

WILLIAMS CREEK FLOOD WATER RETARDING
STRUCTURE SITE 2



PUBLIC MEETING # 2: NRCS WATERSHED PLANNING PROCESS

02/02/2021



GILLESPIE COUNTY
SWCD

Agenda & Contact Information

- Project area
- Dam Components
- Watershed Rehabilitation Planning Process
- Typical Rehabilitation
- Proposed Alternatives
- Economic Analysis
- Next Steps
- Environmental Assessment
- Questions/Contact information

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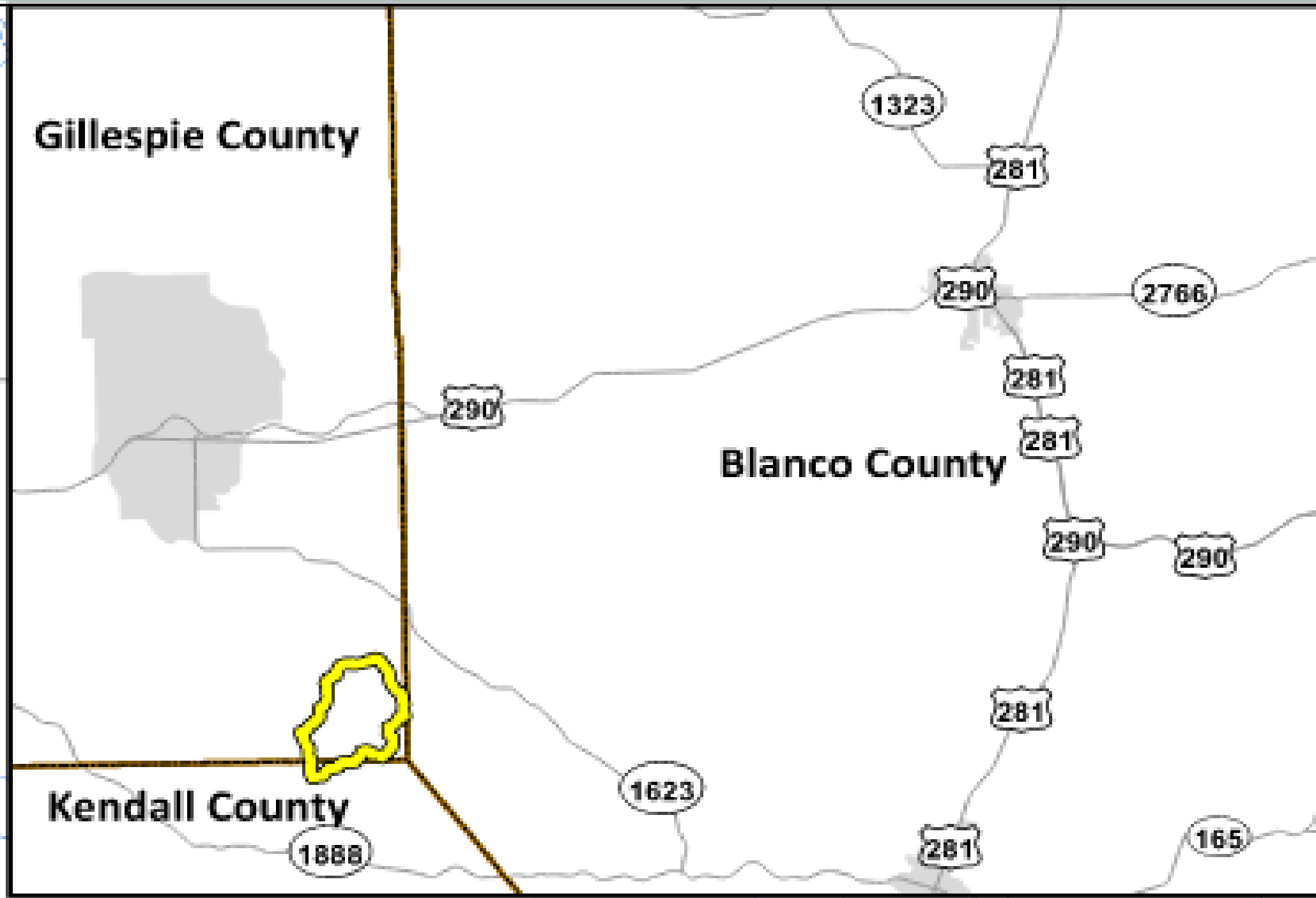
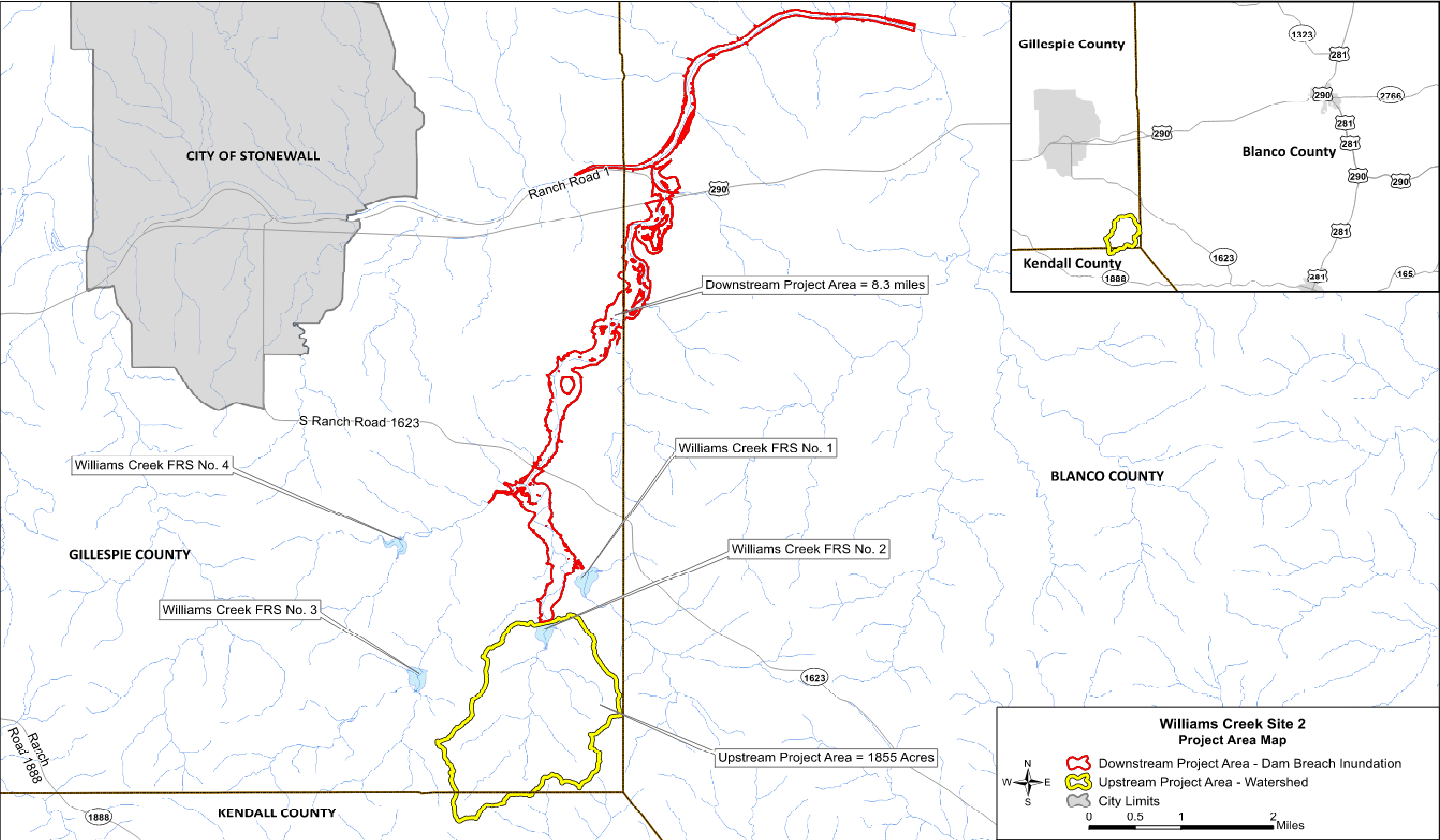
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PROJECT AREA



