



MEMORANDUM

To: CCBWQA Board of Directors
CC: Jane Clary, Wright Water Engineers, CCBWQA Technical Manager
From: Elysa Loewen, Pollution Abatement Project Manager
Date: August 15, 2024
Subject: Dove Creek Phase II Improvements – Chambers to Pond D-1 Project Summary

Background and Purpose

In 2021, the Southeast Metro Stormwater Authority (SEMSWA) and Cherry Creek Basin Water Quality Authority (CCBWQA) began designing the stream reclamation improvements on Dove Creek from Otero Avenue to Pond D-1, which is located approximately 5 miles upstream of the reservoir; RESPEC was the selected consultant for the design. Concrete Express Inc. (CEI) was the selected contractor that was brought into the project development in 2021 as part of the project team. Based on project cost estimates, the project was split into two phases in 2022; Phase I included Dove Creek improvements from East Otero Avenue to South Chambers Road (constructed in 2023) and Phase II (This Project) included Dove Creek improvements from Chambers Road to Regional Pond D-1 at East Broncos Parkway (Figure 1)

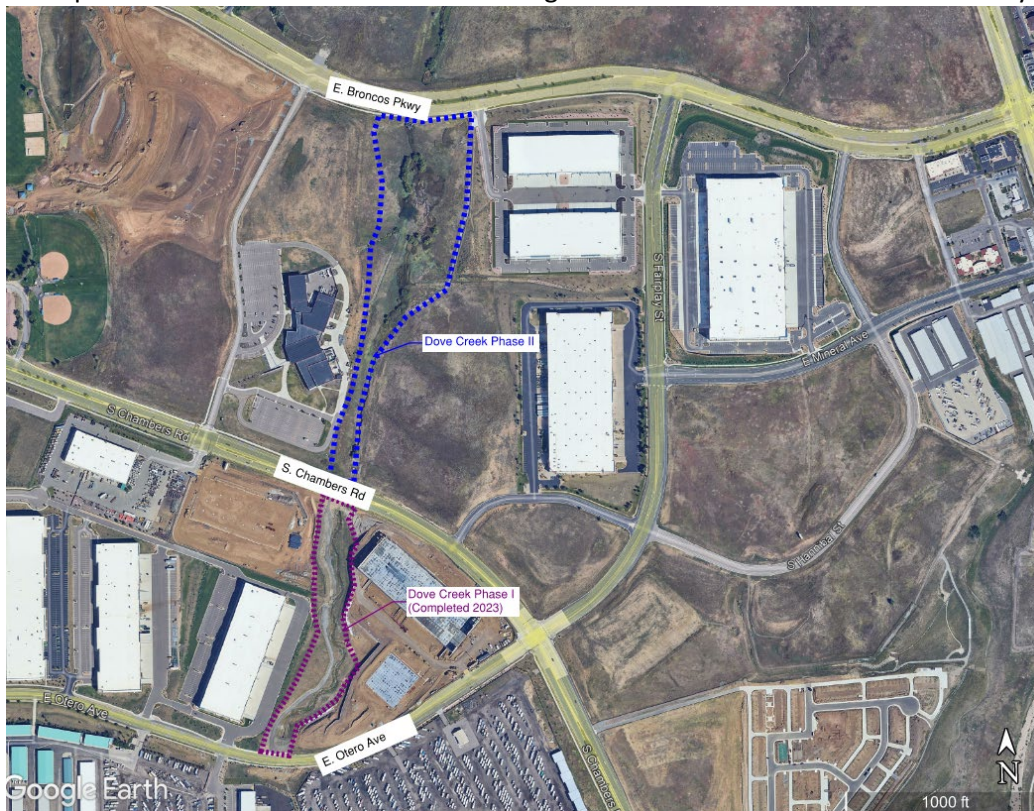


Figure 1: Project Vicinity Map

Existing Conditions

The increase in watershed imperviousness from the surrounding watershed has resulted in increased rate, frequency and magnitude of storm flows within this reach of Dove Creek. The urbanization of the watershed has led to the degradation of the channel and severe incision as shown in the photos below (Figures 2 &3). The photos below were taken during a site visit with the project partners SEMSWA, CCBWQA, RESPEC and CEI on December 14, 2021.



Figure 2: Pre-Project Photo



Figure 3: Existing Dove Creek Downstream of S. Chambers Road (Looking Upstream)

Design Approach

The goals of the project stakeholders were to create a healthy stream corridor with floodplain connectivity to improve the vegetation (wetland, riparian and upland). The design approach utilized the High Function Low Maintenance Stream (HFLMS) concept, an industry standard that targets design to improve the functionality of the stream and allow for adaptation of the stream to the surrounding environment. The project included increased sinuosity of the channel with riffle-pool sequences throughout the reach and reconnection to the floodplain and improvement of wetland and riparian vegetation. The project also constructed two forebay structures; one at the outfall from the adjacent development and one just upstream of pond D-1 to allow sediment removal from the channel prior to entering the regional water quality facility. Another key component of the area was construction and improvement to existing maintenance access to the channel and new forebay structures to allow for more frequent maintenance and sediment removal.

Construction

Dove Valley Phase II began construction in February 2024 and was completed in May 2024 by Concrete Express, Inc. (CEI). Photos 4-7 show the completed project. The project



Figure 4:Upstream of Pond D-1 (Looking Upstream) – Courtesy of SEMSWA



Figure 5:Constructed Forebay at the Downstream end of the project– Courtesy of SEMSWA



Figure 6: Downstream of Chambers Road (Looking Upstream) – Courtesy of SEMSWA



Figure 7: Downstream of Chambers Road (Looking Downstream) – Courtesy of SEMSWA

Funding

SEMSWA and CCBWQA are partners on this 2024 Project; SEMSWA led the project. The cost sharing was 80% SEMSWA and 20% CCBWQA. The project funding was \$2,641,000.00 with \$540,000 being CCBWQA's share. SEMSWA's current project budget update shows a remaining balance of approximately \$355,000 (at this time) after construction, which can be used to establish vegetation and clear permits for the final completion of the Project. The remaining balance will be reassessed and either refunded to the CCBWQA in line with our participation level or transferred to another project as determined by future evaluation.

Water Quality Benefits

The 2024 Project includes stream reclamation which provides water quality benefits for the stream (Dove Creek) and ultimately Cherry Creek and Cherry Creek Reservoir. It is estimated that the stream reclamation benefits for this phase of the project include an estimated 24 pounds of phosphorous immobilization downstream per year. Combined with the improvements to Dove Creek Phase I, it is estimated that the overall project will reduce 46 pounds of phosphorous immobilization per year¹. Stream reclamation reduces erosion and immobilizes nutrients (including phosphorus and nitrogen) in the soils, reducing nutrient loading to Dove Creek, Cherry Creek and Cherry Creek Reservoir. As discussed previously, additional water quality benefits are expected from the addition of the forebay structures that will aid in routine sediment removal from the channel.

Summary

Water Quality Benefit of Phosphorous reduction \approx 24 pounds of phosphorus per year

Total Project Cost² = \$2,641,000

Authority's Share² = \$540,000.00

Engineer: RESPEC

Contractor: Concrete Express, Inc. (CEI)

¹CCBWQA Stream Reclamation, Water Quality Benefit Evaluation – Interim Status Report; CCBWQA Technical Advisory Committee.

²Note final project costs will be determined upon completion of vegetation establishment and final permitting closeout. Any balance remaining will be refunded or transferred to another project based on future determination and approval