Fourche Bayou Mitigation Bank Prospectus

Applied Land Restoration

TABLE OF CONTENTS

LIST OF TABLES

APPENDIX A: Figures

APPENDIX B: Species of Concern

APPENDIX C: Site photographs

Introduction

The setting of the confluence of the southern mouth of Fourche Bayou, often referenced on area maps as Fourche Creek, and the Arkansas River serves as a unique backdrop for the proposed Fourche Bayou Mitigation Bank (FBMB). FBMB sits in the middle of the Lower Arkansas-Maumelle watershed and will be developed as compensatory mitigation for unavoidable impacts authorized under Section 404 of the Clean Water Act. The combined wetland and stream mitigation site is located in 75-acres of Section 01, Township 11, Ranges 14 & 15 of Pulaski County, Arkansas, south of Little Rock. (Figure A-1). The project will restore, enhance, and protect riparian buffers of 1,256 linear feet (LF) of the Arkansas River, 2,690 LF of Fourche Bayou, 1,384 LF of a small tributary, and approximately 60-acres of wetlands under the guidance of the *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule. Regulation 40CFR Part 230* (USACE & USEPA 2008). Interagency Review Team (IRT) participation, led by the Little Rock District, U.S. Army Corps of Engineers (SWL) will include: the U.S. Fish and Wildlife Service, Region IV (FWS); the U.S. Environmental Protection Agency, Region VI (EPA); the Arkansas Department of Environmental Quality (ADEQ); the Arkansas Game and Fish Commission (AGFC); the Arkansas Natural Heritage Commission (ANHC); the Arkansas Natural Resources Commission (ANRC), and Arkansas Parks and Tourism (APT).

Table 1: Summary of background information of the proposed Fourche Bayou Mitigation Bank

BACKGROUND INFORMATION	
Project Name	Fourche Bayou Mitigation Bank
Project Sponsor	Applied Land Restoration, Inc
Site Location	Section 01, Township 11W, Range 14 & 15
Counties	Pulaski, Saline, Jefferson, Lonoke, Perry, Faulkner
8-digit HUC	Lower Arkansas - Maumelle 11110207
10-digit HUC	Fourche Creek - Arkansas River 1111020704
12-digit HUC	Fourche Creek - Arkansas River 111102070404
Proposed Primary Stream Service Area	Lower Arkansas - Maumelle 11110207 Bayou Meto 08020402
Proposed Secondary Stream Service Area	Lower White-Bayou DesArc 08020301
Ecoregions	Mississippi Alluvial Valley
Protection Mechanism	Conservation Easement
Monitoring Frequency	annually
Anticipated Date of Final Monitoring	2020
Size of Project Area	~75 acres
Wetland Area	~60 acres
Stream Lengths	~5,324 LF of perennial and intermittent channels

1.0 Objective

The project objective is to develop a mitigation bank in the Lower Arkansas-Maumelle watershed in association with the granting of Department of Army permits through restoration, enhancement, and preservation of wetlands, stream channels, and associated buffers along Fourche Bayou. The overall goal is to improve the functions of this primarily wetland system. The specific design objectives of the project include, but are not limited to:

- Improving connectivity to adjacent forested wetlands;
- Restoring and enhancing bottomland hardwood habitat;
- Improving hydrologic connections, storage, and flood control;
- Improving streambank stability and erosion control with bioengineering techniques;
- Enhancing water quality of the Fourche Bayou watershed.

2.0 Site Selection and Justification

The proposed FBMB is a 75-acre site located on Fourche Island along Fourche Bayou. Situated near the convergence of four major ecoregions, the site provides an ideal opportunity to restore and protect valued habitat. It is approximately four miles south of the Little Rock National Airport and the Little Rock Port Authority (LRPA), a rapidly growing industrial area in south Little Rock (ADG 2015). The Port of Little Rock opened its new $2.1 million Arkansas River Resource Center in July 2014, and announced in January 2015 their resolution supporting sustainable development around the port (TB 2015). Urban expansion and growth throughout Lower Arkansas-Maumelle watershed, especially western Pulaski County, continues and the FBMB is designed and intended to offset these impacts to ensure a more sustainable aspect to growth.

Much of the Fourche Island land use has been traditional agronomy, since the Fourche levee was constructed. Today, aerial views of the island illustrate a distinct natural pattern of crescent-shaped channel meander scars recognized by USFWS as wetland areas (Figure A-2). The establishment of the FBMB will provide connectivity to these adjacent wetland areas, as well as, serve as an anchor site for future conservation efforts, and potential expansion of the mitigation area.

2.1 Watershed Approach

Currently there are several organizations and conservation groups actively working in the Lower Arkansas-Maumelle watershed. Audubon Arkansas is a sponsor of the Fourche Creek Watershed Initiative. The group has identified impacts that affect water quality through monitoring and assessment methodologies. Non-point source pollution, including that from agriculture and urban sprawl/development, are both identified as great threats to the watershed (NAS 2014). Acres converted from agriculture to native forest reduce the application of herbicides, pesticides, and fertilizers; thereby, diminishing the negative pressures on natural processes. Restoring the FBMB and placing the property under a conservation easement will aid in this offset.

Critical habitat within the watershed has been identified and priority conservation areas have been determined. Fourche Creek is home to “over 50 species of fish (one fourth of all Arkansas fish species), stands of three hundred year old bald cypress, and a diverse population of migratory bird

species" (NAS 2014). Most notably among these efforts is a long-standing commitment to protecting 1,750-acres of the Fourche Bayou Basin through a decade's long, multi-agency effort. Because so many acres of the Lower Arkansas-Maumelle watershed have been irreversibly converted to urban land use, restoring agricultural areas is imperative to protecting this critical habitat.

The proposed mitigation site has been used primarily for agricultural production, resulting in wetland areas being ditched, plugged, or cleared to facilitate this goal. Benefits to restoration include improved water quantity through water retention and increased ground water recharge. Reforestation of this site will improve water quality through better retention, sediment reduction, increased connectivity to the adjacent forests and augmented habitat for shoreline birds.

3.0 Site Protection Instrument

The FBMB property is owned by a private third party. The mitigation acreage will be placed in a conservation easement with a certified land trust and filed at the courthouse in Pulaski County. The site will be monitored annually by the land trust to ensure that the easement restrictions are being followed.

