DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVENUE
NEW ORLEANS, LA 70118-3651

05/20/2019

Operations Division
Regulatory Branch
Project Manager: Stephen Pfeffer
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SUBJECT: MVN-2016-00974-SY

PUBLIC NOTICE

Public Notice Purpose: Pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403) and Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344), the U.S. Army Corps of Engineers, New Orleans District, Regulatory Branch is soliciting comments from all interested parties on the development, utilization and long-term management of a proposed mitigation bank. The purpose of this mitigation bank is to provide compensatory mitigation for unavoidable impacts to wetland resources, including other waters of the United States, that result from projects authorized through the Department of the Army permit program.

PROPOSED MOSS BLUFF MITIGATION BANK IN CALCASIEU PARISH

NAME OF APPLICANT: Moss Bluff Holdings, LLC, c/o Headwaters, Inc., Post Office Box 2836, Ridgeland, Mississippi 39158

LOCATION OF WORK: The 137.8 acre proposed site is located in Sections 27 and 28, Township 8 South, Range 8 West, approximately 2.2 miles southeast of Gillis and 4.3 miles north of Lake Charles. The site is centered on the point 30.340229° N, -93.178946° W, located in Hydrologic Unit Code 08080203, as shown in the attached prospectus.

CHARACTER OF WORK: Site restoration of 135.5 acres pine-hardwood flatwood forested wetlands shall be accomplished through hydrological restoration and afforestation of the native vegetative community. This includes the removal of interior agricultural levees and filling of improved drainages and furrows with in-situ material, site preparation and replanting of appropriate species in order to generate bottomland hardwood credits that could be used as compensation for unavoidable impacts to wetlands associated with Department of the Army (DA) permits authorized under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Additional details of the mitigation plan are included in the attached prospectus.

The Corps of Engineers is soliciting written comments from the public; federal, state,

and local agencies and officials; Indian Tribes; and other interested parties. The comment period will close **30 days** from the date of this public notice advertisement. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this prospectus. Letters must reference the applicant's name and the subject number, be addressed and mailed to the above address,
ATTENTION: REGULATORY BRANCH.

You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

Martin S. Mayer
Chief, Regulatory Branch

Enclosure

PROSPECTUS
MOSS BLUFF MITIGATION BANK
CALCASIEU PARISH, LOUISIANA
MVN-2016-00974-SY

Prepared for
U.S. Army Corps of Engineers
New Orleans District
7400 Leake Ave.
New Orleans, Louisiana 70118

Submitted by
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1.0 INTRODUCTION

Moss Bluff Holdings, LLC (hereinafter the "Sponsor"), submits this prospectus to the U.S. Army Corps of Engineers, New Orleans District (New Orleans District), and the Interagency Review Team (IRT) to initiate evaluation of the proposed Moss Bluff Mitigation Bank (MBMB) in accordance with 33 CFR 332.8(d)(2). The details pertaining to the use and operation of this site as a mitigation bank will be specified in the subsequent mitigation banking instrument (MBI).

1.1 Bank Sponsor and Owner

Moss Bluff Holdings, LLC is the Sponsor and the owner of the MBMB. Moss Bluff Holdings, LLC will assume and maintain long term ownership and management of the MBMB.

1.2 Site Location

The Sponsor plans to re-establish 135.58 acres of pine-hardwood flatwood forested wetlands within the 137.85 acre MBMB. The MBMB is located on a tract owned by the Sponsor in northern Calcasieu Parish, Louisiana, 2.2 miles southeast of the Community of Gillis and 4.3 miles north of the City of Lake Charles (Figures 1). The 137.85-acre tract is located along Goldsmith Canal within the Upper Calcasieu Watershed and is centered on the point N30.340229 – W93.178946, within a portion of Sections 27 and 28, Township 8 South, Range 8 West, Calcasieu Parish, Louisiana (Figure 2).

The MBMB is bordered to the west by the Goldsmith Canal with unnamed tributaries to the north and east. The City of Lake Charles is in close proximity to the south separated by the Calcasieu River and West Fork. U.S. Highway 171 is in close proximity to the west with Interstate 10 located in close proximity to the south. Given this, the bank property is located in proximity to the residential and commercial growth zone associated with the City of Lake Charles (Figure 3).

