of the Chair, or in the event of the Chair's absence or inability to act, the Vice Chair shall serve as acting Chair.

3. **Meetings.** The Technical Advisory Committee may hold meetings monthly at a time and place to be determined by the Technical Advisory Committee. All meetings of the Technical Advisory Committee shall be open to the public.

4. **Duties of the Committee.** The Technical Advisory Committee shall report to the Board and shall perform such duties and tasks as the Board shall from time to time direct, which may include but shall not be limited to, the following:

a. **Technical Matters.** To the extent requested by the Board, the Technical Advisory Committee shall consider and report to the Board on all Authority matters of a scientific or technical nature. Technical Advisory Committee recommendations on these matters shall be forwarded to the Board for a final decision.

b. **Referral Comments.** To the extent authorized and only as directed by the Board, the Technical Advisory Committee shall have the authority to develop and submit referral comments on behalf of the Authority on various matters including but not limited to the following:

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(1) **401 and 404 Permits.** As requested by the Board, the Technical Advisory Committee shall review all applications for 401 and 404 permits in the Cherry Creek Basin, and may submit comments and recommendations to assure compliance with water quality standards, water quality plans, Authority requirements and best management practices.

(2) **Local Government Decisions.** As requested by the Board, the Technical Advisory Committee shall have the authority to review and submit comments and recommendations on behalf of the Authority, as a referral agency, to local government agencies, including comments on applications for rezonings, subdivisions, special projects, new rules and regulations, etc.

B. Other Advisory Committees.

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1. **Establishment of Committees.** The Board may establish, in addition to the Technical Advisory Committee, such other advisory committees as the Board shall from time to time determine.

2. **Duties.** Except as provided in Article VII(a)(4) for the Technical Advisory Committee, the Board shall establish and enumerate the duties of all advisory committees. Nothing herein contained shall preclude the alternate representative for any Entity Member from also serving on other Board advisory committees; provided, however, when such alternate representative serves in the place of the primary Entity Member representative at an Authority Board meeting, the alternate representative shall disclose to the Authority Board at the beginning of the meeting that such alternate representative serves on a Board advisory committee.

C. Provisions Applicable to all Advisory Committees.

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1. **Resignation.** A member of any advisory committee may resign at any time by giving written notice to the Chair of the committee and to the Secretary/Treasurer of the Authority. Such resignation shall take effect at the time specified therein, and the acceptance of such resignation shall not be necessary to make it effective.

2. **Vacancies.** Except as provided in Article VII(A)(1)(b), for the Technical Advisory Committee, any vacancy occurring on an advisory committee by reason of resignation or otherwise may be filled by an affirmative vote of a majority of the Board.

3. **Removal.** At any meeting of the Board duly called expressly for that purpose, any one or more members of an advisory committee may be removed with or without cause by a vote of the majority of the Board.

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ARTICLE VIII.
RECORDS RETENTION AND DESTRUCTION

A. **Records Management.** The Authority shall comply with, and adopt and maintain policies as necessary for compliance with, applicable records retention, destruction and disclosure requirements, including the Colorado Open Records Act, State Archives and Public Records Law, and various consumer privacy legislation, if applicable. The Authority’s manager or his or her designee is hereby designated as the Official Custodian of Records pursuant to the Open Records Act. In the event there is any question as to whether the Authority is permitted to comply with an Open Records Act request, the Custodian of Records shall forward such request to the Authority’s legal counsel. Copies of records shall be furnished at a cost of \$0.25 per standard page. Where a request requires more than one hour of staff time for retrieval and/or review, the Authority may charge a nominal fee.

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B. **Records Retention.** ~~Because the State Archivist~~The Authority has not adopted ~~a records retention schedule that applies specifically to the Authority, the Authority may adopt the 2008 the~~ Colorado Special ~~District’s~~District Record Retention Schedule and ~~may thereafter adopt~~ any ~~subsequent~~ revisions as promulgated by the State Archivist’s office. The ~~Authority’s manager~~Authority may ~~then~~ request in writing permission from the Colorado State Archivist to follow and retain and/or destroy Authority records in accordance with said adopted schedule. Upon receipt of approval from the State Archivist’s office the Authority may destroy or otherwise dispose records in accordance with said adopted schedule except as set forth in subparagraph C below.

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C. **Exception.** Notwithstanding any provision contained in such adopted record retention schedule, the Authority shall not destroy any scientific records, data or reports without the prior approval of the Authority’s Board of Directors after considering advice from the Technical Advisory Committee.

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D. **Records Destruction Procedure.** At least thirty (30) days prior to the destruction of any Authority records permitted by the ~~2008~~ Colorado Special ~~District’s~~District Record Retention Schedule, the manager shall submit a complete list of all records so scheduled for destruction. The Board at that time may remove from the list any record that the Board for any reason does not want destroyed.

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ARTICLE IX.
ADMINISTRATOR, TECHNICAL MANAGER, OR ADMINISTRATIVE ASSISTANT OF THE AUTHORITY

A. **Generally.** The Authority ~~shall~~~~may from time to time and at its discretion~~ retain an Administrator ~~selected by the Board of Directors. The Administrator of,~~ ~~Technical Manager, and/or Administrative Assistant to perform such duties as the~~ Authority ~~shall report to the Board~~~~may from time to time determine appropriate.~~

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CHERRY CREEK BASIN WATER QUALITY AUTHORITY
2023 Capital Project Status Report
July 13, 2023

RESERVOIR PROJECTS

1. East Shade Shelters Phase III and Tower Loop Phase II Shoreline Stabilization (CCB-17.5 and CCB-17.7)
 - a. Description: These projects were identified in 2014 through the annual inspection. The Tower Loop Phase II connects to the Phase I project and extends shoreline protection 570 feet to the southeast towards Dixon Grove. The East Shade Shelters Phase III starts on the north end of the Shade Structure and goes 400-feet to the south.
 - b. Status: Consultant selection is scheduled for the 1st quarter. A consultant selection committee will be set in February (1/29/21). At the February TAC meeting Jason Trujillo, Jon Erickson, Lanae Raymond, Bill Ruzzo were interested in serving on the consultant selection committee (2/11/21). This selection committee was discussed at the 3/18/21 Board Meeting, and no further members were added. The Request for Proposals (RFP) has been posted on BidNet and Proposals are due 04/21/21 (3/25/21). The pre-proposal meeting was held on 4/7/21. 5 proposals were received on 4/28/21; the selection committee is reviewing them. Interviews were held and a selection is being brought to the May Board meeting (5/14/21). Board authorized negotiations with RESPEC (5/27/21). Agreement has been executed with RESPEC (10/15/21). Field Survey of project areas and topographic mapping is underway (12/30/21). A design kickoff meeting was held on 4/22/22. A design sprint workshop was held on 7/12/22 which included a site visit and evaluation of alternatives. RESPEC is developing a recommended alternative (9/8/22). RESPEC provided updated project costs for budgeting (10/13/22). The 30% submittal was received on 11/16/22 and is under review. CCBWQA provided comments on 30% review on 1/17/23; a value engineering effort is recommended as the project costs exceed the budget. The value engineering meeting was held on 2/24/23. RESPEC's request for additional services was approved by TAC and Board in May (5/25/23).