4.0 Baseline Information

With the construction of the Fourche Levee, the majority of Fourche Island has been converted to agriculture with most of the stream channels ditched and straightened to drain the wetland soils. Fourche Bayou is a distinctive watercourse formed from an old cutbank of the Arkansas River which also created Fourche Island. The FBMB is located at the southeast corner of the island where the bayou drains into the Arkansas River. Historically, this southern mouth of Fourche Bayou received all of the drainage from the area that is now the City of Little Rock and the Fourche Creek watershed. Fourche levee, constructed sometime around 1850, runs north-south along the eastern portion of the property and continues along the right descending bank of the Arkansas River. Around the same time, a dam at the upper mouth of Fourche Bayou/Creek was constructed to prevent backflow of the Arkansas River from flooding Little Rock. In 1907 the dam/levee broke after a significant flow event (UCS 1914). Today the majority of receiving waters into the Arkansas River occur through the northern mouth of Fourche Bayou near the Little Rock airport.

Most of the Lower Arkansas-Maumelle watershed is located in Pulaski and Jefferson counties of Central Arkansas; with smaller portions in Saline, Lonoke, Perry and Faulkner counties. The FBMB is located within the Mississippi Alluvial Plain (73); subsection 73h –Arkansas/Ouachita River Holocene Meander Bends (AWAP 2004), approximately six miles south of downtown Little Rock. The valley slope within the project area is flat, with elevations ranging from 224 MSL along the thalweg of Fourche Bayou to 251 MSL along the top of Fourche Levee, with the majority of the project site around 235 MSL (Figure A-3). The Fourche Bayou area receives an average of 50.9 inches of rainfall per year (USGS 2014).

Regarding soils, two primary units, Moreland silty clay and Keo silt loam, both considered hydric or partially hydric, are located onsite. Moreland silty clay comprises approximately 65% of the project area and consists of very deep, somewhat poorly drained, very permeable soils that formed in clayey

alluvium of Permian Red Bed origin. Permeability is very slow, and available water capacity is high. Native vegetation for these soils was bottomland hardwood forests. The minor component of the series is Perry clay, which is the dominant soil type of the of the USFWS wetland inventory areas on Fourche Island (Figure A-4). The secondary soils are Keo silt loam, approximately 35%, which are more well drained soils derived from loamy alluvium. In this series aquent depression areas exist throughout. These are poorly drained hydric areas that have a low permeability. A formal wetland delineation is scheduled to determine jurisdictional status.

Preliminary plant observations reveal the wetland components of this site. Botanical species include but are not limited to: Common rush (*Juncus effuses*), Goldenfruit Sedge (*Carex aureolensis),* Raven-foot Sedge (*Carex crus-corvi*), Willow Oak (*Quercus phellos*), Sugarberry (*Celtis laevigata*), Riverbank grape (*Vitis riparia*) and Arkansas manna grass (*Glyceria arkansana*). Establishment of baseline plant community monitoring transects is planned for summer 2015.

In addition to the vegetative monitoring, avian point counts and other ecological sampling will be performed to determine baseline presence and attainable goals, as well as, illustrate ecological lift after restoration activities are implemented.

5.0 Determination of Credits

Wetland credit determination will follow the Charleston Method (USACE 2002). The Little Rock Stream Method (USACE 2011) will be used to determine the amount of stream credits. Stream segments that overlay with wetland areas or buffers will not be stacked for mitigation credits.

6.0 Mitigation Work Plan

The mitigation workplan will focus primarily on the restoration of the channel meander scars of the wetland area to the west of Fourche levee. A topographic and geomorphic survey of selected areas and stream reaches will be conducted in order to develop final design criteria. Existing conditions will be evaluated for departure from reference conditions and restored appropriately. All of the construction will be performed during the dry season. A Phase I Environmental Assessment, including cultural resources review, was completed in June 2015. A prescribed burn will be conducted throughout the area in order to stimulate native plant growth. Once the native seed bed is determined, a comprehensive plan will be implemented to adjust floral composition accordingly. The entire project area will be re-vegetated in a succession of native trees, shrubs, grasses, and forbs designed to mimic natural systems.

6.1 Arkansas River

The streambank and initial riparian zone along 1,200 LF of the right descending bank of the Arkansas River across from Chenault Island is dominated by erosion control measures, such as rip rap. There exists a narrow band of small red maples growing along and within the rocks. The remaining floodplain consists of non-native and native grasses. The floodplain will be reestablished with an optimized mix of hardwood species, shrubs, and grasses.

6.2 Fourche Bayou

The southern boundary of the FBMB is the final 2,700 LF of Fourche Bayou where the bayou enters the Arkansas River at river mile 105. This reach of Fourche Bayou is a third order stream approximately 40 ft wide flowing west to east. The riparian zone along the left descending bank has been treated with herbicide leaving large portions of the bank unstable. Remediation efforts will include stabilizing exposed streambanks using bioengineering techniques such as live-staking, live palisades, brush layering, over-seeding, and wattle fencing where applicable. Sediment deposition appears in and among rock spaces at the confluence with the Arkansas River where native riverine grasses and additional shrubs will be established.

6.3 Streams

Reach A is a 1,354 LF intermittent ditch that runs north to south parallel to Fourche levee prior to entering the Arkansas River. Green ash (*Fraxinus pennsylvanica*), Cottonwood (*Populus deltoides*) Black willow (*Salix nigra*) Sugarberry (*Celtis laevigata)* and red maple (*Acer rubrum*) dominate the ditched area. Streambed features (i.e. riffle/pool morphology) are currently absent from this reach. Restoration efforts will add morphological features in order to improve stream habitat and function and encourage diversity.

6.4 Wetlands

Fourche levee segregates the wetland areas into two distinct units, Wetland Area A and Wetland Area B. Wetland Area A is approximately 55-acres with five acres currently located in a USFWS designated PFO1A, Palustrine Forested Broad-leaved deciduous, temporary flooded. The remaining acreage has been converted for agricultural production. Wetland activities will be a combination of enhancement of existing wetland features and restoration of adjacent wetland areas where forested areas have been removed. Wetland indicators are present onsite including, but not limited to, the existence of wetland hydrology, true aquatic plants and active crayfish burrows. The second wetland area, Wetland Area B, is located on the east side of levee along the Arkansas River floodplain. Only acreage outside of the 100-ft stream riparian buffer zone will be assessed for wetland mitigation credit potential (Figure A-6). A formal wetland delineation will be conducted to determine jurisdictional status.

6.5 Riparian Buffer

The entire mitigation area will be re-vegetated through hand planting native hardwood and herbaceous species with a density of 302 stems/acre. A minimum 100-ft buffer will be maintained where property boundaries allow and increased to include upland buffers where applicable. During the dormant season, Black willow (*Salix nigra*), Box elder (*Acer negundo*) and Sycamore (*Platanus occidentalis*) stakes will be placed along the streambanks of the intermittent and perennial channels. Tree and shrub seedlings will be planted in winter 2016-2017. The floodplain zone will consist of the appropriate floodplain species, while the upland buffers will consist of an oak-hickory mix with a representative understory if available.

