
# Lake George (Eleven Mile) Diversion Structure Removal and River Restoration Project

Final Report for the Colorado Water Conservation Board
Attn: Jacqueline Daoust
Water Plan Grant
PO CMS CTGG1 PDAA 2023 3955
$350,000

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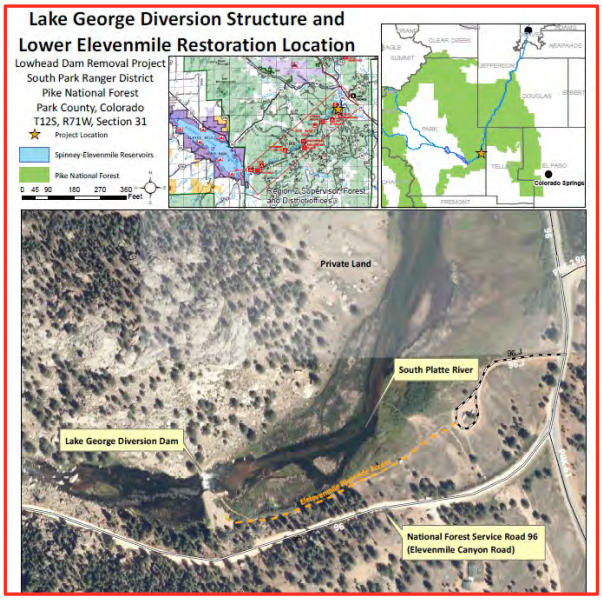
21Jun23-30Sep24

## LOCATION

The Lake George Diversion Dam removal project is located at the mouth of Eleven Mile Canyon near the Forest Service (USFS) entrance station located off of National Forest System Road (NFSR) 96. The project is 0.8 miles southwest of the town of Lake George, Colorado. Eleven Mile Canyon is on the South Park Ranger District of the in the Pike/San Isabel National Forests & Cimarron and Comanche National Grasslands.t and is managed by the South Park Ranger District.

Project Area Map




## BRIEF HISTORY

Construction of the Colorado Midland Railway started in 1886 and ultimately spanned 261 miles between Colorado Springs and New Castle. The winding section through “Granite Canyon” was completed by April 1887. For thirty-two years the Midland hauled coal, livestock, hay, wool, lumber, produce, other goods, and passengers, before ending service in 1918. Shortly after the railroad was dismantled in 1921, a road was constructed through Eleven Mile Canyon sin its place.

Historic Granite Canyon

The Lake George Diversion Dam was constructed in 1952 by Colorado Springs Utilities to transport western slope water to the Front Range. It ceased being used in the early 1990s as Colorado Springs Utilities moved their point of diversion to another location.

## PROJECT BACKGROUND

- The opportunity for the removal of the Lake George Diversion Dam (LGDDR Project was first identified in the 2015 Coalition for the Upper South Platte (CUSP) Report - Roads to Rivers. The report analyzed the impacts of sediment and other factors on the South Platte River from the Eleven Mile Canyon Road (NFSR 96) corridor.
- The LGDDR Project was also identified in the 2018 CUSP River Baseline Study which looked at impacts, amenities and current conditions along the South Platte River from Eleven Mile Dam that impounds Eleven Mile Reservoir to Strontia Springs Reservoir - a distance of approximately 45 river miles.
- Jacobs Engineering was hired by CUSP and USFS in 2019 to complete a 70% design to estimate preliminary costs and to carry out requirements under the National Environmental Policy Act (NEPA).
- In 2022, following completion of NEPA and the early stages of applying for funding, Jacobs Engineering was hired to complete a 95% design that would include construction documents and high-level engineering estimates. This process also included completion of a Sediment Disposal Plan, a Phase I Environmental Site Analysis requested by the Region 2 Office of the Forest Service. Additionally, the State Historic Preservation Office (SHPO) determined the Lake George Diversion Dam to be a significant historic resource and worked with the USFS to develop a Memorandum of Agreement to identify requirements for mitigating impacts to historical resources. As a result, Jacobs was also hired to compile the Historic American Engineering Record (HAER) documentation for the National Archives under the Library of Congress and administered by the National Park Service. The 95% design left enough flexibility for USFS staff overseeing construction to make changes in the field as needed.
- In late 2022, FlyWater, Inc was chosen as the general contractor for this project. Their chosen subcontractors included Naranjo Civil Constructors and AloTerra Ecological Restoration Services.
- In March 2023, a Flow Reduction Plan was developed in cooperation with Denver Water and Aurora Water to reduce flows so the contractor could safely work in the river. For the construction period, the target flows were 65 cfs.
- Also, in March of 2023, a Nationwide Permit 27 for Aquatic Habitat Restoration was issued by the Army Corps of Engineers for the project.
- After contracting, FlyWater mobilized and began preparation work in late July 2023. A nearby Bald Eagle nest required the project be put on hold until the eaglets fledged as to avoid serious disturbance.
- Construction work in 2023 continued throughout August, September, October, November and was completed on December 6. See major accomplishments listed below.
- Final work resumed in the Spring of 2024 when conditions permitted.
- Soil testing for compaction specifications
- Concrete testing to ensure material meets specified standards
- Complete the grading of river left banks
- Adjust some of the in-river restoration by removing sediment in front of the river access bench and moving some boulders to get better flows in front of the
- Complete placement and compaction of crusher fines on the surface of the fishing bench
- Continue installation of erosion control blankets and straw along river banks and upland areas
- Complete comprehensive punch list from 2023