STREAM RECLAMATION PROJECTS

1. Cherry Creek Stream Reclamation at Arapahoe Road aka Reaches 3 and 4 (CCB-5.14C)
 - a. Description: This project continues the work on Cherry Creek by CCBWQA, MHFD, and local partners. It ties into the previous stream reclamation projects of Cherry Creek Eco Park to Soccer Fields (CCB-5.14A) and Cherry Creek at Valley Country Club (CCB-5.14B). The 5,167 Linear Feet of stream reclamation reduces bed and bank erosion immobilizing approximately 88 pounds of phosphorus annually. The project is anticipated to be funded over several years and likely be broken into phases.
 - b. Status: In 2021, an IGA was executed between CCBWQA, MHFD, City of Aurora, and SEMSWA to begin this work. IGA Amendment that brings in 2022 funding is under review (5/13/22). Board authorized IGA Amendment for 2022 funding on 7/21/22 (8/12/22). IGA Amendment has been revised to show Aurora's lower participation; CCBWQA's participation was lowered accordingly to meet 25% partner project level; revised IGA Amendment received TAC recommendation and is being taken to Board for their consideration in October (10/13/22). Board authorized the IGA Amendment for 2022 funding at their 10/22/22 meeting. It appears that CCBWQA's 2023 participation will be reduced as a result of less partner funding available for this project (2/24/23). The IGA Amendment that brings in 2023 funding was recommended by the TAC and authorized by the Board at their June meetings (6/29/23).
2. Cherry Creek Stream Reclamation – Upstream of Scott Road (CCB-5.17)
 - a. Description: Design and construction of stream reclamation is in partnership with Douglas County and MHFD. It improves 4,100 feet of Cherry Creek and is located upstream of Scott

- Road.
- b. Status: IGA was approved by the Board at their April 2020 meeting. Muller had been selected as consultant, and design scope of work is being prepared. Kickoff meeting was held on 12/11/20; a follow-up field visit will be scheduled for early 2021. Site visit was held on 1/29/21. Conceptual design is complete, negotiations are underway to contract for 60% design (4/8/21). Muller is working on alternatives (4/30/21). Muller is working on preliminary design and an IGA Amendment to bring in additional 2021 funding from Douglas County is being brought to the Board in October (10/15/21); IGA Amendment has been executed (11/11/21). Muller is preparing 60% Design Submittal (1/28/22). Muller submitted 60% Design on 2/2/22; comments have been provided on 60% Design Submittal (3/10/22). IGA Amendment bringing in 2022 funding is scheduled for TAC and Board consideration in June (5/27/22). IGA Amendment was authorized at the June 16th Board Meeting (6/30/22). Muller is working on Final Design and held a progress meeting on 4/14/23, a site visit is being scheduled to support the 90% design submittal. The 90% site visit was held on 5/22/23.
3. Cherry Creek Stream Reclamation at Dransfeldt (CCB-5.17.1B)
 - a. Description: Design and construction of stream reclamation is in partnership with Town of Parker and MHFD. It improves 2,400 feet of Cherry Creek near the future location of Dransfeldt bridge which is just downstream of the Cherry Creek at KOA project.
 - b. Status: Initial scoping has begun, and a partners meeting was held on 1/30/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA was approved by all parties and has been executed (6/25/21). Muller Engineering has submitted their Draft Scope of Work for Design Services, and the project sponsors have reviewed it (7/8/21). Design kickoff meeting was held on 10/14/21. Alternatives are being evaluated (12/9/21). Pre-submittal meeting for the 404 permit is being scheduled (12/30/21). CLOMR is being prepared for project (3/10/22) and was submitted to FEMA on 3/31/22. CEI was selected for as project partner to provide contractor input during the design (5/27/22). CLOMR is under review by FEMA (8/12/22). Muller has received comments on CLOMR and is preparing responses; 90% Submittal is scheduled for early February (1/27/23). Comments on 90% Submittal were provided on 2/22/23; project is experiencing substantive cost increases due to current market conditions (2/24/23). TAC at their 3/2/23 meeting recommended that the Board authorized the IGA Amendment to bring in 2023 funding along with an increase in CCBWQA's 2023 funding from \$170,000 to \$570,000. The Board authorized the IGA Amendment with the increased 2023 funding of \$570,000 at their 3/16/23 meeting. The Conditional Letter of Map Revision (CLOMR) was issued by the Federal Emergency Management Agency (FEMA) on April 28, 2023 (5/12/23). *The sanitary sewer relocation will be contracted to start with, in order to avoid a pipe material cost increase, and to get it out of the way for the forthcoming stream reclamation (7/13/23).*
 4. McMurdo Gulch Priority 3 Stream Reclamation (CCB-7.2)
 - a. Description: The design and construction of stream reclamation is in partnership with Castle Rock. Castle Rock is the lead agency. This phase continues the work from the previous phase. Muller Engineering is the design consultant.
 - b. Status: Board authorized IGA for Priority 3 at their May 19,2022 meeting. Muller submitted their 30% deliverable on 10/31/22, review comments were returned on 11/8/22. Easements needed for projects have been identified (1/23/22). The 60% Submittal was received on 1/30/23 and comments have been provided on 2/7/23. Muller is working on updating their construction cost estimate (2/8/23). On 2/23/23, Castle Rock requested that CCBWQA's 2023 funding be deferred to 2024 to match their schedule.
 5. Lone Tree Creek in Cherry Creek State Park (CCB-21.1)
 - a. Description: This project includes a trail connection to Cherry Creek State Park and includes 570 linear feet of stream reclamation on Lone Tree Creek from the State Park Boundary to the Windmill Creek Loop Trail. The City of Centennial is the project lead. CCBWQA participation is for stream reclamation only.

- b. Status: 95% submittal is under review (5/13/22); review comments have been returned (5/27/22). Project funding was brought to TAC at their 7/7/22 meeting, during drafting of IGA it was discovered that future maintenance of stream reclamation should be considered, project will be brought back to TAC at an upcoming meeting for maintenance discussion and recommendation (8/12/22). A stakeholder meeting was held on 9/29/22 to discuss maintenance. A stakeholder meeting was held on 11/2/22 to discuss findings from CCBWQA's site visit and findings included in Wright Water Engineers report. The Board supports CCBWQA's partnering with Centennial at their 11/17/22 meeting. A Memo of Understanding is under review by Colorado Parks and Wildlife (CPW) affirming maintenance responsibilities for the stream reclamation fit under the current agreement between CCBWQA and CPW (3/30/23). CCBWQA sent the Draft IGA to Centennial for review on 5/23/23.

- 6. Happy Canyon Creek – County Line to Confluence with Cherry Creek (aka Jordan Road, CCB-22.1)
 - a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$325,000. The total project cost is estimated at \$1,300,000.
 - b. Status: IGA is scheduled for June TAC and Board meetings (5/27/21). IGA has been approved and executed by all parties (7/29/21). Jacobs has been selected as design consultant and project scoping is underway; limits have been extended upstream to the County Line and sediment capture area and transport will be included with the project (10/15/21). Jacobs has submitted their scope of work and fee for design which is under review by project sponsors (11/11/21). Project sponsors have completed a review of Jacobs' fee and scope of work and the agreement is being routed for signatures (1/28/22). IGA Amendment to bring in 2022 funding is in process (3/10/22). A project kickoff meeting was held on 3/28/2022. A site visit was performed on 4/12/22 to document existing conditions and identify sediment source/transport/deposition areas. Project Team is preparing a sampling plan for bank and bed materials to determine phosphorous content (5/13/22). The project team met on 5/24/22 to discuss project goals and Jacobs is progressing through the study. Jacobs and ERC are working on sediment transport analysis and model (6/30/22). The results from the sediment transport model were presented at the 8/23/22 progress meeting and an upstream sediment capture area just south of the JWPP was included in the alternatives analysis (8/26/22). The alternative analysis report is expected to be completed before the end of 2022 (10/13/22). Lab results from stream soil samples were sent to Jacobs so that they include phosphorus reduction in the alternatives analysis report; a groundwater investigation is needed to inform sediment capture facility and stream reclamation alternatives, scoping and negotiations are in progress (11/11/22). Groundwater scope of work has been reviewed and approved by project sponsors (1/13/23). The IGA Amendment bringing in the 2023 funding was recommended by TAC and authorized by the Board in April (5/12/23).

