



Yellowleaf Mitigation Bank





ABOUT US

CONSERVATION & COMMITMENT

From conservation of endangered species to restoring our wetlands, it is our appreciation for the future that keeps us committed and inspires us as environmental stewards.



CELEBRATING

10
2016

YEARS

Launched in May 2006

**Offices in Tuscaloosa, Auburn,
Denver and Sacramento**

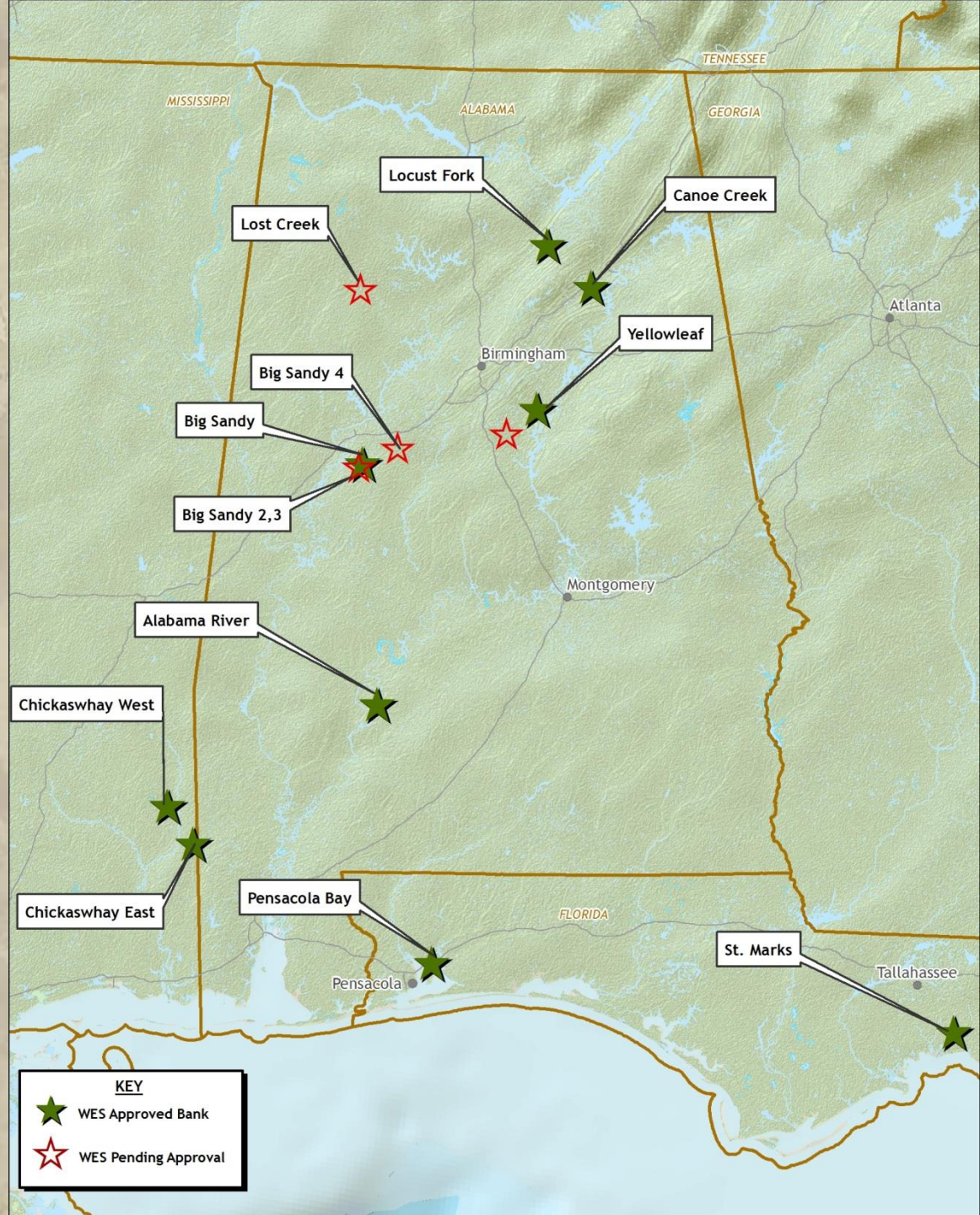
**19 Permitted Banks in Alabama, California,
Florida, and Mississippi**

Additional Projects Underway

Yellowleaf Mitigation Bank

SOUTHEAST REGION SERVICE AREA

9 Approved Banks
4 Pending



OUR SERVICES

Mitigation and Conservation Banks

Full-delivery mitigation (Turnkey)

Habitat Planning Services

Partnerships with landowners, local governments, etc.

Mitigation Evaluations



MITIGATION BANKING

**ASCE MONTGOMERY BRANCH MEETING
SEPTEMBER 13, 2016**

OUTLINE

Mitigation Banking Overview

The Federal Mitigation Rule

Wetland Mitigation Strategies

Canoe Creek Mitigation Bank

Big Sandy Mitigation Bank

PRIOR TO BANKING

Developer must:

- Redesign project to avoid impacts to wetlands.
- Buy suitable restoration land at or near the development site to compensate for impacts.
- Pay a series of consultants and contractors to restore wetlands at the site.
- Pay to monitor the site for 5 - 10 years.
- Assume all legal and financial liability for the restored wetlands in perpetuity.



THE “NEW” APPROACH MITIGATION BANKING

The Concept:

- Mitigation banks are large properties that establish and protect wetlands (habitat) in exchange for credits that can be sold or used to mitigate for impacts in surrounding areas.
- Consolidates many small wetland mitigation projects into a larger, more ecologically valuable site



MITIGATION RULE

- Establishes hierarchy
 - Mitigation Banks
 - In Lieu Fee
 - Permittee Responsible
- Maintains Bush's 1989 No Net Loss Goal
- One set of regulations for all forms of mitigation
- Effective June 9, 2008
- Effect on Industry



Federal Register

Thursday,
April 10, 2008

Part II

**Department of
Defense**

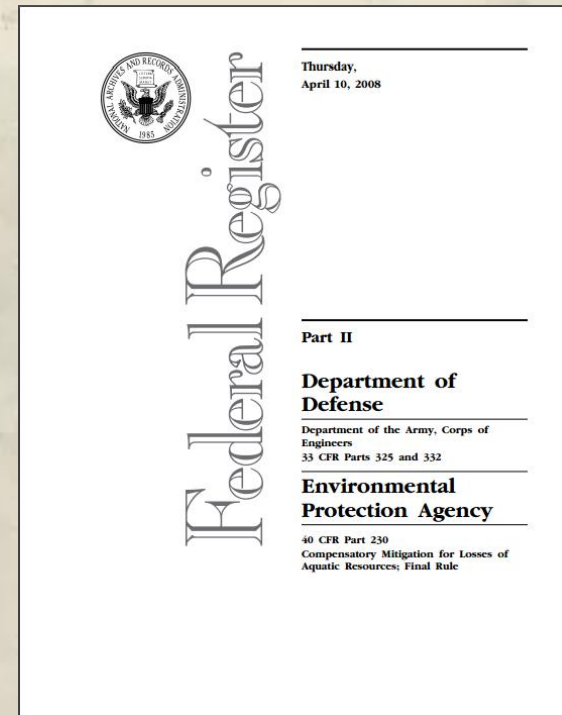
Department of the Army, Corps of
Engineers
33 CFR Parts 325 and 332

**Environmental
Protection Agency**

40 CFR Part 230
Compensatory Mitigation for Losses of
Aquatic Resources; Final Rule

MITIGATION SEQUENCE

- ✓ Avoidance
- ✓ Minimization
- ✓ Compensatory Mitigation



“...it replaces the on-site preference with a hierarchy that considers compensation options in the following order 1) use of credits from a mitigation bank, 2) use of credits from an in-lieu fee program, 3) permittee-responsible compensatory mitigation developed using a watershed approach, 4) on-site/in-kind permittee-responsible mitigation, and 5) off-site/out-of-kind permittee-responsible mitigation.” Corps/EPA Compensatory Mitigation Rule: Questions and Answers