The perimeter of the bank property is defined as shown on Figure 4 by the following coordinates in decimal degrees:

Table 1: Property Boundary in Coordinates

Point	Latitude	Longitude
1	30.3443951	-93.18586042
2	30.34455926	-93.18077922
3	30.34428592	-93.18022657
4	30.34430016	-93.18012242
5	30.3436308	-93.1787937
6	30.33771671	-93.17427884
7	30.33519055	-93.17351516
8	30.33282638	-93.17387061
9	30.34051732	-93.18224121

MBMB is in the Calcasieu River basin and the Upper Calcasieu watershed. The site is also located within the Goldsmith Canal, Indian Bayou, Little Indian Bayou, Marsh Bayou and Calcasieu River floodplains (Figure 5).

MBMB is within the Calcasieu – Mermentau basin, Hydrologic Unit Code (HUC) 080802, and the Upper Calcasieu watershed, HUC 08080203 (Figure 5). The Upper Calcasieu watershed is approximately 966,791 acres and is positioned within the upper Calcasieu River drainage basin. The Calcasieu River flows south into Calcasieu Lake and the Calcasieu Ship Channel before its confluence with the Gulf of Mexico. The Gulf of Mexico is approximately 45 miles the south of the bank property. It should be mentioned that the bank property is positioned within the southern reaches of the Calcasieu River and the Upper Calcasieu watershed HUC 08080203 and along the north boundary of the current development line (Figure 5).

Much of these floodplains consisted historically of mixed bottomland hardwoods, pine-hardwood flatwoods, pine savanna, bald cypress sloughs and scrub/shrub swamp hardwoods. However, as with many floodplains, much of this area was deforested and converted to agricultural uses. The Calcasieu River floodplain also represents an important flyway for migratory bird species, such as, waterfowl and neotropical migrants, other species, such as, the white-tailed deer and the Louisiana Black Bear.

1.3 Driving Directions

- Proceed west along Interstate 10 to exit 33
- Merge onto Martin Luther King Hwy (Hwy 171) towards Moss Bluff
- Travel approximately 6.0 miles and turn right on Clyde Delaney Road
- Travel approximately 1.9 miles and turn left on Paul Bellon Road

- Travel approximately 1.0 miles north to a point of access to the MBMB property

2.0 PROJECT GOALS AND OBJECTIVES

The western boundary of the MBMB abuts Goldsmith Canal which flows directly into Burnett Bay 1.78 miles downstream before its confluence with the Calcasieu River system. The MBMB is located within a region currently used for agricultural production though residential and commercial development activities associated with the expansion of the City of Lake Charles may reduce acreage in agriculture. The bank property is bordered to the southeast by a residential development, to the south, north and northeast by agricultural fields and to the west by undeveloped forestland. In close proximity to the southeast and west are residential developments with commercial developments along U.S. Hwy 171 within the City of Moss Bluff and Lake Charles. Further, residential developments continue to emerge to the north and east further reducing the overall floodplain of Goldsmith Canal and associated direct tributaries of the Calcasieu River. The MBMB project will extend the forestland and associated riparian buffer zone along Goldsmith Canal, a direct and significant tributary of Burnett Bay and the Calcasieu River helping protect the watershed from development. The MBMB project will remove the ongoing agricultural row crop activities within the bank property and eliminate the potential for development while restoring the bank property to its historic pine-hardwood flatwoods ecosystem within the Calcasieu River watershed (Figure 6).

The goal of the MBMB is the re-establishment of 135.58 acres of pine-hardwood flatwoods habitat within the 137.85-acre parcel. MBMB will also re-establish natural stormwater flows across the property through removal of levees and berms associated with existing farming techniques. The MBMB will reduce the use of pesticides and non-point source pollution downstream within the watershed. TThe Sponsor will also re-establish the riparian buffer zone along Goldsmith Canal and associated direct tributaries of Burnett Bay and the Calcasieu River located 1.78 miles to the south.

When considering the habitat community historically present within the bank property, the Sponsor reviewed historic photography and soils information as well as other literature utilized by the USACE. Based upon our review of the USGS, Soil, Geomorphology and Pre-European settlement vegetation associations of Southwest Louisiana, it was confirmed that the bank property is located within the Swamp and Forest habitat type.

See https://www.sciencebase.gov/catalog/item/5925eb8de4b0b7ff9fb3cc09

This conclusion appears consistent with the soil types found within the bank property and commonly occurring habitat types present along the borders of prairie vegetation or similar communities. Forest and swamp communities include a range of forest types while the distinction between these two (2) categories primarily depends upon relative elevation and hydrology.