- 7. Happy Canyon Creek - Upstream of I-25 (CCB-22.2)
 - a. Description: The design and construction are in partnership with Douglas County, City of Lone Tree, and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$500,000. The total project cost is estimated at \$2,000,000.
 - b. Status: Douglas County, City of Lone Tree, and MHFD have initially funded and selected Muller Engineering as the design engineer. Design has started and a progress meeting was held on 1/27/21. Design is progressing (2/11/21). Muller has submitted 60% Design Deliverables (5/27/21). IGA for 2021 Funding is being brought to Board in September (9/9/21). 2021 IGA Amendment has been executed (11/11/21). Coordination with CDOT and easement acquisitions are on-going (1/13/22). Board authorized 2022 funding and IGA Amendment at their June 16th meeting (6/30/22). The project received environmental clearance from CDOT (8/12/22). The 90% design submittal is scheduled for delivery by end of September (8/26/22). The 90% design submittal is being reviewed (10/13/22). Comments were provided on 90% submittal (11/11/22). Muller completed the 100% design submittal on

11/22/22. CDOT permit was issued, and pre-construction meeting was held on 1/10/23; construction start is scheduled for 1/30/23 pending execution of easement documents from Surrey Ridge which has agreed to terms and easement language. Notice to Proceed on construction is pending execution of easement documents (1/27/23). Easements have been signed by property owners and Notice to Proceed has been issued to Naranjo Civil Constructors (2/8/23). Construction is underway with initial construction BMPs/stormwater controls in place; water diversion and control is being set up for the downstream section of the project (3/10/23). Water control is in place and construction of stream reclamation is underway for downstream sections of the project (3/30/23). Riffle and Boulder Cascade drop structures on downstream third of project are nearing completion (4/13/23). Construction is underway in the middle third of the project; efforts consist of stream grading and installation of Riffle and Boulder Cascade drop structures (5/12/23). The storm damage from May 11 to 13, 2023 event is being identified and repaired (5/25/23).

8. Dove Creek - Otero to Chambers Rd. (CCB-23.1)

- a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority (SEMSWA) and with Mile High Flood District (MHFD) being a key stakeholder; it includes 1,300 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be \$175,000. The total project cost is estimated at \$700,000.
- b. Status: SEMSWA is drafting the Intergovernmental Agreement to bring in the 2021 funding for the project (3/12/21). RESPEC is the design consultant; two conceptual design alternatives have been prepared and reviewed during meeting on 3/15/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA has been approved and executed by all parties (7/29/21). 30% Design Review Meeting was held on 8/23/21. A Progress meeting is scheduled for 2/26/22 with 60% Plan submittal expected to follow (1/28/22). The 60% Design was submitted on 2/16/2022, comments were provided, and a design review meeting was held on 2/23/2022. IGA Amendment to bring in 2022 funding is in process (3/10/22). Construction costs were prepared by CEI based on 60% submittal (5/13/22). A design progress meeting was held 6/14/22 and 90% design submittal is being prepared (6/30/22). 90% design submittal is expected by the end of July (7/15/22). The 90% design submittal was reviewed, and comments were submitted on 8/22/22. *Construction is anticipated in 2023 (10/13/22)*. A progress meeting was held on 11/8/22, project will likely be done in 2 phases, IGA Amendment will be needed early in 2023 so that construction can start ahead of storm season. Dove Creek IGA for construction of Phase 1 is scheduled for TAC and Board in January 2023, construction is expected to start shortly afterwards (12/30/22). Construction is scheduled to start mid-February; construction agreement and engineering construction services amendment are currently being reviewed (1/27/23). Construction and engineering construction services have been finalized and a preconstruction meeting was held on 2/2/23. Notice to Proceed has been issued to Concrete Express; construction is underway with initial construction BMPs/stormwater controls in place (3/10/23). Water control is in place and construction of stream reclamation is on-going (3/30/23). Step pool drop structures have been constructed and work on soil wraps is underway (4/13/23). Low-flow or bank full channel work (soil wraps and erosion control blanket) and step-pool structures are complete, water diversion has been removed, and is active to storm flows; work continues in upland areas and higher elevations of stream reclamation (5/12/23). Storm damage from May 11 to 13, 2023 event is being repaired (5/25/23). *Construction punch list is being completed (6/29/23)*.

9. Piney Creek from Fraser Street to Confluence with Cherry Creek aka Reaches 1 and 2 (CCB-21.1)

- a. Description: This project includes 2900 liner feet of stream reclamation on Piney Creek. The project partners are SEMSWA and CCBWQA.
- b. Status: Project coordination meeting was held with SEMSWA on 6/29/22. IGA drafted and is being reviewed by SEMSWA (8/12/22). IGA was approved by CCBWQA at the 9/15/22 Board meeting. IGA Amendment to bring in 2023 funding was recommended by the TAC and

authorized by the Board in May (5/25/23). CCBWQA sent the Draft IGA Amendment to SEMSWA for review on 6/29/23.

10. Mountain and Lake Loop Shoreline Stabilization Phase II (OM 4.6)

- a. Description: This project was identified in through the 2020 annual inspection and design and permitting started in 2021. It adds about 40 feet of shoreline protection where it has eroded leaving a 1-2 foot tall vertical bank.
- b. Status: Construction Plans have been prepared and the GESC was submitted to Arapahoe County for review (1/13/22). Plans are being reviewed by US Army Corps of Engineers for 408 clearance (5/13/22).

11. Cherry Creek from Reservoir to Lake View Drive (OM 4.6)

- a. Description: This project is in follow up to CCBWQA's study of Cherry and Piney Creeks in Cherry Creek State Park (CCSP). Muller completed two reports on Cherry Creek from Reservoir to State Park Boundary, Stream and Water Quality Assessment and Baseline Channel Monitoring Report, in 2022. These reports highlight the need for this project.
- b. Status: A workshop is scheduled for the 3/16/23, to seek CCBWQA Board and TAC input on this project and Cherry and Piney Creeks in CCSP (3/10/23). *The follow up from workshop is underway – project overview and funding flyer has been created*, Muller is scoping the next step of design for Reach 1 and providing a fee, and multi-pronged approach is in development for workshop priority reaches that prioritizes Reach 1 and reduces risk from upstream reaches; these items will be brought to TAC and Board for discussion, direction, and/or action at upcoming meetings (3/30/23). A site visit for partner outreach and funding was held on 5/25/23 at 1-4 pm (6/8/23). A coordination meeting was held with Aurora on 6/23/23 and they showed interest in partnering on the project to protect their water lines. *The Mile High Flood District has provided their budget/CIP schedule and Arapahoe County Open Space has been contacted to investigate potential partnering opportunities (7/13/23).*



TASK MEMORANDUM

DATE: June 23, 2023

TO: Board of Directors, CCBWQA
Jane Clary, Wright Water Engineers, CCBWQA Technical Manager

CC: Cherry Creek State Park (CCSP) Park Manager

FROM: Ricardo Gonçalves, PE

SUBJECT: 2023 May 10-12 Flood Observation of Pollution Reduction Facilities (PRFs) at CCSP

Introduction

The CCBWQA has a contractual agreement with RG and Associates, LLC to perform a Field Observation annually of the PRFs constructed by the CCBWQA at CCSP, and to perform observations on those PRFs after a storm event of more than 1" per hour of intensity or reported visible damage to PRF facilities in the CCSP.

