



**City of Boiling Spring Lakes  
Board of Commissioners Workshop / Special Meeting  
February 19, 2020  
City Hall – 5:00 p.m.**

**PLEASE TURN OFF CELL PHONES**

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**1. Call to Order ~ Mayor Craig Caster**

**2. Attendance ~**

Mayor Craig Caster	Commissioner Steve Barger
Commissioner Dana Witt	Commissioner Teagan Hall
Commissioner Tom Guzulaitis	Commissioner Dana Witt
City Manager Jeff Repp	City Clerk Jane McMinn
Michael A. Hanson, McGill Engineering	Adam Paisley Schnabel Engineering

**3. Workshop ~**

Mr. Repp informed the Board and citizens there will be a presentation this evening by McGill Associates reviewing alternatives for the construction/reconstruction of the dams, as Phase/Task Order #2 of the project. In the spring of September 2019 following Hurricane Florence in September of 2018, the Board of Commissioners went through a process to find engineers to do the restoration of the four (4) dams owned by the city.

In the July 2019, a contract was awarded to McGill Associates, which included a master services agreement encompassing three phases/task orders. The first phase/task order was a preliminary analysis report, which began immediately after the award of the contract in July. This was required by both North Carolina Dam Safety and the Federal Emergency Management Agency who is funding this project. The preliminary analysis was required to be completed prior to heading into the design phase for the replacement of the dams. The preliminary analysis report was submitted to Dam Safety and FEMA on January 14, 2020.

Tonight, the Board of Commissioners will consider the second phase/task order and the alternatives that were presented in the analysis report from McGill and provide McGill with direction which design the board would like to proceed with for each of the dam reconstructions.

Mr. Michael Hanson, PE of McGill Associates and Mr. Adam Paisley, PE of Schnabel Engineering will review each phase and present the timeline for each of the reconstruction of the dams. The Board of Commissioners will then provide McGill with direction on how they would like to proceed. Following the design phase will then be the construction management phase.

We have also provided time for the public to ask questions and comment on the reconstruction phase of the project.

**4. Presentation ~ McGill Associations, Mr. Michal Hanson**

*That the Preliminary Analysis Report, Dams Construction/Reconstruction Report is hereby incorporated by reference and made a part of these minutes.*

**5. Public Comment ~**

There were several citizens inquiring about the construction of the dams, the timeline for impoundment, issues with roads causing several months of detours, growth in the lakes, sink holes, etc.

**6. A 10 minutes recess was taken.**

**7. Special Meeting ~**

- a. Order ~** authorizing the City Manager to execute Task Order #2 ~ Design Services for Dam(s) Reconstruction by McGill Associates.

A *motion* was made by Commissioner Barger, a *second* by Commissioner Witt authorizing the City Manager to execute Task Order #2 ~ Design Services for Dam(s) Reconstruction by McGill Associates.

*Vote ~ 5 ~ 0*

- b. Order ~** authorizing the City Manager to enter into an agreement with the North Carolina Department of Agriculture and Consumer Services, Division of Soil & Water Conservation for a Watershed Restoration Project.

A *motion* was made by Commissioner Guzulaitis, a *second* by Commissioner Barger authorizing the City Manager to enter into an agreement with the North Carolina Department of Agriculture and Consumer Services, Division of Soil & Water Conservation for a Watershed Restoration Project.

*Vote ~ 5 ~ 0*

- c. Order ~** authorizing the City Manager to accept the proposal of Stryker Flex Financial in the amount of Thirty Two Thousand Seven Hundred and Thirty Five Dollars and Forty Five Cents (\$32,735.45) for the purchase of a LIFEPAK 15 V4

Monitor/Defibrillator; and declaring the device as surplus property and donating same to the Boiling Spring Fire & Rescue.

A ***motion*** was made by Commissioner Barger, a ***second*** by Commissioner Hall authorizing the City Manager to accept the proposal of Stryker Flex Financial in the amount of Thirty Two Thousand Seven Hundred and Thirty Five Dollars and Forty Five Cents (\$32,735.45) for the purchase of a LIFEPAK 15 V4 Monitor/Defibrillator; and declaring the device as surplus property and donating same to the Boiling Spring Fire & Rescue.