7.0 Operation and Maintenance Plan

The project will be developed and implemented by ALR. The site will be maintained and monitored annually by ALR with reports submitted to the SWL for review.

8.0 Performance Standards

The overall performance standard and success criteria for wetland and stream compensation is demonstrable ecological lift within the project site. This lift will be measured through biological surveys and reinforced through geomorphic monitoring, vegetative monitoring, and qualitative stability indices. The performance standards will follow guidelines from the Compensatory Mitigation Standard Operating Procedure (USACE 2006) and approved by the IRT and SWL.

9.0 Monitoring Requirements

Monitoring will be conducted by ALR, for five years or until the SWL determines the project is complete. Permanent cross-sections and longitudinal feature parameters will be established following the guidelines set forth in the Little Rock Stream Method (USACE 2011). This data will be collected and analyzed annually to determine if success criteria are being met.

10.0 Long-term Management

An escrow account will be established by ALR to adequately service long-term management goals. These long-term management activities will be conducted by ALR. At a later time, and with approval from the SWL, ALR may designate a long- term steward or an entity to act as steward.

11.0 Adaptive Management

Upon a determination by USACE that performance standards have not been met or the compensatory mitigation project is not on track to meet those standards, the monitoring period may be extended. USACE may also revise monitoring requirements when remediation and/or adaptive management are required. In the event that the success criteria have not been met, remedial action will be taken within 90 days.

12.0 Financial Assurances

Financial assurances will be provided by ALR.

References

ADG (2015) Arkansas Democrat Gazette Associated Press, *Little Rock Port Authority adopts sustainability resolution.* January 22, 2015.

Brawner, S. (2014) Talk Business and Politics. *New Day at Little Rock Port Authority*. Retrieved From http://talkbusiness.net/2014/07/new-day-little-rock-port-authority/

AWAP (2004) *Ecoregions of Arkansas*, Arkansas Wildlife Action Plan

NAS (2014) National Audubon Society, Fourche Creek Information

USCS (1914) United States Congressional Serial Set, Government Printing Office, Washington. Issue 6621 p.4

USGS (2014) Arkansas Streamstats Basin Characteristics. Retrieved from http://streamstatsags.cr.usgs.gov/ar_ss/ComputeParams.Aspx?stabbr=AR

USEPA and USACE (2008) Compensatory Mitigation for Losses of Aquatic Resources, Final Rule. Regulation 40CFR Part 230

USACE (2005) Compensatory Mitigation Standard Operating Procedure, Department of Army, Regulatory Branch, SWL.

USACE (2011) Little Rock District Stream Method. Department of the Army, Little Rock District.

USEPA (1972) Clean Water Act, CWA. 33 U.S.C. §1251 et seq. Regulation 40 C.F.R. pts. 104-149. Charleston Regulatory Division - Standard Operating Procedure Issued September 19, 2002 Compensatory Mitigation