The Natural Resource Conservation Service (NRCS) has designated three Major Land Resource Areas (MLRA's) within Calcasieu Parish, Louisiana, including, (1) Western Gulf Coast Flatwoods, (2) Gulf Coast Prairies, and (3) Gulf Coast Marsh. In accordance with the MLRA designation, the bank property is located within the Western Gulf Coast Flatwoods. Dominant vegetative communities within the Western Gulf Coast Flatwoods habitat type include pine, sweetgum, water

oak, southern red oak, white oak, sycamore and magnolia in better drained soils and cottonwood, ash, white oak, cherry bark oak, nuttall oak, water oak, willow oak, sycamore and tupelo gum in poorly drained soils.

The Louisiana Natural Heritage Program's (LNHP) *The Natural Communities of Louisiana,* 2009, utilized by the Louisiana Wetland Rapid Assessment Method (LRAM) Version 2.0 would consider the pine-hardwood flatwoods as a natural mixed forest community indigenous to southern regions of Louisiana. Following the requirements of 33 CFR Part 332.3(e) and 40 CFR Part 230.93(e), the New Orleans District compensatory mitigation requirements include in-kind habitat replacement. Several of the habitats described in Section I.F.1 of the LRAM Version 2.0 methodology provide similar wetland functions or naturally exist together as a bottomland hardwoods community (i.e., bottomland hardwoods, hardwood flats, pine-hardwood flatwoods, forested batture and small stream forest) and, therefore, when offsetting impacts to any of these bottomland hardwood communities, the New Orleans District should consider the MBMB as in-kind for compensatory mitigation. For purposes of this prospectus document, the bank property is considered as a pine-hardwood flatwood within the bottomland hardwoods (BLH) habitat and mitigation category.

Table 2: Current Habitat Types and Land Uses for MBMB

Habitat Type	Land Use	Acreage
PC Cropland	Pasture/Agriculture	136.72
Section 404 Waters	Drainage Features	1.13
Total	-	137.85

Table 3: Proposed Mitigation Bank Habitat Types for MBMB

Current Habitat	Proposed Habitat Type	Acreage	Mitigation Type
PC Cropland	Pine-Hardwood Flatwoods	135.58	BLH Re-establishment
Section 404 Waters	Section 404 Waters	1.13	Non-Mitigation
At Grade Road	At Grade Road	1.14	Non-Mitigation
	Total		----
	Total Mitigation	137.85	

3.0 ECOLOGICAL SUITABILITY OF THE SITE

3.1 Historic Site Conditions

Historically, several varieties of bottomland hardwood forests existed throughout the Parish, but large portions of the land were cleared for silviculture, livestock grazing and agricultural uses. Historic photography dating back to 1967 depicts the bank property as agricultural fields, but indications are that prior to this date, the bank and surrounding properties were occupied by a pine-hardwood flatwoods habitat. Forested habitats were present adjacent to the bank property and would be considered of similar landscape and geographic position. The MBMB lands are currently, and have been historically, used for agricultural activities, since the time of the original forest conversion. Historic aerial imagery shows that the entire bank property was cleared for agricultural use and most of the existing roads and levees on the site were constructed. Some pimple-mounds are visible within the 1952 aerial photograph, but are no longer visible in the 1975 aerial photograph, indicating that the area was leveled during farming operations.

The soils mapped on the bank property, particularly the Brimstone and Guyton series, indicate that the historical plant community was likely that of pine-hardwood flatwoods. These communities occupied poorly drained flats, depressional areas, and small drainages that lie in mosaic with high-non-wetland areas, as can be seen in the existing forested areas along Goldsmith Canal. Hardwoods, such as oak (*Quercus spp*.), hickory (*Carya spp*.), gum (*Nyssa spp*.), and ash (*Fraxinus spp*.), would have likely dominated the bank property, but Spruce pine (Pinus glabra) may have dominated some areas within the stand.

3.2 Summary of Current Site Conditions

3.2.1 Current Land Uses

The MBMB is used for agricultural row crop and crawfish production purposes. Alterations to the historic landscape would include interior roadways, drainage improvements and levee segments specifically for agricultural improvements and production purposes. No other land uses were observed within the bank property.

3.2.2 Current Vegetation

Prior Converted Cropland- As discussed, the subject property is occupied by an open field habitat type that has historically been utilized for agricultural row crop production purposes. Due to the topography, natural drainage patterns of the site and the overall property location, the preponderance of the open field complex has hydric (soils and hydrology) characteristics throughout. The NRCS has designated the property as prior converted cropland (PC) habitat.