GILLESPIE COUNTY SWCD



Williams Creek Site 2 Project Area Map

- Downstream Project Area - Dam Breach Inundation
- Upstream Project Area - Watershed
- City Limits

0 0.5 1 2 Miles

WILLIAMS CREEK SITE 2

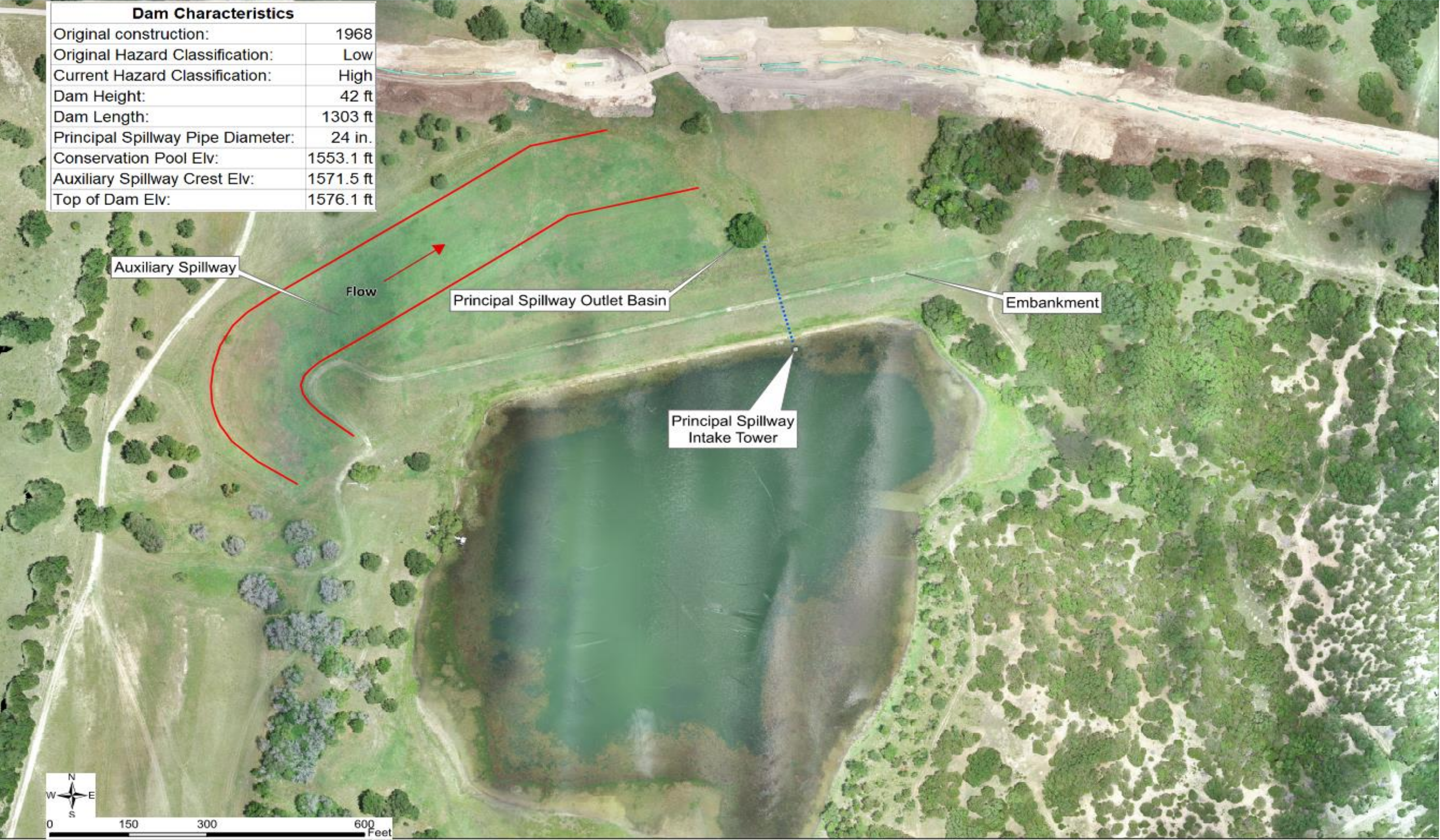


TEXAS STATE
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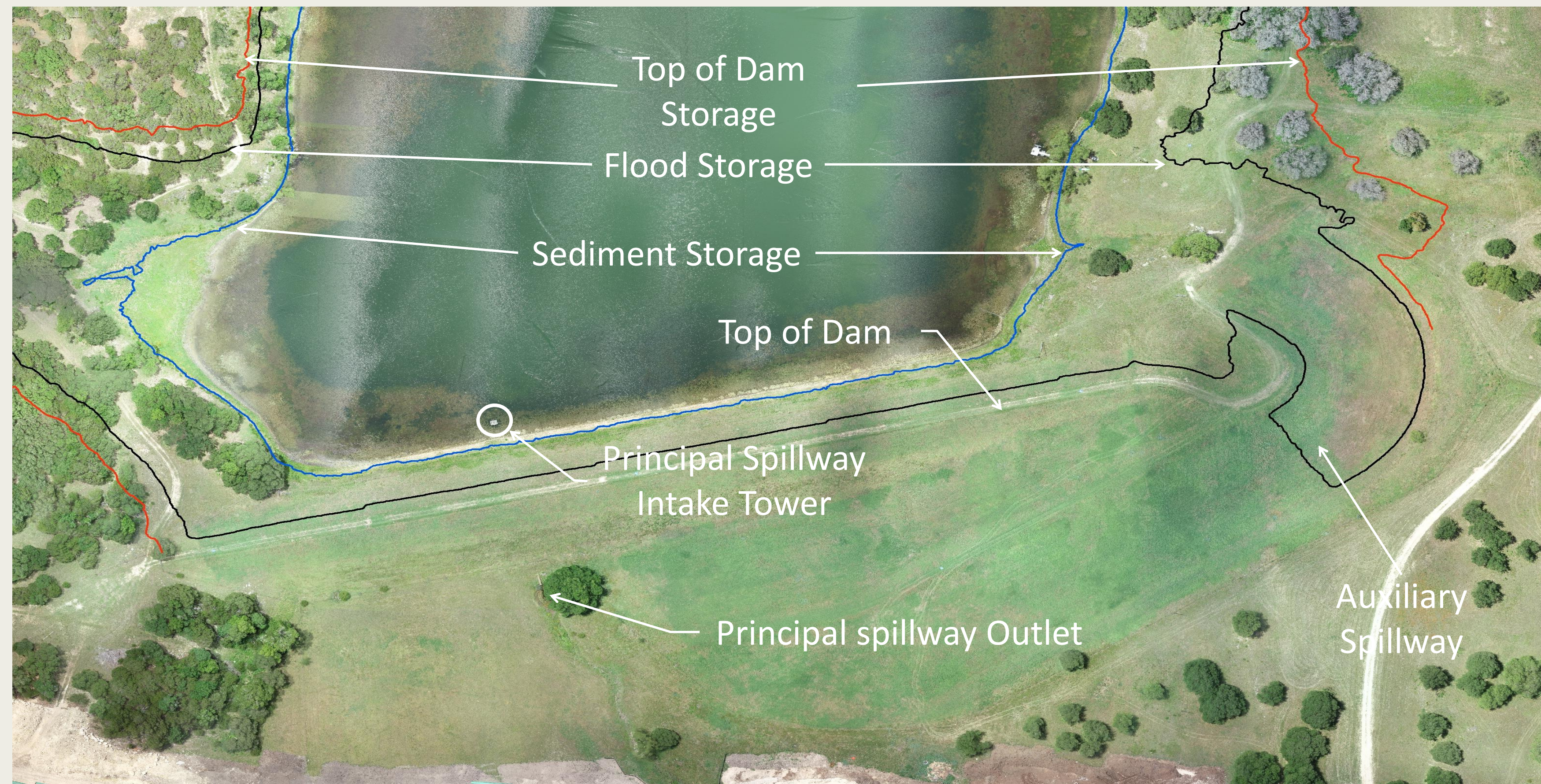
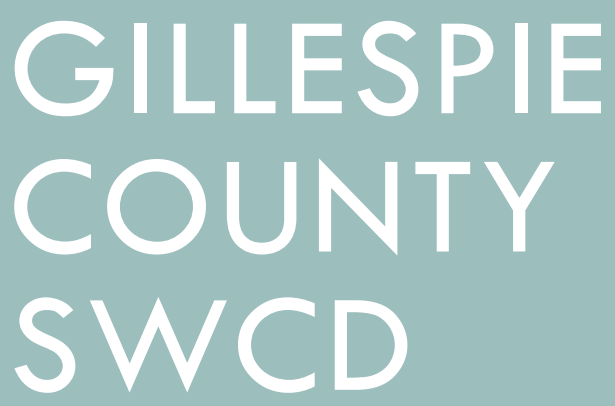