Appendix A
Figures

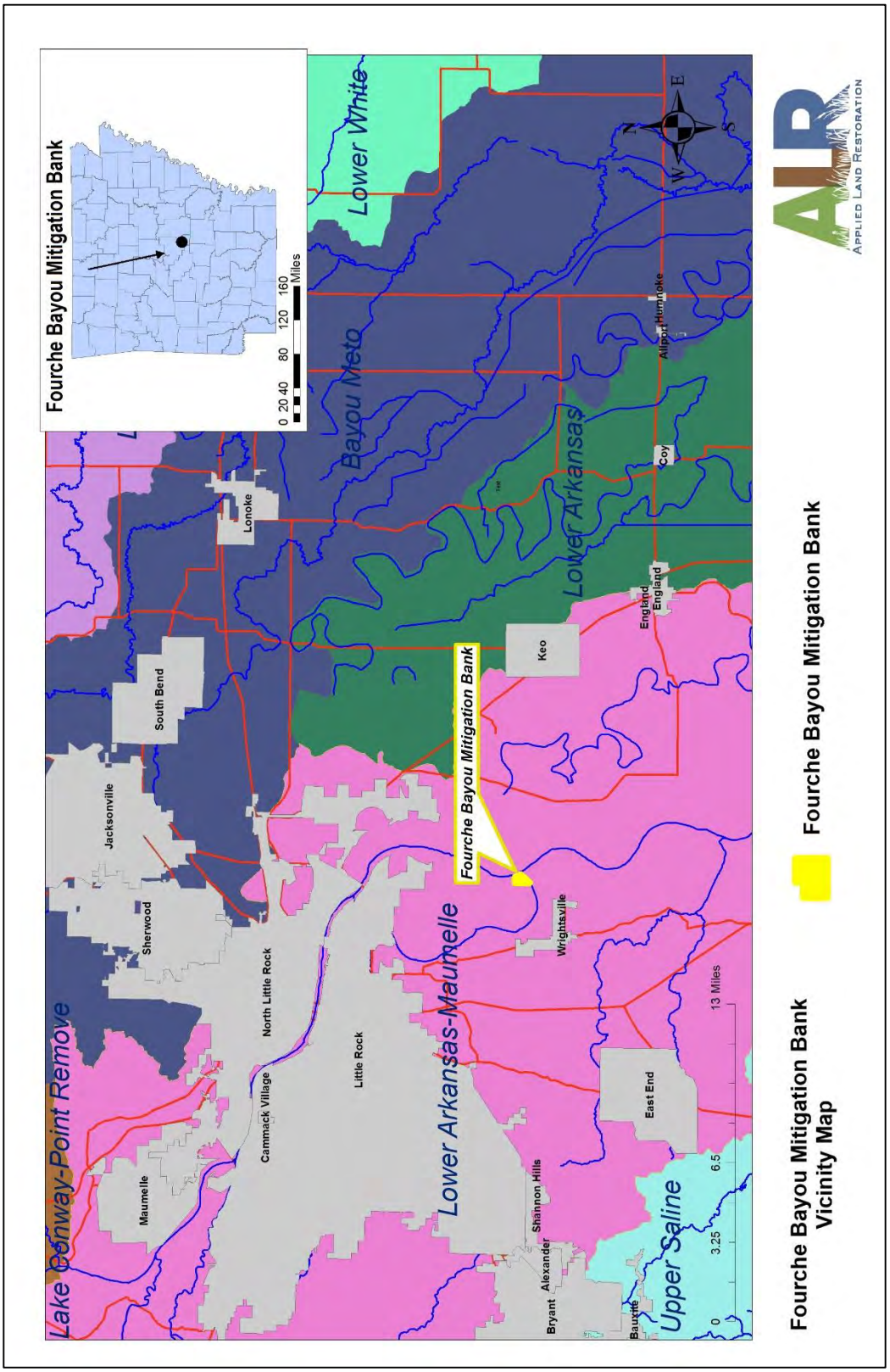

Figure 1: Vicinity Map for the Fourche Bayou Mitigation Bank

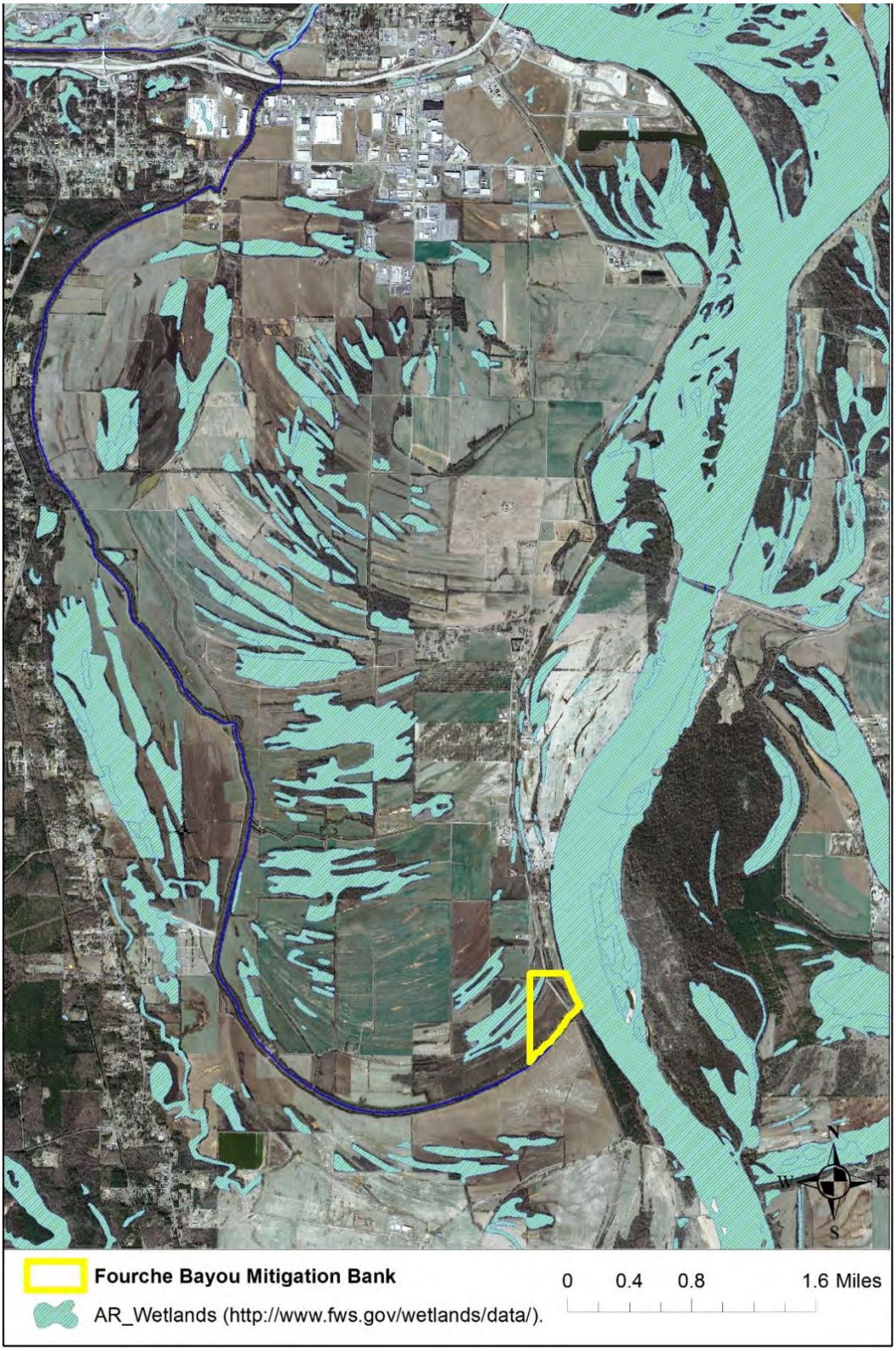

Figure 2: USFWS wetland inventory of Fourche Island, AR.

