

A Comprehensive Approach to Wetland Restoration: Atlanta Waterfowl Production Area

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Atlanta WPA

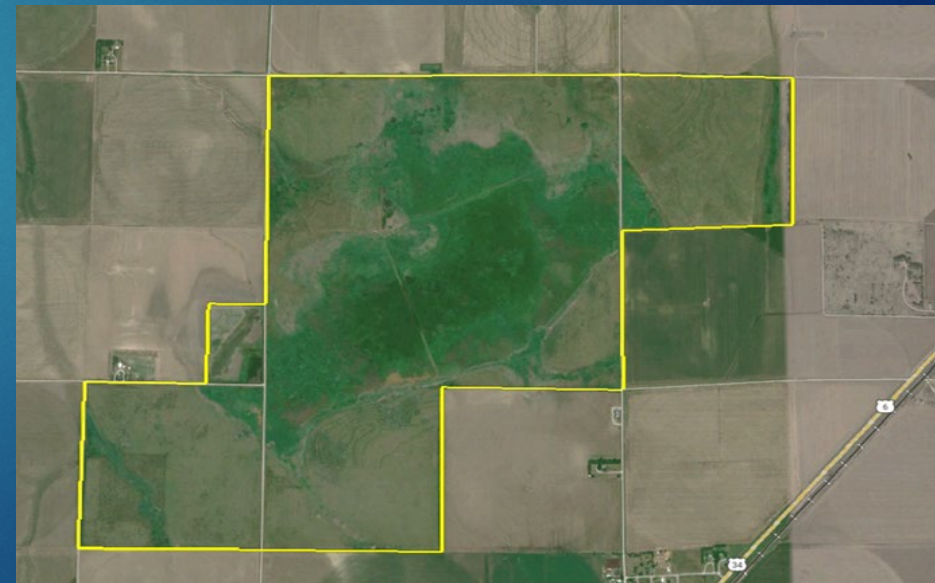
- ▶ 432.3-acre wetland footprint, Massie, Sc, Fm soils (seasonal)
- ▶ ~450 acre-feet of storage
- ▶ 11,366-acre watershed, 28 pits
- ▶ Important habitat for Whooping Cranes and other migratory waterbirds
- ▶ Underperforming ponding (frequency, area)



Atlanta Waterfowl Production Area

Purchased in 1964 (top image)

- ▶ •1,146 acres
- ▶ •Previously farmed, but frequently flooded
- ▶ •Initial management by USFWS was more “hands off”
- ▶ •More intensive management began in the 1990s
 - ▶ •Seeding back to native prairie
 - ▶ •Cattle grazing to mimic historical disturbance
 - ▶ •Reduction in irrigation pits in the watershed



Hydrologic Modifications on Atlanta WPA



- ▶ Reduced water delivery, built dikes to manage minimal water supply
- ▶ Dirt from wetland used to build dikes
- ▶ Eroded soil relocated into wetland, reduce storage capacity, wetland function, migratory bird use
- ▶ Terraces obstruct overland water flow, reducing the amount of water delivered but can reduce soil relocation

Hydrologic Modifications (cont.)



- ▶ Fill from digging the pit was deposited in the hydric soils, which promoted smooth brome and other upland plants within the hydric soil footprint