*Vote ~ 5 ~ 0*

**8. Adjourn ~**

A ***motion*** was made by Commissioner Barger, a ***second*** by Commissioner Hall to adjourn the Workshop / Special Meeting of February 19, 2020.


*Vote ~ 5 ~ 0*

*The Board of Commissioner Workshop / Special Meeting adjourned at 6:45 p.m.*

  
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Craig M. Caster, Mayor

**ATTEST:**

  
\_\_\_\_\_  
Jane McMinn, City Clerk

  
\_\_\_\_\_  
Date

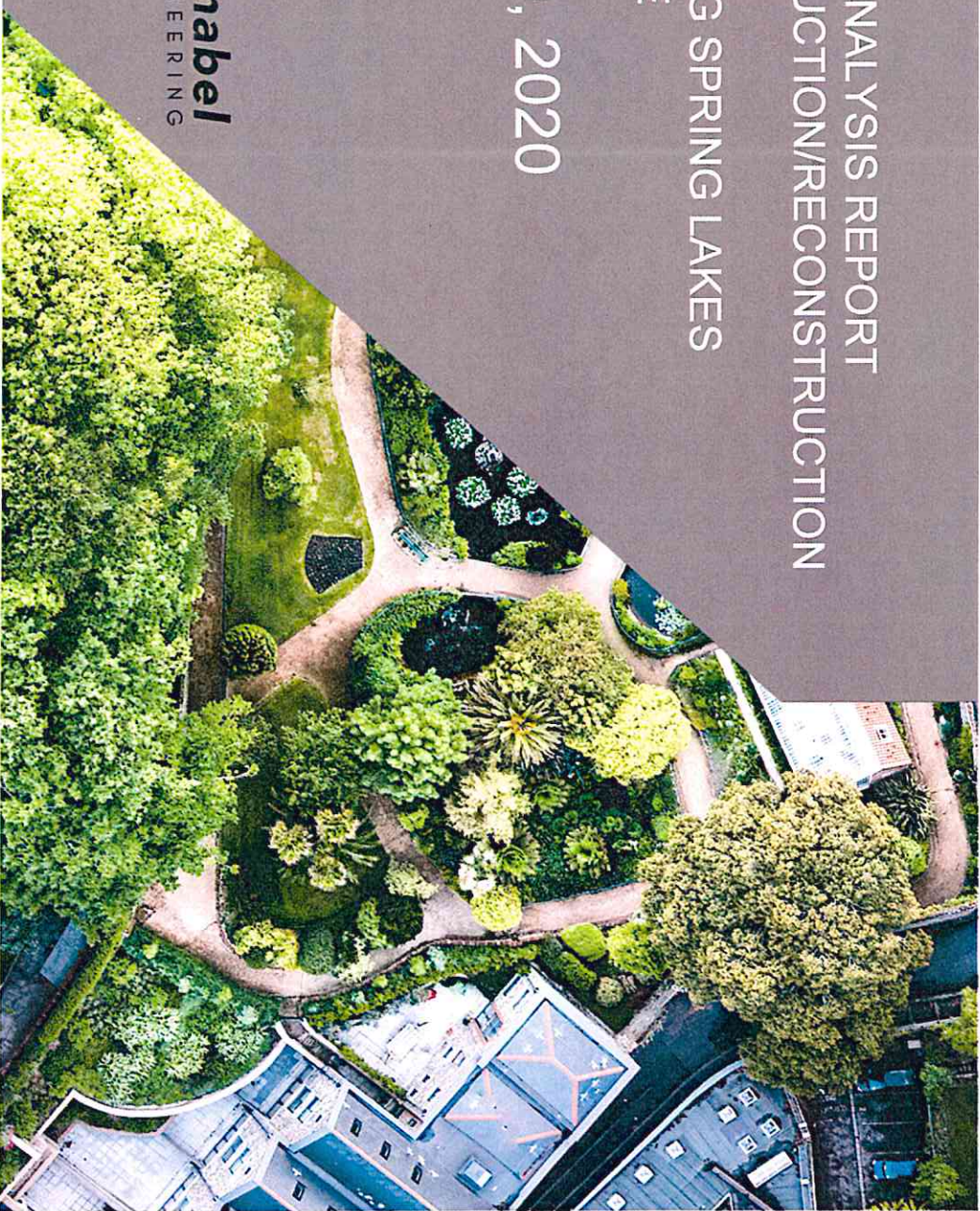


PRELIMINARY ANALYSIS REPORT  
DAMS CONSTRUCTION/RECONSTRUCTION  
PROJECT  
CITY OF BOILING SPRING LAKES  
BOARD UPDATE

February 19, 2020



**Schnabel**  
ENGINEERING

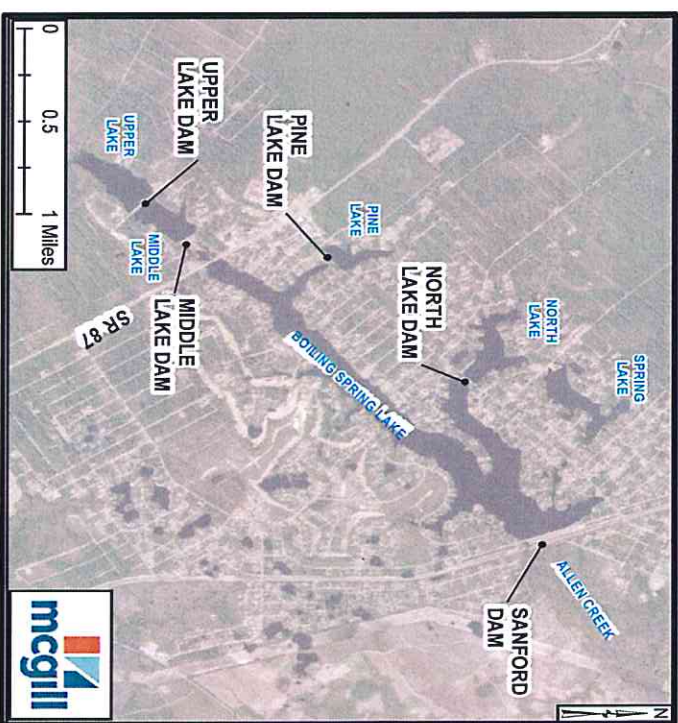
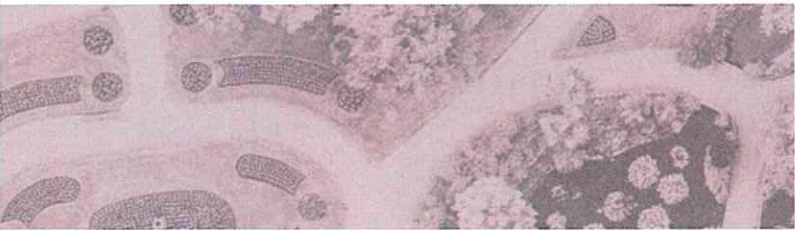






## Outlines

- Recommended Repairs and Construction Cost Estimate
- Project Schedule
- FEMA Funding Update
- Design/Permitting/Bidding Phase