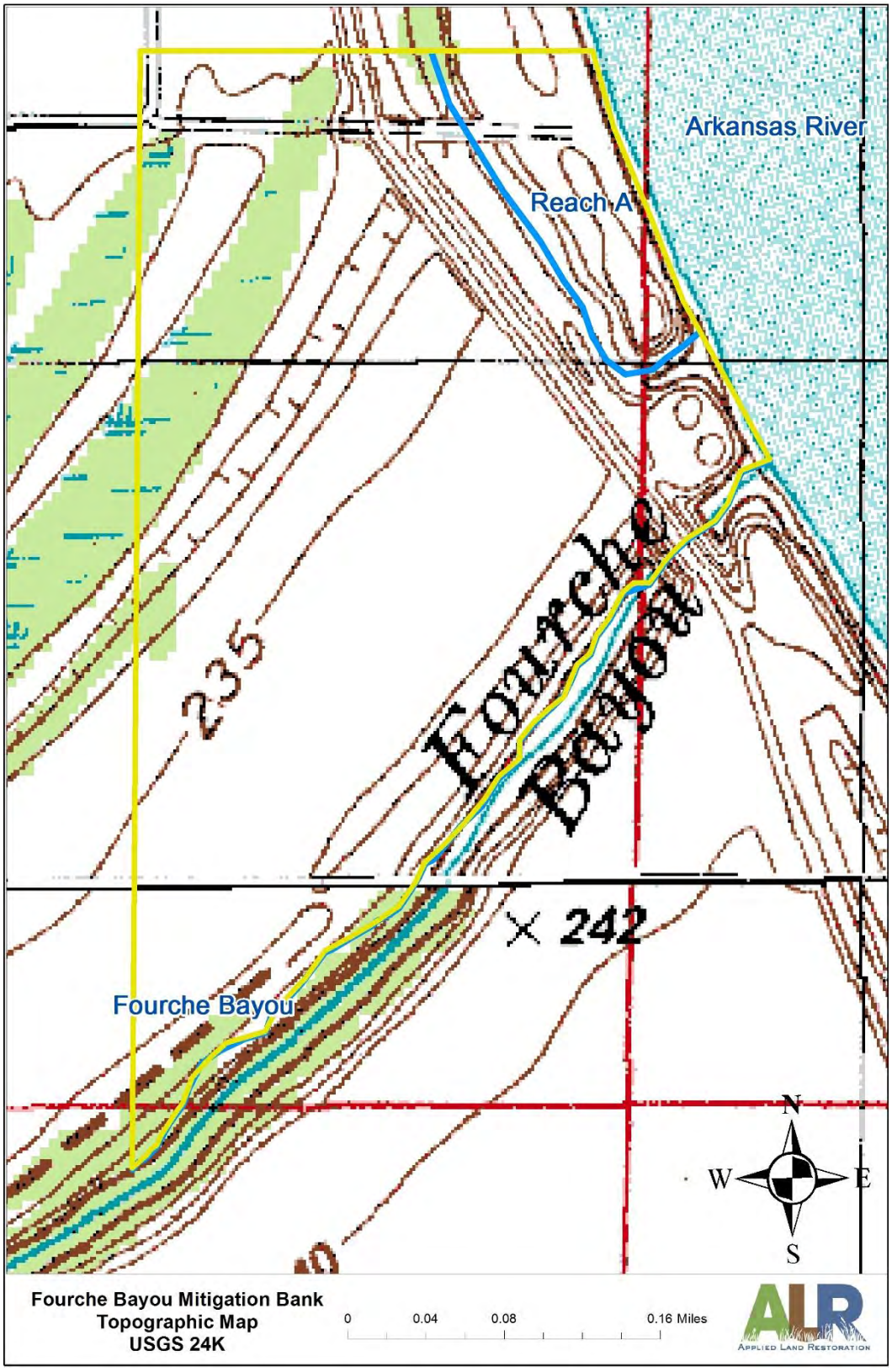

Figure 3: Topographic map for the proposed Fourche Bayou Mitigation Bank (USGS 24K)

Figure 4: Soils map of the proposed Fourche Bayou Mitigation Bank.

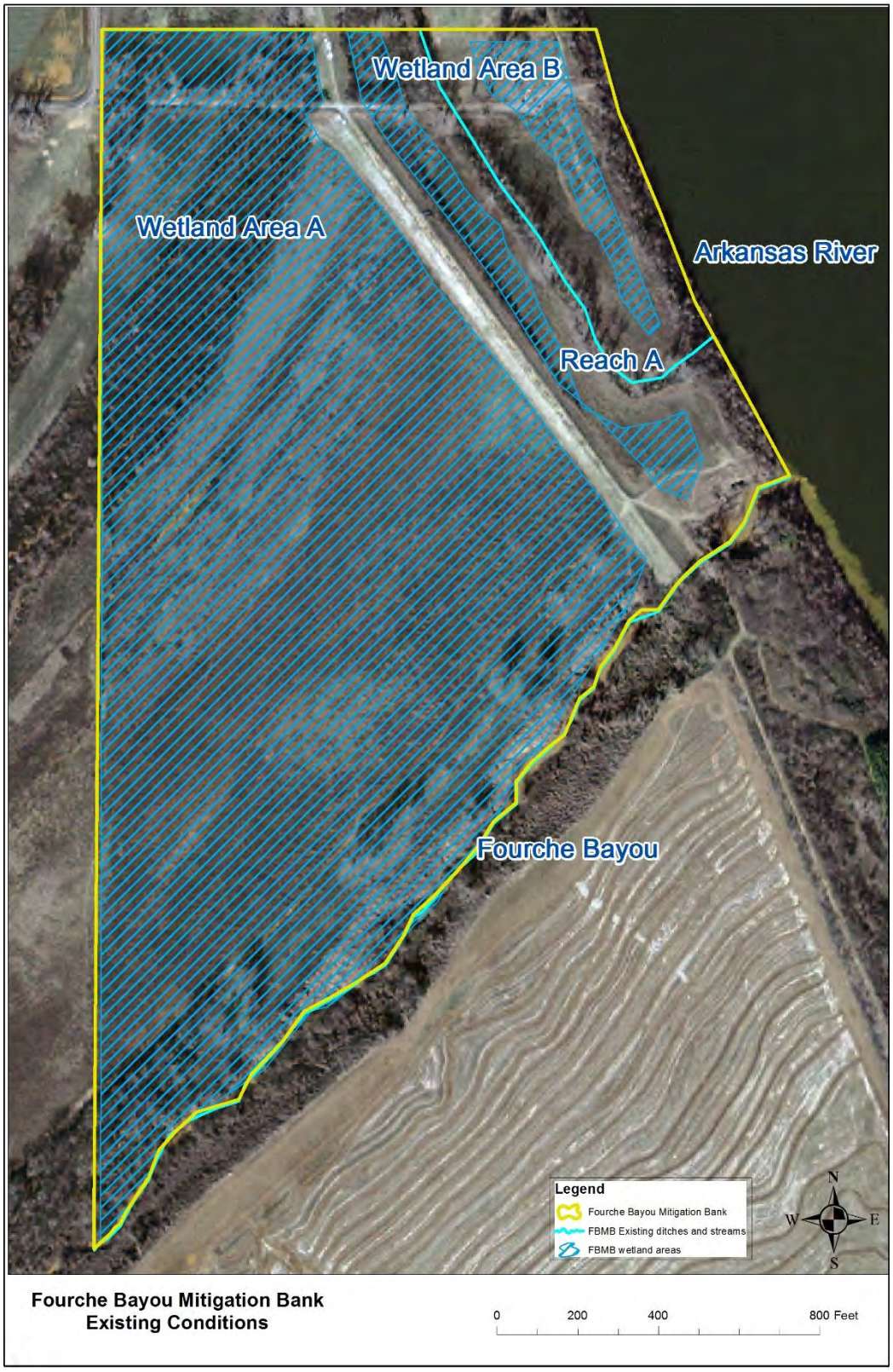

Figure 5: Aerial map of existing conditions of the proposed Fourche Bayou Mitigation Bank