The soils matrix color within the prior converted cropland habitat ranges from 4/1–5/1 (dark gray/gray) and 4/2-5/2 (dark grayish-brown/grayish-brown) to 5/3 (brown) on the 10YR Munsell Soil Color chart. A matrix color of 5/1 (gray), 4/4 (reddish-

brown) appears on the 5YR Munsell soil color chart. There is a soil mottling present (~5% - 50%) with a soil mottle color of 4/6 (dark yellowish-brown), 5/6 (yellowish-brown), on the 10YR chart. Also, there is a soil mottle color of 5/4 (brown), 4/6 (strong brown) on the 7.5YR Munsell soil color chart, and a 3/4 (dark reddish-brown), 4/4 (reddish-brown) on the 5YR Munsell soil color chart.

3.2.3 Current Hydrology

The primary drainage pattern of the bank property flows southeast via overland flows and through unnamed tributaries of Goldsmith Canal located along the west side of the bank property. Goldsmith Canal and the tributaries flow generally to the southeast for 1.78 miles before its confluence with Burnett Bay and the Calcasieu River to the south of the bank property. Given the current land use, agricultural drains or furrows are found within the bank property. Agricultural drains or furrows are generally associated with the levee segments separating the fields for altering crops and crop production. Levee segments meander across the bank property to manage crop irrigation.

Current hydrology has been altered from the historic hydrologic regime through property improvements that have been completed over time in association with the agricultural land use. Each property improvement was completed to either increase surface water runoff away from agricultural fields or to contain surface water for irrigation purposes. In either case, the improvements were completed inconsistently with the natural drainage patterns of the watershed.

Field reconnaissance revealed that approximately 32,328 linear feet of levee segments are found within the limits of the bank property to manage surficial water for irrigation and multiple crop production purposes.

The levee segments were constructed from earthen materials collected from within the croplands. They may be characterized as intermediate levee segments that are maintained periodically for irrigation purposes. The levee segments allow the transfer of irrigated water from one field (cell) to the next, continuing down gradient to the south before either discharging into the adjacent Goldsmith Canal or recovering as a tailwater recovery type system. The current hydrology patterns, location of agricultural drains, Section 404 waters and levee segments are depicted on Figure 8.

As described, historically, the natural storm water runoff was conveyed via overland flows to the south and southeast across the bank property. Storm water runoff was conveyed through the unnamed tributaries and natural drainage patterns in wetland systems which were historically present. Property improvements have altered the historic drainage patterns to concentrate and convey storm water runoff through the unnamed tributaries and Goldsmith Canal along the perimeter of the bank property. The current topography continues to convey storm water runoff south and southeast through the bank property along the Goldsmith Canal watershed and towards the Calcasieu River system.

Prior to the hydrology improvements, it is believed that the natural tributaries of the Calcasieu River would provide connectivity to their adjacent floodplain via overland flooding events. Periods of high water would likely extend across the site reconnecting with the historic riparian buffers along each tributary recharging the pine-hardwood flatwoods ecosystem. The farming improvements have diminished the floodplain connectivity and thus the site classified properly as PC croplands. To support the re-establishment of the pine-hardwood flatwoods within the bank property, the approximately 32,328 linear feet of levees will be graded/removed to allow storm water to once again reconnect with the adjacent floodplain habitat. All spoil materials would be graded to minimize spoil concentrations and promote the restoration of the historic hydrology regime within the bank property.

In terms of the current hydrology patterns within the adjacent properties, the bank property would not be affected. As described within this prospectus, storm water flows southeast across the property through Goldsmith Canal and associated tributaries. Croplands are similarly located to the north and east within the same drainage basin with each cropland having similar improvements to enhance row crop production. Surface water runoff from the croplands flow within each drainage system ultimately flowing southeast through the bank property before its confluence with the Calcasieu River. Surface water runoff from the adjacent properties to the east also flow to the west towards the bank property. The presence of the unnamed tributary along the east boundary of the bank property provides a conveyance for storm water runoff from these adjacent fields and improvements. As you travel further east, storm water will flow through other unnamed tributaries of the Calcasieu River flowing to the southeast. This overall drainage basin is expected to support a self-sustaining pine-hardwood flatwoods ecosystem within the Calcasieu River watershed Figure 8.

