



Welcome



PINEY RUN RESERVOIR Environmental Advisory Council

October 21, 2020



- ## Piney Run Reservoir
- Flood Control
 - Water Supply
 - Recreation



Piney Run Dam

- Completed 1974
- 73 feet tall, 600 feet long
- 10.6 square mile watershed
- Reservoir:
 - 290 Acres
 - 54 foot maximum depth
 - Normal Capacity:
1.7 billion gallons
- Classified as High Hazard



Piney Run Dam Condition

- Inspected annually by County, State (MDE), and Natural Resources Conservation Service (NRCS) engineers
- Last inspection: November 5, 2019
- Good condition, well-maintained
- No findings in recent visual inspections that raise a safety concern

Inspection of principal spillway riser



Pir



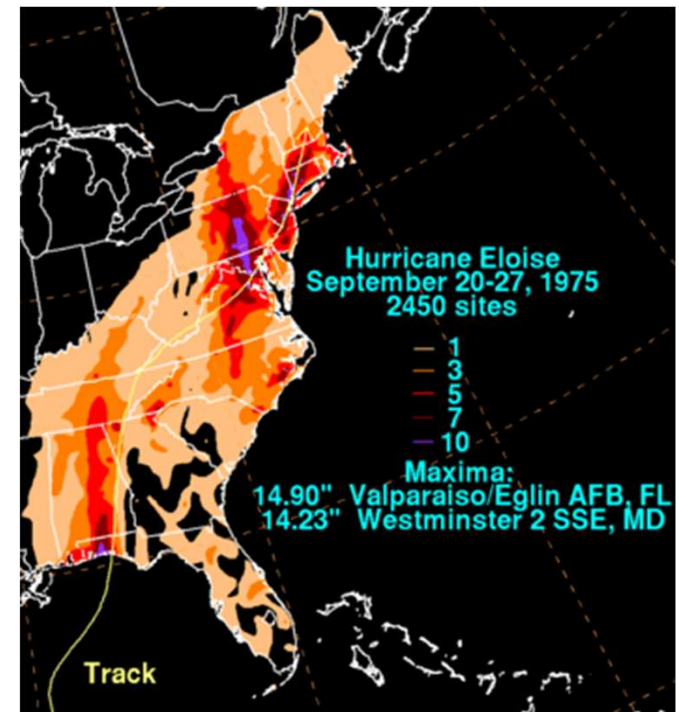
Piney Run Dam – Issues Being Evaluated

- Dam safety
 - Auxiliary Spillway capacity
 - Erodibility of Auxiliary Spillway
- Water supply
- Water temperature



Spillway Capacity – What is the PMF?

- Probable Maximum Flood: the flood expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the watershed.
 - ~39 inches in 72 hours
 - Comparison:
 - Hurricane Eloise (1975): ~14.3 inches in 72 hours (Piney Run in service for less than one year)
 - Ellicott City (2016): ~6.6 inches in 2 hours
 - Hurricane Harvey - TX (2017): ~50 inches in 6 days