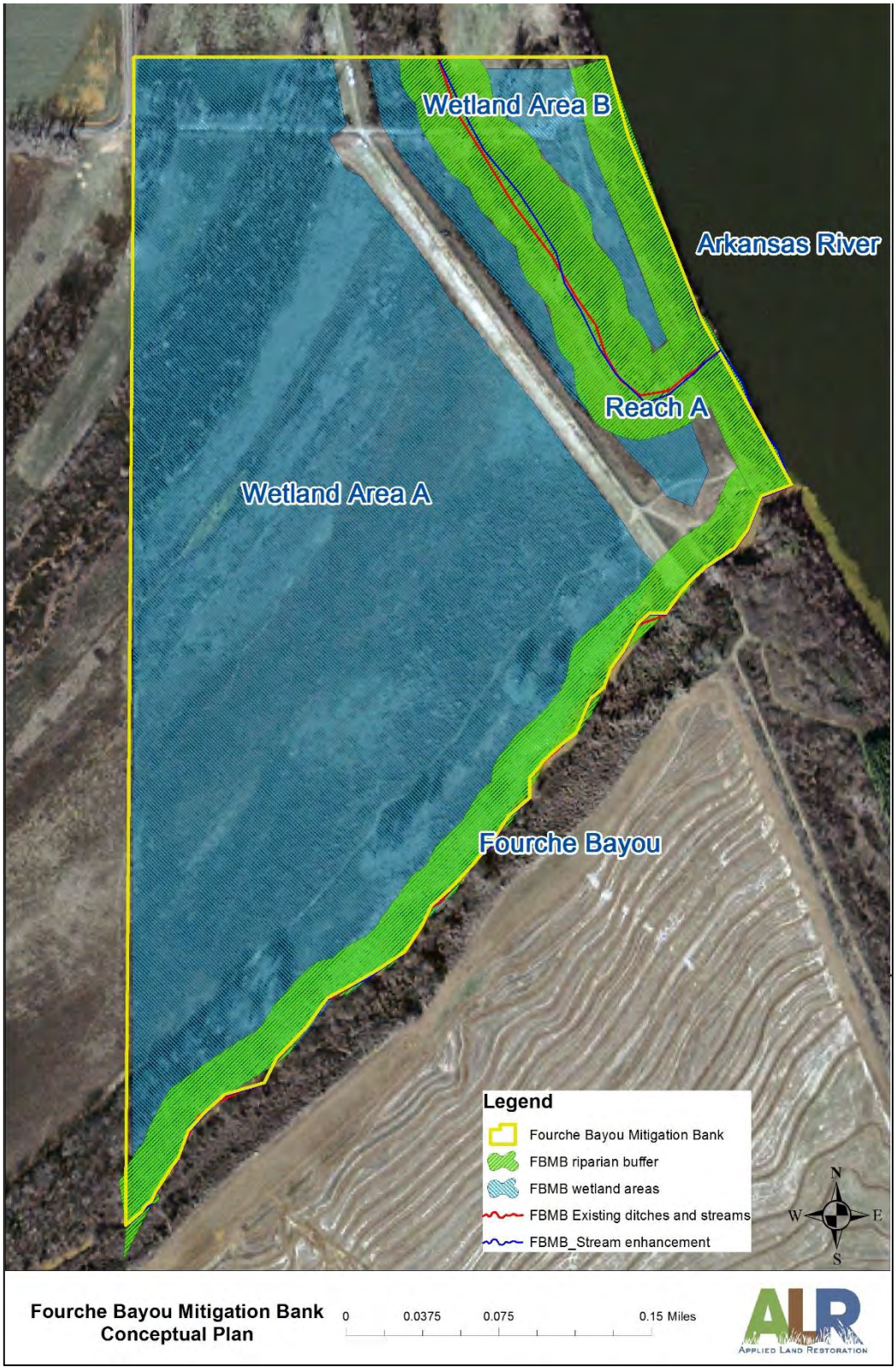

Figure 6: Aerial map of the conceptual planform of the proposed Fourche Bayou Mitigation Bank

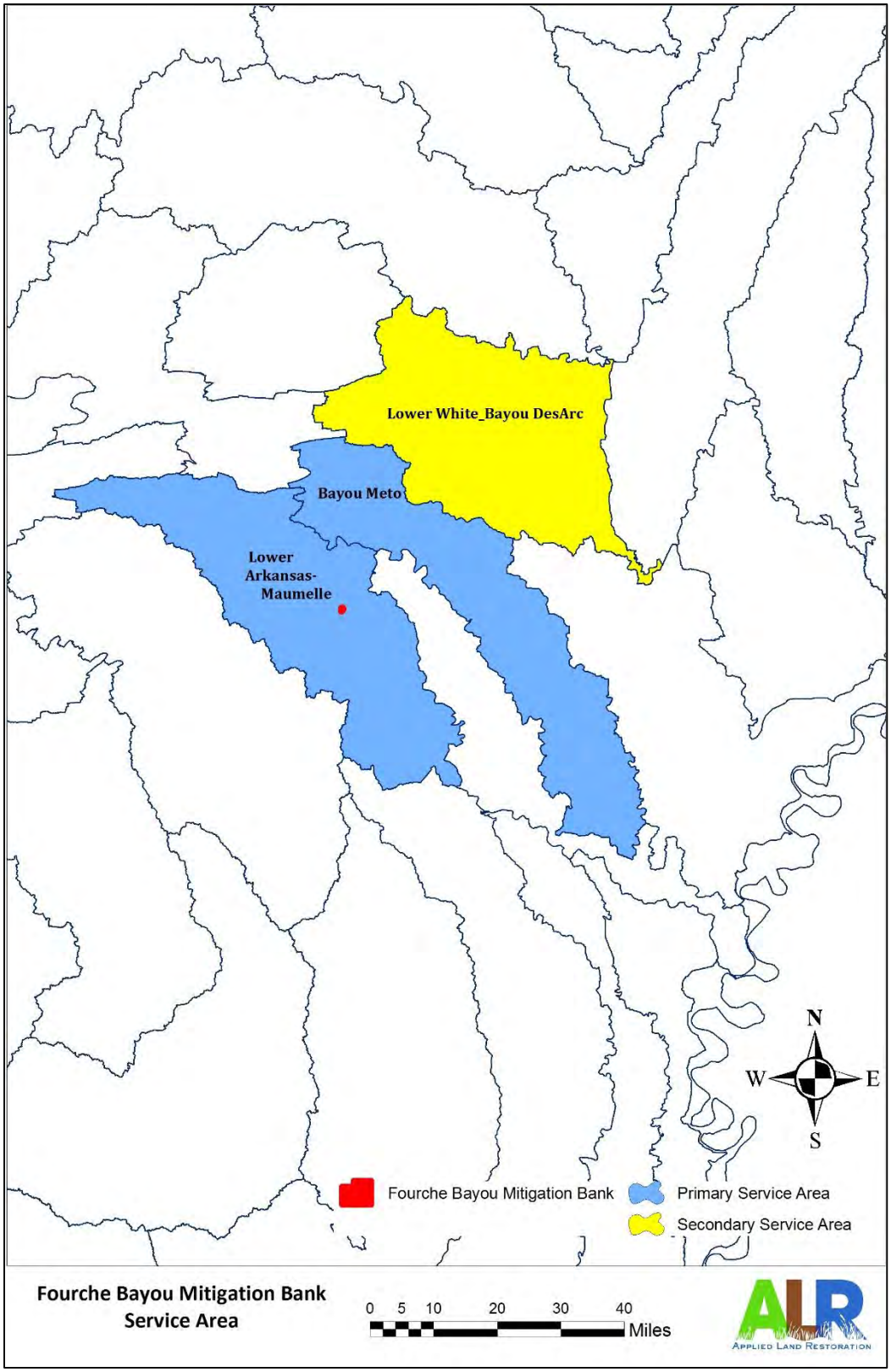

Figure 7: Primary and secondary service areas for the proposed Fourche Bayou Mitigation Bank