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SWCD

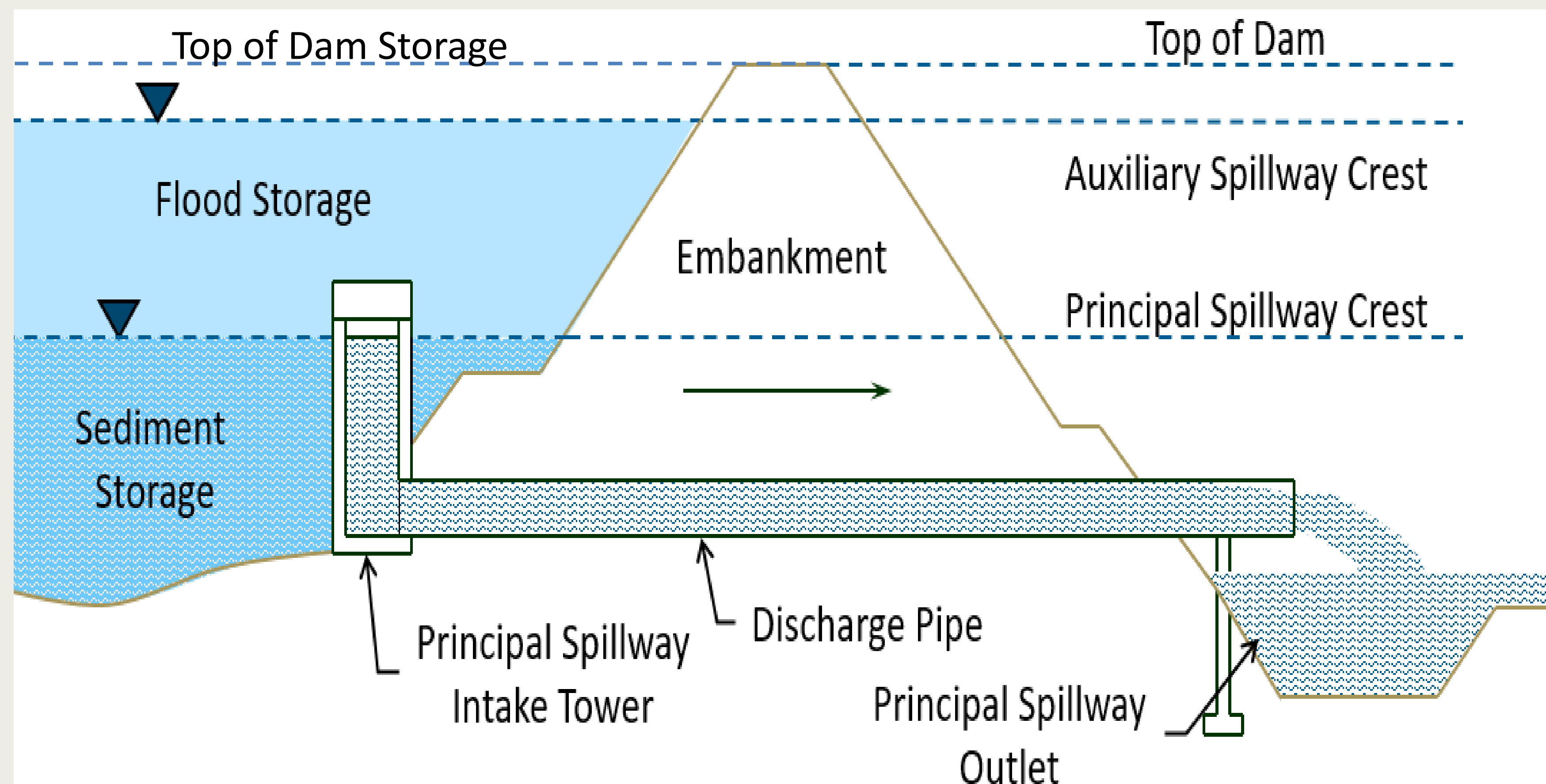
Dam Characteristics	
Original construction:	1968
Original Hazard Classification:	Low
Current Hazard Classification:	High
Dam Height:	42 ft
Dam Length:	1303 ft
Principal Spillway Pipe Diameter:	24 in.
Conservation Pool Elv:	1553.1 ft
Auxiliary Spillway Crest Elv:	1571.5 ft
Top of Dam Elv:	1576.1 ft