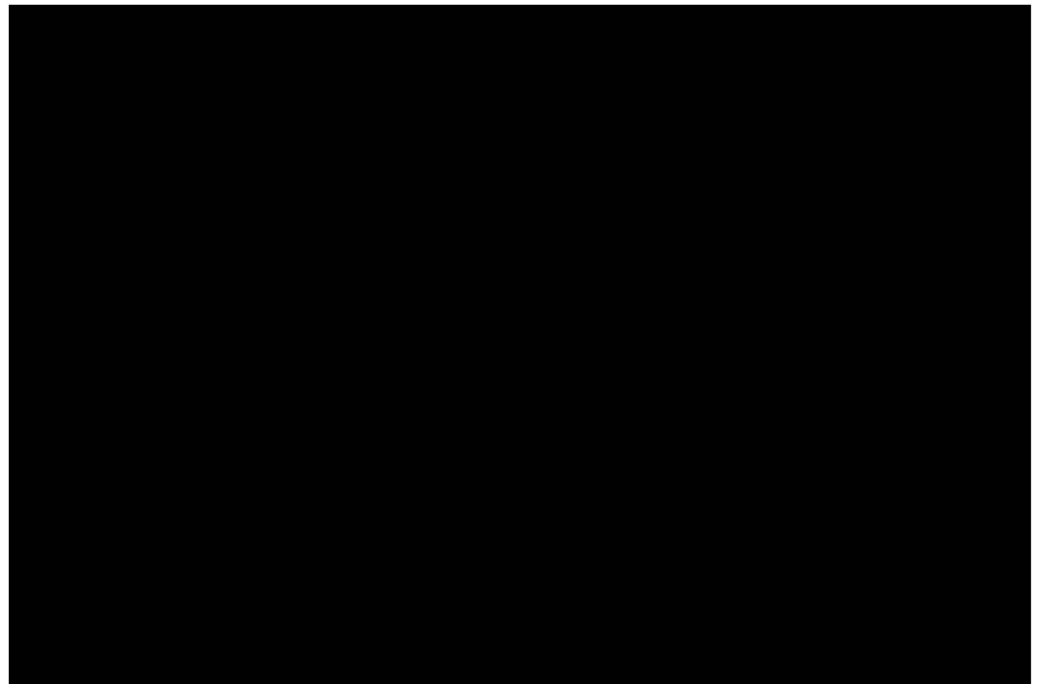


Storm rainfall totals during Hurricane Eloise, 1975
(courtesy: NOAA)



Spillway Capacity – Why the PMF?

- PMF is the required design event for both the state of Maryland and NRCS for a high hazard dam's spillway.
- Inability of the spillway to pass the design event could lead to overtopping of the dam and subsequent failure.
- Overtopping accounts for 1/3 of all dam failures in the United States.



Courtesy: Association of State Dam Safety Officials and Ohio Dept. of Natural Resources



Auxiliary Spillway Capacity

- PMF storm – Overtops dam by 6 feet
- Potential Solutions
 - Wider Auxiliary Spillway
 - Higher Dam
 - Secondary Spillway



Auxiliary Spillway Erodibility

- Forces on the spillway during the PMF are potentially enough to erode the weathered rock.
- Erosion of the spillway could lead to a failure.
- Potential solutions
 - Concrete protection
 - Secant pile wall



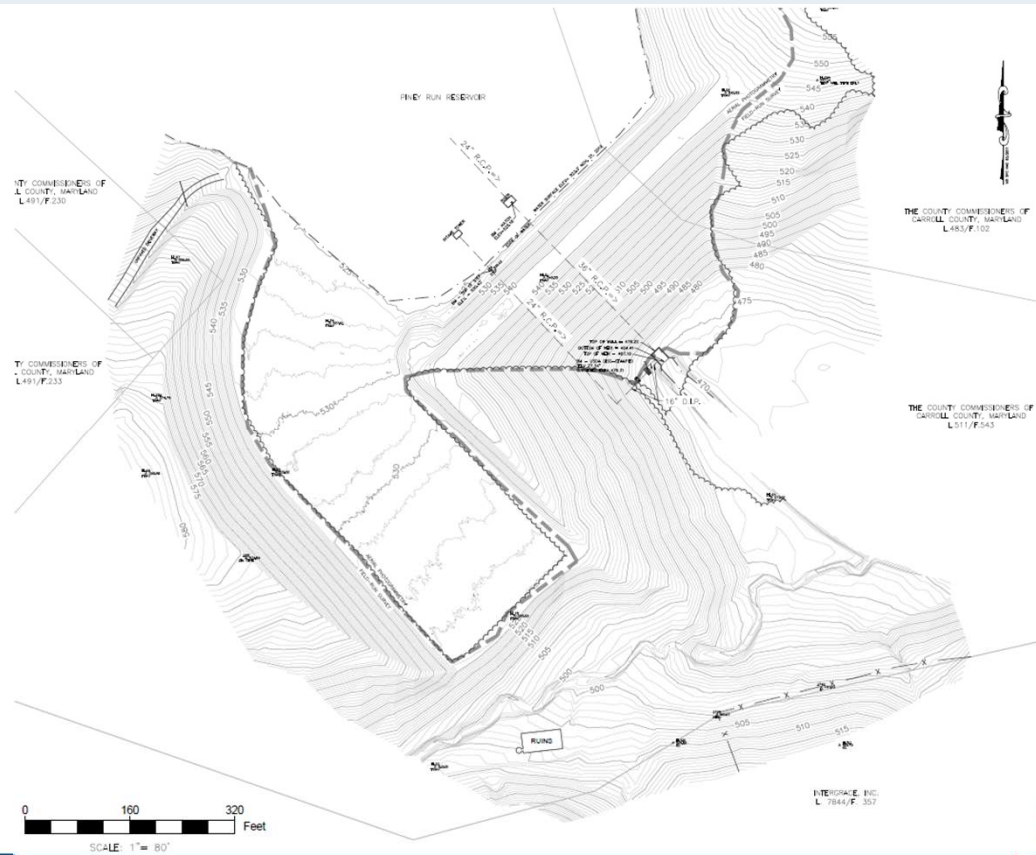
MDE Dam Safety Requirements and Timeline