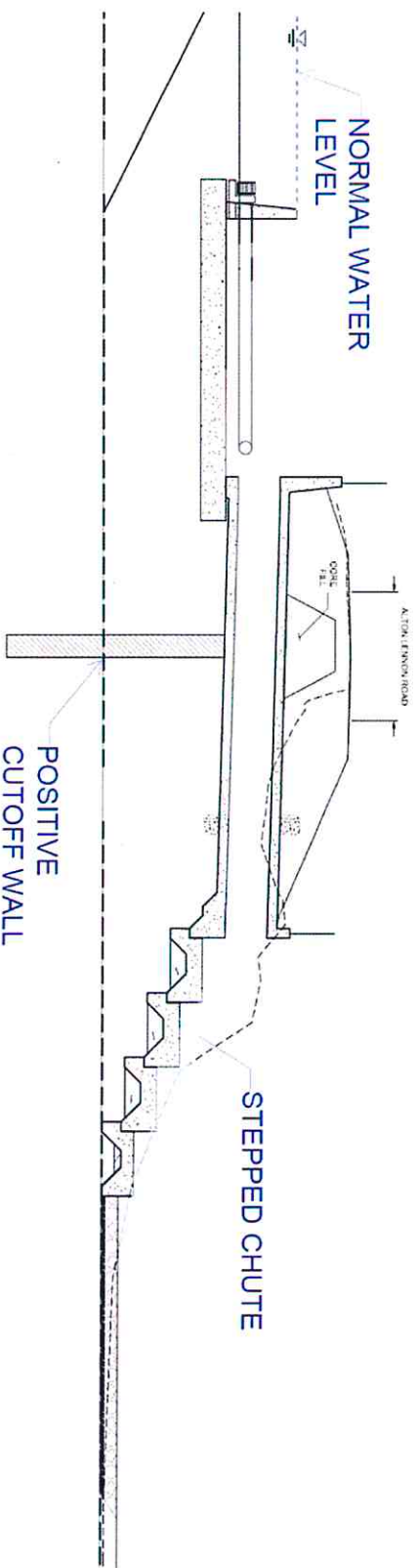
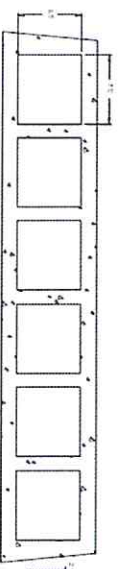
Boiling Spring Lakes Site Map

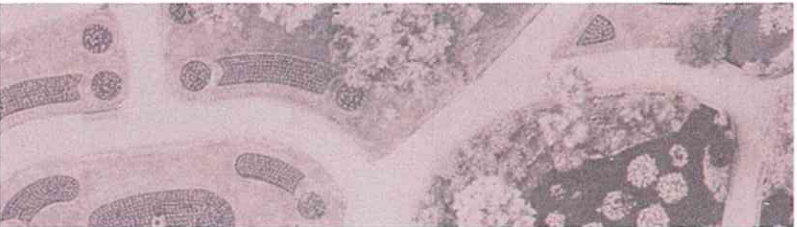


## Sanford Dam – Recommended Spillway



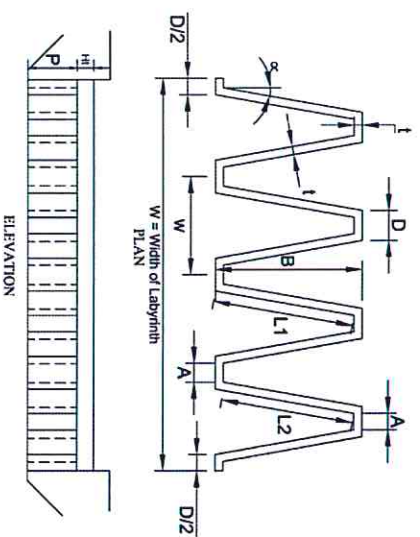
- Riser structure with six box culverts.
- Stepped Chute Energy Dissipator.
- Construction duration: 18 months.
- Estimated Construction cost: \$ 32,577,660.





## Sanford Dam – Alternative 2

- 4-cycle Labyrinth spillway
- A 2-lane 80 ft bridge is required to span over the labyrinth.
- Construction duration: 18 months.
- Construction cost: \$ 33,021,940.

