

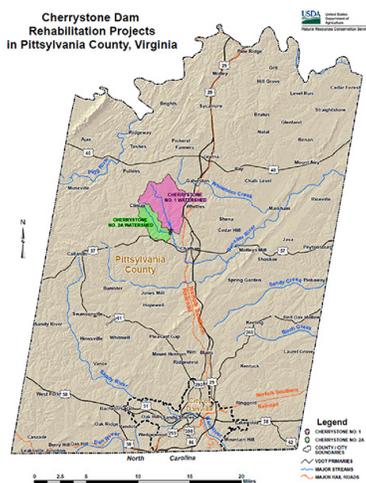
The Watershed Short Story:



The Soil Conservation Service (SCS), now the Natural Resources Conservation Service (NRCS), wrote the original Cherrystone Creek Watershed Watershed Work Plan for the Town of Chatham, Pittsylvania County, and the Pittsylvania Soil and Water Conservation District in 1965. These entities are collectively known as project sponsors.

Cherrystone Lake (Dam 1) was completed in 1968 with a planned use of flood control and municipal water supply. Roaring Fork Lake (Dam 2A) was built in 1969 for the single purpose of flood control. The Town of Chatham is responsible for the Operation and Maintenance (O&M) for both lakes.

When Cherrystone Lake was built, it was considered to be a significant hazard structure with the potential for infrastructure damage downstream. Due to construction in the downstream watershed, the State Division of Dam Safety changed it to high hazard. The dam's auxiliary spillway does not meet the needed capacity for a high hazard dam and needs to be rehabilitated to increase its size.



Dam Rehabilitation Fact Sheet

Cherrystone Lake, Cherrystone Creek Watershed

July 2018



Cherrystone Lake, looking across the dam at the pool and riser. The lake can store about 190 acre-feet of sediment, 850 acre-feet of water supply and 3,426 acre-feet of floodwater.

Description of Problem: NRCS identified five problems with the dam: The auxiliary spillway does not have the integrity to pass the water volume required by NRCS; the earth embankment does not meet current stability criteria; the footer of the riser does not meet current seismic criteria; the toe drains are corroded; and the culvert at Hodnetts Mill Road is backing water onto the toe of the dam.

Sponsors: Town of Chatham, Pittsylvania County Board of Supervisors, and the Pittsylvania Soil and Water Conservation District

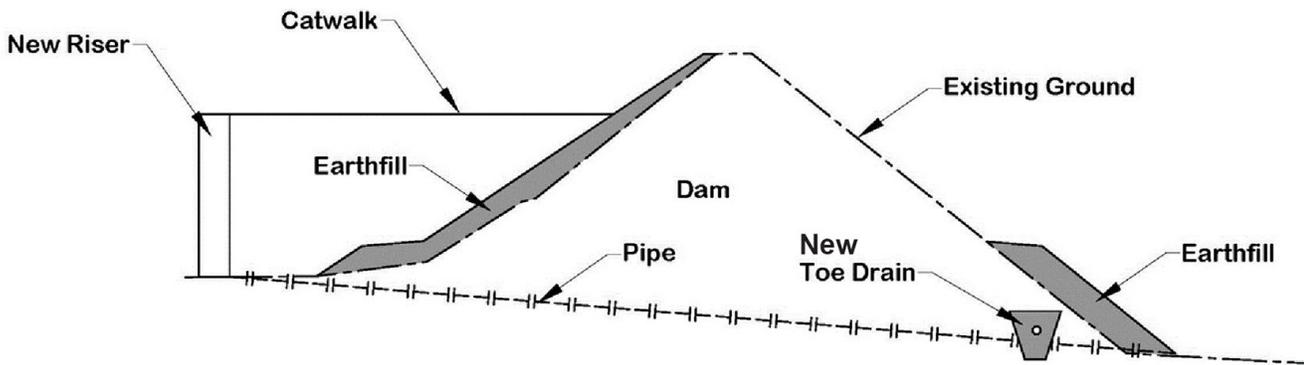
Funding: The USDA Natural Resources Conservation Service will pay 65 percent of the total project costs and up to 100 percent of the construction costs. The sponsors will be responsible for 35 percent of the total project costs. The estimated cost of this rehabilitation is \$7.26 million.

Dam Rehabilitation Schedule: The Cherrystone Lake Dam Rehabilitation Plan will be finished in September 2018. The NRCS Chief must authorize the plan for the process to continue into design and construction. Once design and construction are concluded, the dam's flood protection, recreation, and water supply benefits will continue for the next 50 years.

Site information:

- Drainage Area of lake: 14.7 square miles
- Dam Height: 59.1 feet
- Dam Length: 788 feet
- Surface Area at Normal Pool: 102.7 acres / Surface Area at Flood Pool: 250 acres

Proposed Alternative for Ensuring Embankment Stability



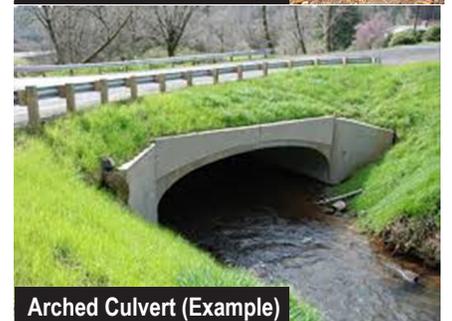
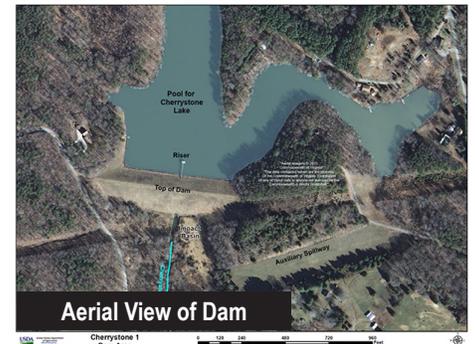
Flood control dams like Cherrystone Lake are designed to store flood water during storm events and gradually release it into the stream over several days through the principal spillway pipe. The principal spillway riser and pipe regulate the water level in the dam on a daily basis and control the rate at which the detained storm water is released from behind the dam. Excess water that cannot be stored in the reservoir exits through the grassy area at the end of the dam known as the auxiliary spillway.

The plan includes the following rehabilitation items:

- The auxiliary spillway will be widened from 135 feet to 165 feet. A roller-compacted concrete cutoff wall will be installed in the existing auxiliary spillway. The elevation of the top of the wall will be the same as the existing auxiliary spillway crest, which will ensure no change to the level of flood protection. The auxiliary spillway will look about the same after construction.
- Upstream embankment stability will be achieved by the addition of fill material on the upstream face of the embankment to flatten the slope and create a berm. The top of the dam will be widened to 20 feet.
- A new riser will be built at the toe of the new berm. The principal spillway pipe and catwalk will be extended upstream.
- Fill material will be added to the downstream face of the dam to create a stability berm at the toe of the embankment.
- The principal spillway pipe will be extended downstream about 24 feet and a new outlet structure will be constructed.
- A new toe drain will be installed.
- The culvert at Hodnetts Mill road will be replaced with a bottomless concrete arch culvert.

Though the lake will be drained and no water will be stored during construction, the base flow of Cherrystone Creek will still contribute to the local water supply. Additional water needs will be met by using water from Roaring Fork Lake.

Flood control dams also serve to trap sediment and keep it from moving downstream. In the 50 years since this dam was built, it has trapped about 48 acre-feet of sediment. As of 2018, there is enough room in the reservoir to retain sediment for the next 183 years. Therefore, sediment removal will not be included as part of the rehabilitation of the dam.



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Natural Resources Conservation Service