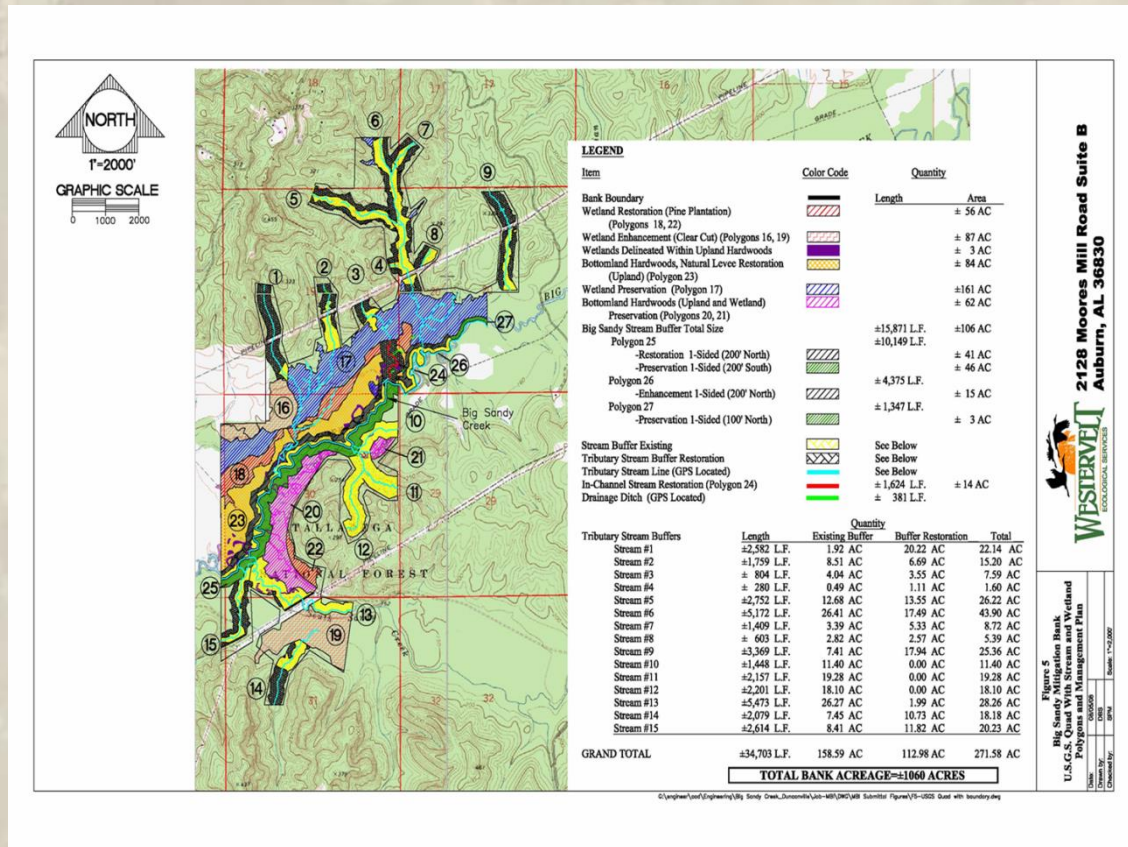
MITIGATION RULE GOALS

- ✓ Implement environmentally effective standards for CM that are based on best available science; incorporate NRC recommendations.
- ✓ Streamline the compensatory mitigation process. Increase efficiency, predictability.
- ✓ Enhance public participation in CM decision-making.
- ✓ Create a level playing field among the three types of mitigation by raising the bar so that high-quality mitigation providers are not disadvantaged by others being held to lower standards (“Equivalent Standards”).

MITIGATION PLAN COMPONENTS

(33 CFR 332.4(C))

- ✓ Objectives
- ✓ Site protection instrument
- ✓ Baseline information
- ✓ Work plan
- ✓ Maintenance plan
- ✓ Performance standards
- ✓ Monitoring requirements
- ✓ Financial assurances
- ✓ Site selection factors
- ✓ Credit determination
- ✓ Long-term management plan
- ✓ Adaptive management plan



MITIGATION BANKING BUSINESS AND BIOLOGY

BUSINESS

- Lower Costs (Economy of Scale)
- Reduces Permitting Time
- Reduces Uncertainty
- Severance of Liability

BIOLOGY

- Large Preserve Size
- Upfront Implementation
- Extensive Agency Review
- Performance Standards
- Land Stewardship

AGENCY PERSPECTIVE: WHY MITIGATION BANKING?

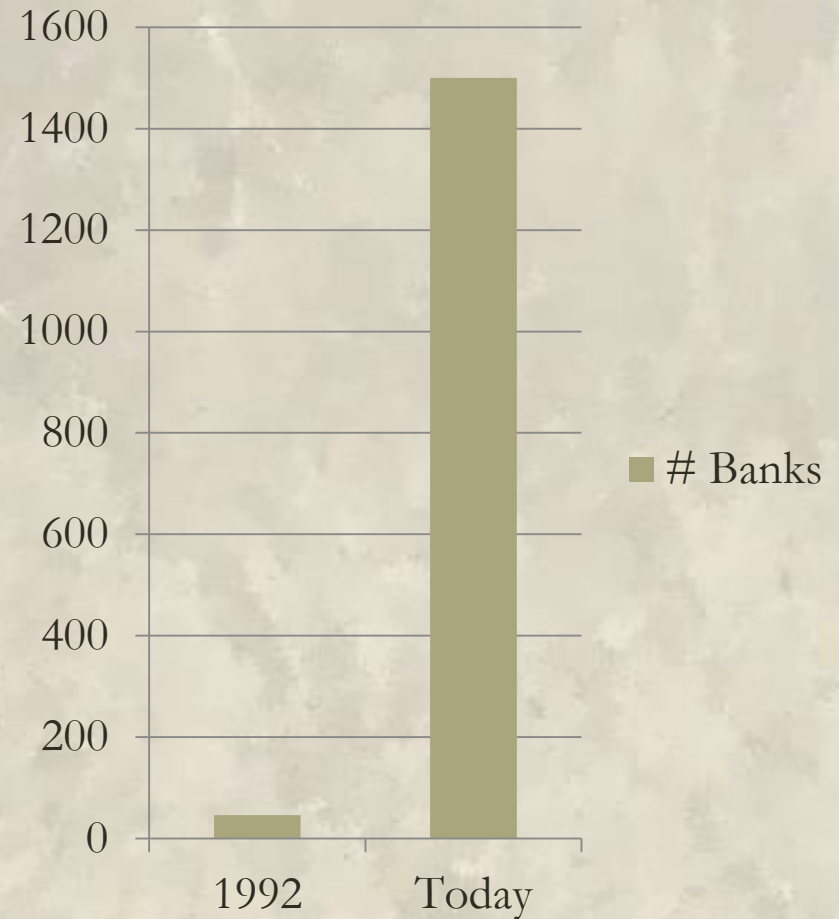
- Reduces uncertainty over whether mitigation for impacts will be successful - “No Net Loss”
 - Mitigation implemented before impact
- Assembles & applies resources and expertise
 - Funds long-term management
- Reduces permit processing times
- Enables efficient use of agencies in review & compliance monitoring
- Creates large preserves of restored wildlife habitat

A WIN-WIN SCENARIO

- Landowners
- Developers
- Regulatory Agencies
- Public

1992: 46 banks

Today Over 1500 banks
with ?? in process



MITIGATION BANK REQUIREMENTS

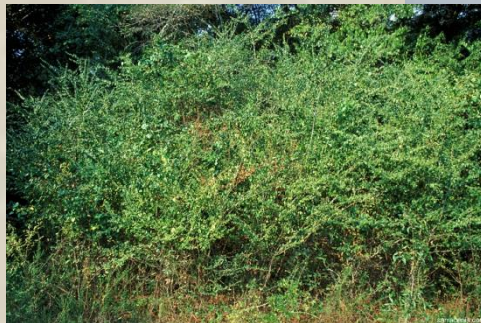
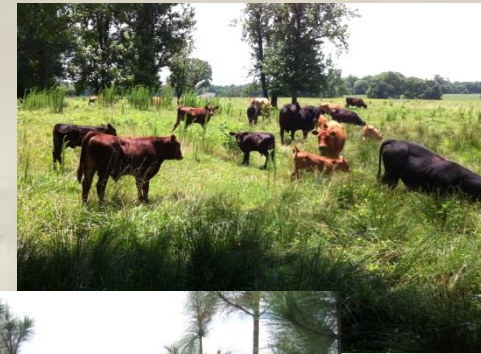
- **Permanent** conservation easement held by 3rd party
- Long-term management endowment
 - Regardless of credit sales
- Perpetual exotic species control
- No timber harvesting; hunting allowed
- Long-term monitoring and reporting

CONSULTING ENGINEERS: WHAT TO KNOW?