3.2.4 Historic Hydrology

The bank property and associated storm water flows are supported by Goldsmith Canal and unnamed tributaries of the Calcasieu River located 1.78 miles to the south. The historic drainage patterns of the bank property included flows through Indian Bayou, Little Indian Bayou and Marsh Bayou located to the northwest and northeast, respectfully. In the past, Goldsmith Canal was constructed to improve surface drainage within this region and support these channels, previously described. All storm water within this region flows south and southeast into the Calcasieu River system to the south and southeast. Although the bank property is considered within the Upper Calcasieu watershed, the bank property is specifically within the lower watershed of the River providing a significant opportunity to reduce non-point source pollution within this watershed before natural storm water flows progress into the more urbanized and developed regions of the watershed. The historic hydrology of the bank property and the adjacent property is depicted in Figure 9.

The Calcasieu River downstream from the bank property extends through an area concentrated in petroleum refineries, lumber and wood processing facilities, and other industrial/manufacturing plants. Industrial facilities are the largest users of the water in Calcasieu Parish. As such, the Calcasieu River and its estuarine environment have been impacted with industrial pollutants. With increased filtration and plant uptake proposed within the MBMB, it is expected that the MBMB will contribute to improving the water quality in the Calcasieu River Basin.

The bank property was evaluated during the initial planning stages of this project and it was determined by the New Orleans District that the bank property is considered PC cropland. A preliminary jurisdictional determination referenced as MVN-2016-00974-SY has been included within the Appendices of this report.

3.2.5 Mapped Soil Types

Soils – As evidenced by the *Soil Survey for Calcasieu Parish Louisiana*, published in September 1986 by the USDA - Soil Conservation Service [now Natural Resources Conservation Service (NRCS)], the soils on the subject property primarily consist of Brimstone silt loam and Guyton silt loam (Figure 10).

Brimstone soil is a poorly drained level soil. These soils are formed in loamy fluviomarine deposits and are found on broad flats or depressions in the coastal plain landscape. The soil is subject to occasional flooding for brief to very long periods.

Guyton soil is a very deep, poorly drained soil. These soils are formed in thick loamy sediments and found on stream floodplains and depressional areas on late Pleistocene age terraces in the Coastal Plain.

The site has been used for agricultural production purposes for as long as apparent records show. In addition, the open agricultural fields are considered as “Prior Converted Cropland (PC). PC is defined by the Soil Conservation Service (Section 512.15 of the National Food Security Act Manual, August 1988) as wetlands, which were both manipulated (drained or otherwise physically altered to remove excess water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values. The definition of PC cropland pursuant to 7 CRF Part 12 is a converted wetland where the conversion occurred prior to December 23, 1985, an agricultural commodity had been produced at least once before December 23, 1985, and as of December 23, 1985, the converted wetland did not support woody vegetation and met the following, hydrology criteria; inundation was less than 15 consecutive days during the growing season or 10 percent of the growing season, whichever is less, in most years (5 percent chance or more).

In most cases, because of the magnitude of hydrologic alterations that have most often occurred on PC croplands, such cropland minimally if at all, meets the hydrology requirements as described within the 1987 Corps of Engineers’

Wetlands Delineation Manual. Given this, "waters of the U.S." does not include PC cropland. Notwithstanding the determination of an area's status as PC cropland by any other Federal Agency, for the purpose of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the Environmental Protection Agency (EPA).

If PC cropland is abandoned (512.17 National Food Security Act Manual as amended, June 1990) and wetland conditions return, then the area will be subject to regulation under Section 404 of the Clean Water Act. An area will be considered abandoned if for five (5) consecutive years there has been no cropping, management or maintenance activities related to agricultural production. In this case, positive indicators of all mandatory wetlands criteria, including hydrophytic vegetation, hydrology and hydric soils must be observed.

3.2.6 Property Encumbrances

No property encumbrances are present within the limits of the bank property that would negatively affect the success of the project.

3.2.7 Zoning and Adjacent Property Development

MBMB and adjacent property is within unincorporated land and is absent of zoning regulations. MBMB is connected to and primarily surrounded by agricultural row crops, crawfish ponds and, to a lesser degree, undeveloped forestlands. The bank property is located in close proximity to a residential and commercial growth zone extending north from the City of Lake Charles. The bank property located along Goldsmith Canal, being a direct tributary of the Calcasieu River would provide an opportunity to maintain and protect this watershed. Maintaining the watershed from future development will promote the reduction in non-point source pollution downstream and flooding upstream within the watershed. When considering a one (1) mile radius around the bank property, the current land use type consists of 37% open field/pasture, 32% forestlands, 25% developed, 5% scrub shrub and 1% open water features (Figure 11).

