



Little Seneca Reservoir Forebays Sediment Removal

Presented by WSSC Water

November 2, 2021

Agenda

- Project team introductions
- Background & purpose of the reservoir
- What is a sediment forebay and what is its purpose?
- Determination of recommendations
- Project cost and schedule
- Q&A



Project Team Introduction



- Thomas Hilton
- Martin Chandler
- Alan Sauvageau



- Steven Shofar
- Nasser Kamazani



- Douglas Stephens
- Steve Root



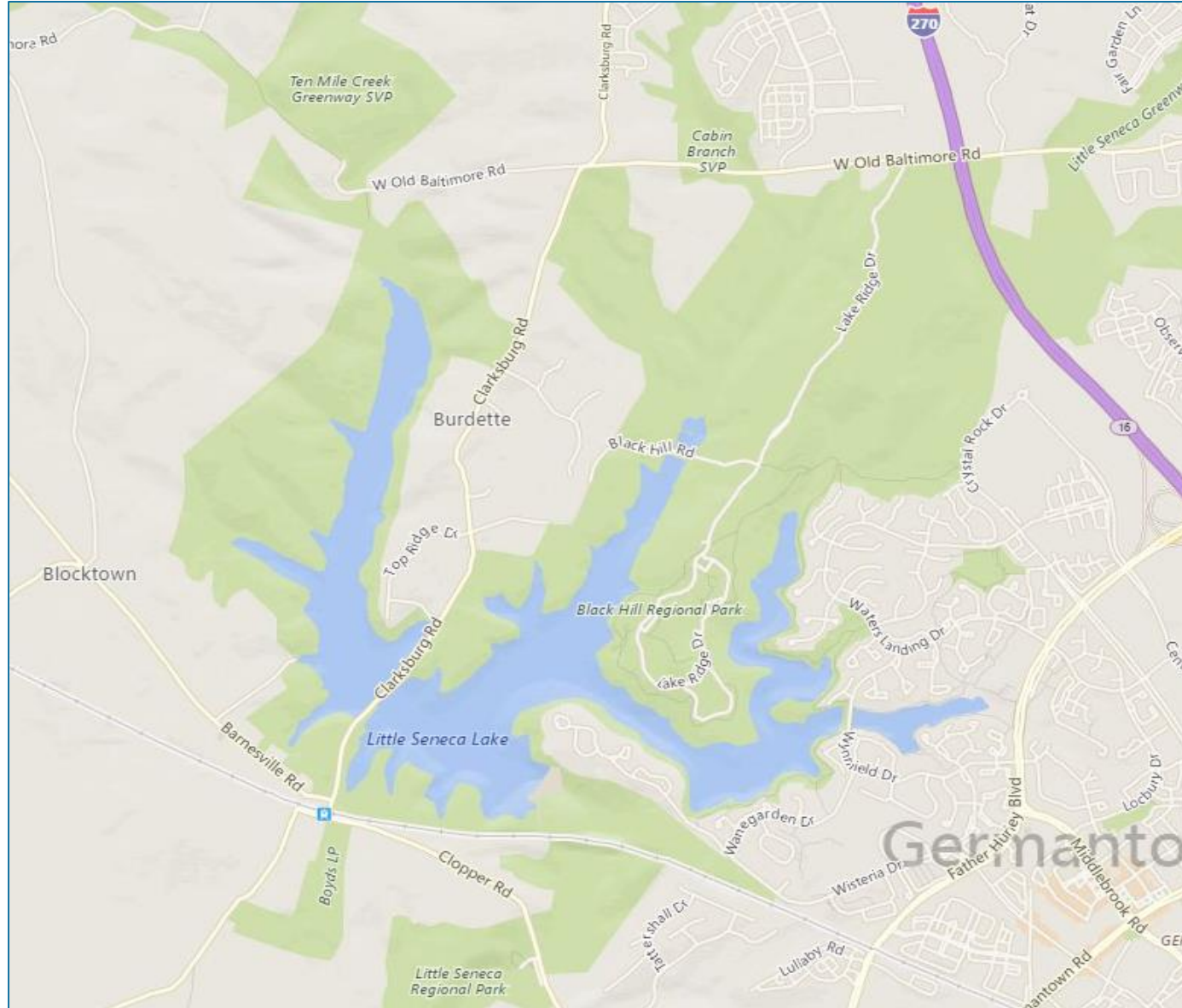
- Chris Overcash
- Kandice Sermon



Background/Purpose of the Reservoir

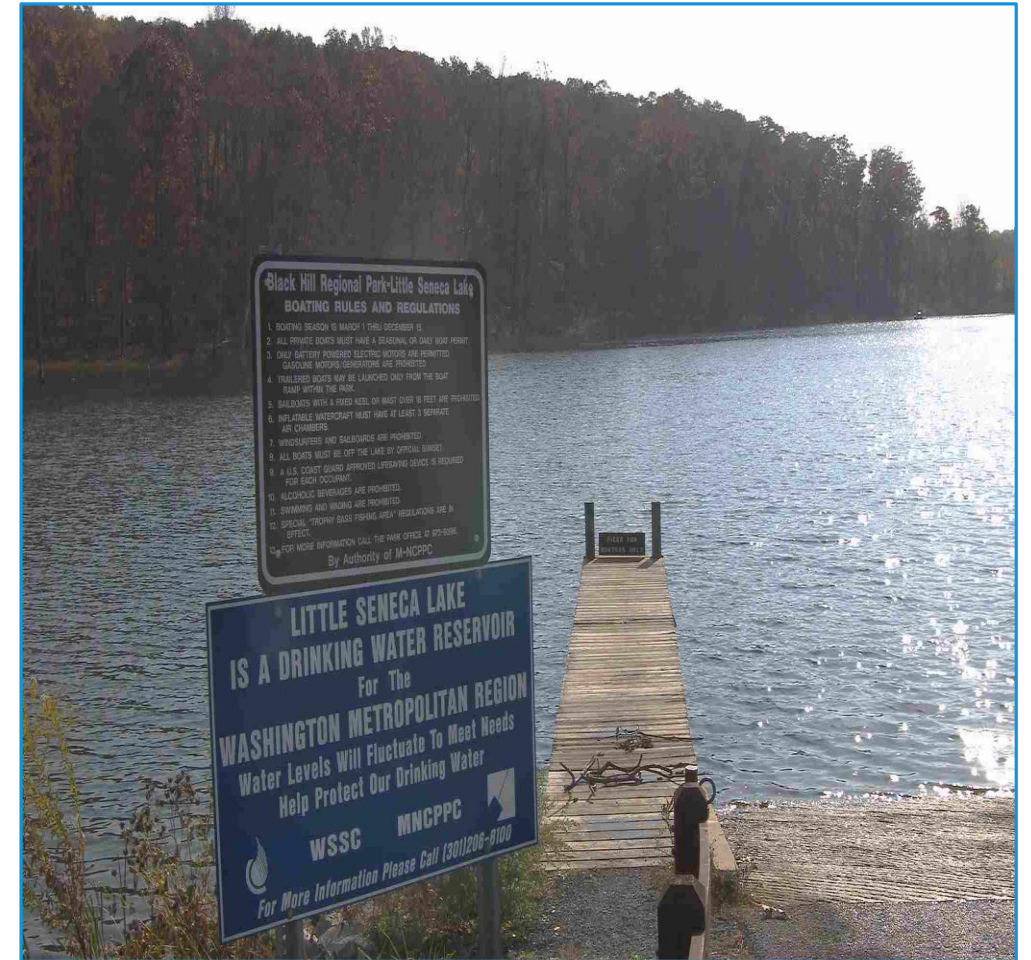


General Location



Little Seneca Reservoir Background

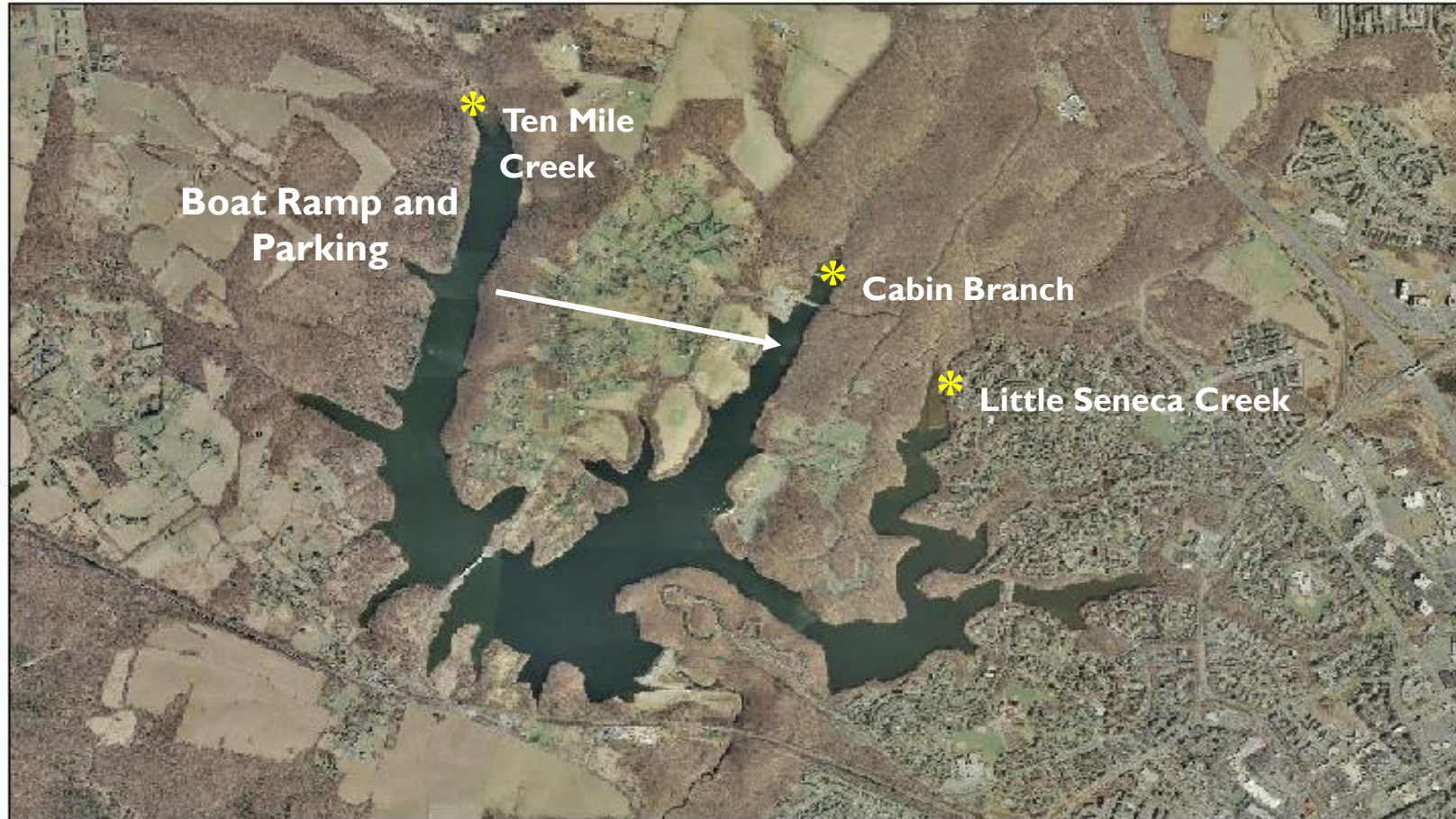
- Drinking water reservoir that holds four billion gallons of water
- Emergency raw-water supply during droughts
- Supplements Potomac River flow via discharge to Little Seneca Creek
- Joint project by WSSC Water, Washington Aqueduct, Fairfax Water
- Built: 1983-1986
- Public amenity – use of water and surrounding land
- Water supply is cooperatively shared in use and costs



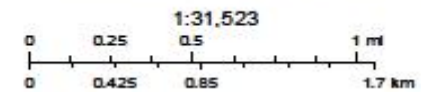
What is a Sediment Forebay and What is its Purpose?