- Begin enlargement and compaction of the parking lot
- Installation of new double CXT vault toilet at the reconstructed parking lot
- Construction of the Americans with Disabilities (ADA) compliant trail
- All construction of the project was completed by May 30, 2024. This was to avoid disturbance to fledging bald eagles and rising river flows due to spring runoff.
- June saw spring planting and seeding continue of grasses and forbs, along with landscape maintenance of that vegetation which included some irrigation. 1,992 herbaceous plugs were harvested from the project area and transplanted on site.
- 3,150 willow stakes were harvested from the project area and transplanted on site.
- July and August the planting of the below species finished up the planting phase of the project and now we move into irrigation and landscape maintenance phase for the next 24 months.
- Finally, noxious weed treatments and ADA access trails to picnic areas and interpretive signage was installed.

LG Diversion Dam Project Area

## PROJECT GOALS

- Remove the diversion dam and all of its associated structures
- Minimize erosion and sedimentation
- Improve sediment transport and hydrologic and geomorphic function
- Expand aquatic species passage and fishing opportunities for eagles and osprey
- Recover riparian function and resilience (benefits wildlife, birds, nutrient inputs, temperature regulation and shading in the river)
- Restore natural channel design and natural river features
- Protect watershed health
- Upgrade recreational fishing and sightseeing access for all users

## CHALLENGES

Historic American Engineering Record (HAER): this was a last-minute requirement by Colorado State Historical Preservation Office. CUSP had to hire an out-of-state large format photographer to meet HAER requirements plus find the original as built drawings.

While fascinating, working around the timing of the Bald Eagles' nesting and fledging of the young ones was challenging but construction activity was successfully coordinated to prevent and disturbances.

Safe water levels: river flows had to be coordinated with water providers to drop water levels to 65 cfs so contractors could work in river safely

Because all the sediment dug out of the river was used on site and cattail reclamation sites took more than planned, we ran short for the parking area and had to reduce the fill to be used.

Tracking so many funders: in the process of an internal audit from the USFS, we found the need for more detailed expense tracking and have created a matrix to use for our next large, multi-funding sources project.

Diversion Dam Prior to Removal

Accumulated Sediment behind Dam

Arrow Shows Location of Old Structure

Downstream Prior to Cattail Removal

New Vegetation in Cattail Area

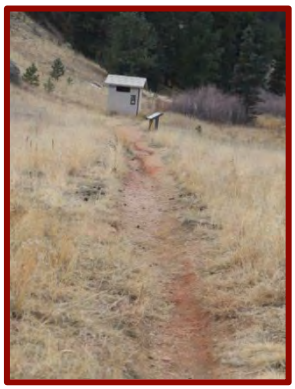
Upriver Prior to Dam Removal

Upriver After Removal

Old Fishing Bench/Area

New Fishing Bench/Area

Old Trail and Restroom



New ADA Accessible Trail and Restroom

New Vegetation from Seeding and Planting