The MBMB is positioned within the center of the agricultural fields and its re-establishment will reduce the current forestland fragmentation restoring and preserving a wildlife corridor along Goldsmith Canal. The project will also reduce non-point source pollution through the elimination of agricultural production and the removal of improved drainage features. Further, the position of the bank property within the lower reaches of the Calcasieu River watershed and directly adjacent to growth trends will provide an opportunity for non-point source pollution filtration, increasing water quality downstream from the project site.

3.2.8 Preliminary Jurisdictional Determination

Through consultation with the New Orleans District, a preliminary jurisdictional determination was issued on August 17, 2016 referenced as MVN-2016-00974-

SY. A copy of the preliminary jurisdictional determination is included within the Appendices of this report.

3.3 Water Rights and Hydrological Influences

3.3.1 Water Rights

Louisiana Civil Code, Article 490, treats water resources under the theory of absolute ownership and rule of capture, provided capture does not result in harm to neighbors.

3.3.2 General Watershed Characteristics

3.3.2.1 Water Sources and Losses

The sources of water to the project area are currently direct precipitation and surface flow from all adjacent land from the west, east, and north. Storm water flows across the site generally via overland flows into a reach of Goldsmith Canal and an unnamed tributary located around the perimeter of the bank property. These flows continue southeast towards the Calcasieu River 1.78 miles to the south. As described, the current farming improvements have diminished the floodplain connectivity reducing overland flows and concentrating storm water flows south through drainage features.

As noted within Figures 8 and 9, sources of water include reaches of Calcasieu River tributaries. Although the adjacent properties to the west and north located within the watershed are similarly improved for agricultural row crop, timber or other improvements, surface runoff remains directed through Goldsmith Canal and an unnamed tributary located along the perimeter of the bank property. As a result, current or proposed alterations to the adjacent properties would not be expected to affect the long-term water sources within the bank property. The landscape position of the bank property along a primary tributary of the Calcasieu River increases the overall importance of the restoration project for the site-specific drainage area (+\-4,000 acres) as well as the watershed.

Calcasieu Parish is located in the southwestern part of Louisiana. Lake Charles, the parish seat, is near the center of the parish and is about 4.3-miles south of MBMB. The Calcasieu River flows southwest across the eastern and central parts of the Parish. The West Fork of the Calcasieu River drains most of the northern part of the parish and flows into the Calcasieu River northwest of Lake Charles. Bayou Serpent, Bayou Arceneaux, and English Bayou are major tributaries of the Calcasieu River. These streams drain the northeast part of the parish. Other sources of surface water in the parish include: Bayou Lacassine, Bayou Choupique, the Intercoastal Canal, and the Vinton Drainage Canal. Parish wide, about

46 percent of the land is cultivated cropland and pasture and 23 percent is woodland.

The total annual precipitation is 52.38+\- inches. Of this, 29 inches, or 60 percent, usually falls in April through September which includes the growing season for most crops.

3.3.2.2. Hydroperiod

Hydric soils indicate that the site is either currently inundated or saturated in the upper soil profile for at least 14 consecutive days per year or was subject to these conditions prior to conversion of the site to agriculture. This site is comprised primarily of Brimstone silt loam soils which, in this area, typically have a seasonal high-water table between the surface and 18 inches below the surface during the months of December and April.

3.4 Water Quality

The Calcasieu River Basin lies in southwest Louisiana. The upper end of the basin lies in the central part of the State near the City of Natchitoches, and the basin extends southward to the Gulf of Mexico. The basin is bordered on the east by the Mermentau River and Vermilion-Teche River Basins. The Sabine River Basin is located to the west, and the Red River Basin is found to the north.

The MBMB project area is located in the drainage area subsegment 030201 as designated by Louisiana Department of Environmental Quality (LDEQ), which includes the Calcasieu River – from Marsh Bayou to the saltwater barrier.