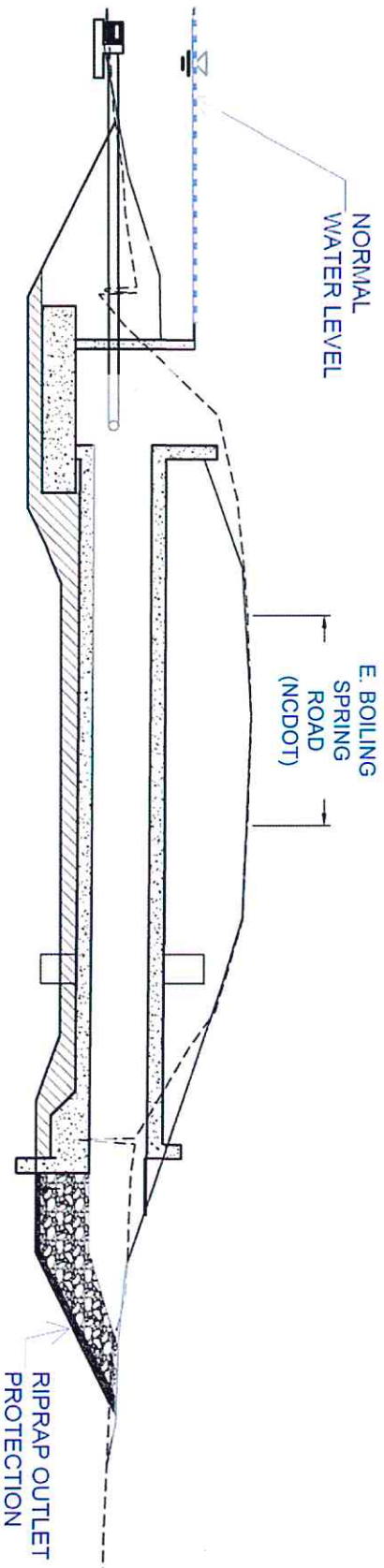
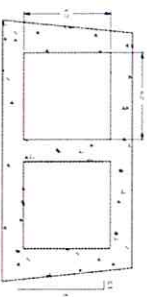




## North Lake Dam – Recommended Spillway



- Riser structure with two box culverts (6 ft span x 6 ft rise each)
- Construction duration: 8 months.
- Construction cost: \$ 1,990,465.



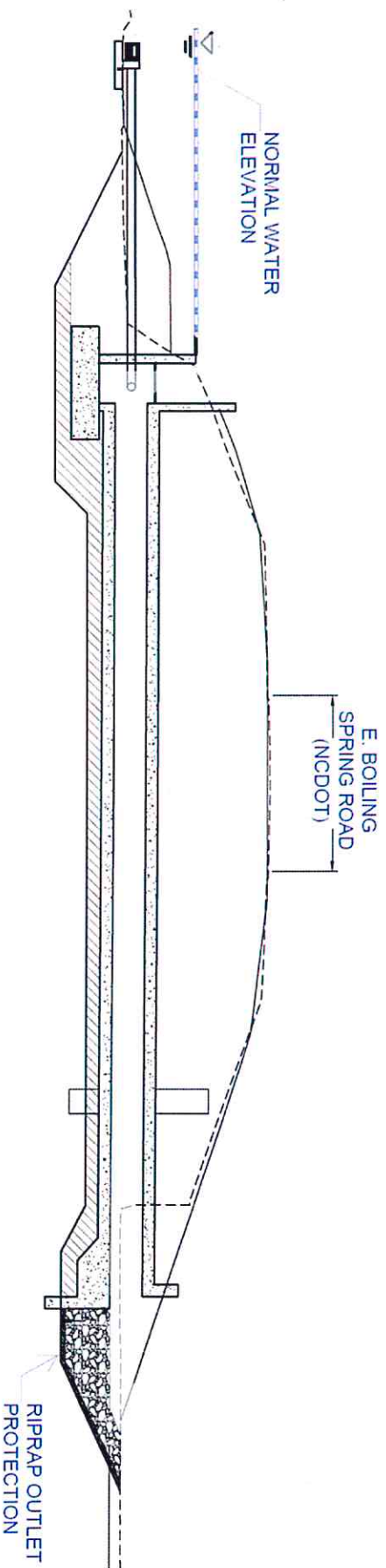
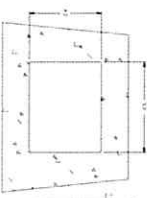




## Pine Lake Dam – Recommended Spillway



- Riser structure with one box culverts (5 ft span x 4 ft rise)
- Construction duration: 8 months.
- Construction cost: \$ 1,543,690.