Appendix B
Species of Concern

Table 1: ANHC list of species of concern for Pulaski County.
***Note: A more refined list for the FBMB will obtained after the formal site visit**

Animals - Invertebrates				
Arianops copelandi (Copeland's mold beetle)	-	INV	GNR	S1
Dryobius sexnotatus (six-banded longhorn beetle)	-	INV	GNR	S2
Hesperia meskei (Meske's Skipper)	-	INV	G3G4	S1S2
Lirceus bicuspidatus (an isopod)	-	INV	G3Q	S2
Lucanus elaphus (giant stag beetle)	-	INV	G3G5	S2
Papaipema eryngii (Rattlesnake-master borer moth)	C	INV	G1G2	S1
Somatochlora ozarkensis (Ozark emerald)	-	INV	G3	S1
Speyeria diana (Diana Fritillary)	-	INV	G3G4	S2S3
Synurella bifurca (an amphipod)	-	INV	GNR	S3?
Uniomerus tetralasmus (pondhorn)	-	INV	G5	S2
Animals - Vertebrates				
Accipiter cooperii (Cooper's Hawk)	-	INV	G5	S1B, S3N
Aimophila ruficeps (Rufous-crowned Sparrow)	-	INV	G5	S1
Ambystoma annulatum (ringed salamander)	-	INV	G4	S3
Ammodramus henslowii (Henslow's Sparrow)	-	INV	G4	S1B, S2N
Cemophora coccinea copei (northern scarletsnake)	-	INV	G5T5	S3
Chrysemys dorsalis (southern painted turtle)	-	INV	G5	S3
Crotalus atrox (western diamond-backed rattlesnake)	-	INV	G5	S2
Crotaphytus collaris (eastern collared lizard)	-	INV	G5	S3
Gallinula galeata (Common Gallinule)	-	INV	G5	S1B, S2N
Haliaeetus leucocephalus (Bald Eagle)	-	INV	G5	S2B, S4N
Hyla avivoca (bird-voiced treefrog)	-	INV	G5	S3
Limnothlypis swainsonii (Swainson's Warbler)	-	INV	G4	S3B
Lithobates sylvaticus (wood frog)	-	INV	G5	S3
Nerodia cyclopion (Mississippi green watersnake)	-	INV	G5	S3
Notropis maculatus (taillight shiner)	-	INV	G5	S3
Ophisaurus attenuatus attenuatus (western slender glass lizard)	-	INV	G5T5	S3
Pantherophis emoryi (Great Plains ratsnake)	-	INV	G5	S3
Picoides borealis (Red-cockaded Woodpecker)	LE	SE	G3	S2
Plethodon serratus (southern red-backed salamander)	-	INV	G5	S3
Polyodon spathula (paddlefish)	-	INV	G4	S2?
Porphyrio martinicus (Purple Gallinule)	-	INV	G5	S1B
Pseudacris streckeri (Strecker's chorus frog)	-	INV	G5	S2
Rallus elegans (King Rail)	-	INV	G4	S1B, S3N
Regina rigida sinicola (gulf crayfish snake)	-	INV	G5T5	S3
Sternula antillarum athalassos (Interior Least Tern)	LE	SE	G4T2Q	S2B

Plants - Vascular				
Amorpha canescens (lead-plant)	-	INV	G5	S1
Amsonia hubrichtii (Ouachita bluestar)	-	INV	G3	S3
Bergia texana (Texas bergia)	-	INV	G5	S2
Callirhoe alcaeoides (plains poppy-mallow)	-	INV	G5?	S1?
Callirhoe bushii (Bush's poppy-mallow)	-	INV	G3	S3
Carex arkansana (Arkansas sedge)	-	INV	G4	S1
Carex bromoides ssp. bromoides (brome sedge)	-	INV	G5T5	S2
Carex bullata (button sedge)	-	INV	G5	S1
Carex comosa (bottle-brush sedge)	-	INV	G5	S1S2
Carex decomposita (cypress-knee sedge)	-	INV	G3G4	S2
Carex stricta (tussock sedge)	-	INV	G5	S3
Clematis glaucophylla (White-leaved Leather-flower)	-	INV	G4?	S1
Crassula aquatica (water pygmyweed)	-	INV	G5	S1S3
Crataegus macrosperma (fan-leaf hawthorn)	-	INV	G5	S1
Cypripedium kentuckiense (Kentucky lady's-slipper)	-	INV	G3	S3
Dalea lanata var. lanata (woolly prairie-clover)	-	INV	G5TNR	S2S3
Dulichium arundinaceum var. arundinaceum (three-way sedge)	-	INV	G5TNR	S2S3
Eleocharis wolfii (Wolf's spike-rush)	-	INV	G3G4	S3
Eriocaulon koernickianum (small-head pipewort)	-	SE	G2	S2
Eustoma exaltatum (catchfly prairie-gentian)	-	INV	G5	S2
Gratiola brevifolia (sticky hedge-hyssop)	-	INV	G4	S3
Heliotropium convolvulaceum (phlox heliotrope)	-	INV	G5	S2
Hexalectris spicata var. spicata (crested-coralroot)	-	INV	G5T4T5	S2
Hieracium scabrum (rough hawkweed)	-	INV	G5	S2
Liatris compacta (Ouachita blazing-star)	-	INV	G3	S3
Marshallia caespitosa var. signata (leafy Barbara's-buttons)	-	INV	G4T4	S1
Micranthes virginiensis (early saxifrage)	-	INV	G5	S1S2
Nemastylis nuttallii (Nuttall's pleat-leaf)	-	INV	G4	S2
Panicum rigidulum ssp. pubescens (red-top panic grass)	-	INV	G5T5?	S1
Paspalum bifidum (pitchfork paspalum)	-	INV	G5	SH
Penstemon cobaea (showy beardtongue)	-	INV	G4	S3
Platanthera cristata (crested fringed orchid)	-	INV	G5	S1S2
Platanthera flava (rein orchid)	-	ST	G4?	S2S3
Platanthera peramoena (purple fringeless orchid)	-	ST	G5	S2
Polygala incarnata (pink milkwort)	-	INV	G5	S1S2
Prenanthes barbata (barbed rattlesnake-root)	-	INV	G3	S2