The purpose of this Post-Flood Event Field Observation is to assess whether any damage was caused by the storm event that occurred on May 10-12 to the PRFs that would compromise their functioning as designed and to identify any immediate restorative or rehabilitative maintenance requirements. As the event was substantial enough to create a 10 foot rise in the reservoir water level, this Post-Flood Observation was not just limited to the Stream and Drainage PRFs, but included the reservoir Shoreline Stabilization projects as well. The inspections were made on June 7, 2023 on the east side facilities, and on June 14, 2023 for the West side facilities. These inspections were performed that long after the storm event to allow time for the stream levels to subside from their flood levels to more normal flows, and for the reservoir water level to subside down to normal pool elevations. That this reservoir level was the third highest recorded level in the reservoir's history was significant and caused a backwater effect on the both Cherry Creek and Cottonwood Creek that maintained a number of parts of those PRF systems in a flooded condition. Thus, it was necessary to wait for water levels to subside to be able to inspect those parts adequately. Even by the inspection of the 14th, however, Cottonwood Creek was still running at flood levels, rather than at base-flow levels, and it was not possible to walk the entire creek to inspect for damage.

The Stream and Drainage System facilities that were inspected were:

- Shop Creek
- Cherry Creek at 12-Mile Park, Phases I-III
- Cottonwood Stream Reclamation and Wetlands
- Quincy Drainage

The Shoreline Stabilization facilities that were inspected include:

- Tower Loop
- Dixon Grove
- East Shade Shelters
- East Boat Ramp
- West Boat Ramp
- Mountain and Lake Loop

2023 May Flood Observation of PRFs at CCSP

Page 3

The CCSP brochure map below (Figure 1) is included for reference and shows general vicinity of PRFs

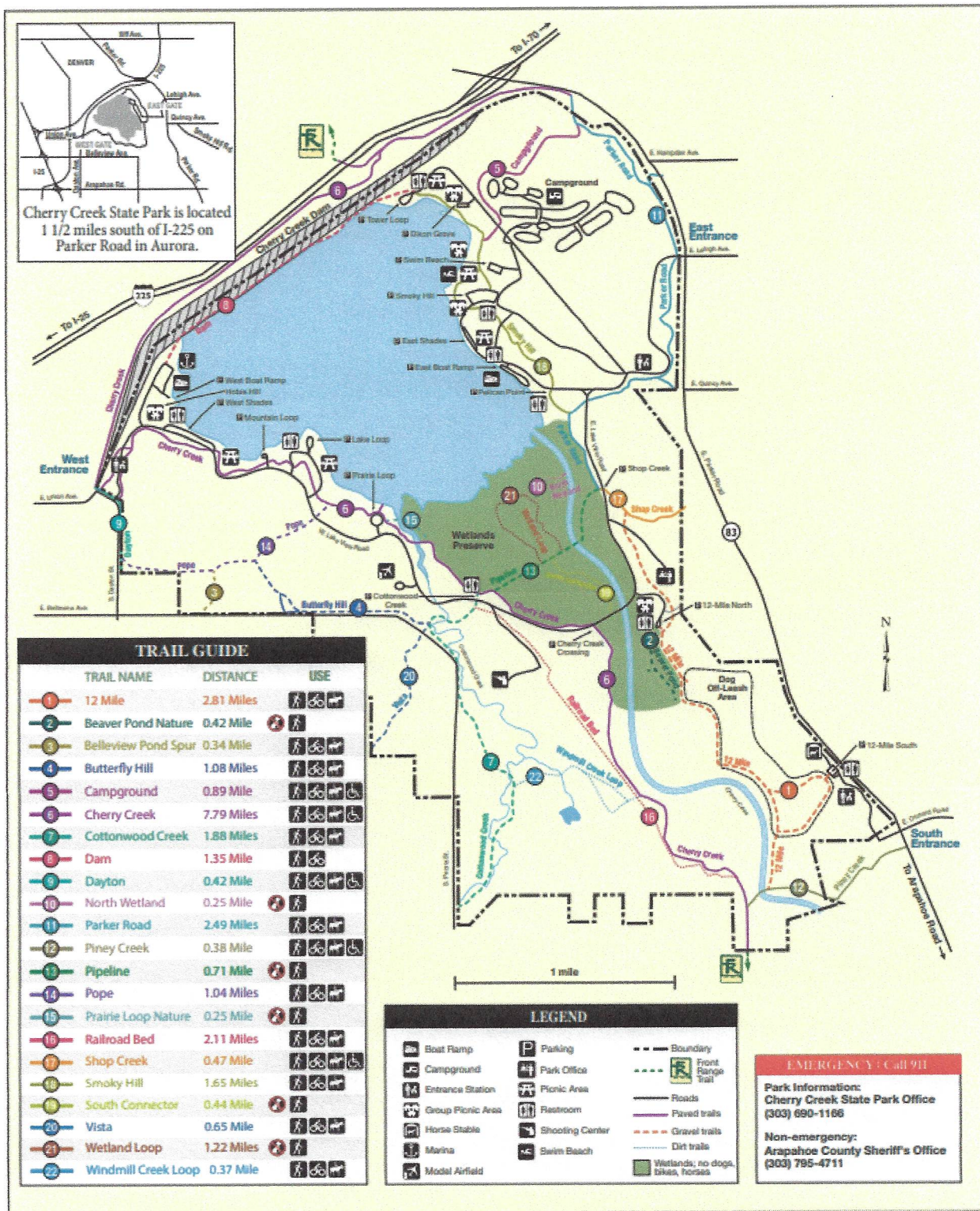


Figure 1 - CCSP brochure map

General Assessments

The damage assessments for the 2023 May 10-12 Storm Event 2022 and photos are provided on the following pages.

West Boat Ramp (Reservoir Water Surface Elevation = 5551.2 on 6/07/23): Construction of this PRF was completed in 2014. All maintenance for this PRF is has been responsibility of CCSP. While routine maintenance to clear woody vegetation has been identified in the past, no storm damage that would need mitigation was identified.



Photo 1



Photo 2

Cottonwood Wetlands: The woody vegetation that clogged the outlet last year was apparently removed during the harvesting project last year. (**Photos 3&4**). Some aquatic vegetation and a lot of cattail flood debris was observed on the surface of the water (**Photos 7**). The water level was still higher than normal even though it had been three weeks since the storm (**Photos 5&6**). The educational signs did not appear to have been damaged in any way by the storm (**Photo 8**). Stressed plants were the only other signs of flood damage.



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

Cottonwood Creek Stream Reclamation: The post-storm visit was done on June 14, 2022. Water levels in the creek were still too high to be able to effectively walk the creek to assess any damage to the stream reclamation system. The water at the Lakeview Dr. crossing was up to the bottom chord of the culvert and measured six feet deep. Evidence of high-water debris was observed (**Photos 9 and 10**), but no damage was observed. No damage was observed at the other upstream trail crossings, although two of the crossings were under water, making their traverse impossible. Future damage inspection will be made when the stream levels are down.