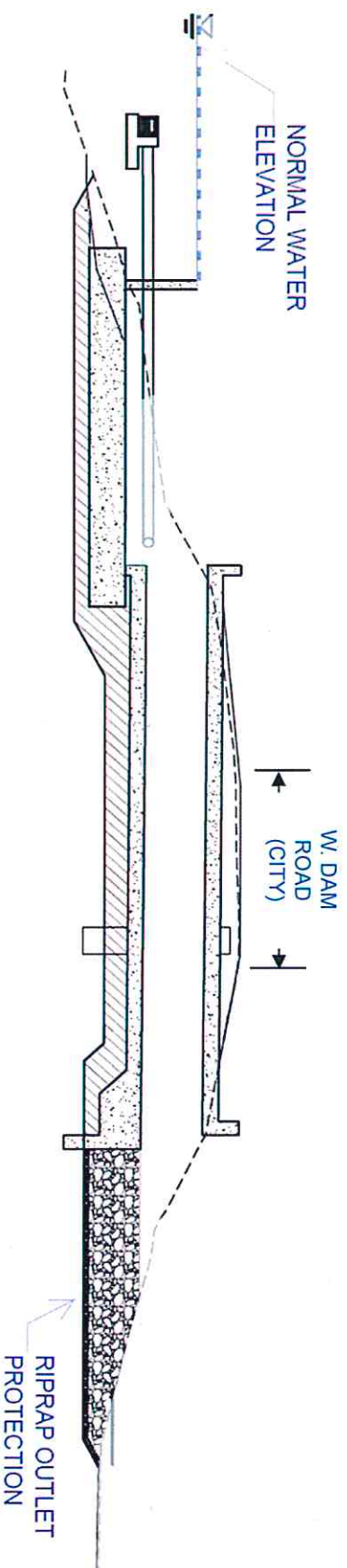
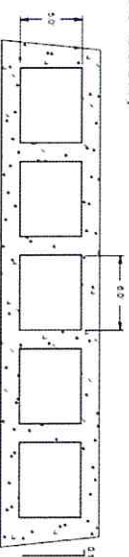


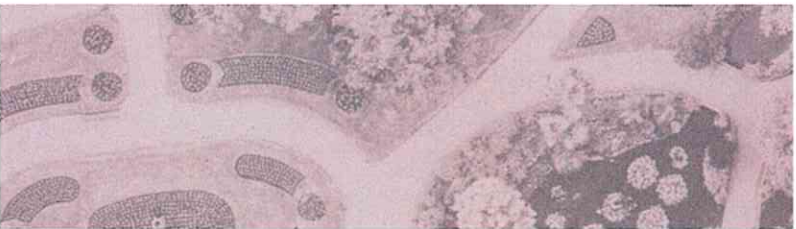


## Upper Lake Dam – Recommended Spillway



- Riser structure with five box culverts (6 ft span x 5 ft rise each)
- Construction duration: 8 months.
- Construction cost: \$ 2,475,625.





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## PAR Discoveries and Schedule Impacts