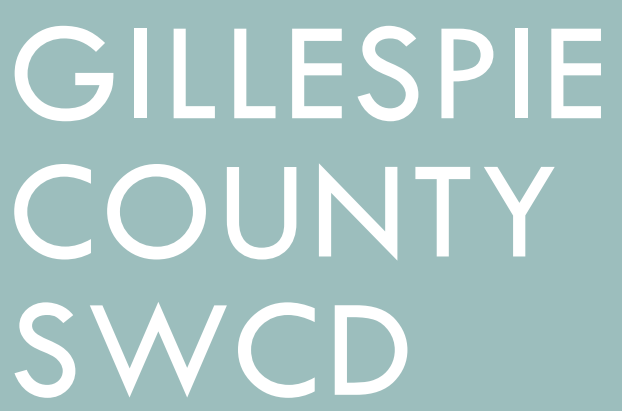
TYPICAL DAM SCHEMATICS



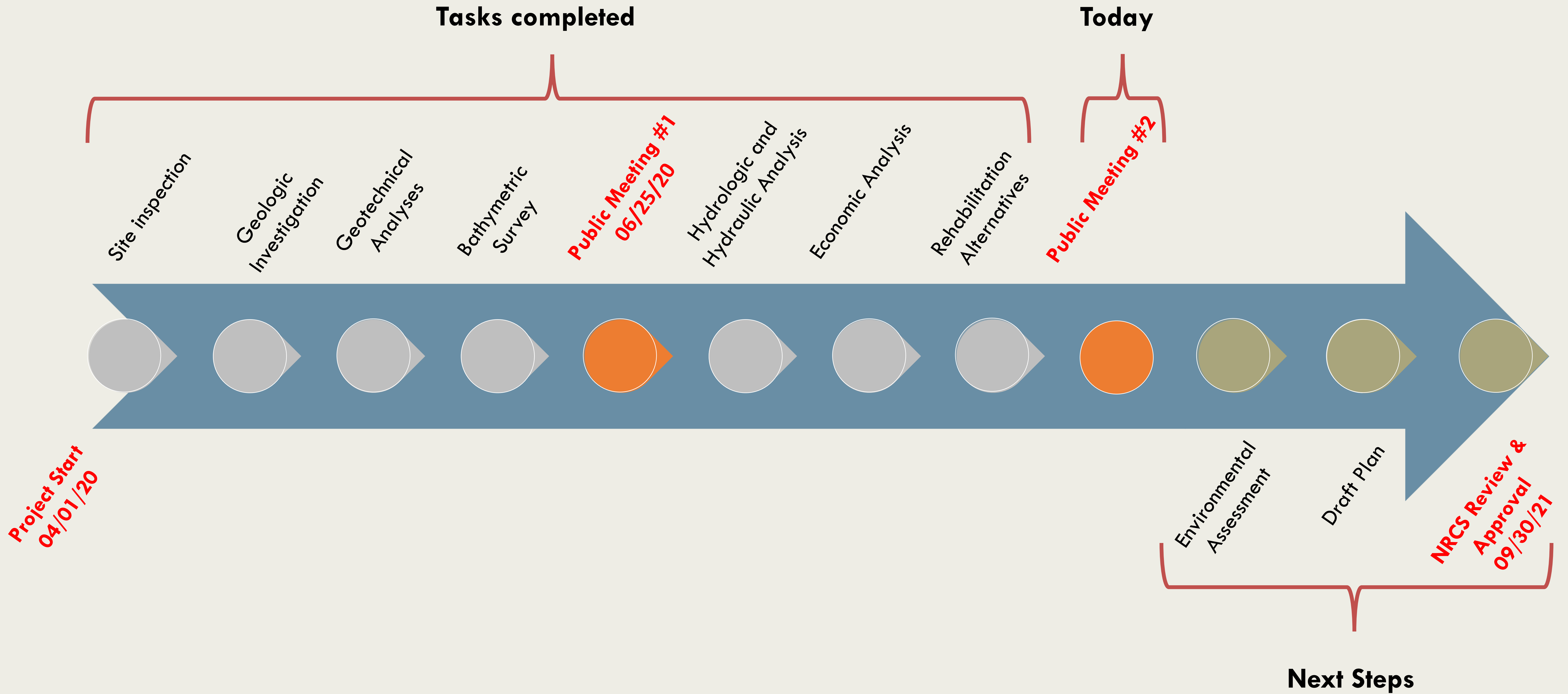
Williams Creek Site 2



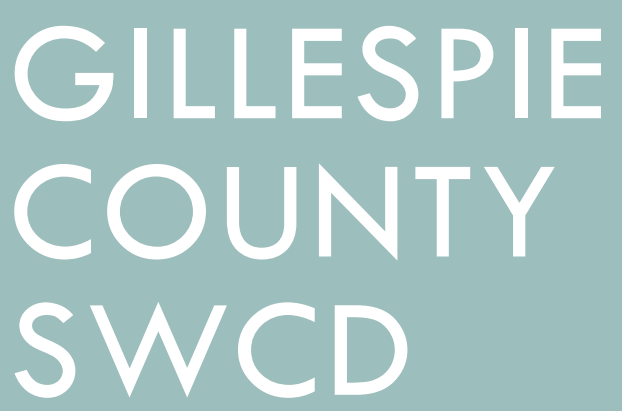
PLANNING PROCESS



Supplemental Plan and Environmental Assessment Process



TYPICAL REHABILITATION PLANNING PROCESS

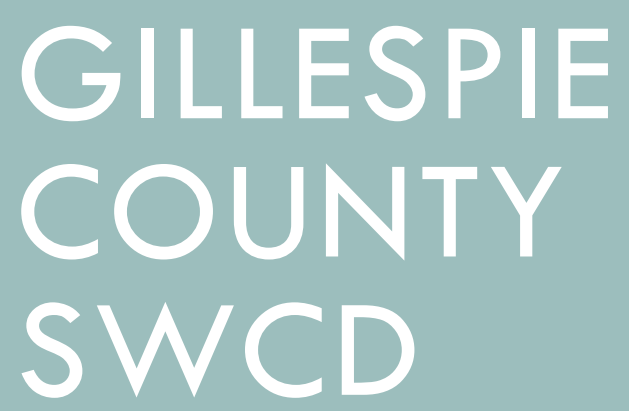


1. Dam Decommissioning

- Serves as a baseline condition for economic analysis
- Removes risk from a dam breach
- Removes benefits of flood control, sediment control, livestock, and recreation
- Portion of embankment removed and upstream area restored