Photo 9

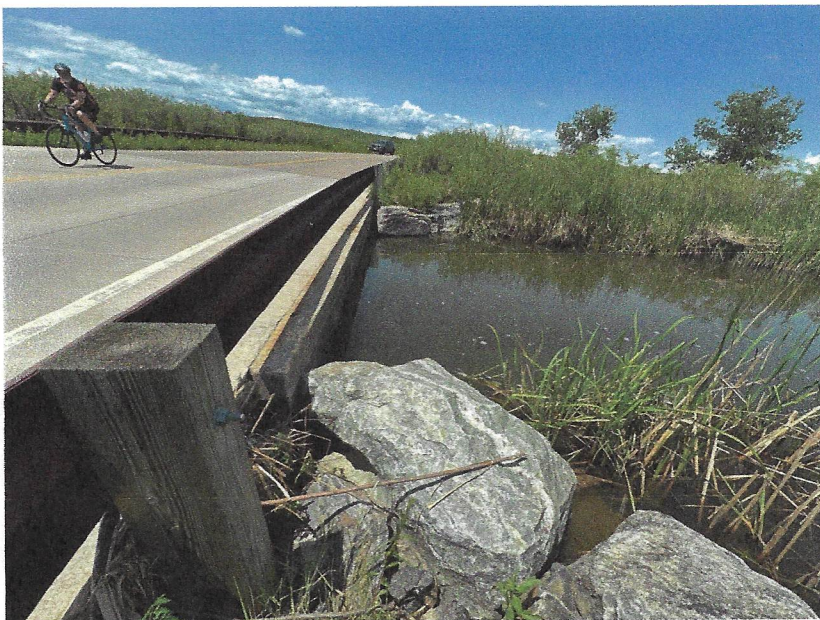


Photo 10

Cherry Creek 12-mile Park-All Phases :

All three phases of the project phases were examined from upstream to downstream, beginning at the third access point, where the boulder edging begins. Overall, the storm damage varied from behind the boulder erosion to washout of some of the boulder edging. Only backfill in some of the erosion areas would classify as needing immediate attention. The rest of the damage will need to be rectified in near-future stabilization projects. Photos 11, 12 and 13 show water levels were still high, 12” below the top of the boulder edging. Damage here was limited to minor behind-the-boulder erosion, not needing immediate attention, and being fairly uniform down to the fourth access point.

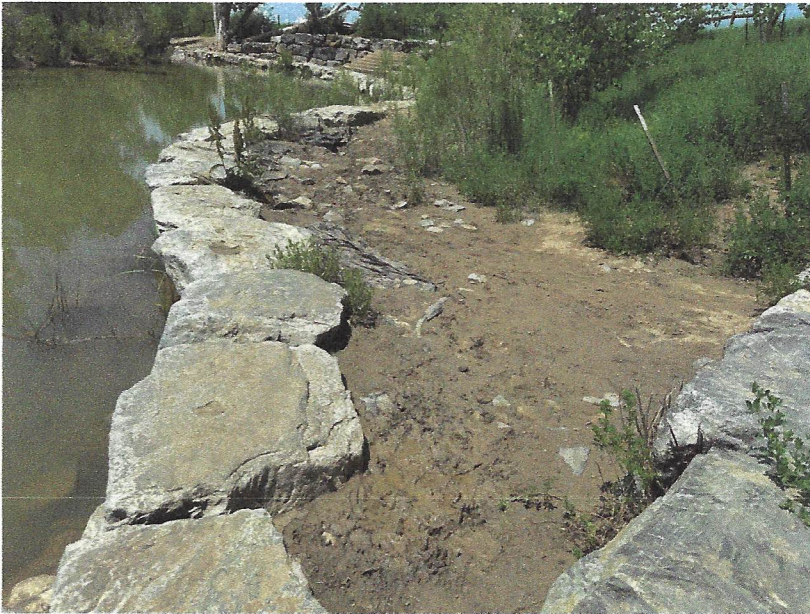


Photo 11

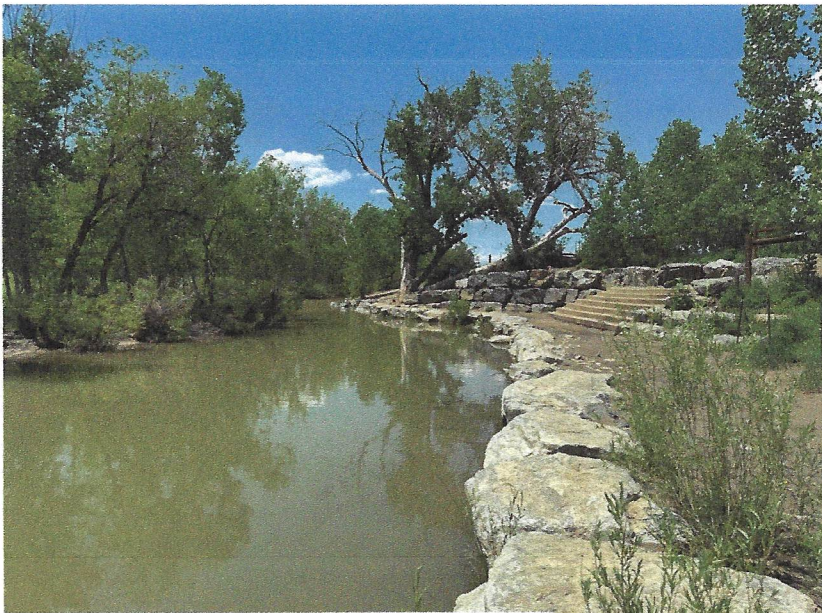


Photo 12-



Photo 13-Fourth Access Point

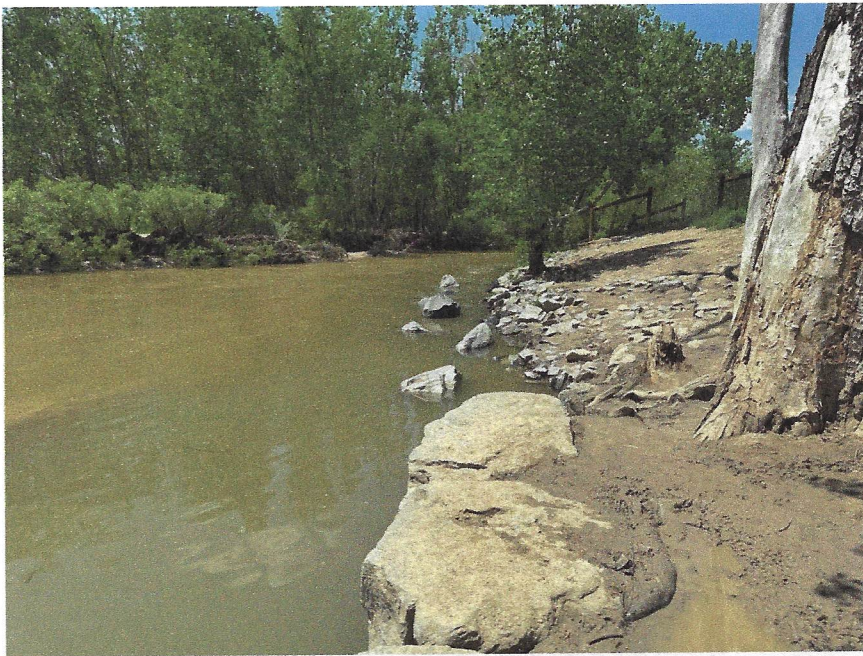


Photo 14-Boulder edging erosion just below Fourth Access Point



Photo 15-Boulder edging erosion



Photo 16- Boulder erosion at Access 6



Photo 17- Tree islands caused by extreme bed scour



Photo 18-beginning of beach area- severe erosion behind the boulder edging and of the beach itself



Photo 19- Boulder wall erosion and dislodgment



Photo 20-erosion behind boulders and undercutting trail.