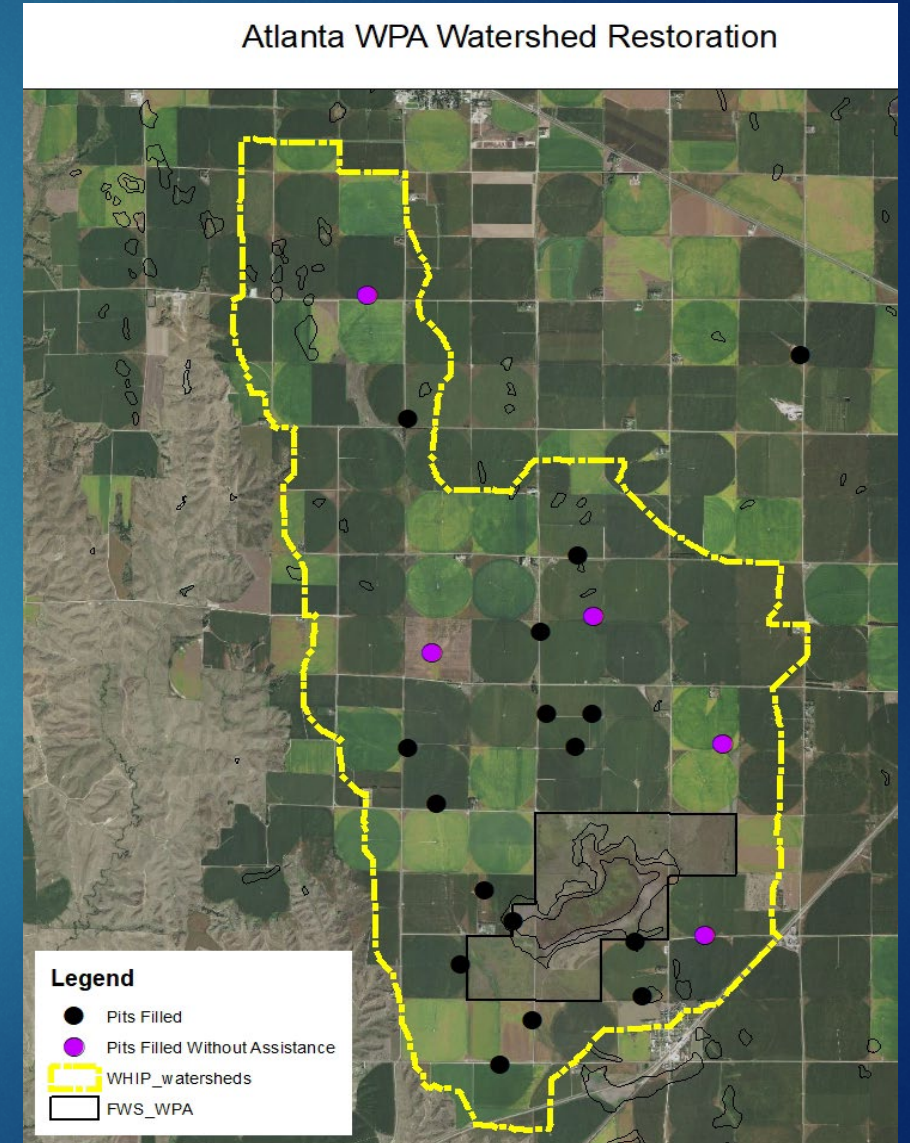
Other Modifications Within Hydric Soil



- ▶ The adjacent landowner dug a concentration pit and ditches to dry out portions of the wetland. This pit dried the hydric soils and rerouted water around the hydric soils on Atlanta WPA

Watershed Modifications

- ▶ 28 irrigation reuse pits (~97 A-F), 11,366-acre watershed
- ▶ Focus on Increasing water delivery to wetland by filling pits
 - ▶ Equivalent to 22 days of pumping
 - ▶ Savings of \$7,400/YR



Project Goals and Objectives

- ▶ Increase wetland ecosystem services provided by Rainwater Basin wetlands including:
 - ▶ Ground water recharge
 - ▶ Nutrient cycling
 - ▶ Increased flood water storage
 - ▶ Carbon sequestration
- ▶ Restore and enhance wetland functions:
 - ▶ Reduce the growth of invasive species such as reed canary grass, hybrid cattails, trees
 - ▶ Reduce soil desiccation
 - ▶ Improve hydrologic function, promoting the growth of moist-soil plants
- ▶ Improve wetland habitat for wildlife:
 - ▶ Provide feeding and loafing areas for migratory waterbirds such as Whooping Cranes, Pintails, Mallards, and Blue-winged Teal
- ▶ Provide Landowner benefits:
 - ▶ Closing pits and allowing landowners to farm through pits, earning additional income and removing pivot obstacles
- ▶ Improve public benefits on the WPA:
 - ▶ Improve hunting and bird watching opportunities

Phase 1 Watershed Restoration

- ▶ Facilitate runoff delivery to wetland
 - ▶ 21 pits have been filled in the Atlanta watershed
 - ▶ 16 of those pits have been filled through Landowner Agreements
 - ▶ Contributing 39.9 acre-feet of water to the wetland
 - ▶ Fill material for the pits came from the landowners' fields, as well as a sediment plume within hydric soils on Atlanta WPA
 - ▶ 5 of those pits have been filled by landowners without partner assistance
 - ▶ Contributing 20.3 acre-feet of water to the wetland
 - ▶ 7 pits remain, if filled, these pits will contribute an additional 26.1 acre-feet of water to the wetland