TYPICAL REHABILITATION PLANNING SCENARIO

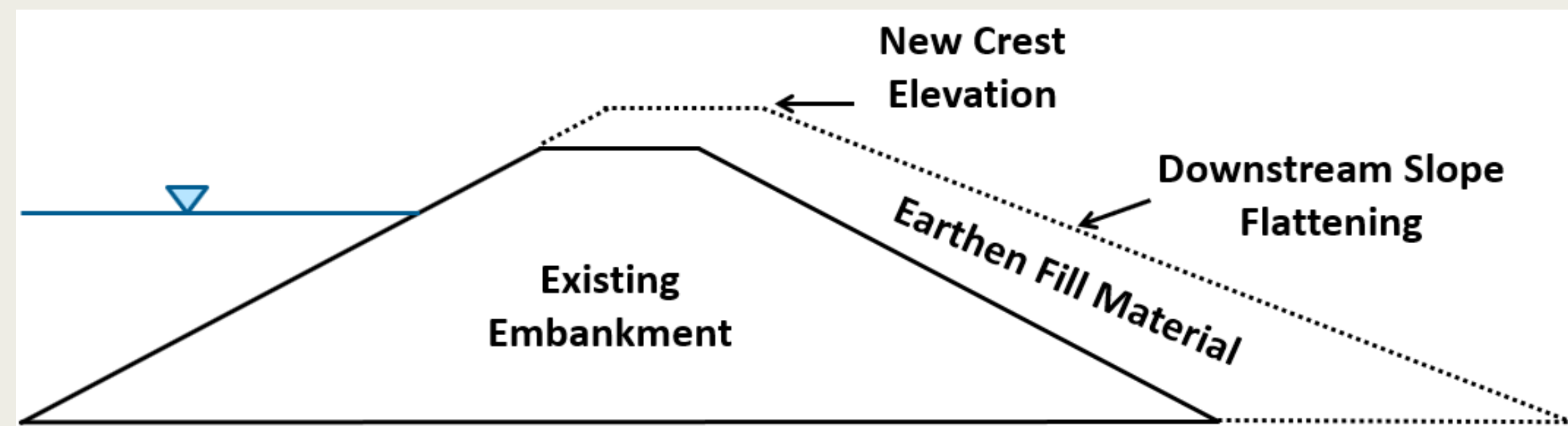


2. Dam Rehabilitation Objectives

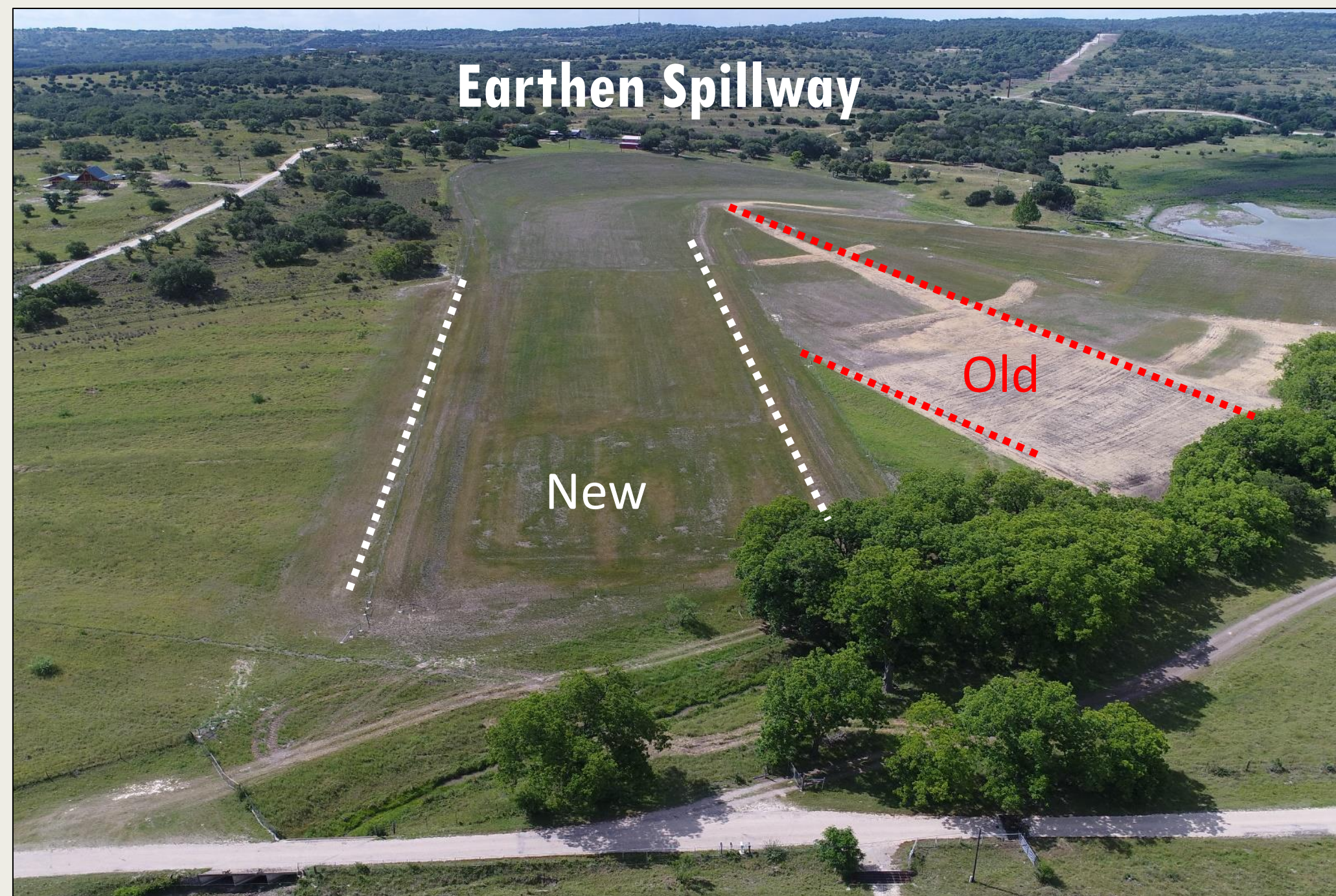
- Upgrade to current NRCS and TCEQ criteria for high hazard dams
- Provide protection by detaining the 100-year storm event, assuring the continuance of flood damage reduction benefits downstream
- Extend the life of the dam for 50 to 100 years
- Increase/restore reduced sediment capacity
- Possible Rehabilitation Alternatives:

2.1 Raise Top of Dam

- Creates additional storage
- Downstream slope flattening
- Consideration: Land rights, site topography, and upstream flooding



2.2 Spillway Realignment



- Increase discharge capacity
- Address erodibility design criteria
- Consideration: Land rights, site topography, and downstream flooding

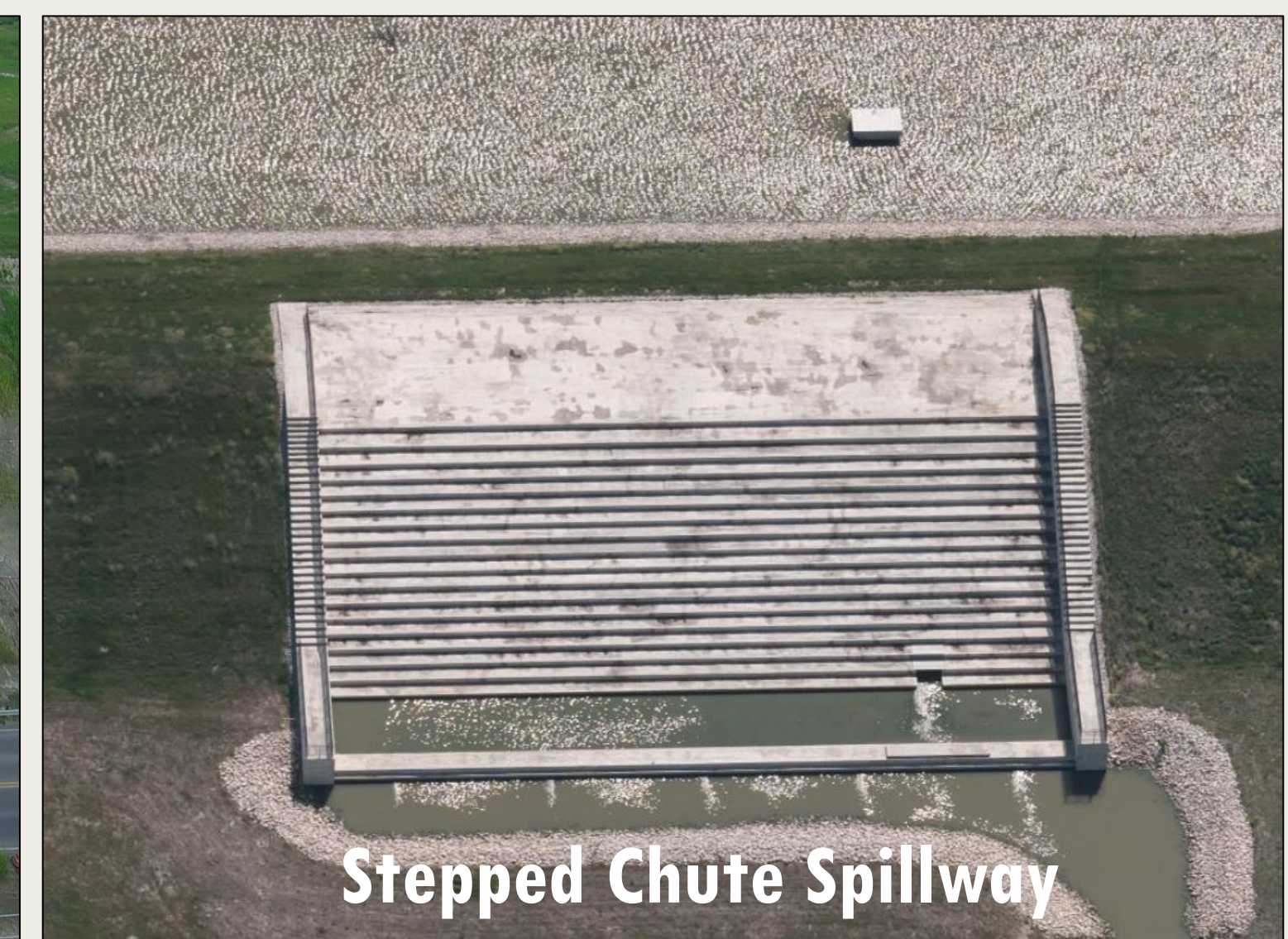
2.3 Enlarge Principal Spillway

- Minimum pipe size requirements
- Increase discharge capacity
- Replace existing pipe