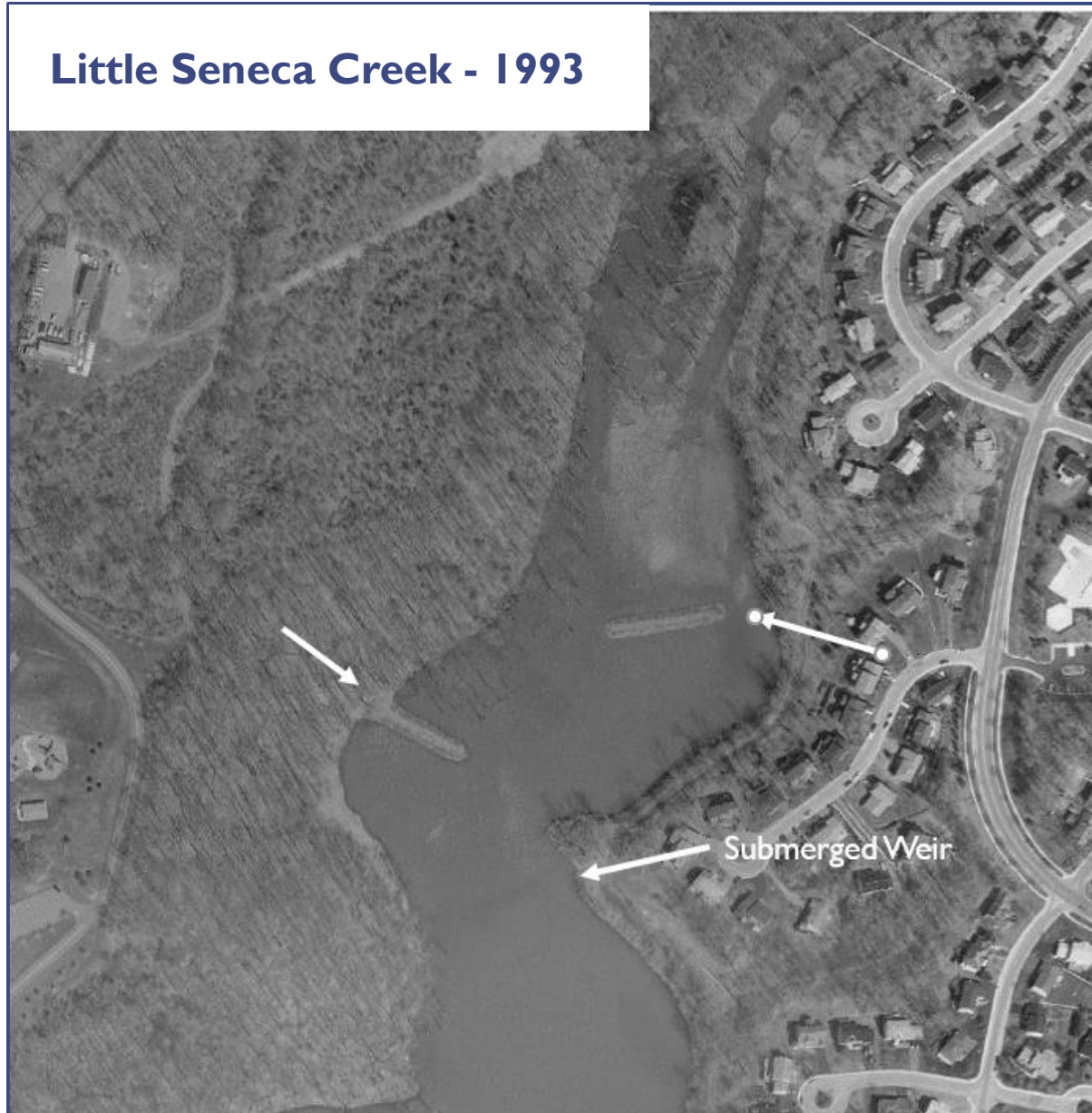
Sediment Forebay Locations



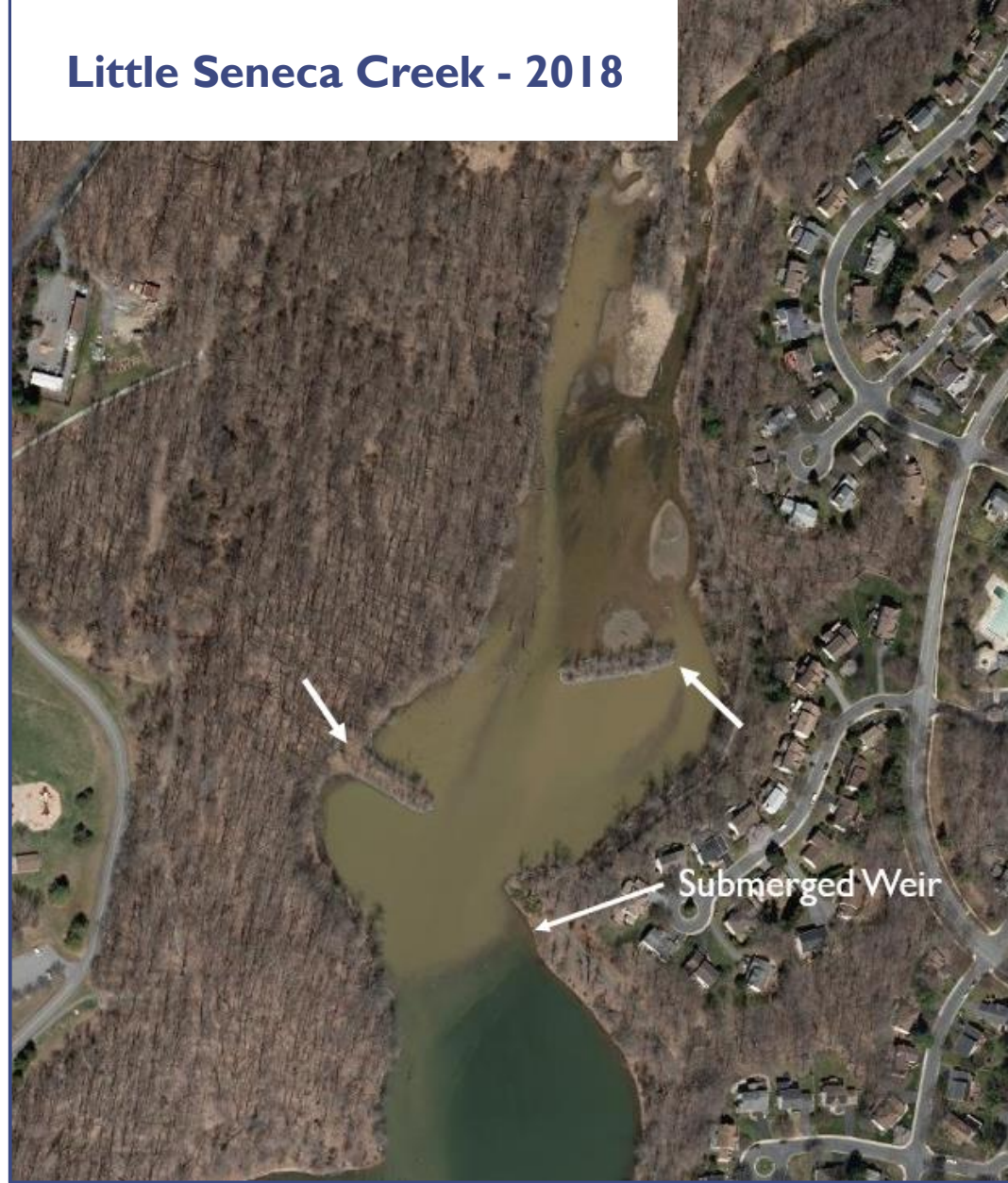
December 17, 2013



Little Seneca Creek - 1993



Little Seneca Creek - 2018



Little Seneca Creek Forebay 2019



Forebay Capacity

Reservoir was built 1983-1986

- For 35 years forebays have been functioning as designed
- Trapping sediment and preventing migration to deeper sections of the reservoir
- WSSC Water has performed bathymetric surveys in the past

2019 Field Investigations:

- Remaining Capacity
 - Ten Mile Creek – 16%
 - Cabin Branch – 29%
 - Little Seneca Creek – 34%