- Regulatory framework for “Waters of the U.S.”
 - Impacts require permit, or else ...
- Wetland delineation procedure
- Restoration/mitigation concepts
 - Potential lands required
 - Impacted streams and/or wetlands, species
 - Activities involved
 - Natural forest management techniques
 - Exotic species control
 - Stream restoration
 - Conservation easement implications
 - Long-term endeavor!

MITIGATION STRATEGIES GENERATING “ECOLOGICAL LIFT”

- Unnatural stand removal
 - Exotic species (tallowtree, privet, melaleuca)
 - Pine plantation
- Low quality pasture
- Prior converted (PC) cropland





**CANOE CREEK MITIGATION BANK
STEELE, ALABAMA**

**SITE SELECTION
BANK CONSTRUCTION**



**Canoe Creek
Mitigation Bank**



William B. Bankhead N.R.

Winston County
278

Black Warrior - Tombigbee

Walker County
4

Mulberry

Walker County
78

Black Warrior

sa County

Alabama

Birmingham

Cherokee County

Palham

Wheeler Lake

Cullman County

Jefferson County

Walker County

Walker County

Walker County

Cherokee County

Palham

Marshall County

Locust

Saint Clair County

Middle Coosa

Saint Clair County

Saint Clair County

Saint Clair County

Cherokee County

Palham

DeKalb County

Upper Coosa

Cherokee County

411

Gadsden

Calhoun County

Calhoun County

Calhoun County

Coosa-Tallapoosa

Calhoun County

Talladega County

Talladega County

Talladega County

Gaylesville

Gentle

Piedmont

Jacksboro

Heflin

Hobson City

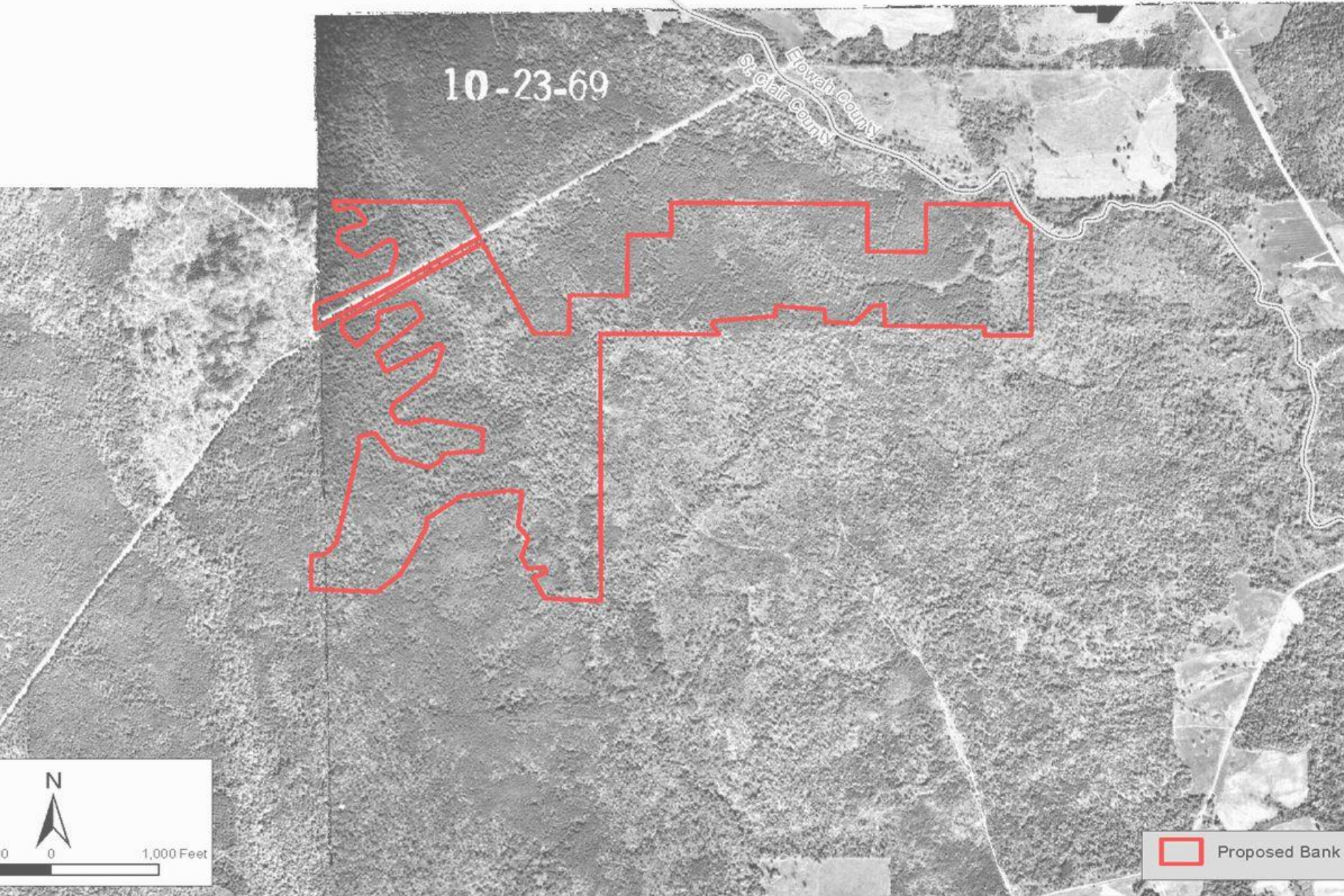
Wadsworth

Linaville

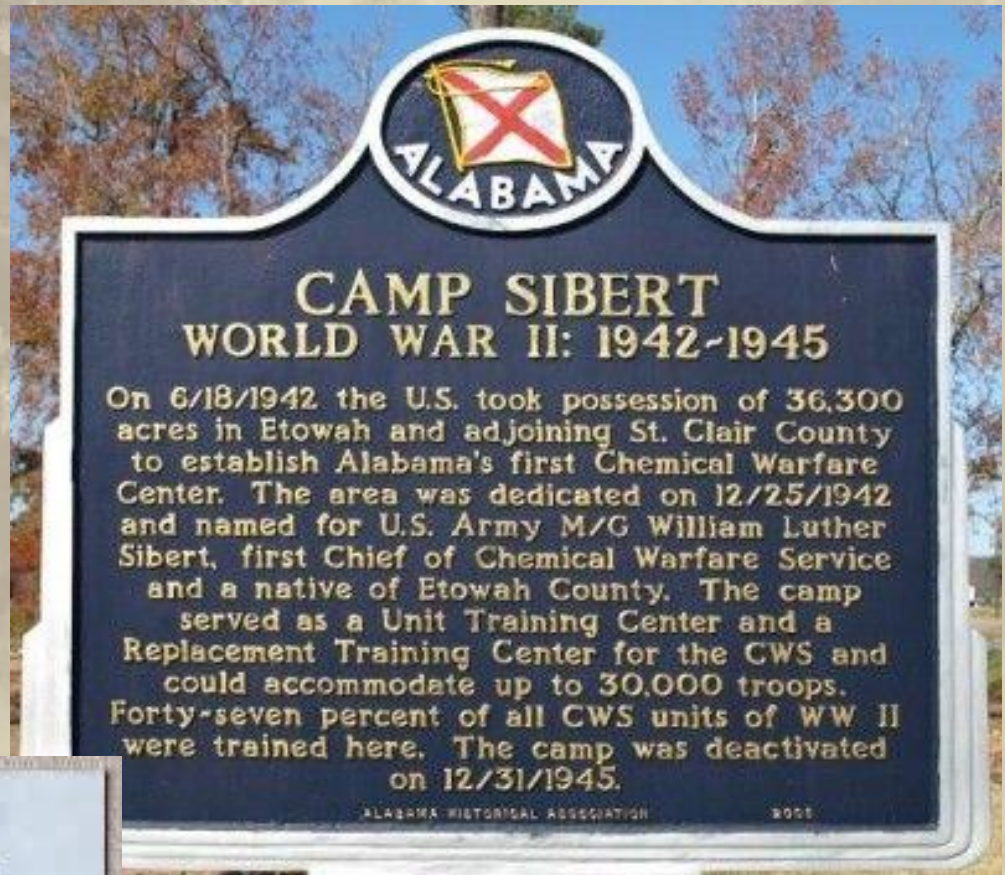
Linaville



CANOE CREEK - 1969



FORMER US ARMY BASE



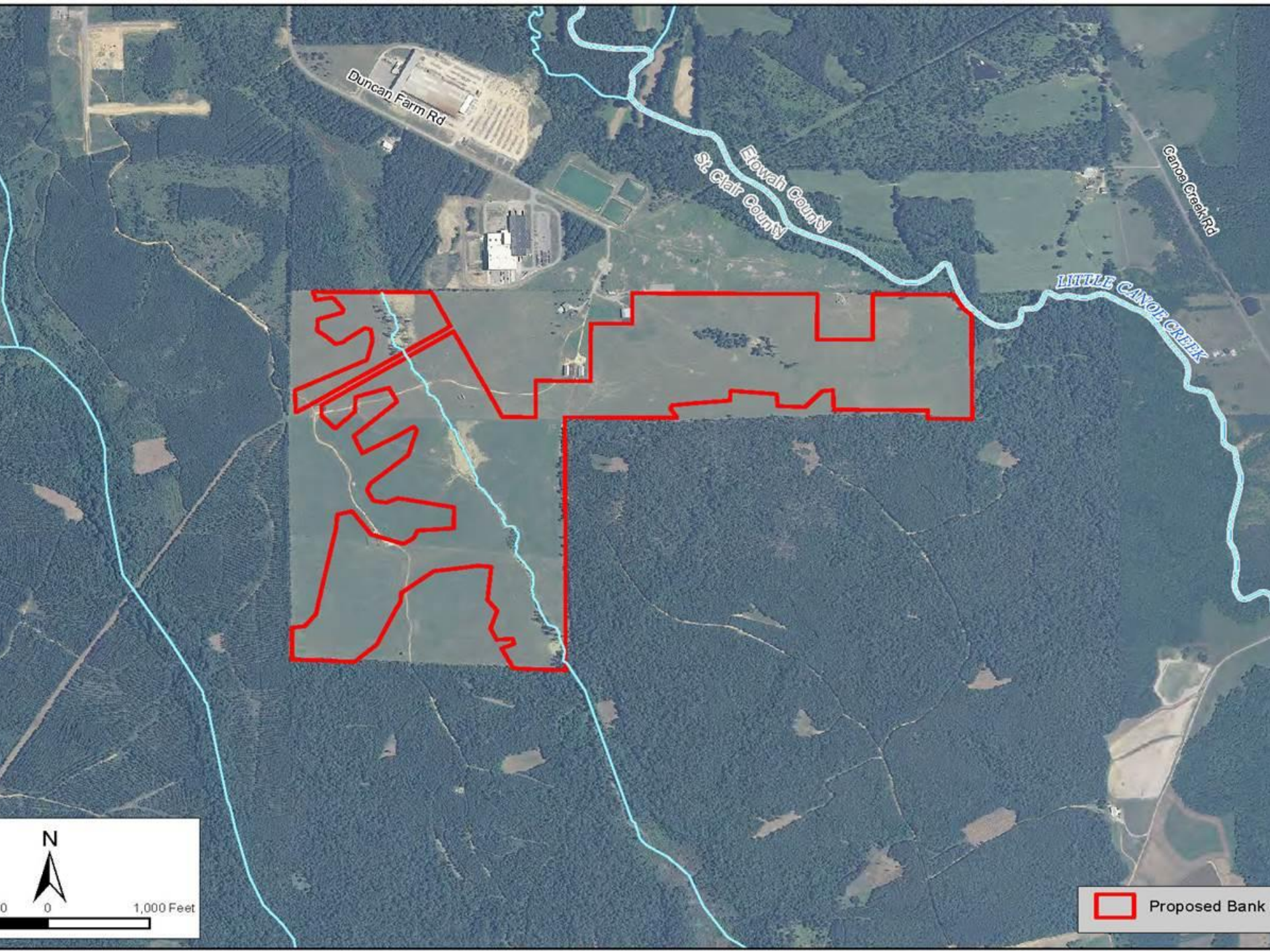