Photo 21- Grade control structure worked well



Photo 22-Boulder edging at breakout area severely eroding and disrupting boulder edging,

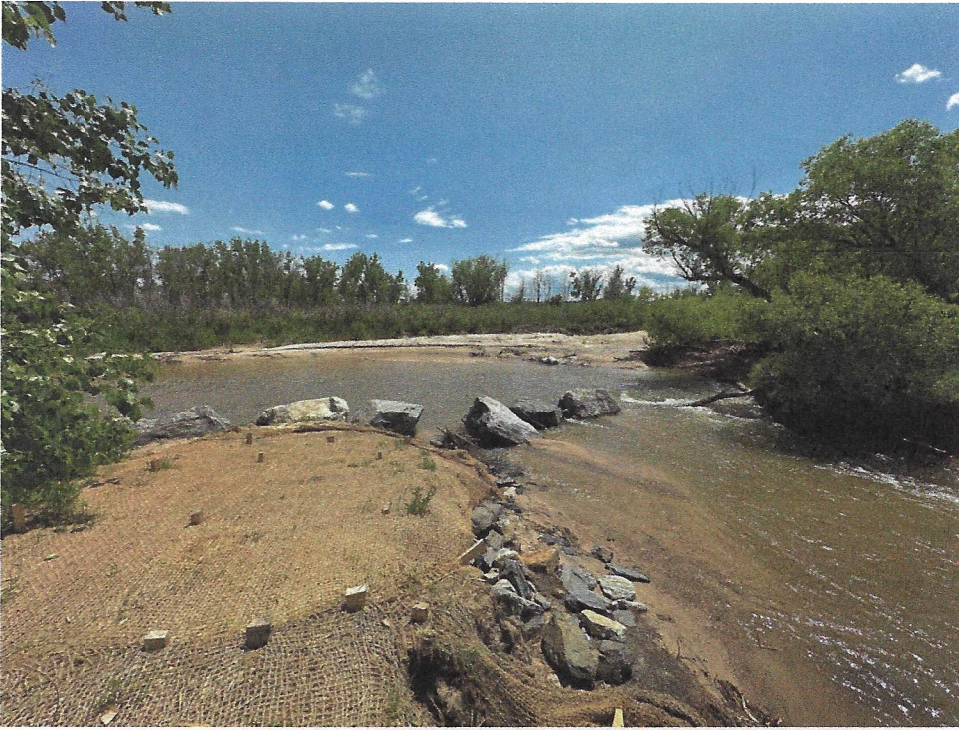


Photo 23-Breakout area severely eroded through the boulder wall.



Photo 24-Severe bank erosion downstream of the breakout area

Shop Creek: There are 5 drop structures within CCSP numbered 1 through 5 from upstream to downstream, and an additional drop structure outside of the CCSP Boundary. All of the drops have had and still have the same basic problems with spalling concrete along their crests, seepage between layers of roller-compacted concrete on some, vegetation growing on downstream faces, and severe erosion and spalling around their outlet structures, but on this inspection, there was no apparent damage caused by the flood . The following photos show these conditions found at the time of the flood damage inspection. At the time of the inspection, there was still enough residual flow in Shop Creek that the excess of what could enter the outlet structure was overtopping the drop structures.



Drop No.1



Drop No. 1 outlet structure overtopped and clogged with weeds



Drop No. 2



Drop No. 2 Outlet



Drop No.3



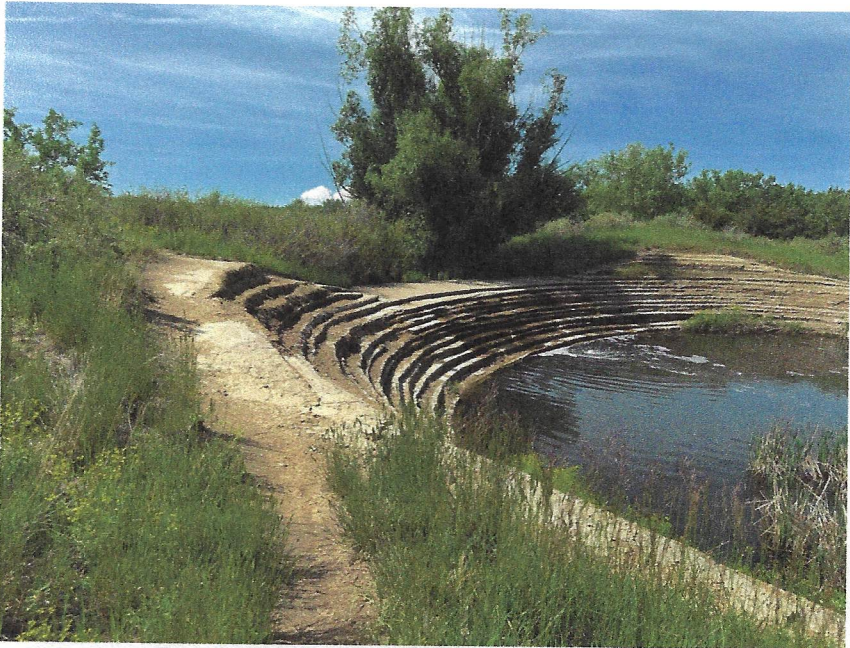
Drop No. 3 Outlet



Drop No. 4



Drop No. 4 Outlet

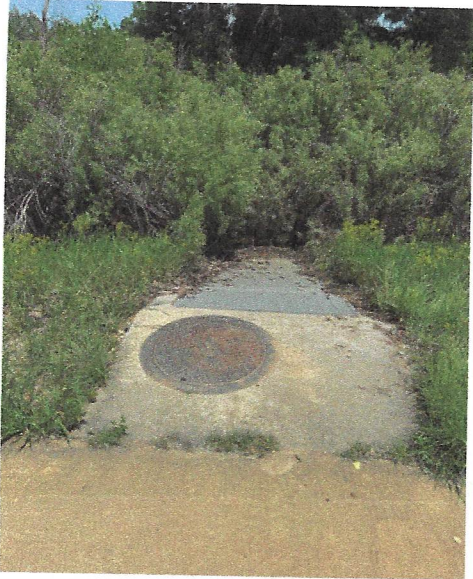


Drop No.5

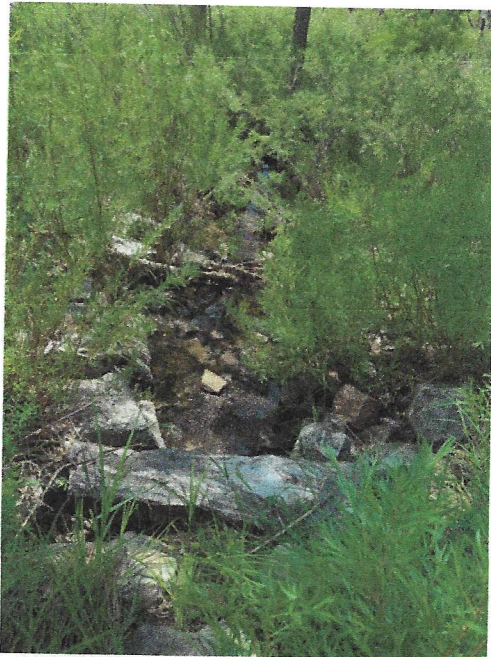


Drop No. 5 Outlet

Quincy Drainage: Bed and bank erosion and debris clogging were observed at the outlet structure but no apparent flood damage was observed.

