

Dam Safety in Wake County

Wake County Emergency Management

Wake County GSA



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Dams in Wake County

595

Dams on the State Registry*

- 215 High Hazard
- 60 Intermediate Hazard
- 320 Low Hazard

What makes a Dam High Hazard (Potential)?

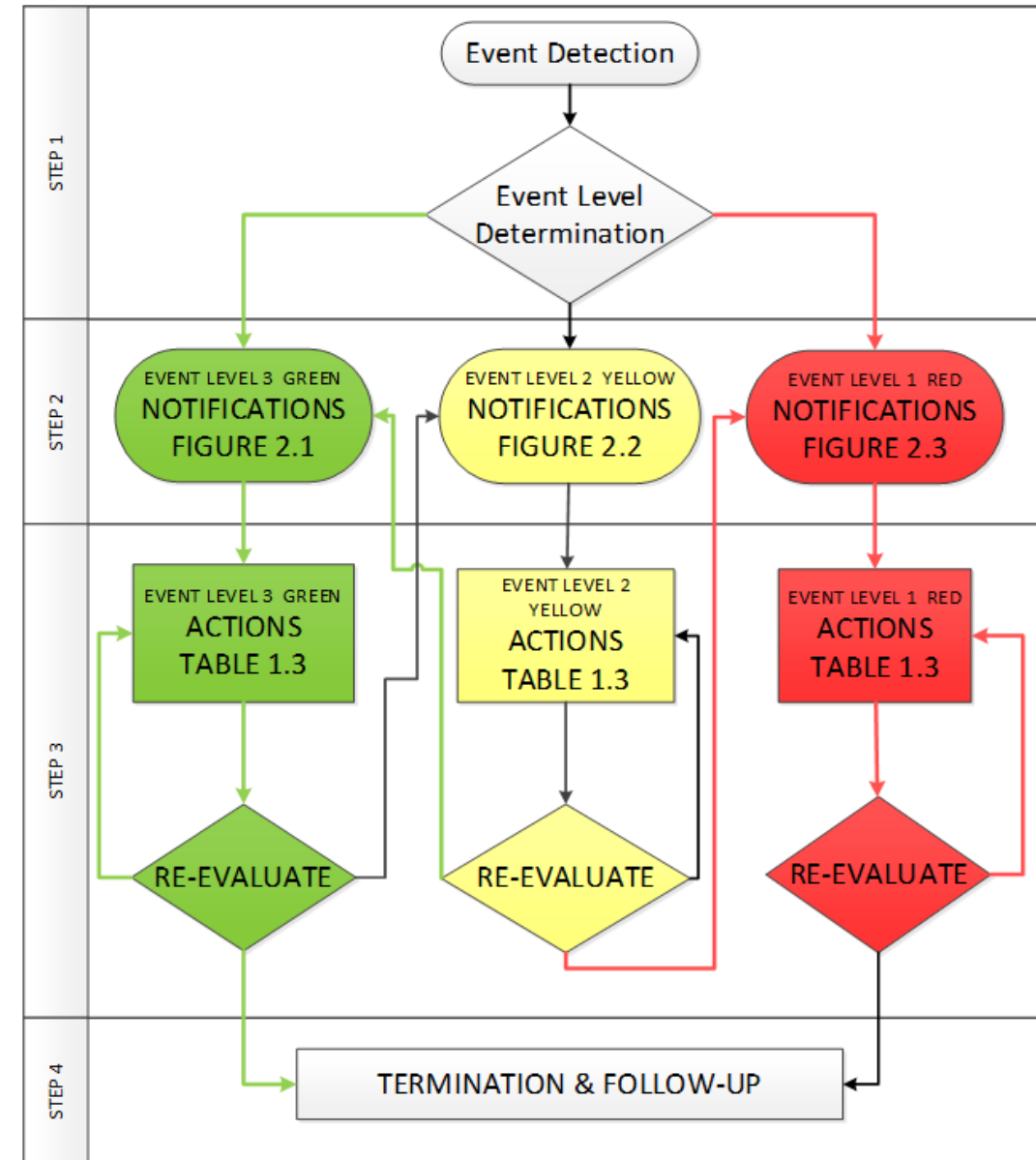
- **A dam is considered high hazard if its failure or misoperation could cause loss of life and significant property damage.**
- **Dams are classified based on the level of damage they could cause, not the likelihood of failure.**
- **Factors in assessing hazard potential**
 - Population at Risk (Loss of Life & Roadways)
 - Economic Impacts