The fully supporting designated uses for subsegment 030201 are Primary Contact Recreation (PCR), Secondary Contact Recreation (SCR), and Agriculture (AGR). LDEQ listed subsegment 030201 as “impaired” for Fish and Wildlife Propagation (FWP) and as an Outstanding Natural Resource (ONR) in its 2016 Louisiana Water Quality Inventory: Integrated Report of Water Quality in Louisiana. LDEQ listed the following reasons for listing the subsegment as “impaired” for (FWP):

- Lead caused by unknown sources
- Mercury in Fish Tissue caused by Atmospheric Deposition – Toxics and unknown sources
- Total Dissolved Solids (TDS) caused by unknown sources

The LDEQ designated use of ONR for subsegment 030201 is characterized as “impaired” due to Turbidity levels caused by sources of Agriculture.

The removal of irrigated and non-irrigated crop production, removal of spoil material and planting of trees for this project will result in overall water quality improvements due to increased filtration and plant uptake, reduction of heavy metals, agricultural pesticides and herbicides, reduction of use of nitrogenous or phosphorous fertilizers, and minimization of

sedimentation/siltation as well as TDS and turbidity (i.e., nonpoint source pollution prevention).

4.0 Wildlife Values

Various natural communities of bottomland hardwood forests provide important ecosystem functions, including maintenance of water quality, habitat for fish and wildlife species, regulation of flooding and stream recharge. In addition to the many species present in bottomland hardwood forests, Moss Bluff seems properly sited to add to habitat and corridors of and for the Louisiana Black Bear. The Louisiana Department of Wildlife and Fisheries (LDWF) identified Calcasieu Parish as falling within the historic range of Louisiana Black Bears. Currently, Louisiana supports three (3) core bear populations: the Tensas River Basin population in the north, the upper Atchafalaya River Basin population in central Louisiana, and the coastal population in the southern Atchafalaya River Basin. However, black bears particularly dispersing males, can be found throughout Louisiana. Although, black bears are not currently known to utilize the bank property, improving and protecting a forested corridor along the Calcasieu River will maintain this opportunity. The rehabilitation of the forest will also likely provide wintering habitat for neotropical migrants.

The MBMB is uniquely located within the lower reaches of the Calcasieu River watershed and generally adjacent to the River system. The bank project provides the opportunity to expand upon the existing Calcasieu River riparian buffer zone that extends north from Calcasieu Lake. The bank property is also positioned uniquely between the Sabine, Cameron Prairie, Lacassine National Wildlife Refuge to the south and the West Bay, Fort Polk, Clear Creek and Peason Ridge State Wildlife Management Areas, all of which are located within the Calcasieu River watershed. Reforestation and protection of this property will undoubtedly serve the purpose of increasing habitat and reducing fragmentation and as an interconnecting corridor habitat for the Louisiana Black Bear. The rehabilitation of the forest will also provide wintering habitat for neotropical migrants.

5.0 Bank Establishment

5.1 Management Summary

5.1.1 Hydrologic Restoration

The Sponsor proposes to re-establish 135.58 acres of pine-hardwood flatwood forested wetlands from open agricultural fields by ceasing intensive agricultural practices for row crop production and restoring the relic hydrologic regime and planting desirable species of pine-hardwood flatwoods vegetation. The mitigation work plan includes restoration of 135.58 acres of pine-hardwood flatwoods and protection of 137.85 acres of habitat within the Calcasieu River watershed (Figure 12).

1. The initial hydrological restoration work plan describes grading and removal, to as close as practicable, of interior agricultural levees within the bank property. It was determined that approximately 32,328 linear feet of levees are present within the bank property as shown in Figure 12. The levee segments were constructed from earthen materials collected from within the agricultural fields. They may be characterized as 1-3 ft tall levee segments that are maintained periodically for irrigation purposes. The levee segments allow the transfer of irrigated water from one field (cell) to the next, continuing down gradient to the south before either discharging into the adjacent Goldsmith Canal or recovering as a tailwater recovery type system. The Sponsor plans to grade and diminish each levee segment within the bank property. All spoil material will be graded within the open agricultural fields restoring the natural sheet flows and connectivity across the bank property. The removal of the levee segments will reconnect natural sheet flow across the bank property from Goldsmith Canal to the other unnamed tributaries along the perimeter of the bank property.

2. As a part of the hydrology restoration, the Sponsor proposes to fill and grade any improved drainages or agricultural furrows within the open agricultural fields. Shallow drainages or furrows are utilized during the preparation of the agricultural fields for crop production. The furrows are generally maintained each year consistent with current site conditions. They are considered surficial and insignificant in terms of altering hydrology but will certainly be considered during the preparation of the site for vegetative plantings.