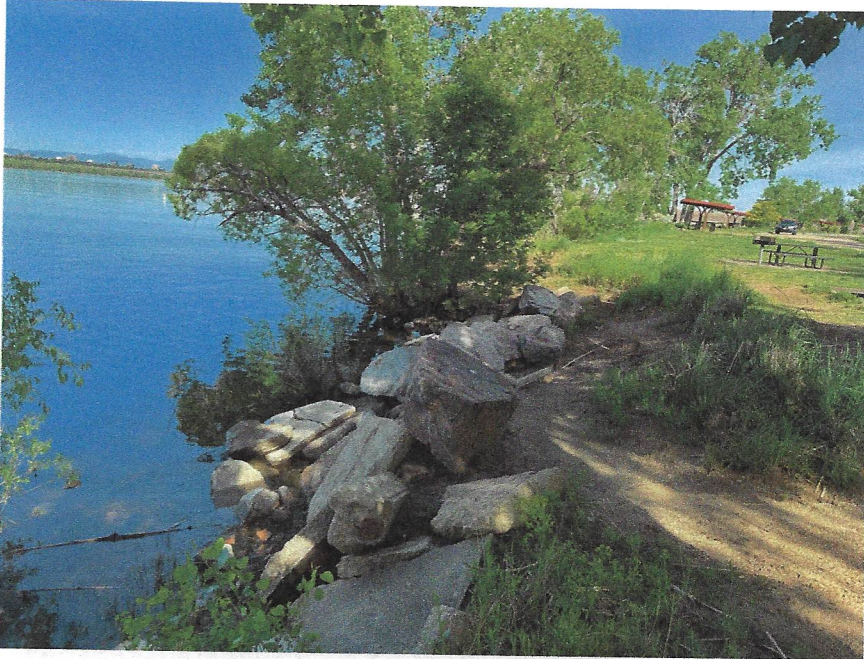


Debris clogging of inlet



Outlet

Dixon Grove, Tower Loop, East Shade Shelters, East Boat Ramp, Mountain and Lake Loops: Boulders and riprap serve as protection of the shoreline for these facilities. The only damage caused by the flood was severe shoreline erosion around the trees that were caught in the high water areas, bank-cut erosion at the high-water line, general runoff erosion from bank flows entering the water body, erosion of backfill behind the boulders, erosion around some of the access steps, and some boulder displacement. Nothing was identified as needing immediate attention except for the access step erosion. The following photos document examples of the damage observed and don't cover all the instances of damage.



East Shade Shelter



East Shade Shelter



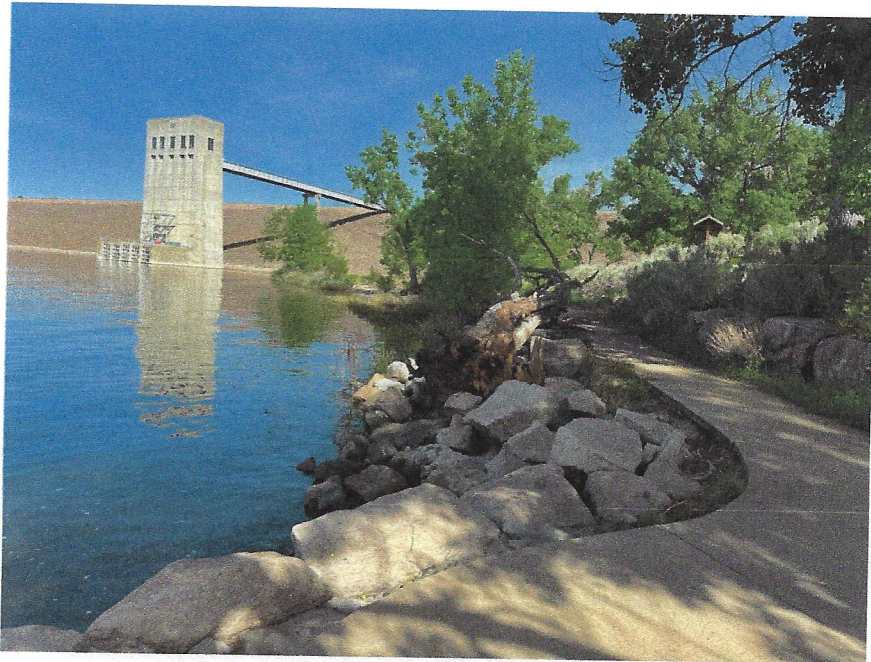
East Shade Shelter



East Shade Shelter



East Shade Shelter



Tower Loop



Tree erosion at Tower Loop



Tower Loop



Dixon Grove



East Boat Ramp



Mountain and Lake Loop



Mountain and Lake Loops

MEMORANDUM

Date:	July 14, 2023
To:	Cherry Creek Basin Water Quality Authority Board of Directors Jane Clary, CCBWQA Technical Manager
From:	Erin Stewart, LRE Water
Subject:	Water Quality Update – July 2023

CCBWQA Data Portal Water Quality Update Page Link - <http://ccbwwqportal.org/wq-update/chlorophyll-a>

- Navigate to Chl- α , CCR Inflow Concentrations and Comparison, Field Depth Profile, Nutrients Depth Profile

The Water Quality Update pages provide a brief visual of the data collected during the current water year (WY 2023 - October 2022 through September 2023) with the data from previous years available as a reference. This memo provides a brief description of the highlights from the most recent monitoring data available on the data portal.

CCR Inflow Phosphorus and Nitrogen Concentrations and Comparison to Previous 5-Year Average

Site		Cherry Creek @ CC-10		Cottonwood Creek @ CT-2	
Month	Flow	Total Phosphorus ($\mu\text{g/L}$)	Total Nitrogen ($\mu\text{g/L}$)	Total Phosphorus ($\mu\text{g/L}$)	Total Nitrogen ($\mu\text{g/L}$)
May	Base	194 (229)	774 (1,359)	44 (68)	1,190 (1332)

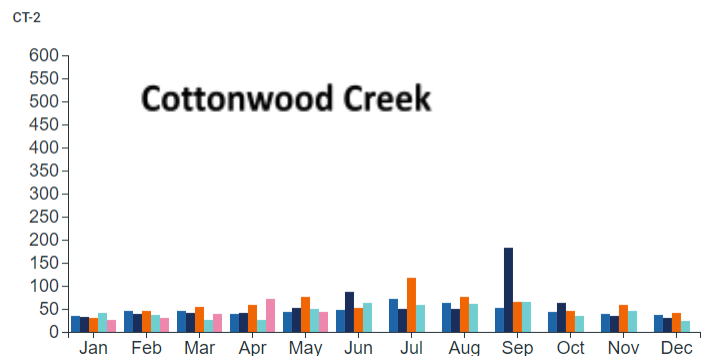
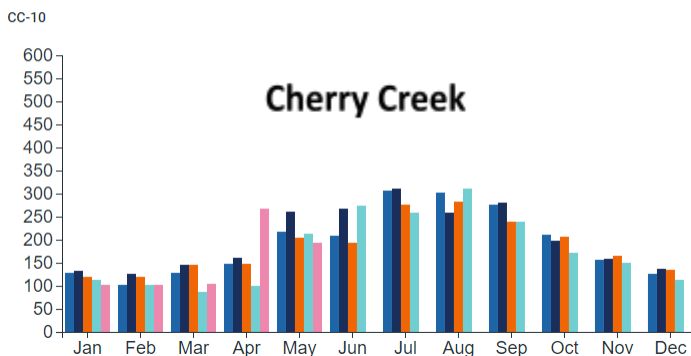
* 5-year mean concentration values are shown in parentheses for reference. Values in green or red are respectively lower or higher than the previous 5 year mean.

**2018-2022 5-year mean.

The averages of the base flow and storm flow concentrations are calculated monthly. Although the values do not represent flow-weighted concentrations, the simple averages are included to compare long-term monthly average concentrations.