Regulatory Authorities

- **NCDEQ – Dam Safety Program**
 - State-level dam safety program
 - Regulatory Authority comes from NCGS, NC Administrative Code, and EPA Coal Regulations
 - Coordinate with local authorities on dam-related issues
 - Provide template Emergency Action Plans

Emergency Action Plans

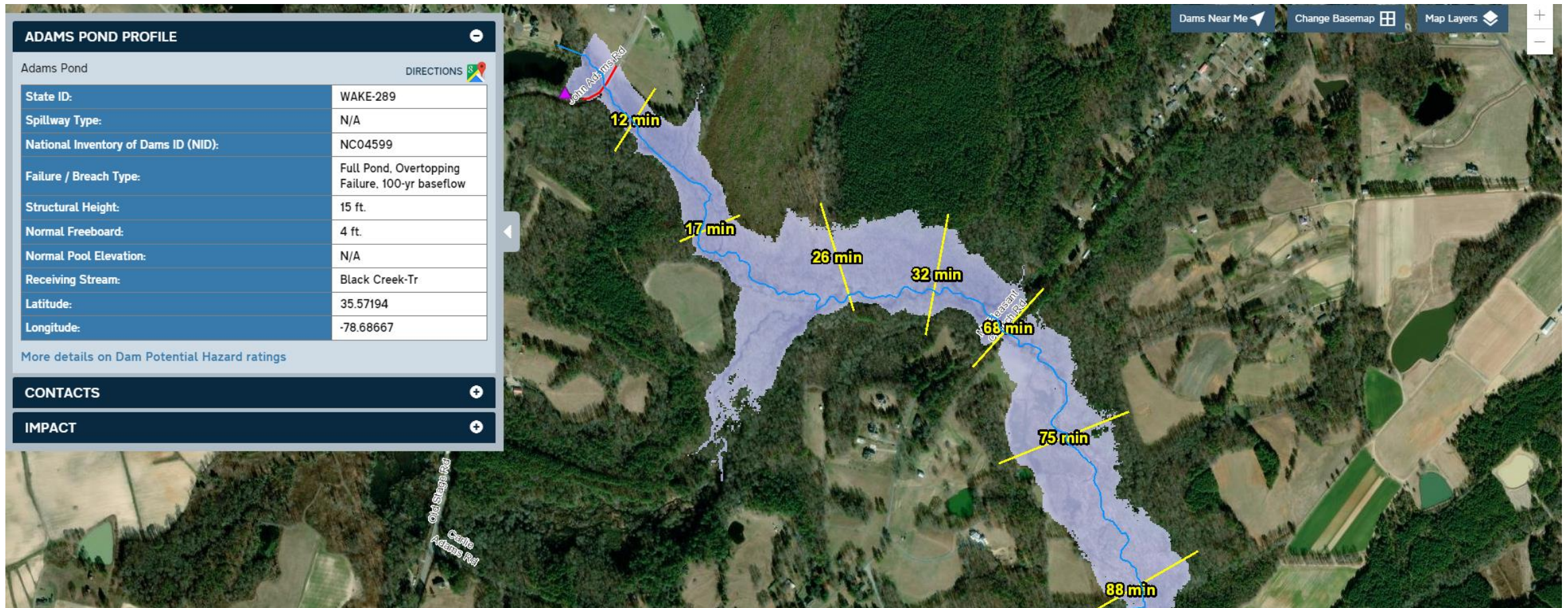
- NC DEQ Provides Template EAPs
- Supports standardizing event types/names/colors
- Provides a good base for Dam Emergency Planning for most dams.



Emergency Response to Dams

- **In most cases, calls originate from local residents because of an unusual sight or water flow.**
- **Wake County EM catalogs dam plans, inundation maps, etc., in WebEOC and the Common Operations Picture.**
- **EM Staff Duty Officers provide guidance, coordination with state and federal entities, and support to local emergency responders.**
- **Public Alert and Warning – We are working to get inundation maps for all High Hazard Potential Dams in ReadyWake Alerts.**

Example Data from NCDEQ & NCEM



Challenges

- **Limited local regulatory authority for inundation mapping, EAPs, etc.**
- **Data Sharing between the State and Local entities is sometimes difficult due to lack of standards.**
- **Unknown Dams**
- **Development**
- **Working to enhance the Dam Safety program in Wake County**