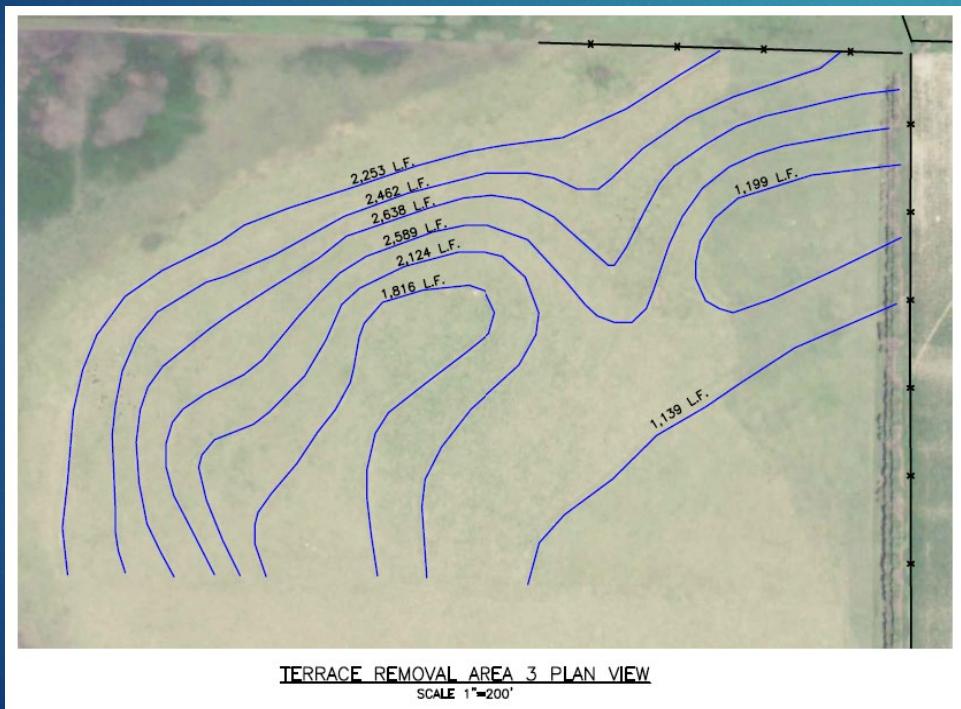
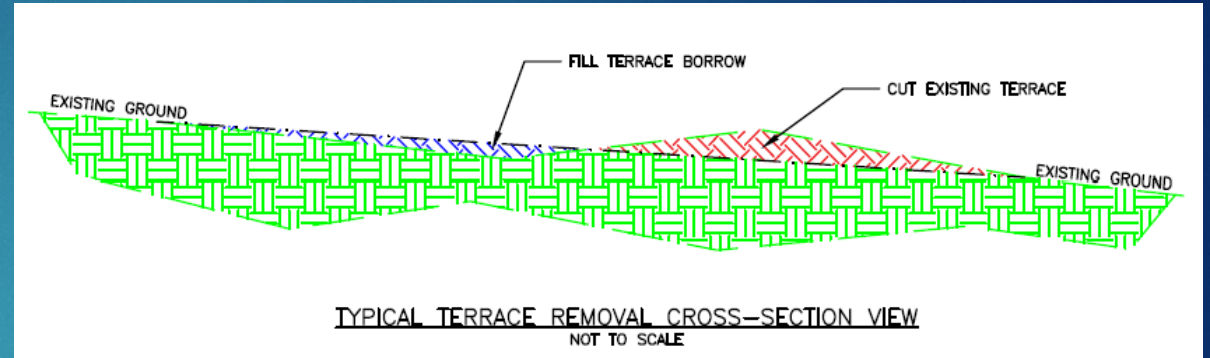
Phase II Private Lands Wetland Restoration

- ▶ Removed approximately 16,403 cubic yards of fill from the hydric soils and deposited it in the private lands pit and ditches
 - ▶ Average depth of excavation was 1 foot
- ▶ Removed sediment deposits from hydric soils on private lands
 - ▶ Average depth of excavation was 4 inches
- ▶ Retrofitted 5 pivot towers with flotation tires to enable the pivot to pass through the wetland without rutting the soils or getting stuck