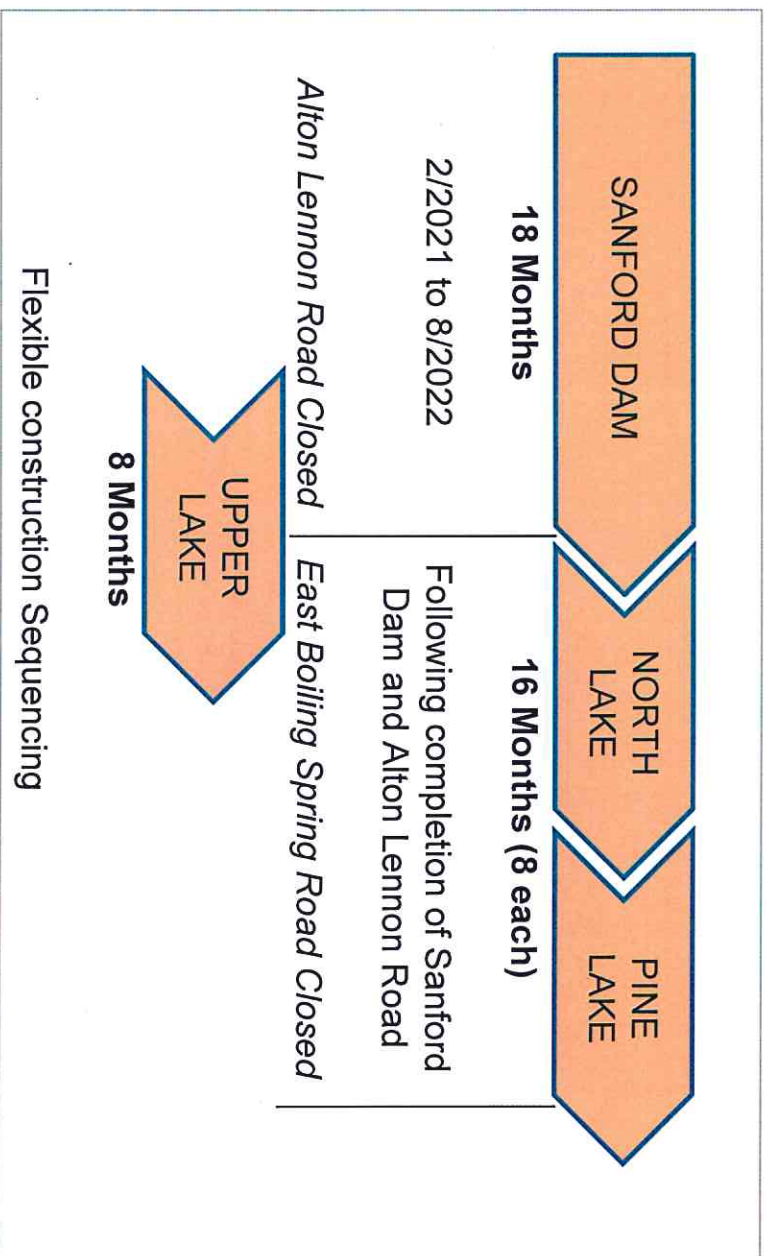
1. North and Pine Lake Dams changing from “exempt” to “high hazard” by NC Dam Safety requiring additional design as opposed to simple replacement
2. Question of ownership of land under EBSR needing to be resolved to determine FEMA participation
3. Seepage and stability concerns on Sanford Dam requiring the addition of a positive cut-off wall and additional testing
4. Replacement of the entire spillway for Sanford Dam due to limited capacity and longevity of the existing spillway

The above items highlight a few of the issues that have increased the complexity of dam design and construction leading to the current projected schedule.





## Preliminary Construction Schedule Estimate





## FEMA Funding Update

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- Submitted statement of work for recommended repairs in January 2020
- FEMA suggested separating North Lake and Pine Lake as separate project due to NCDOT ownership of EBSR





## Task Order 2 – Design/Permitting/Bidding

Task	Sanford Dam	North Lake Dam	Pine Lake Dam	Upper Lake Dam
Task 1 – Project Planning	\$ 64,022.22	\$ 16,114.59	\$ 16,114.59	\$ 16,114.59
Task 2 – Phase 2 Subsurface Exploration	\$ 287,545.71	\$ 20,195.76	\$ 20,195.76	\$ 20,195.76
Task 3 - Hydrologic and Hydraulic Study	\$ 73,868.87	\$ 18,575.21	\$ 18,575.21	\$ 18,575.21
Task 4 – 60% Design Development	\$ 262,831.39	\$ 105,588.54	\$ 105,588.54	\$ 105,588.54
Task 5 – 90% Design Submittal	\$ 252,648.04	\$ 91,637.99	\$ 91,637.99	\$ 91,637.99
Task 6 – 100% Design Submittal	\$ 90,757.88	\$ 23,558.71	\$ 23,558.71	\$ 23,558.71
Task 7 – Environmental Permitting	\$ 56,040.41	\$ 14,092.03	\$ 14,092.03	\$ 14,092.03
Task 8 – Bid Phase Services	\$ 36,441.95	\$ 8,487.68	\$ 8,487.68	\$ 8,487.68
Totals	\$ 1,124,156.46	\$ 298,250.51	\$ 298,250.51	\$ 298,250.51

Overall Phase 2 Project Total	\$ 2,018,908.00
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