Ordinance Disposal







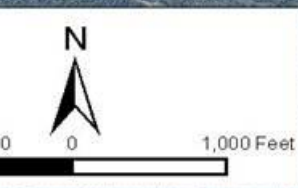


Duncan Farm Rd

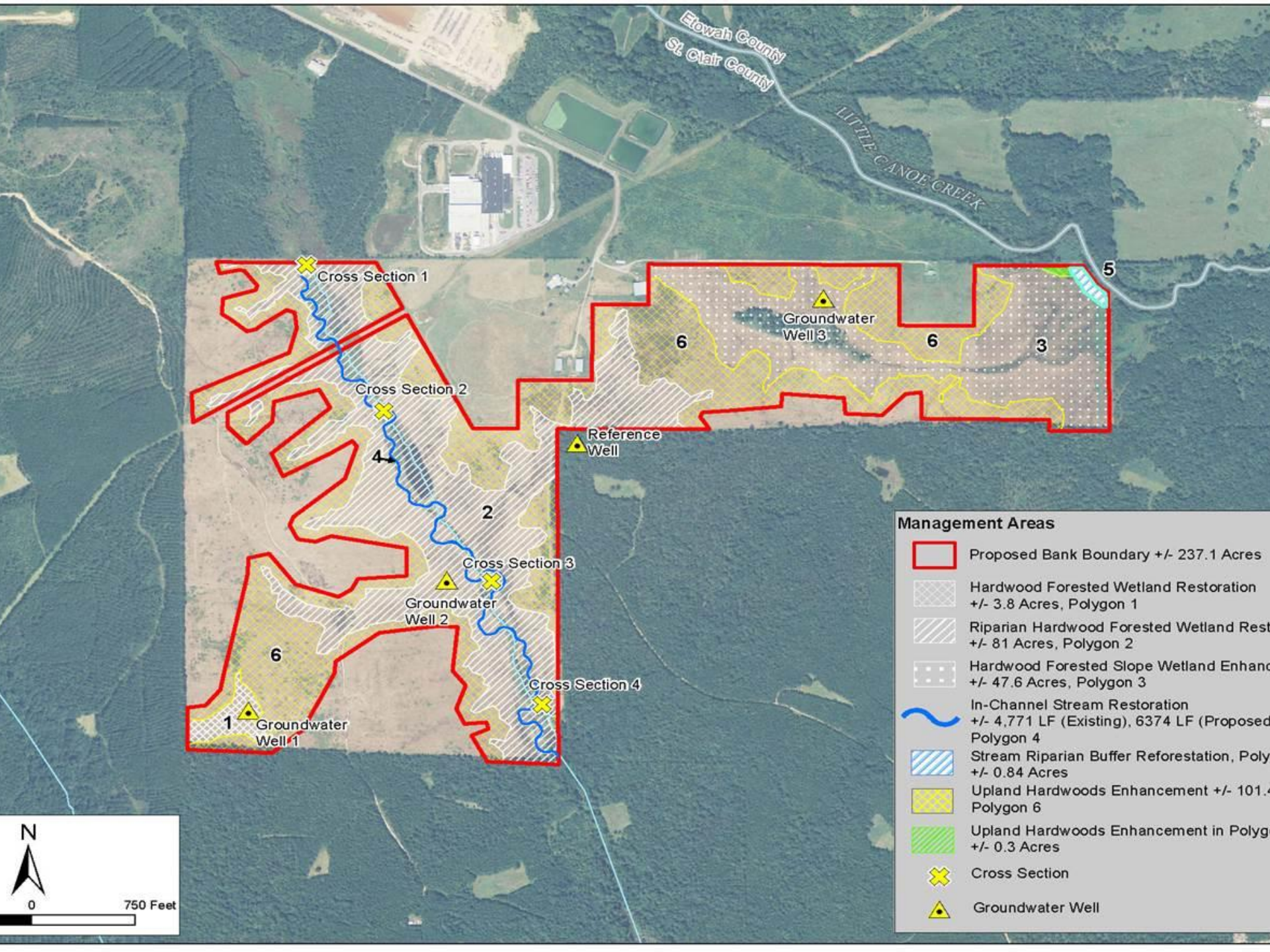
Flowah County
St. Clair County

Canoe Creek Rd

LITTLE CANOE CREEK

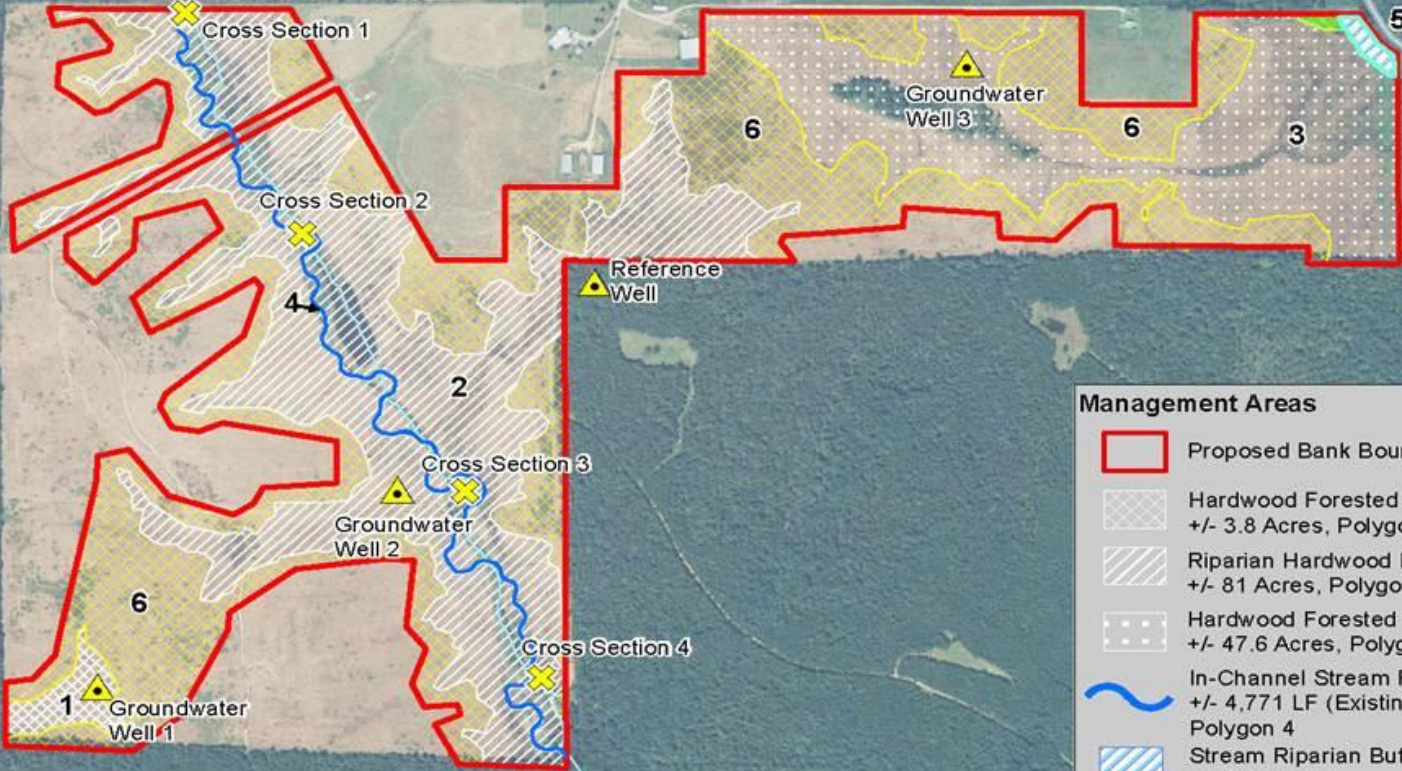


Proposed Bank













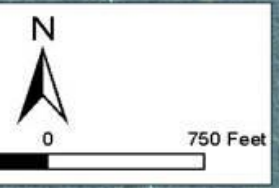
Etowah County
St. Clair County

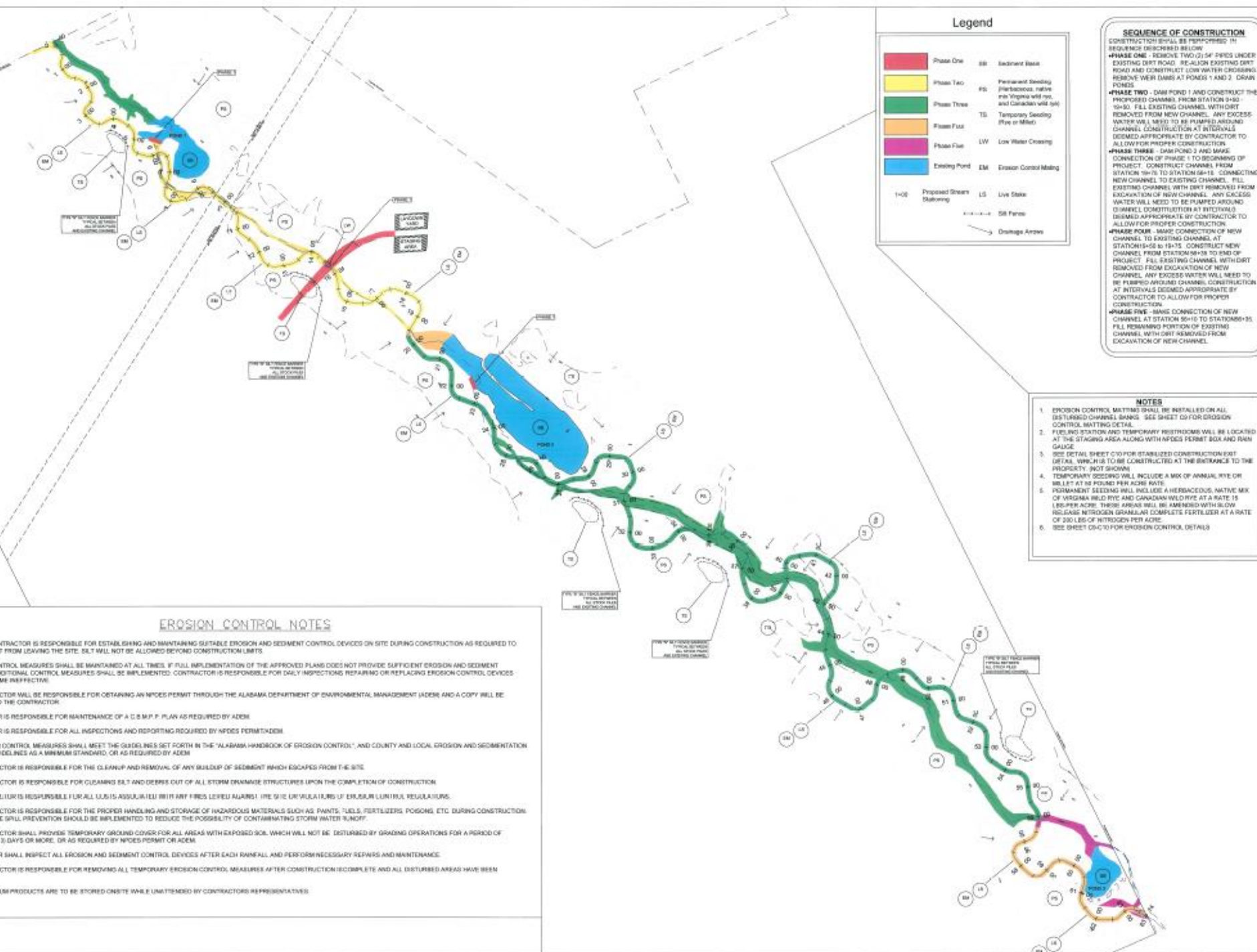
LITTLE CANOE CREEK



Management Areas

-  Proposed Bank Boundary +/- 237.1 Acres
-  Hardwood Forested Wetland Restoration +/- 3.8 Acres, Polygon 1
-  Riparian Hardwood Forested Wetland Rest +/- 81 Acres, Polygon 2
-  Hardwood Forested Slope Wetland Enhanc +/- 47.6 Acres, Polygon 3
-  In-Channel Stream Restoration +/- 4,771 LF (Existing), 6374 LF (Proposed) Polygon 4
-  Stream Riparian Buffer Reforestation, Poly +/- 0.84 Acres
-  Upland Hardwoods Enhancement +/- 101.4 Polygon 6
-  Upland Hardwoods Enhancement in Poly +/- 0.3 Acres
-  Cross Section
-  Groundwater Well





Legend

█	Phase One	SB	Sediment Basin
█	Phase Two	PS	Permanent Seeding (Herbaceous, native or Virginia wild rye, and Canadian wild rye)
█	Phase Three	TS	Temporary Seeding (Rye or Millet)
█	Phase Four	LW	Low Water Crossing
█	Existing Pond	EM	Erosion Control Matting
- - -	Proposed Stream Stationing	LS	Live Stake
- - - - -		SL	Stake Piles
→			Drainage Arrows

SEQUENCE OF CONSTRUCTION
CONSTRUCTION SHALL BE PERFORMED IN SEQUENCE DESCRIBED BELOW

PHASE ONE - REMOVE TWO (2) SF PYLES UNDER EXISTING DIRT ROAD. RE-ALIGN EXISTING DIRT ROAD AND CONSTRUCT LOW WATER CROSSING. REMOVE WEIR DAMS AT PILES 1 AND 2. DRAW PONDS.