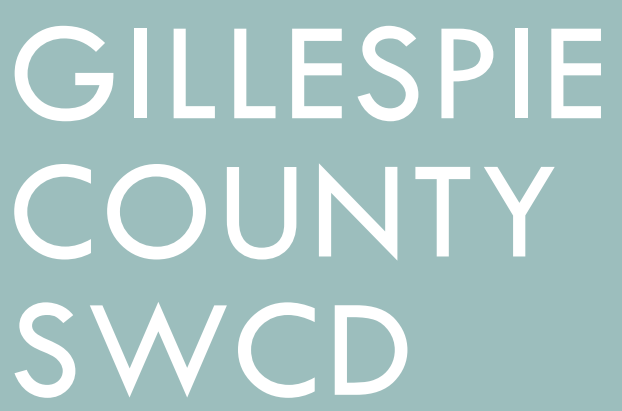


2.4 Structural Spillways

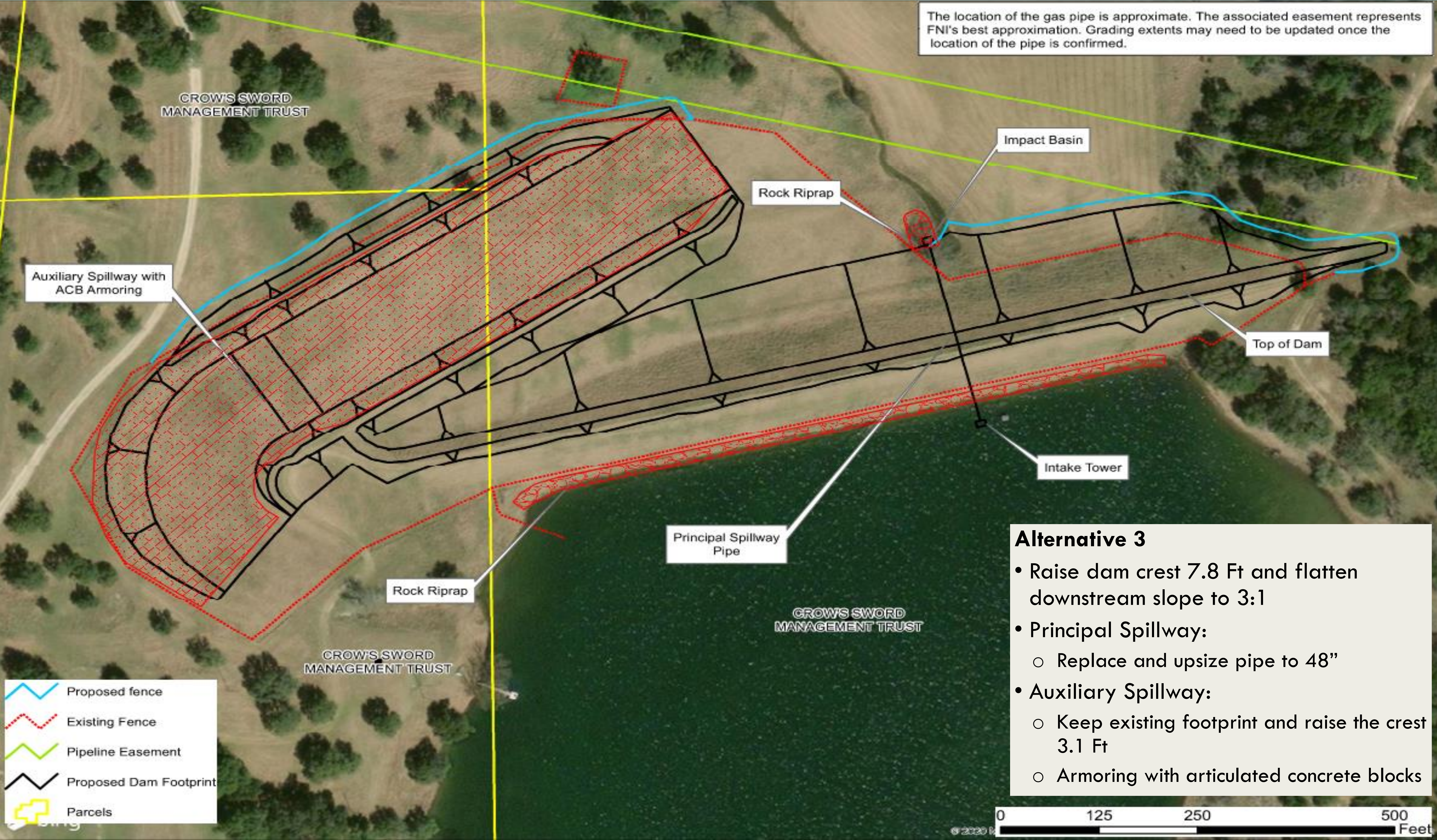
- Increase discharge capacity in small footprint
- Consideration: Land rights, future O&M, aesthetics, and cost



DAM REHABILITATION WILLIAMS CREEK SITE 2

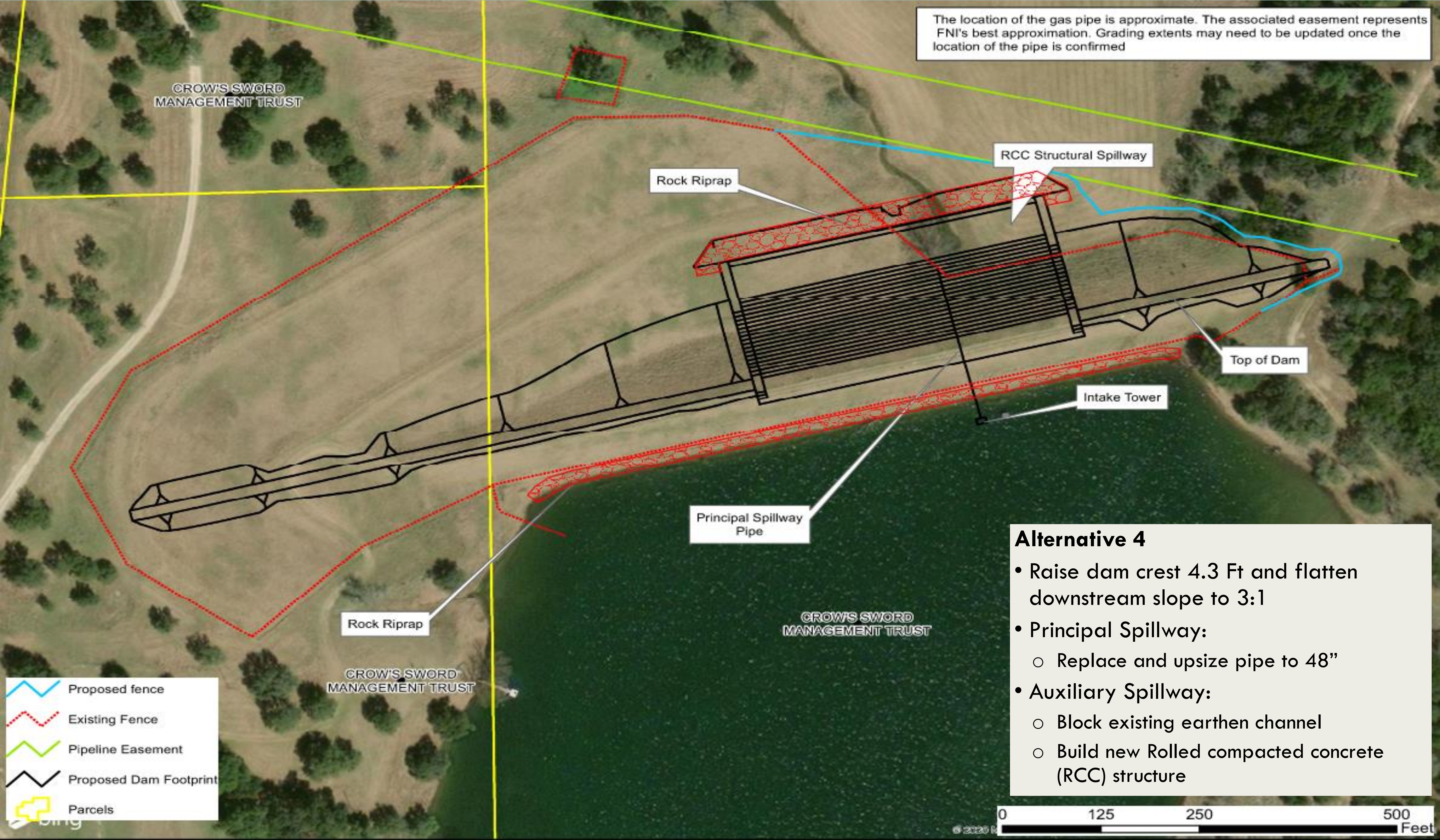
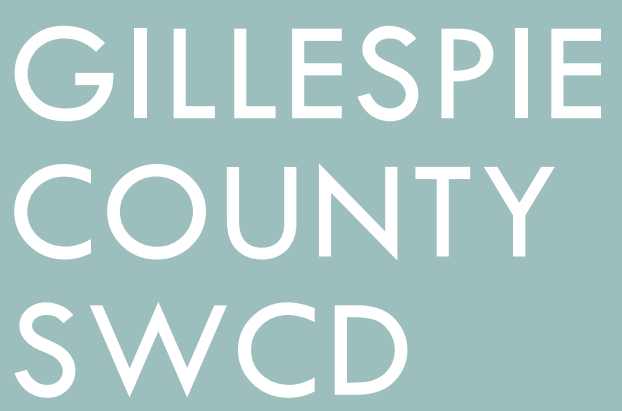