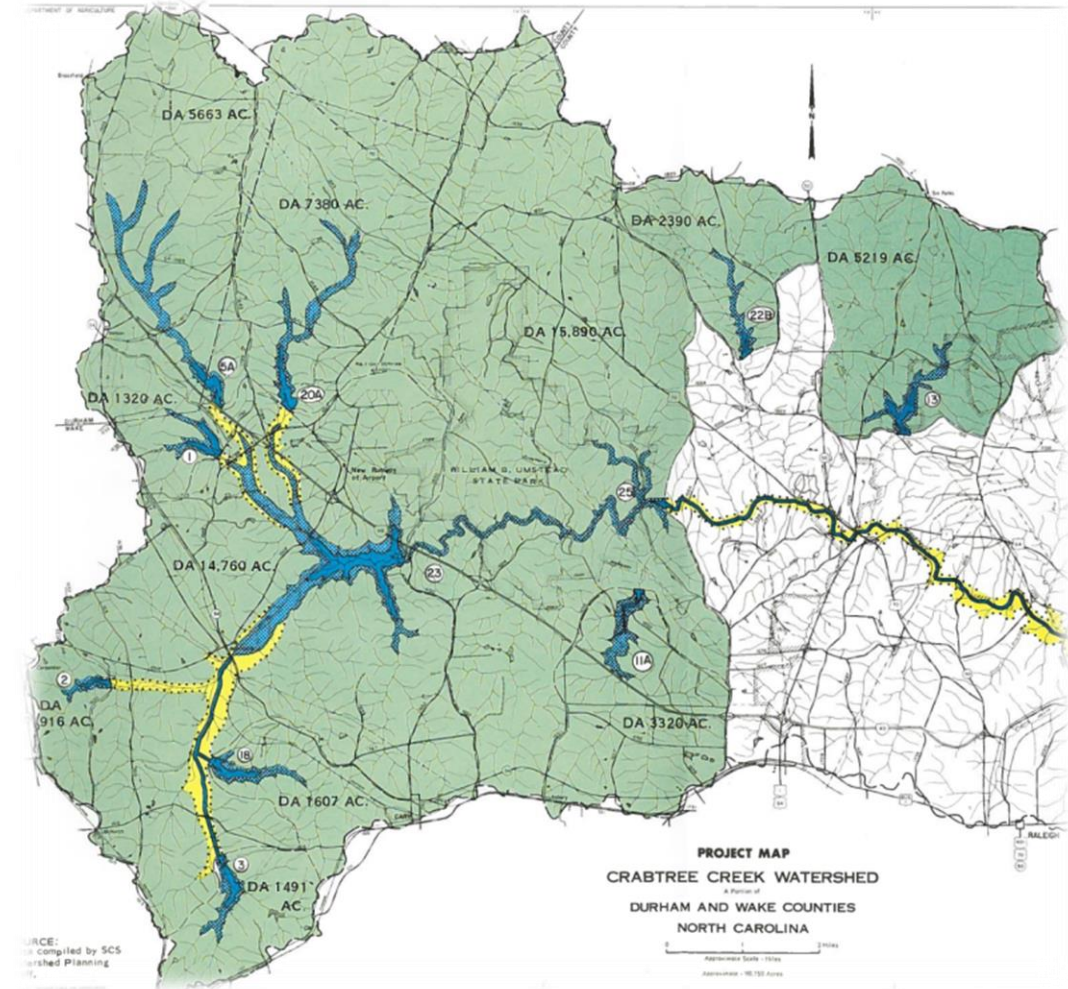
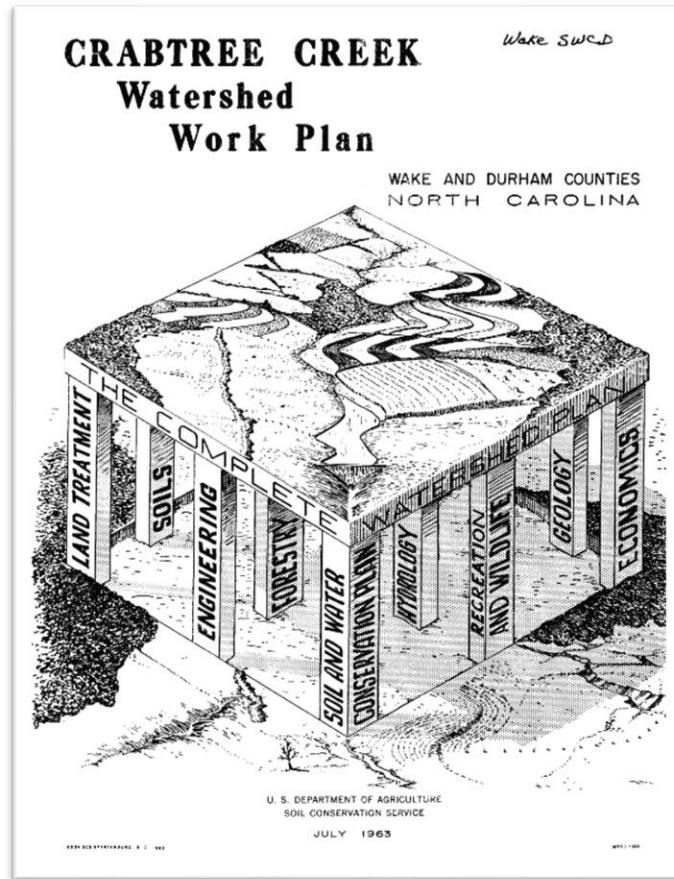
Wake County Flood Control Program