PHASE TWO - DAM POND 1 AND CONSTRUCT THE PROPOSED CHANNEL FROM STATION 3+00 TO 30+00. FILL EXISTING CHANNEL WITH DIRT REMOVED FROM NEW CHANNEL. ANY EXCESS WATER WILL NEED TO BE PUMPED AROUND CHANNEL CONSTRUCTION AT INTERVALS DEEMED APPROPRIATE BY CONTRACTOR TO ALLOW FOR PROPER CONSTRUCTION.

PHASE THREE - DAM POND 2 AND MAKE CONNECTION OF PHASE 1 TO BEGINNING OF PROJECT. CONSTRUCT CHANNEL FROM STATION 30+75 TO STATION 38+75. CONNECTING NEW CHANNEL TO EXISTING CHANNEL. FILL EXISTING CHANNEL WITH DIRT REMOVED FROM EXCAVATION OF NEW CHANNEL. ANY EXCESS WATER WILL NEED TO BE PUMPED AROUND CHANNEL CONSTRUCTION AT INTERVALS DEEMED APPROPRIATE BY CONTRACTOR TO ALLOW FOR PROPER CONSTRUCTION.

PHASE FOUR - MAKE CONNECTION OF NEW CHANNEL TO EXISTING CHANNEL AT STATION 38+75 TO 39+75. CONSTRUCT NEW CHANNEL FROM STATION 39+75 TO END OF PROJECT. FILL EXISTING CHANNEL WITH DIRT REMOVED FROM EXCAVATION OF NEW CHANNEL. ANY EXCESS WATER WILL NEED TO BE PUMPED AROUND CHANNEL CONSTRUCTION AT INTERVALS DEEMED APPROPRIATE BY CONTRACTOR TO ALLOW FOR PROPER CONSTRUCTION.

PHASE FIVE - MAKE CONNECTION OF NEW CHANNEL AT STATION 39+75 TO STATION 84+00. FILL REMAINING PORTION OF EXISTING CHANNEL WITH DIRT REMOVED FROM EXCAVATION OF NEW CHANNEL.

EROSION CONTROL NOTES

CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SUITABLE EROSION AND SEDIMENT CONTROL DEVICES ON SITE DURING CONSTRUCTION AS REQUIRED TO PREVENT EROSION AT THE SITE. DIRT SHALL NOT BE ALLOWED BEYOND CONSTRUCTION LIMITS.

EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLANS DOES NOT PROVIDE SUFFICIENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED. CONTRACTOR IS RESPONSIBLE FOR DAILY INSPECTIONS, REPAIRING OR REPLACING EROSION CONTROL DEVICES AS NECESSARY.

CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING AN NPDES PERMIT THROUGH THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM) AND A COPY WILL BE PROVIDED TO THE CONTRACTOR.

CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF A D & M.P.P. PLAN AS REQUIRED BY ADEM.

CONTRACTOR IS RESPONSIBLE FOR ALL INSPECTIONS AND REPORTING REQUIRED BY NPDES PERMITS/DEM.

EROSION CONTROL MEASURES SHALL MEET THE GUIDELINES SET FORTH IN THE "ALABAMA HANDBOOK OF EROSION CONTROL", AND COUNTY AND LOCAL EROSION AND SEDIMENTATION REGULATIONS AS A MINIMUM STANDARD, OR AS REQUIRED BY ADEM.

CONTRACTOR IS RESPONSIBLE FOR THE CLEANUP AND REMOVAL OF ANY BUILDUP OF SEDIMENT WHICH ESCAPES FROM THE SITE.

CONTRACTOR IS RESPONSIBLE FOR GUARANTEEING ALL STORM DRAINAGE STRUCTURES UPON THE COMPLETION OF CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR ALL UTILITIES ASSUMED WITH ANY FIRST LEVEL ALARMS (I.E. SITE UTILITIES) UNDER FEDERAL, STATE, LOCAL, REGULATIONS.

CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING AND STORAGE OF HAZARDOUS MATERIALS SUCH AS PAINTS, FUELS, FERTILIZERS, POISONS, ETC. DURING CONSTRUCTION. EROSION PREVENTION SHOULD BE IMPLEMENTED TO REDUCE THE POSSIBILITY OF CONTAMINATING STORM WATER RUNOFF.

CONTRACTOR SHALL PROVIDE TEMPORARY GROUND COVER FOR ALL AREAS WITH EXPOSED SOIL WHICH WILL NOT BE DISTURBED BY GRADING OPERATIONS FOR A PERIOD OF 30 DAYS OR MORE, OR AS REQUIRED BY NPDES PERMIT OR ADEM.

CONTRACTOR SHALL RESPECT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAINFALL AND PERFORM NECESSARY REPAIRS AND MAINTENANCE.

CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL TEMPORARY EROSION CONTROL MEASURES AFTER CONSTRUCTION IS COMPLETE AND ALL DISTURBED AREAS HAVE BEEN RESTORED.

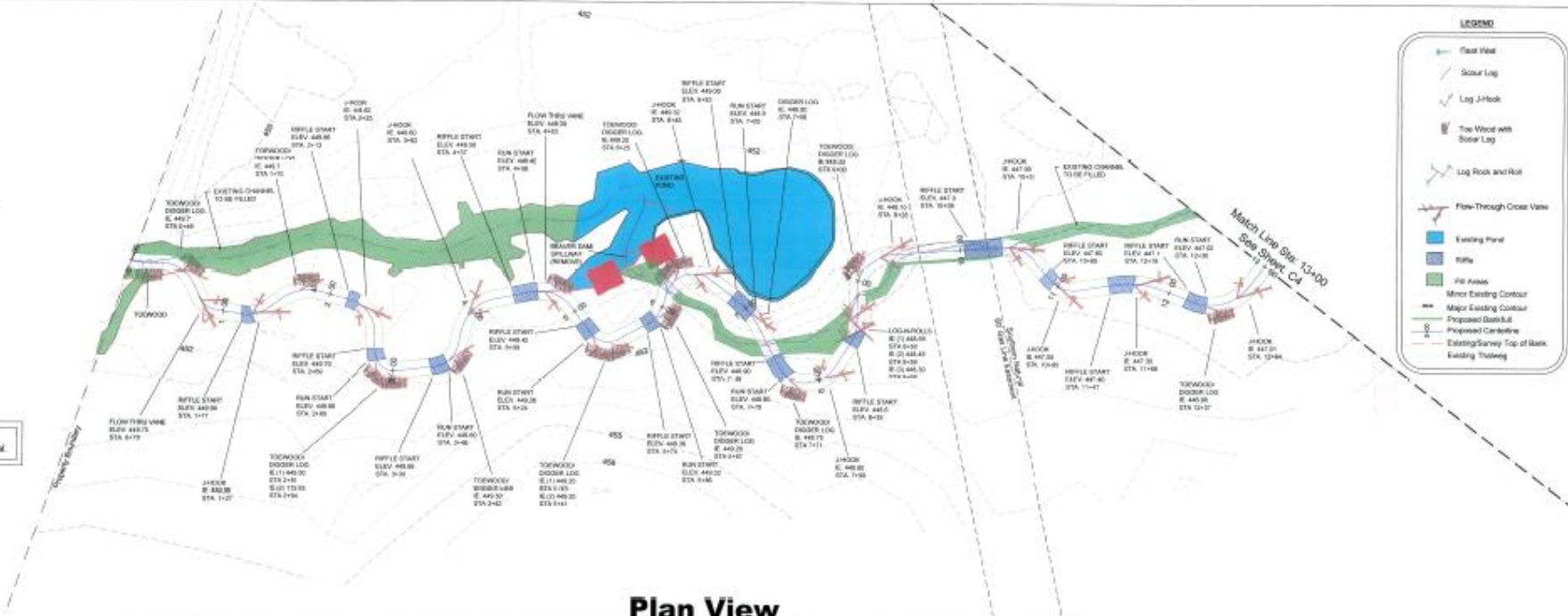
ALL PRODUCTS ARE TO BE STORED ON SITE WHILE UNATTENDED BY CONTRACTORS REPRESENTATIVES.

NOTES

1. EROSION CONTROL MATTING SHALL BE INSTALLED ON ALL DISTURBED CHANNEL BANKS. SEE SHEET C0 FOR EROSION CONTROL MATTING DETAIL.
2. FUELING STATION AND TEMPORARY RESTROOMS WILL BE LOCATED AT THE STAGING AREA ALONG WITH NPDES PERMIT BOX AND RAIN GAUGE.
3. SEE DETAIL SHEET C10 FOR STABILIZED CONSTRUCTION FOOT DETAIL, WHICH IS TO BE CONSTRUCTED AT THE ENTRANCE TO THE PROPERTY. (NOT SHOWN).
4. TEMPORARY SEEDING WILL INCLUDE A MIX OF ANNUAL RYE OR BRILLIANT AT 10 POUNDS PER ACRE RATE.
5. PERMANENT SEEDING WILL INCLUDE A HERBACEOUS, NATIVE MIX OF VIRGINIA WILD RYE AND CANADIAN WILD RYE AT A RATE 15 LBS PER ACRE. THESE AREAS WILL BE AMENDED WITH SLOW RELEASE NITROGEN GRANULAR COMPLETE FERTILIZER AT A RATE OF 200 LBS OF NITROGEN PER ACRE.
6. SEE SHEET C0-C10 FOR EROSION CONTROL DETAILS.



CUTS ARE AT 1 F.T. INTERVAL

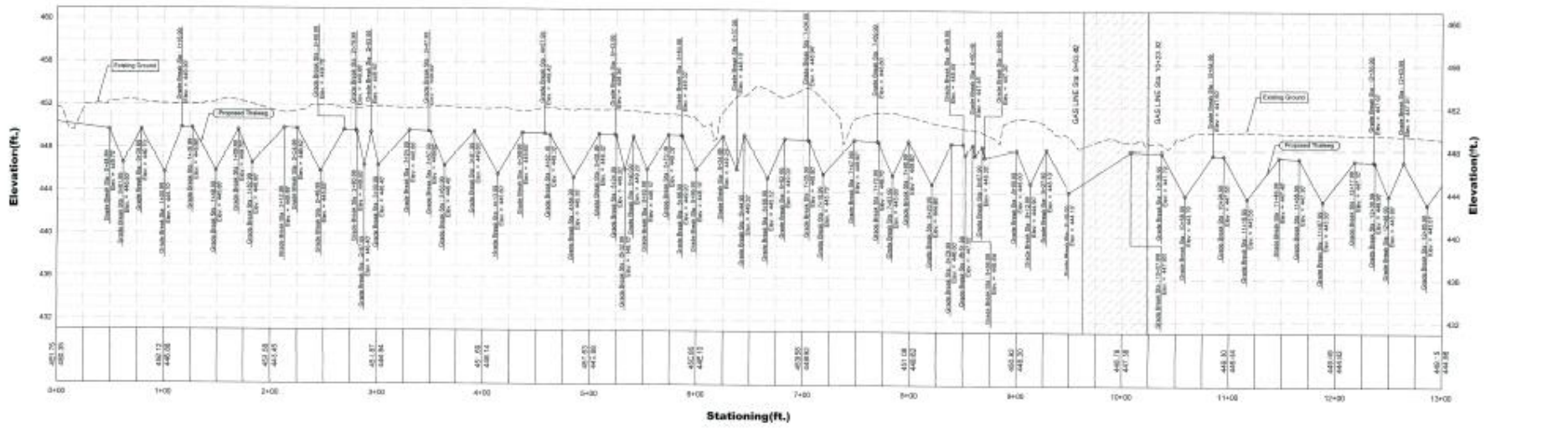


- LEGEND**
- Fast Flow
 - Scour Log
 - Log J-Hook
 - Toe Wood with Solar Log
 - Log Rock and Roll
 - Flow-Through Cross Vane
 - Existing Pond
 - Riffle
 - Fill Areas
 - Minor Existing Contour
 - Major Existing Contour
 - Proposed Bankline
 - Existing Survey Top of Bank
 - Existing Thalweg