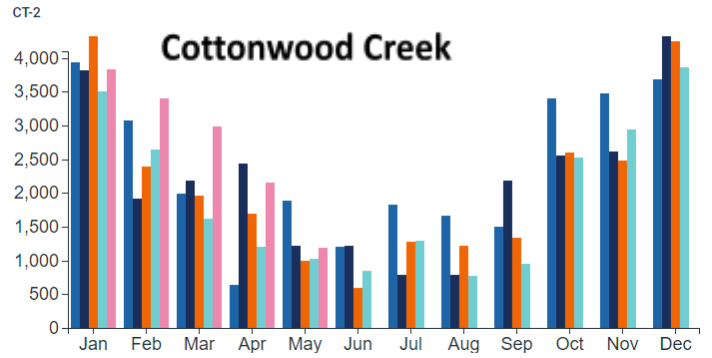
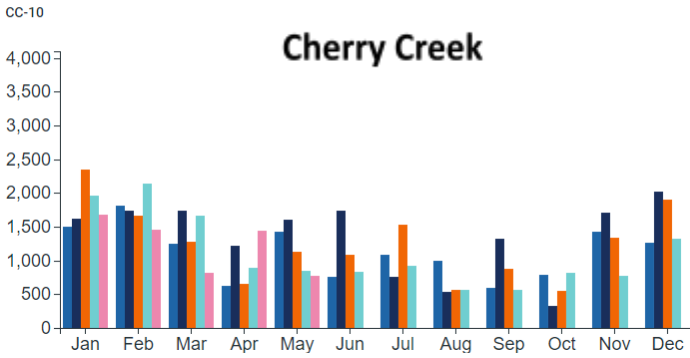
Total Phosphorous ($\mu\text{g/l}$)

● 2015 ● 2016 ● 2017 ● 2018 ● 2019 ● 2020 ● 2021 ● 2022 ● 2023



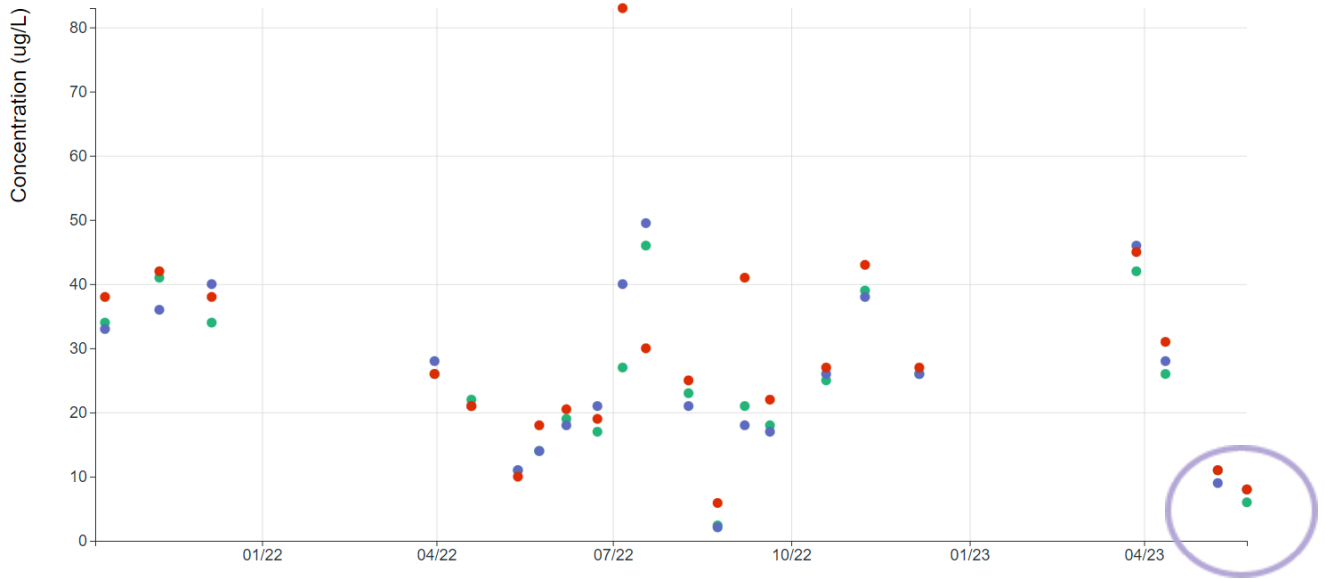
Total Nitrogen (ug/l)

● 2015 ● 2016 ● 2017 ● 2018 ● 2019 ● 2020 ● 2021 ● 2022 ● 2023

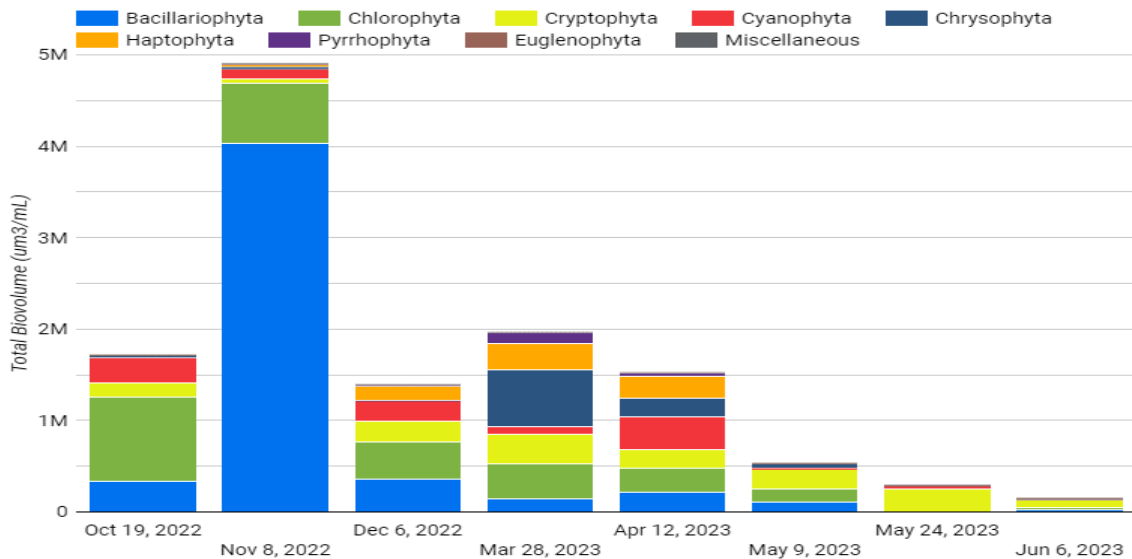


Chl-α

Cherry Creek Reservoir has a chlorophyll-α seasonal standard of 18.0 µg/L which is based on the mean concentrations between the months of July and September. The chlorophyll-α µ concentration averaged 10.3 µg/L in early May and 7.3 µg/L later in the month. Although not on the graph below, chl-α concentrations from the first and second half of of June monitoring events 8.33 and The 2023 concentrations are lower than those normally observed this time of year.



Plankton



Cherry Creek Reservoir demonstrated a diverse species of phytoplankton in the fall and early spring. The cyanobacteria started increasing again in April. A disperse bloom or what appeared to be *Aphanizomenon* and *Dolichospermum*, potentially toxic cyanobacteria has been observed during the last few visits. CPW was notified, and they are closely monitoring and will test for toxin if there is any accumulation in public areas.

June 22nd, 2023 Storm Information

The Cottonwood Creek sites upstream and downstream of the Peoria Pond (CT-P1 and CT-P2) were flooded and damaged during the large storm event on June 22nd.

The repairs to the CC-10 site were completed on 7/12/23. When the backwater effect from the elevated reservoir level flow measurements will be completed. Changes to the channel will also be evaluated which will determine if the development of a completely new stage discharge relationship will be necessary.