Phase III WPA Focus

- ▶ Remove 7.15 miles of terraces
- ▶ Remove 2 low-level berms from wetland
- ▶ Recontour waterways



Phase IV Win-Win

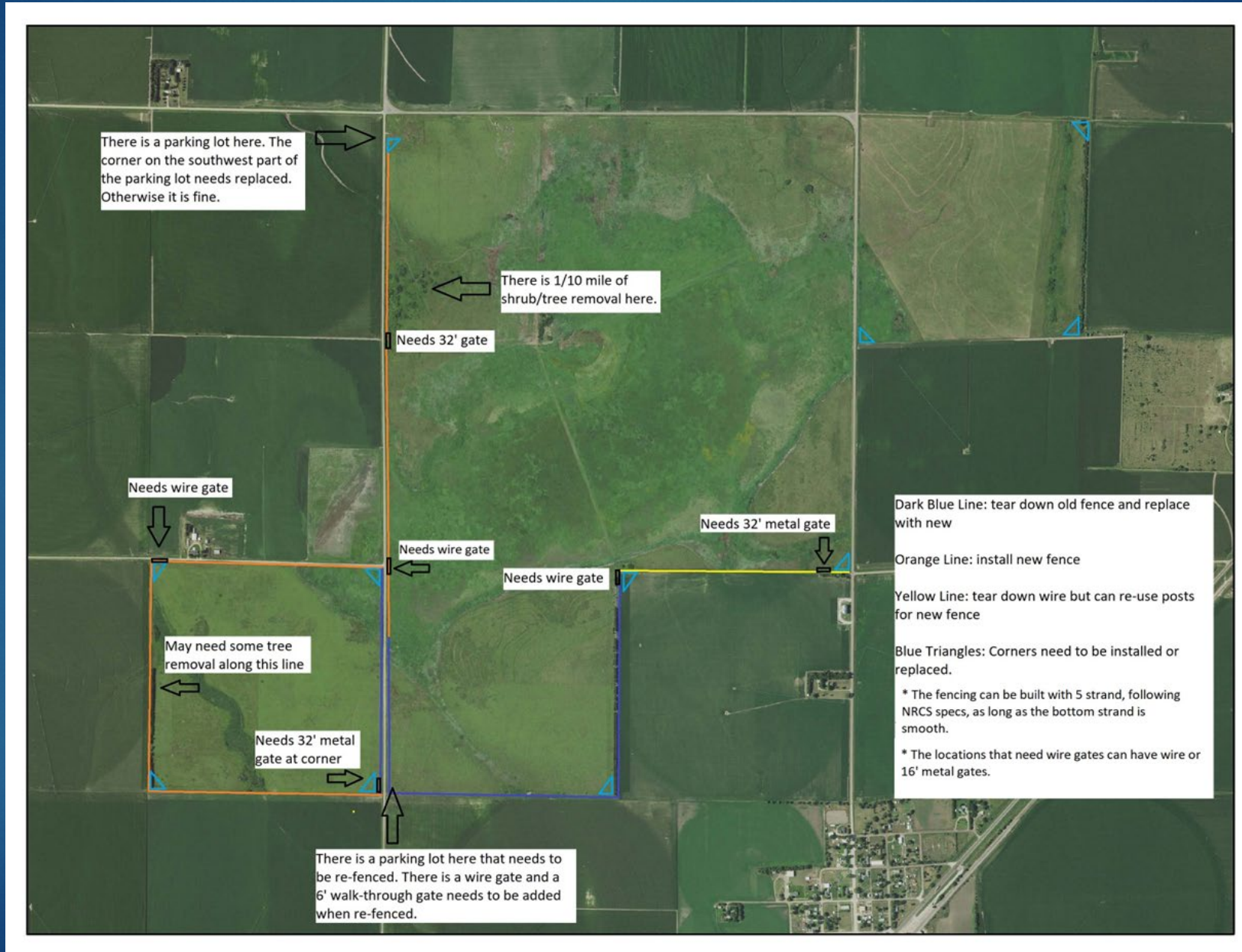
- ▶ Restore private lands wetland by removing fill and sediment
 - ▶ Fill pit
 - ▶ Remove 8.6 A-F of storage capacity
 - ▶ Benefit - shallow ponding on hydric soils
- ▶ Restore hydrology from watershed
 - ▶ Remove pits and diversions
 - ▶ diverted water around WPA
 - ▶ Benefit – runoff water delivered to WPA
- ▶ Public wetland restoration
 - ▶ Remove fill, silt, and sediments
 - ▶ Benefits - increase ponding frequency, ponded area