Conclusion – Now is the time to remove sediment to allow forebays to continue functioning as required

Determination of Recommendations



Initial Project Scoping

2019 Field Investigations

- Limited survey, sampling and laboratory analysis of sediment
- Estimated 150,000 CY

Identification of Project Components

- Development of alternatives related to each component

Identification of permitting requirements

- M-NCPPC
- Army Corps of Engineers
- Maryland Department of the Environment
- Maryland Department of Natural Resources

Collaboration with M-NCPPC

- Important discussions on scope, timing, park impacts



Project Components

Physical removal of sediment from bottom of Forebay

- Remove from surface of the water by vessel or drain the water from each forebay to work in a dry condition

Access to each Forebay and transport of sediment

- Pump the wet sediment by slurry through pipelines to central location or build access roads to haul material by truck

Dewatering

- Stockpile wet sediment and allow to drain/dry naturally or use mechanical dewatering methods

Sediment Disposition

- Transport the sediment to nearby properties as a soil amendment, or transport for use at construction projects, or for use at landfills for daily cover, or blend with organic material for re-use as topsoil

Project Considerations

- Water supply impacts
- Recreation impacts →
- Community impacts/truck traffic
- Management of stream flow
- Time of year considerations
- Construction access
- Construction duration →
- Debris in forebays
- Noise
- Costs
- Permitting requirements



Project Component Recommendation

Physical removal of sediment from bottom of forebay

- Work in each forebay in a dry condition – only feasible alternative due to debris
- Will require reservoir to be lowered 15-16 feet for duration of work in the forebays
- Adequate emergency water supply
- Will quicken construction duration and minimize disruption to park use
- Least costly



Project Component Recommendation

Access to each forebay and transport of sediment

- Cabin Branch will be accessed directly from gravel parking lot off of Black Hill Road
- Little Seneca Creek will be accessed by construction access road from Black Hills Park through old construction haul road
- Ten Mile Creek will be accessed from the abandoned Ten Mile Creek Road
- Least environmental and community impacts
- Quickens construction and dewatering durations

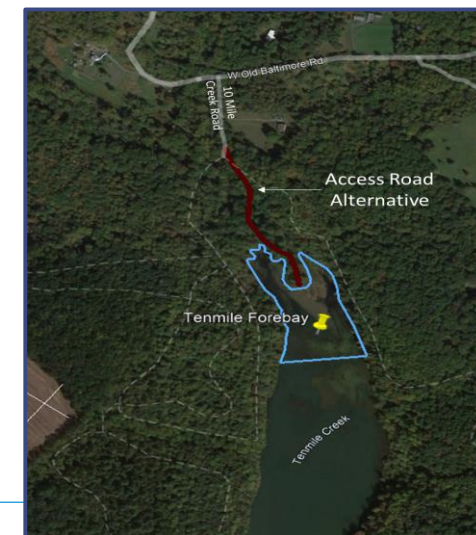
Cabin Branch



Little Seneca Creek



Ten Mile Creek



Project Component Recommendation

Sediment dewatering

- Recommendation is to dewater by stockpiling material in forebay with natural draining and drying
- Less disruptive (noise and land disturbance)
- Least costly

Sediment disposition and re-use

- Recommendation is to utilize the sediment as a soil amendment and for land improvement on M-NCPPC property and nearby farmland
- Least costly due to transportation costs
- Recommendation is dependent upon further testing and approval by DNR, MDE and MDA during design
- Other alternatives include:
 - Potential use for the capping of Gude Drive Landfill under the County Capital Improvement Program
 - Producing topsoil by blending organics in sediment

Project Cost and Schedule

Order of Magnitude Cost

- \$20-25M
- Cost sharing with other utilities
- WSSC Water's share is 50 percent

Tentative Schedule

- Schedule is subject to change and will be dependent upon availability of funding, permits, weather and other potential factors
- Design and permitting: Fiscal Years 2023 – 2025
- Construction: Fiscal Years 2026 – 2027
- Post construction monitoring Fiscal Year 2028

Comments

WSSC Water

www.wsscwater.com/littleseneca

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Questions?

