memo

Project Name |	THPP Infiltration Monitoring	**Date** |	03/02/2023
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	Mike Majeski & Camilla Correll		
Regarding |	THPP Monitoring Scope for 2023		

Background

The THPP was constructed in the winter of 1999 to alleviate high water conditions in the Goggins/School Section lakes system while protecting coldwater resources within Brown's Creek. A series of wetlands and infiltration basins were constructed and enhanced to store and infiltrate water, thereby reducing the amount of water that can discharge to the headwaters of Brown's Creek. The THPP system also captures and infiltrates runoff from the surrounding 230-acre subwatershed during years when the Goggins/ School Section lakes system is not outletting.

Water levels in Goggins Lake have fluctuated drastically over the past two decades, with record low lake levels in 2010 and near record high lake levels in 2020. With the high water levels recorded in Goggins Lake in 2019 and 2020, it became necessary to operate the lake outlet gate valve to prevent flooding around Goggins Lake. More recently, drought conditions have occurred in 2021 and 2022, resulting in a decline in the Goggins Lake level close to the ordinary high water level (OHWL, latest lake level reading was 965.97 feet in October 2022).

2022 Monitoring Summary

No water discharged out of Goggins Lake to the THPP facility in 2022 since the lake level never reached the outlet elevation of 970.0; therefore, no monitoring of the THPP facility occurred in 2022.

Monitoring Recommendations

With water levels in the Goggins/ School Section system near the OHWL and the high snow water equivalent of snow pack in the watershed, it is recommended lake stage be monitored in 2023 to help guide gate valve operations and emergency response during potential high water periods in Goggins Lake. If water begins to discharge out of Goggins Lake in 2023, it is recommended water level and temperature data be monitored at the THPP outlet. Based on the Capital Improvement Projects SOPM, the gate valve will be opened to fill the THPP system up to the outlet elevation of Basin 3, then the gate valve will be closed for 2-3 weeks to allow the THPP system to draw down. This procedure will be repeated as much as necessary during warm water periods to allow the BCWD to manage high water levels in Goggins Lake while mitigating warm water discharge out of the THPP system. If water levels in Goggins Lake increase to 971.0 feet, the gate valve will be left in the open position regardless of discharge temperature at the THPP outlet to prevent flooding of property around the Goggins/ School Section lakes.

Recommended Scope of Services for Monitoring in 2023

EOR Tasks:

- Task 1: Install and maintain the District-owned telemetry logger and staff gauge at Goggins Lake to monitor lake stage in 2023. The cost for this task is estimated at $1,173.

- Task 2: Install and maintain level and temperature loggers at the THPP outlet to record flow and temperature during any discharge events, and prepare a memorandum summarizing the data. This task would only occur if Goggins Lake discharges to the THPP facility in 2023. The anticipated cost for equipment installation, site visits, equipment maintenance, data analysis, and reporting is estimated at $4,044.

Requested Actions

1. Approve a budget of $5,217 from account number 903-0001 to conduct monitoring at Goggins Lake and the THPP outlet, with the expectation that Task 2 would only occur if water discharges out of Goggins Lake in 2023.