Completed Project



Grazing Infrastructure

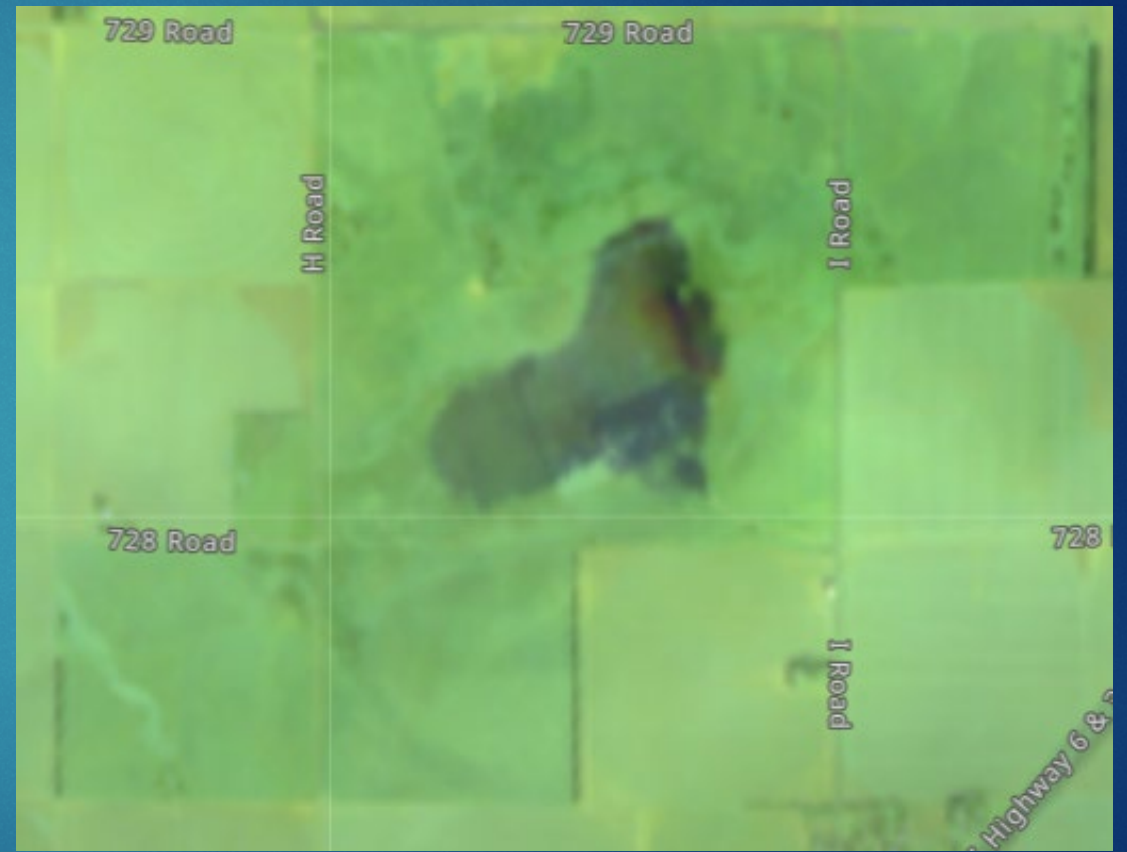


Water Infrastructure Improvements

- ▶ Diesel well replaced with high-capacity electric submersible (ES) well
 - ▶ Diesel was \$349/day, not used in 10 years
 - ▶ Benefit - New ES ~1400 gpm, \$143/day, more ponded area in less time
- ▶ Underground pipe from the well to the wetland installed 2024
 - ▶ Benefit – less water loss, more efficient
- ▶ Improved ability to provide timely flooding
 - ▶ Benefits migrating water birds



1/31/2025 Sentinel Imagery



Ponding after 4.5 days of pumping and 7 days of pumping

Questions?