- August, 2017 – MDE Dam Safety identified concerns regarding capacity and erodibility. Requires County to perform analysis.
- December, 2018 – County applies for grant assistance with NRCS for analysis of dam.
- June, 2019 – Award of funds to County from NRCS for watershed study.
- August, 2019 – AECOM contracted to perform watershed study.
- December, 2021 – Study will be complete.
- 2022 to 2024 – Engineering Design and Permitting.
- 2028 – Dam modifications complete.



Watershed Study - AECOM

- Condition assessment:
 - Infrastructure
 - Geology
- Alternatives to be studied
 - Auxiliary Spillway Capacity
 - Auxiliary Spillway Erodibility
 - Water Supply
- Evaluate impacts to
 - Natural environment
 - Archeology
 - Flooding
 - Economy
- Alternative Recommendation
 - Public Meetings
 - Commissioner Decision



Piney Run Thermal Impacts

- Use III Watershed – Cold water trout
- 68 Degree flow requirement
- Current surface release
- Is there enough cold water in reservoir to offset warm water inflow?

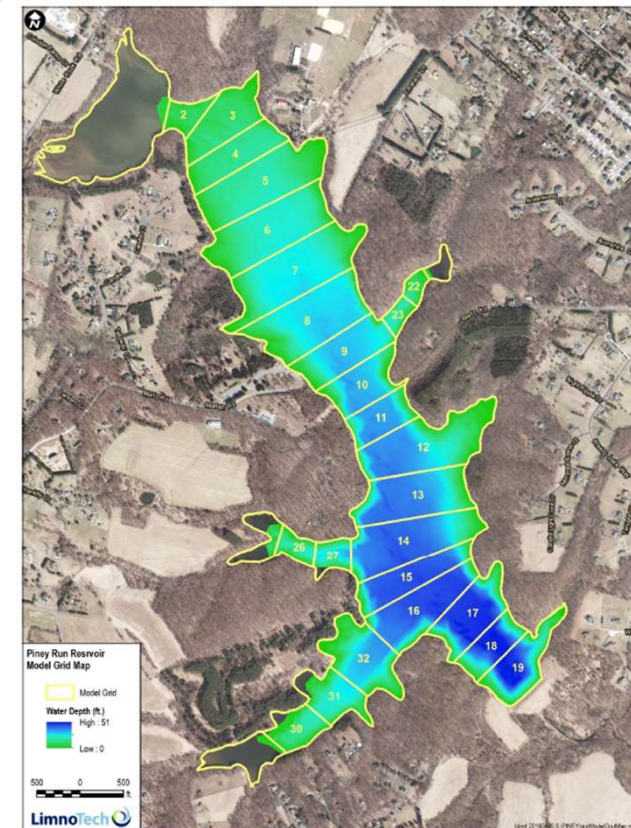
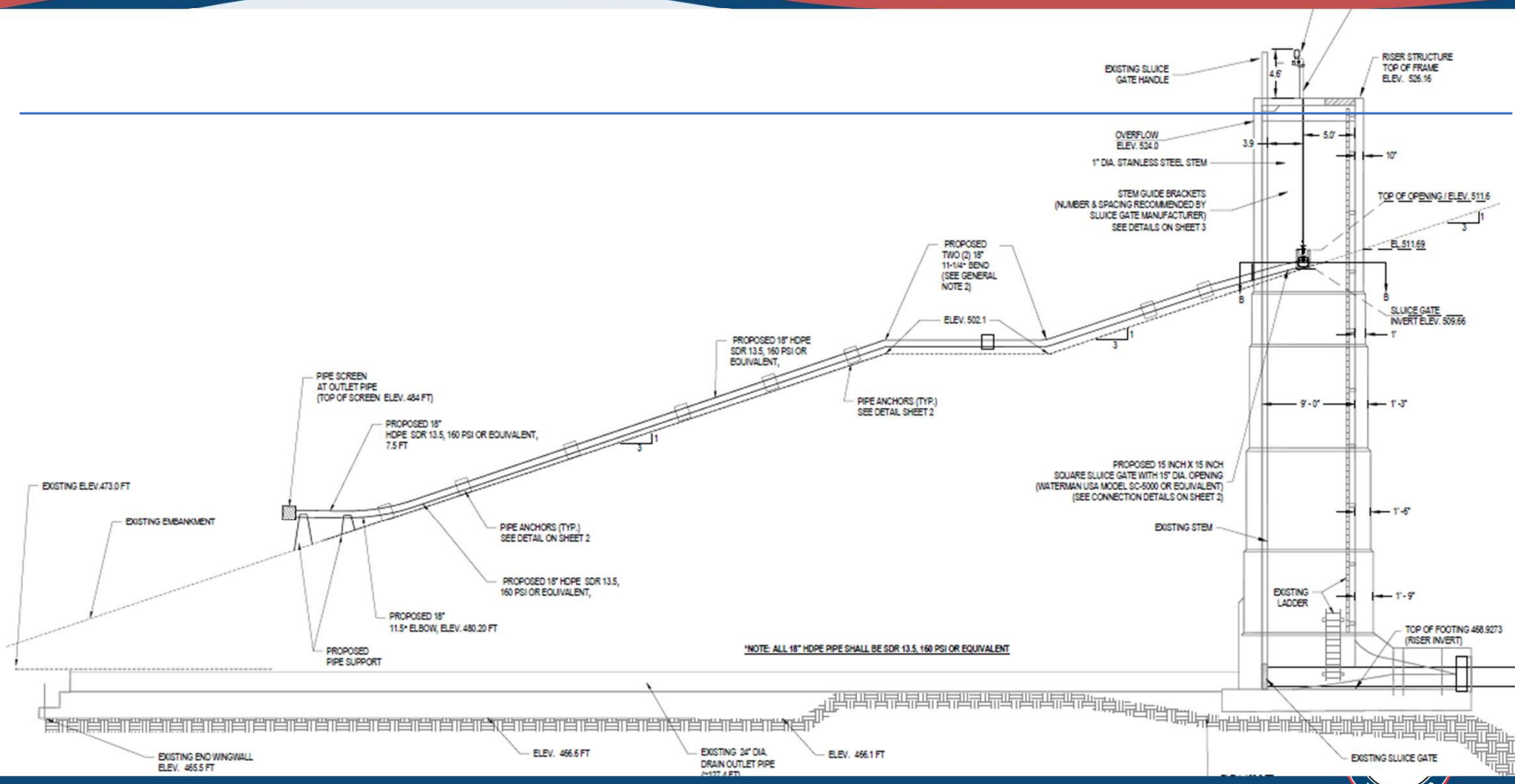


Figure 2-1. Piney Run Reservoir Model Domain and Segmentation

Piney Run Reservoir | Carroll County, MD





*NOTE: ALL 18" HDPE PIPE SHALL BE SDR 13.5, 160 PSI OR EQUIVALENT



Piney Run Reservoir

Questions?

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<https://www.carrollcountymd.gov/government/directory/land-resource-management/resource-management/piney-run-watershed-study/>