Wake County GSA

Flood Control Program Overview

- The Watershed Protection and Flood Prevention Operations Program was authorized by the Flood Control Act of 1944 and the provisions of the Watershed Protection Act of 1954.
- Federally managed by USDA-NRCS (Natural Resources Conservation Service)

Original Watershed Work Plan (1964)



Ten (10) single purpose floodwater retarding structures

Crabtree Creek Flood Control Structures

NRCS Designation	Site Name	NC Dam Safety ID	Year Constructed	Location
Crabtree Creek Site 1	Sorrell's Grove	WAKE-127	1976	Morrisville
Crabtree Creek Site 2	Hatcher's Grove	WAKE-223	1972	Morrisville
Crabtree Creek Site 3	Bond Lake	WAKE-060	1972	Cary
Crabtree Creek Site 5A	Page Lake	WAKE-225	1981	Cary
Crabtree Creek Site 11A	Richland Creek Dam	WAKE-219	1980	Raleigh
Crabtree Creek Site 13	Shelly Lake	WAKE-129	1975	Raleigh
Crabtree Creek Site 18	Coles Branch	WAKE-130	1973	Morrisville
Crabtree Creek Site 20A	Brier Creek Reservoir	WAKE-114	1985	Raleigh
Crabtree Creek Site 22B	Lake Lynn	WAKE-131	1976	Raleigh
Crabtree Creek Site 23	Lake Crabtree	WAKE-256	1988	Cary

O&M Agreements & County Responsibilities

- Agreement between USDA-NRCS and Wake County
 - Original O&M Agreement – 1975
 - Updated O&M Agreement – 1985
- Perform and fund all required maintenance to the structures
- Responsible for the replacement of parts and/or repairs
- Prohibit the installation of any structure or facility that will interfere with the operation or maintenance of the structures (Wake County Crabtree Creek Watershed Project Policy)

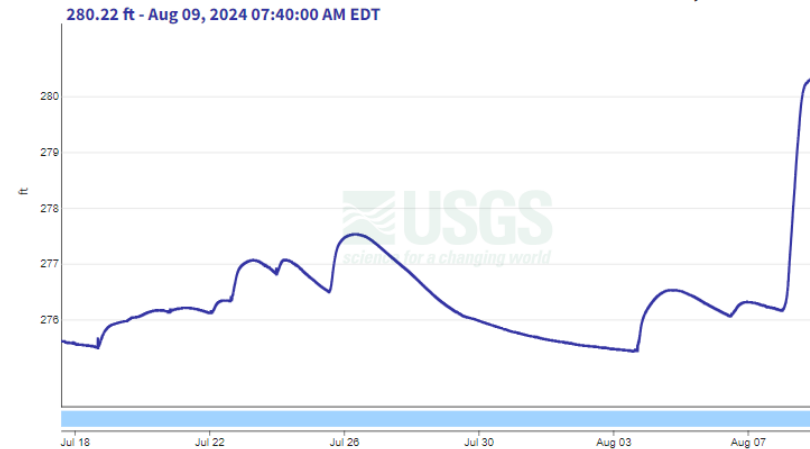
Telemetry and Flood Early Warning System

- USGS installed level monitoring hardware at Lake Crabtree July 2024
- Expanding to remaining nine sites during FY25
- Coordinating with City of Raleigh (FEWS)

