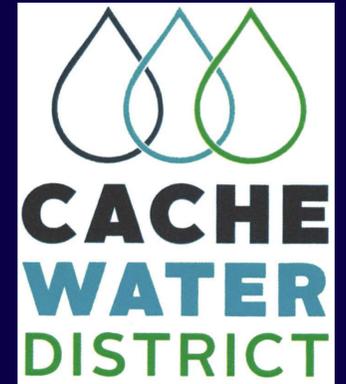


Temple Fork Dam



Riley Manwaring

Kendall Maedgen

Taylor Kesler

Logan Thackeray

John Sumsion

Adam Pack

Introduction

Constructing a dam in Temple Fork will provide additional water storage to meet the needs of a growing population in Cache County. A roller-compacted concrete (RCC) style dam is best suited for the current conditions at Temple Fork, which will provide a total of 10,000 acre-ft of water storage.

Population Projections

An additional 90,477 acre-feet will be needed to meet future demands of the population of Cache County by the year 2060.



Hydrologic Considerations

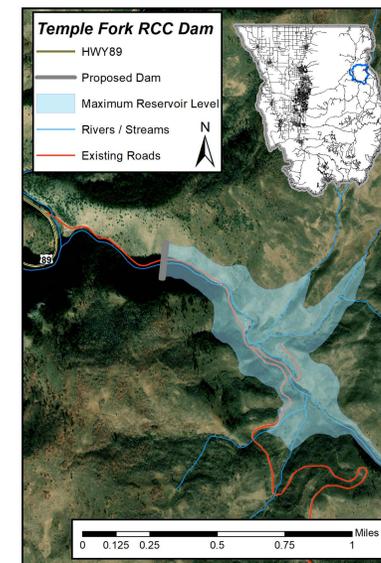
Based on limited physical discharge data from the Temple Fork Gaging Station (Logan River Task Force) and regression modeling using the USGS gaging station upstream of First Dam, it is estimated that approximately 2,350 acre-ft of water can be captured from the environment alone. To obtain the 10,000 acre-ft of storage, additional water will need to be pumped from the Logan River.

Geotechnical Considerations

The limestone bedrock presented many challenges due to karst formations. Karsts are large cracks that form in limestone over time due to dissolution and chemical weathering. These karsts could be responsible for seepage beneath the dam.

Environmental Considerations

The environmental factors: hydrology of the river, the Bonneville Cutthroat Trout, local wildlife displaced by the reservoir.



Alternative Designs Considered

- Dam upstream of Spawn Creek storing a maximum volume of 7,634 acre-ft.
- Two dams storing 5,000 acre-ft each.
- Earthen embankment vs. RCC.

Final Design

Height: 230.4'

Width: 735.3'

Reservoir Capacity: 10,000 acre-ft

Primary Spillway Capacity: 532 cfs

Inflow Design Flood: 8,600 cfs

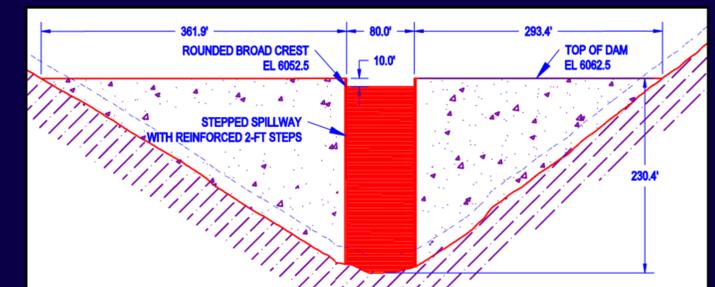
Spillway Width: 80'

Roller Compacted Concrete Volume: 54,295 cu ft.

Grout Curtain Depth: 75'

Dam Cost: \$34,488,500

Total Project Cost: \$60,307,500



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Literature cited

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