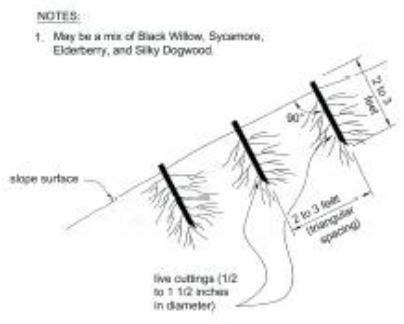
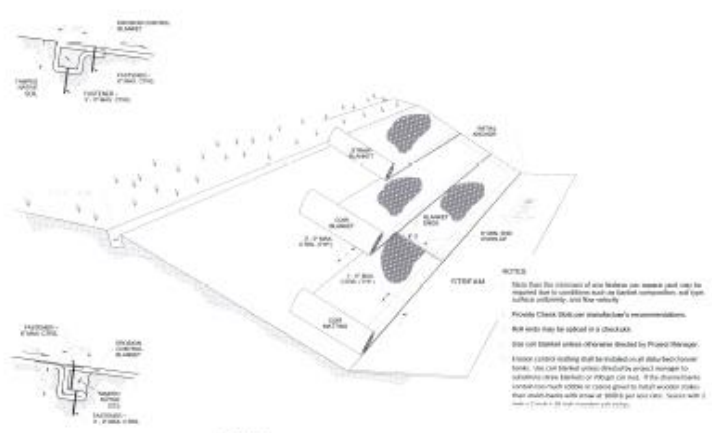
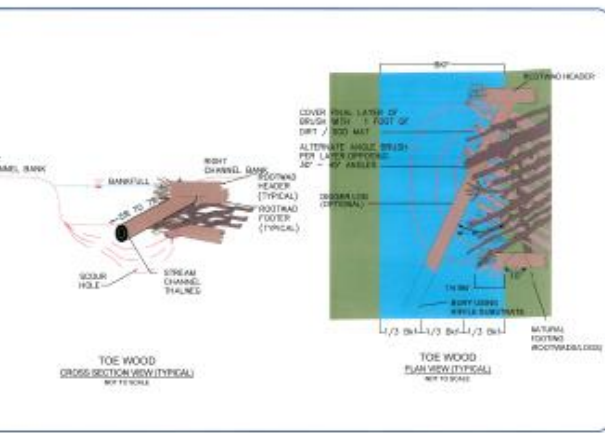
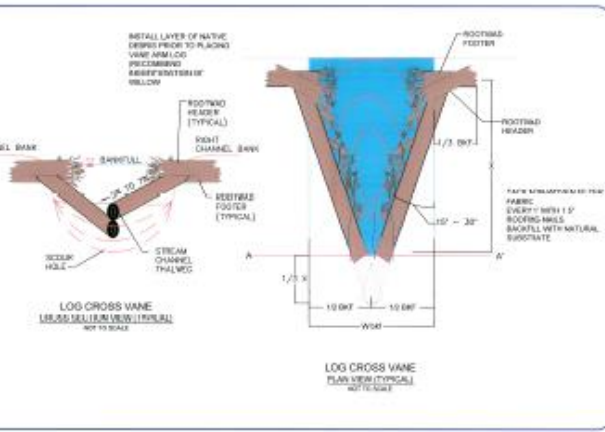
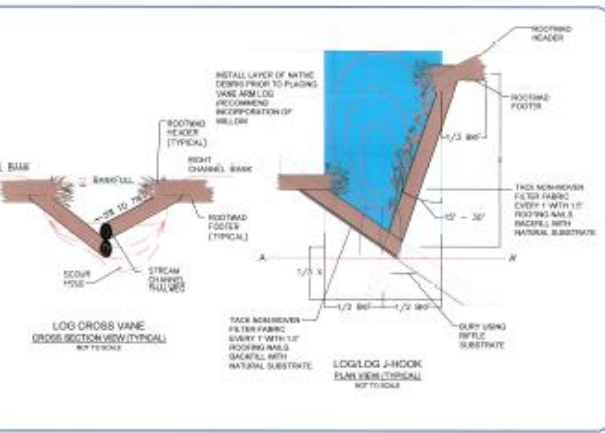
Plan View
Profile View
Sta. 0+00.00 - Sta. 13+00.00
 Scale: 1" = 5' Vert.
 1" = 50' Horiz.

STREAM DESIGN PROVIDED BY MEANDERS RIVER RESTORATION INC.

- PROFILE LEGEND**
- EXISTING GROUND CENTERLINE
 - EXISTING BANKLINE
 - EXISTING BANK ELEVATION
 - EXISTING CHANNEL ELEVATION

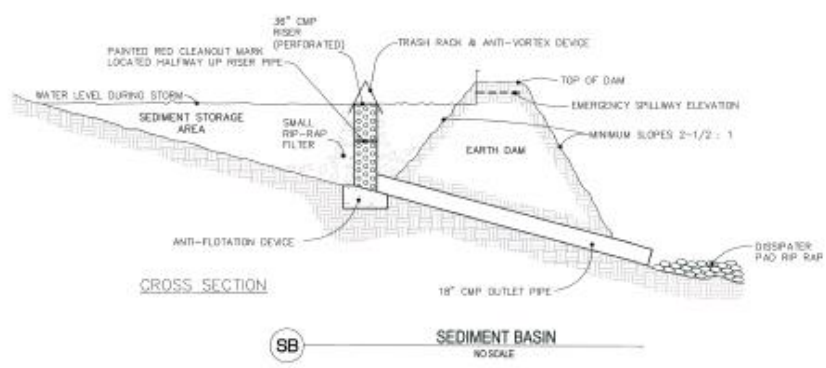
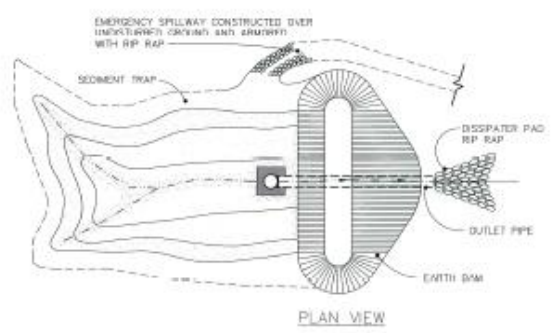


Plan & Profile



LS LIVE STAKE INSTALLATION
NO SCALE

EM EROSION CONTROL MATTING
NO SCALE



SB SEDIMENT BASIN
NO SCALE

SEEDING NOTES:

1. Prior to matting, banks will be seeded with a mix of annual rye (*Secale spp.*) (fall/winter) or millet (*Urochloa ramosa*) (spring/summer) at a 50-pound-per-acre rate with a herbaceous, native mix Virginia wild rye (*Elymus virginicus*), and Canadian wild rye (*Elymus canadensis*) at a 15 lb-per acre rate.
2. Seeded areas will be amended with slow release nitrogen granular complete fertilizer (16-4-8) at a rate of 200 lbs of nitrogen per acre.











PRIORITY ONE IN-STREAM RESTORATION: 6,450 LF

In-Stream Construction Involved the Following Structures/Material:

- 44 J Hooks
- 38 Rootwads
- 48 Digger Logs
- 1,552 LF of Toewood
- 1 Cross Vane
- 2 Log Rock and Roll
- 227 Tons of Boulders
- 104 Tons of Cobble
- 142 Tons of Gravel





































WETLAND TREE PLANTING

Hardwood Forested Wetland- Polygon 1

Nyssa biflora, FACW
Quercus nigra, FAC

Quercus michauxii, FACW

Diospyros virginiana, FAC

Quercus texana, OBL

Platanus occidentalis, FACW

Quercus phellos, FAC

Quercus laurifolia, FACW

Acer rubrum, FAC

Quercus falcata var. pagodifolia, FACW

Quercus lyrata, OBL

Carya aquatica, OBL

Riparian Hardwood Forested Wetland- Polygon 2

Hardwood Forested Slope Wetland- Polygon 3
Platanus occidentalis, FACW

Fraxinus pennsylvanica, FACW

Betula nigra, FACW

Quercus phellos, FAC

Quercus laurifolia, FACW

Populus deltoides,

Quercus michauxii, FACW

Diospyros virginiana, FAC

Salix nigra, OBL

Quercus falcata var. pagodifolia, FACW

Nyssa biflora

Taxodium distichum, Bald Cypress OBL





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334.821.1999

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303.256.5771