The location of the gas pipe is approximate. The associated easement represents FNI's best approximation. Grading extents may need to be updated once the location of the pipe is confirmed.



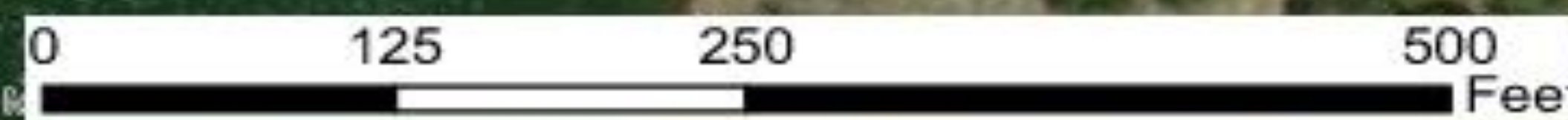
- Alternative 3**
- Raise dam crest 7.8 Ft and flatten downstream slope to 3:1
 - Principal Spillway:
 - Replace and upsize pipe to 48"
 - Auxiliary Spillway:
 - Keep existing footprint and raise the crest 3.1 Ft
 - Armoring with articulated concrete blocks

DAM REHABILITATION WILLIAMS CREEK SITE 2

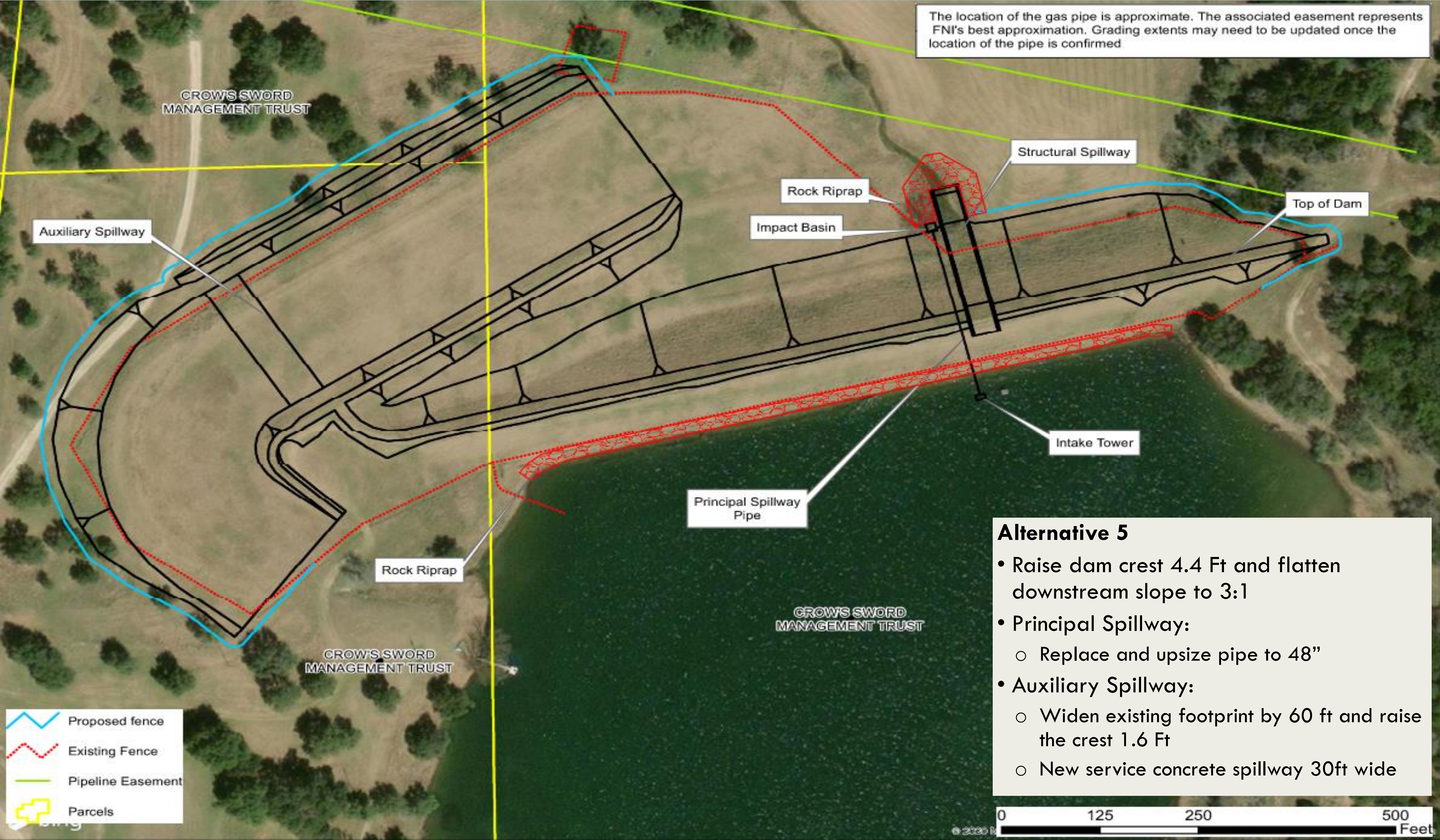
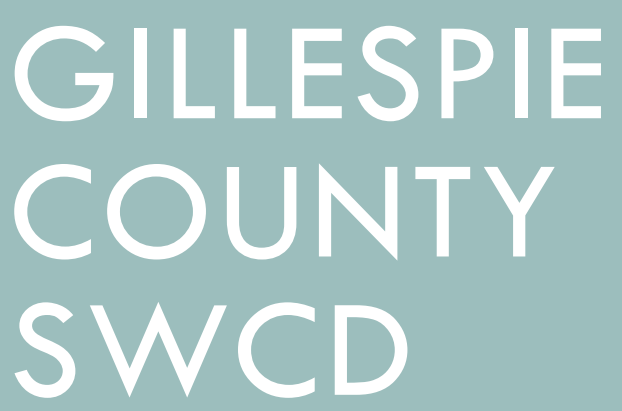