Lake Crabtree at Dam AB Interstate 40 NR Cary, NC - 0208725090

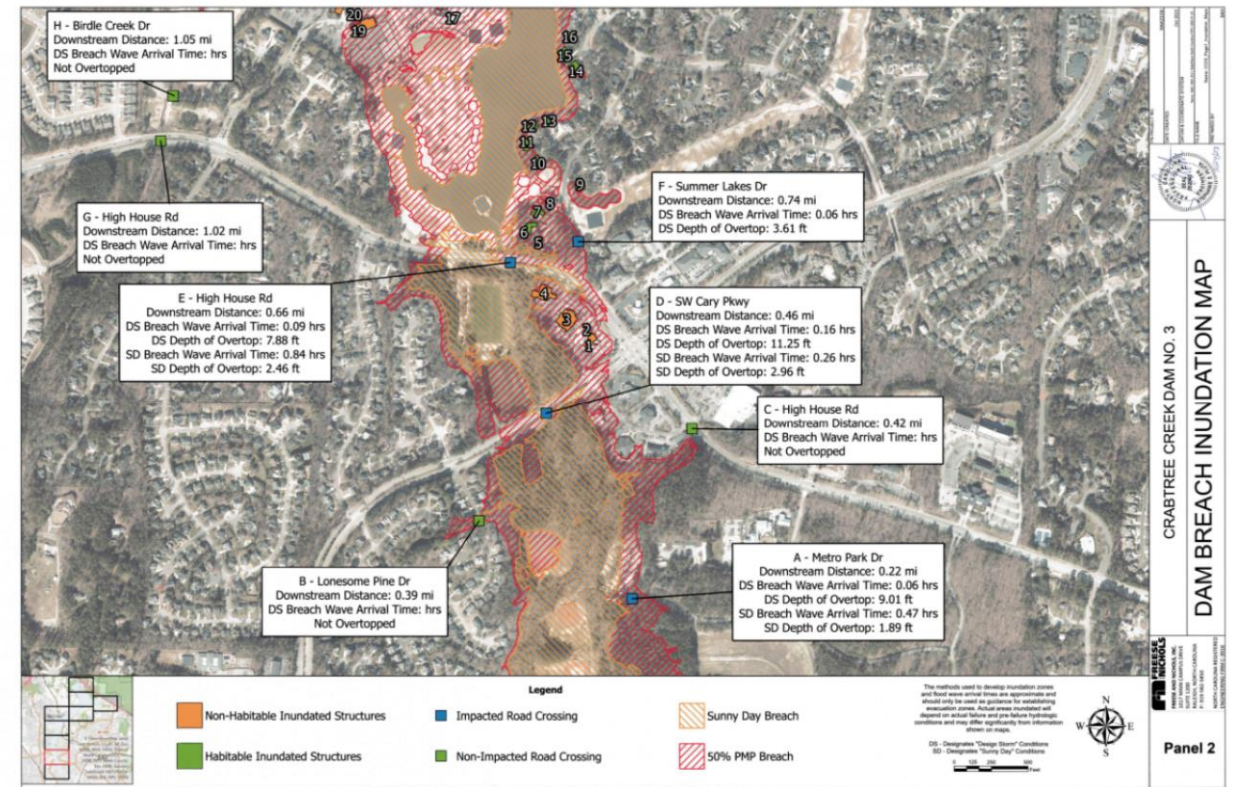
July 10, 2024 - August 9, 2024

Lake or reservoir water surface elevation above NAVD 1988, feet

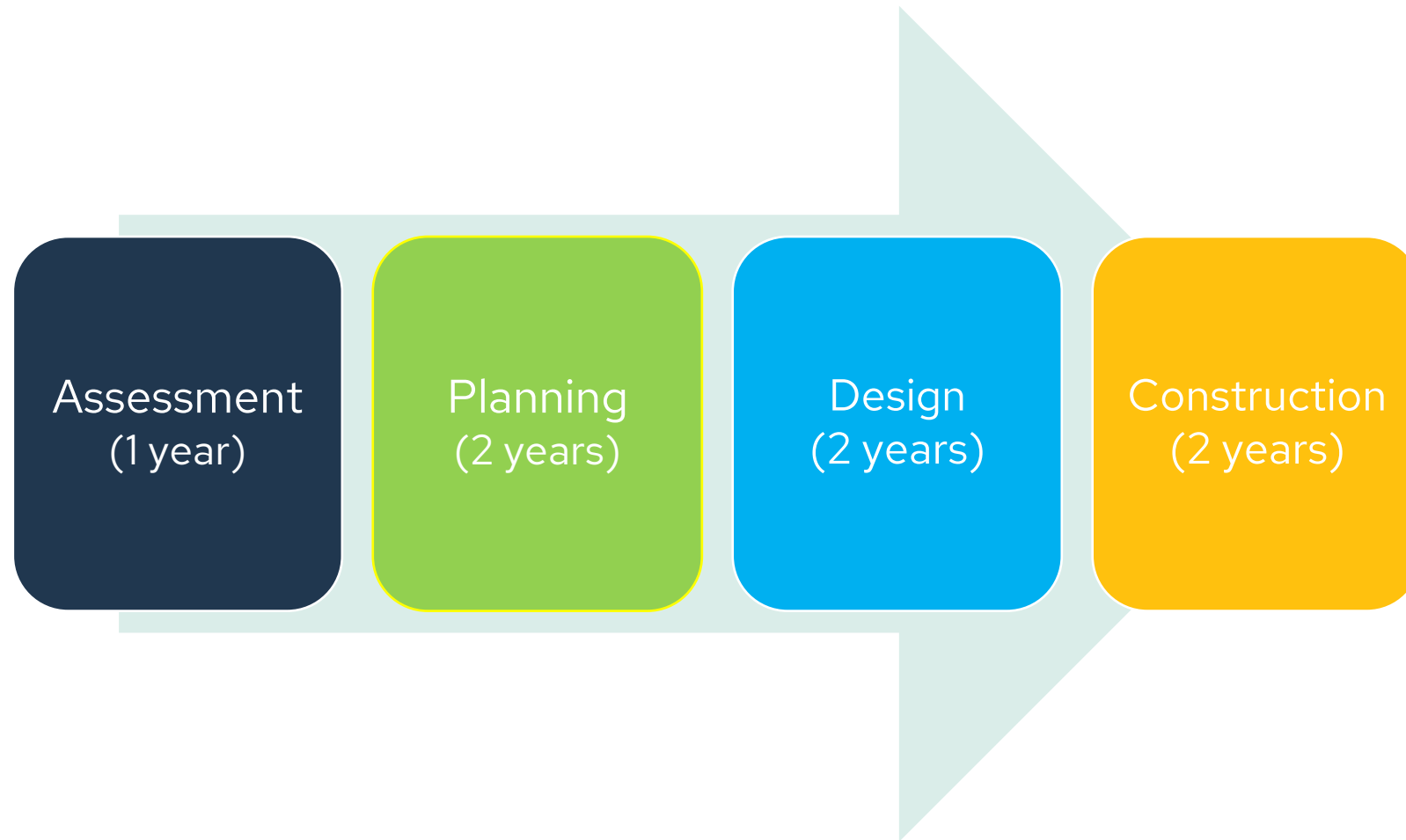


Emergency Action Plans

- EAP is a document intended to provide step-by-step guidance to first responders should an emergency situation develop at a dam.
- EAPs are required to be updated and resubmitted annually



Watershed Rehabilitation Program Process



Watershed Rehabilitation Site Status

NRCS Designation	Site Name	Location	Phase 1 - Dam Assessment	Phase 2 - Supplemental Watershed Plan	Phase 3/4 - Design/Construction
Crabtree Creek Site 1	Sorrell's Grove	Morrisville	Complete	Planned for FY25	TBD
Crabtree Creek Site 2	Hatcher's Grove	Morrisville	Complete	Planned for FY25	TBD
Crabtree Creek Site 3	Bond Lake	Cary	Complete	In Progress	TBD
Crabtree Creek Site 5A	Page Lake	Cary	Complete	Submitted for NWMC Review	TBD
Crabtree Creek Site 11A	Richland Creek Dam	Raleigh	Complete	In Progress	TBD
Crabtree Creek Site 13	Shelly Lake	Raleigh	Planned for FY26	Planned for FY27	TBD
Crabtree Creek Site 18	Coles Branch	Morrisville	Complete	Submitted for NWMC Review	TBD
Crabtree Creek Site 20A	Brier Creek Reservoir	Raleigh	Planned for FY26	Planned for FY27	TBD
Crabtree Creek Site 22B	Lake Lynn	Raleigh	Complete	In Progress	TBD
Crabtree Creek Site 23	Lake Crabtree	Cary	Planned for FY26	Planned for FY28	TBD



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