Plants - Vascular (cont'd)				
Ranunculus aquatilis var. diffusus (white water crowfoot)	-	INV	G5T5	S2S3
Ranunculus flabellaris (yellow water crowfoot)	-	INV	G5	S3
Rhynchospora colorata (white-top sedge)	-	SE	G5	S1
Sabatia campanulata (slender rose-gentian)	-	SE	G5	S1
Schoenoplectus californicus (California bulrush)	-	INV	G5	S1S2
Spiraea tomentosa (hardhack)	-	INV	G5	S2
Spiranthes praecox (giant ladies'-tresses)	-	INV	G5	S1S2
Stenanthium gramineum (featherbells)	-	INV	G4G5	S3
Streptanthus maculatus ssp. obtusifolius (Arkansas twistflower)	-	INV	G3T3	S3
Thalictrum arkansanum (Arkansas meadow-rue)	-	ST	G2Q	S2
Tradescantia longipes (dwarf spiderwort)	-	INV	G4	S2
Tradescantia paludosa (confederate spiderwort)	-	INV	G4?Q	S1S2
Trifolium carolinianum (Carolina clover)	-	INV	G5	S1?
Trifolium stoloniferum (running buffalo clover)	LE	INV	G3	SH
Trillium ozarkanum (Ozark trillium)	-	INV	G3	S3
Utricularia macrorhiza (greater bladderwort)	-	INV	G5	SH
Vicia ludoviciana ssp. ludoviciana (Louisiana vetch)	-	INV	G5TNR	SH
Special Elements - Natural Communities				
Lower Mississippi River Bottomland Depression	-	INV	GNR	SNR
Ozark-Ouachita Dry Oak Woodland	-	INV	GNR	SNR
West Gulf Coastal Plain Nepheline Syenite Glade	-	INV	GNR	SNR
Special Elements - Other				
Colonial nesting site, swallows & swifts	-	INV	GNR	SNR
Colonial nesting site, water birds	-	INV	GNR	SNR
Geological feature	-	INV	GNR	SNR

Source: Arkansas Natural Heritage Commission http://www.naturalheritage.com/research-data/rarespecies-search.aspx

Appendix C
Photo documentation

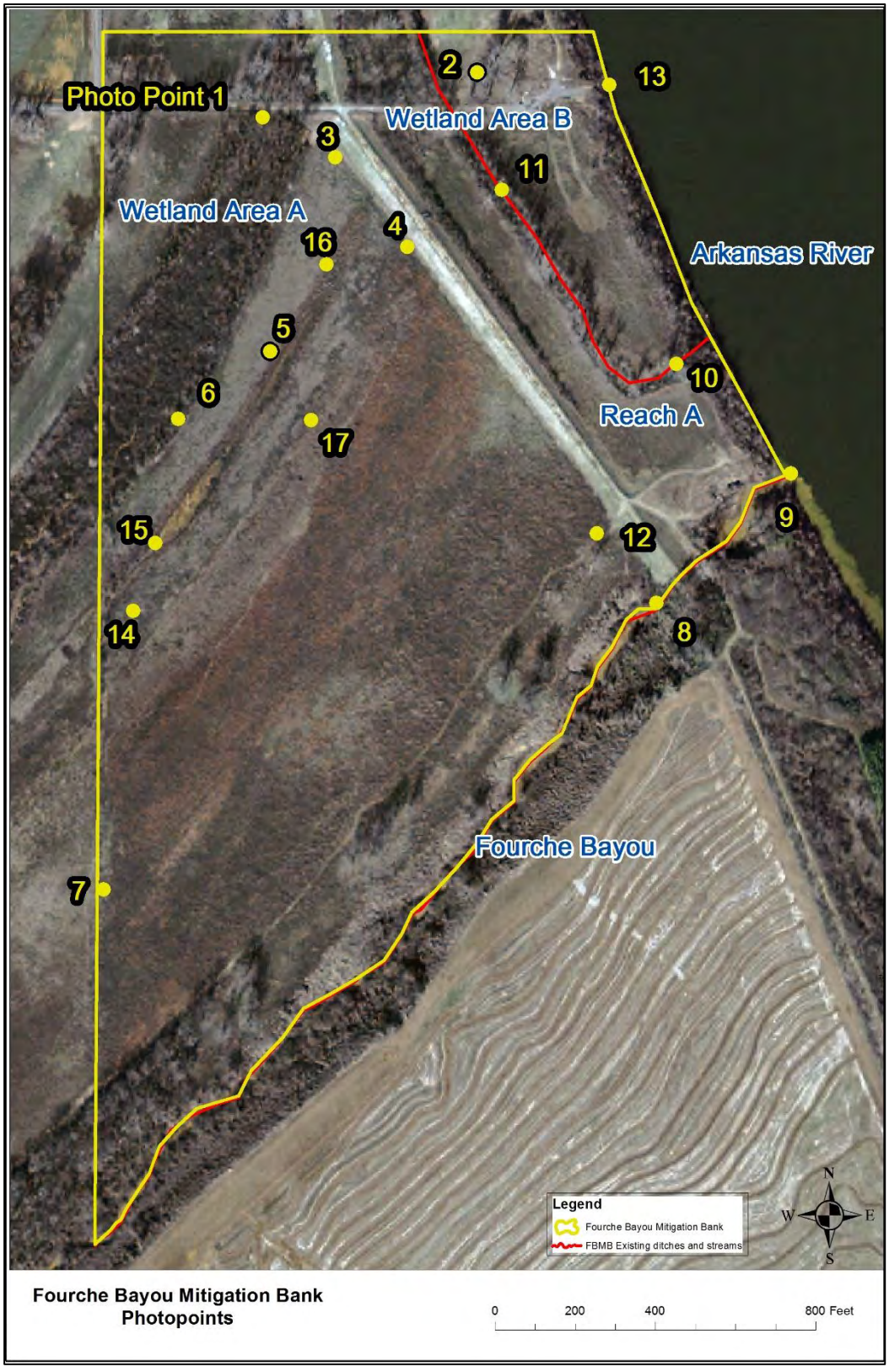

Figure 1: Photo points taken Feb/Mar of the proposed Fourche Bayou Mitigation Bank

Photo 1: Wetland Area A facing south from access road

Photo 2: Wetland Area B facing north from access road

Photo 3: View of Wetland Area A facing southwest

Photo 4: Wetland Area A facing west

Photo 5: Wetland Area A

Photo 6: Wetland Area A facing north from the agricultural field

Photo 7: Western border of FBMB facing east

Photo 8: Fourche Bayou facing west

Photo 9: Confluence of Fourche Bayou and the Arkansas River

Photo 10: Reach A looking upstream

Photo 11: Reach A ditch facing south

Photo 12: View from the southern boundary of Wetland Area A

Photo 13: Arkansas River facing south toward the confluence with Fourche Bayou

Photo 14: Backwater area east of the north-south drainage ditch along the western property boundary.

Photo 15A: Ditching evidence within the channel meander scars of Wetland Area A facing upstream

Photo 15B: Ditching evidence within the channel meander scars of Wetland Area A facing downstream

Photo 16: Wetland Area A near the base of the Fourche levee

Photo 17: Seasonal inundation within the channel meander scars