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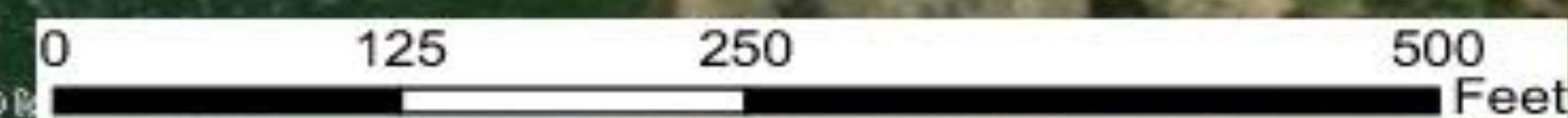
- Alternative 4**
- Raise dam crest 4.3 Ft and flatten downstream slope to 3:1
 - Principal Spillway:
 - Replace and upsize pipe to 48"
 - Auxiliary Spillway:
 - Block existing earthen channel
 - Build new Rolled compacted concrete (RCC) structure



DAM REHABILITATION WILLIAMS CREEK SITE 2

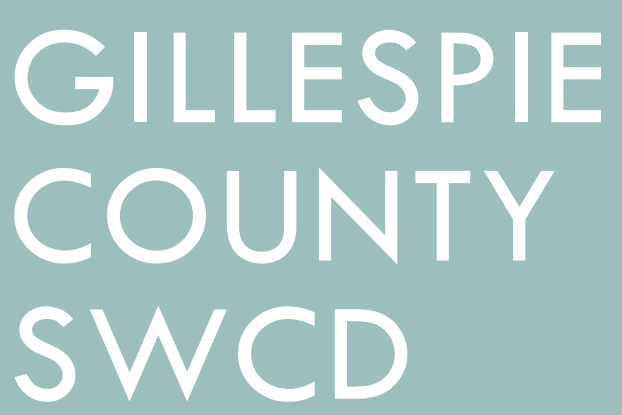


- Alternative 5**
- Raise dam crest 4.4 Ft and flatten downstream slope to 3:1
 - Principal Spillway:
 - Replace and upsize pipe to 48"
 - Auxiliary Spillway:
 - Widen existing footprint by 60 ft and raise the crest 1.6 Ft
 - New service concrete spillway 30ft wide



ECONOMIC ANALYSIS

WILLIAMS CREEK SITE 2

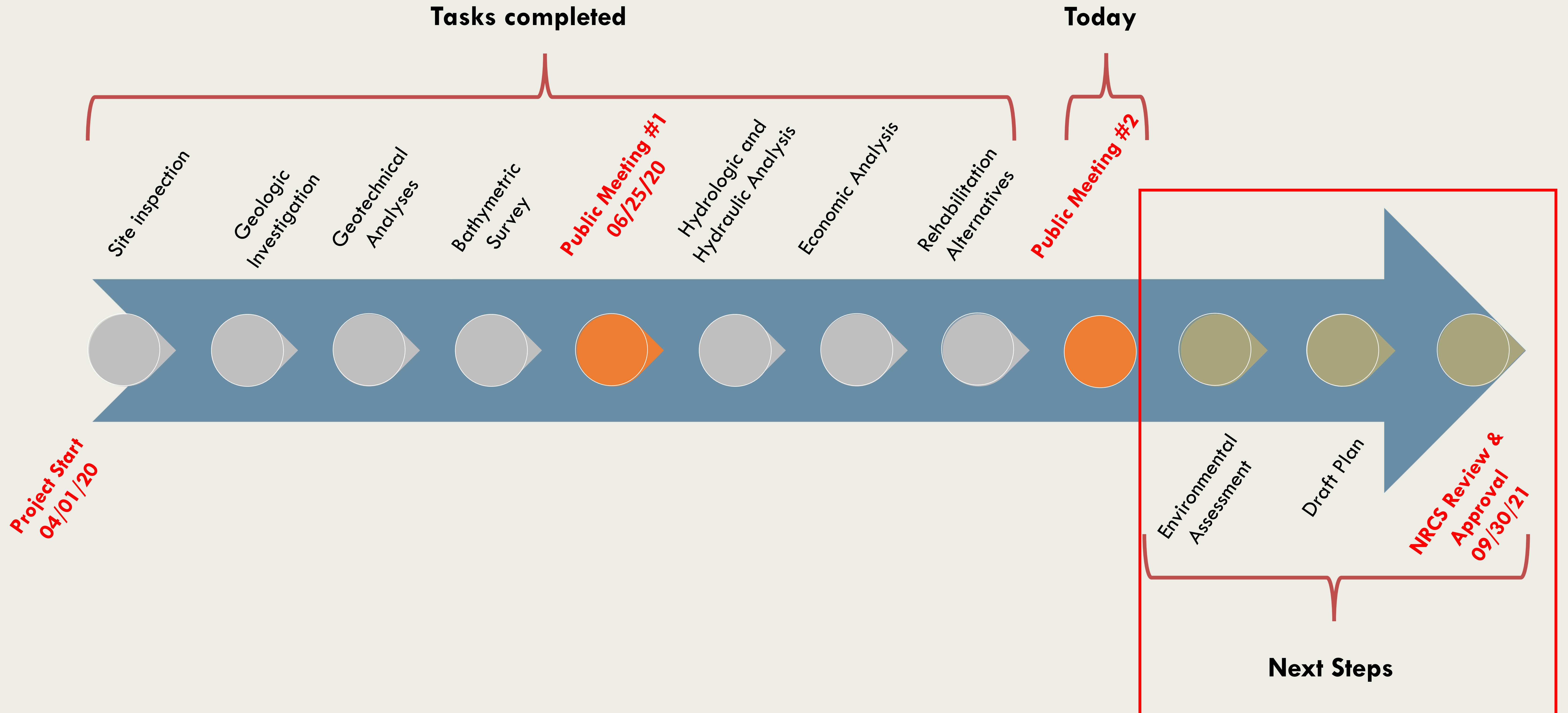


Estimated Project Costs	Sponsor Decom.	Federal Decom.	Rehab. Alt. 3	Rehab. Alt. 4	Rehab. Alt. 5
Capital Cost	\$1.9 M	\$3.2 M	\$13.9 M	\$ 11.1 M	\$ 9.2 M
Annual O&M	\$2,500	\$2,500	\$9,600	\$8,850	\$ 9,600
Discount Rate	2.50%	2.50%	2.50%	2.50%	2.50%
Project Lifespan (years)	100	100	100	100	100
Total Annualized Cost	\$53,464	\$88,680	\$389,634	\$311,149	\$260,430

Annualized Values	Federal Decom.	Rehab. Alt. 3	Rehab. Alt. 4	Rehab. Alt. 5
Flood Damage Reduction Benefits	\$0	\$89,919	\$88,368	\$88,424
Avoidance of Cost of Sponsor's Breach	\$53,464	\$53,464	\$53,464	\$53,464
Total Benefits	\$53,464	\$142,383	\$141,832	\$141,888
Annual Costs	\$88,680	\$389,634	\$311,149	\$260,430
Benefit-Cost Ratio*	0.60	0.37	0.46	0.54
Net NED Benefits	-\$35,216	-\$247,251	-\$168,251	-\$118,541

* The higher the ratio, the greater the benefits relative to the cost

Supplemental Plan and Environmental Assessment Process





Questions?

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