3. As a part of the bank property design, the Sponsor will maintain two (2) culvert crossings along the west and east boundary of the bank property as shown in Figure 12. Primary access to the bank property is granted from the east. The east access will be used for implementation of the work plan and long-term maintenance of the bank property. The presence of the culverts are not anticipated to adversely affect the hydrologic regime within the bank property and are needed for the overall success of the project.

4. As a part of the bank property design, one (1) 0.25-acre open water pond site will be filled utilizing spoil material within the bank property. The pond is considered a man-made stock pond and is not considered a natural feature within the bank property. As a result, it is proposed to restore this area to bottomland hardwoods consistent with the adjacent open agricultural fields.

5. Approximately 1.13 acres of USACE Section 404 Waters are present within the bank property. These features include reaches of Goldsmith Canal and unnamed tributaries of the Calcasieu River. In each case, the presence of the Section 404 Waters will be preserved as a part of the work plan.

6. One (1) water well is located within the east central portion of the site and has been used for agricultural purposes. The Sponsor proposes to remove the water well and incorporate this area within the restoration work plan.

7. One (1) primary internal at grade road extends from the east access point across the central portion of the bank property. It is proposed to maintain this access point for bank management. The presence of the road is not anticipated to alter the hydrologic or mitigation work plan.

5.1.2 Soil Preparation

Following the degradation of agricultural levees, furrows and the pond site, the Sponsor will mechanically prepare soils in the fields for vegetative plantings. Deep ripping may be used to alleviate soil compaction and encourage air and water pore space for root growth. Herbicides may be used where necessary.

5.1.3 Vegetative Plantings

Re-establishment Work Plan

1. The Sponsor will re-establish 135.58 acres of pine-hardwood flatwood forested wetlands within the bank property. The re-establishment work plan will be accomplished by preparing the site as needed (ripping, disking, tilling, mowing, etc.) during the fall prior to planting and by planting an appropriate species mixture indicative of this bottomland hardwood ecosystem during the non-growing season of 2019 (Table 3). A list of plant species to be planted appears in Table 3.

2. The restoration areas will be planted using a mixture of hard mast and soft mast species during the non-growing season (i.e., December – March). Prior to planting, site preparation will be conducted using mechanical and chemical means, such as, mowing, disking, ripping, shredding and herbicidal application. Invasive and undesirable species control will be conducted throughout the entire project area over the life of the bank.

3. The Sponsor does not anticipate degrees of soil settlement requiring planting deferment. The site will be prepared in such a manner that soil disturbance will be avoided or minimized to the maximum extent practicable, and site preparation has been planned to ensure favorable conditions for planting will be established and maintained throughout the preparation activities. Site preparation activities will be documented with digital photographs and provided to the IRT during times in which these activities take place.

4. Planting procedures will adhere to the following specifications:
   a. One (1) to two (2) year old bare-root seedlings obtained from a registered licensed regional nursery grower and of a regional eco-type species properly stored and handled to ensure viability will be planted at the bank during the period December 15 through March 15 (planting season). Events, such as, spring flooding may warrant storage of trees with planting in late spring or early summer. If seedlings listed are not available, then substitutions may be made if they are approved by the IRT. The anticipated schedule for planting is the non-growing season of 2019. The Sponsor will

plant appropriate species to ensure adequate species diversity and to ensure that monotypic tree rows will not be established;

b. Seedlings will be planted following a 10’ x 10’ spacing to achieve an initial stand density of, at minimum, 432 seedlings per acre;

c. Seedlings will be planted in a random mixture as dictated by terrain and edaphic conditions. The species selected will be site appropriate in terms of habitat design, soil-moisture regime and species diversity. Ten or more species may be represented in the planting assemblage to insure adequate species diversity. The exact species and quantities for planting will be determined by the availability from commercial nurseries providing localized ecotype seedlings. Seedlings will be mixed upon plantings so that areas are not comprised of a single species. The distribution of stems will create a mosaic of hard and soft mast species that will provide seasonally available forages for a wide range of indigenous wildlife in southwest Louisiana. Single species plantings will generally be avoided.

d. The Sponsor will employ mechanical or chemical control or some combination thereof to control noxious/exotic species colonization or other plant competition, on an as needed basis; and

e. Sponsor will use all prudent efforts (physical, chemical, and/or mechanical) to remove and control Chinese tallow tree and any other existing noxious/exotic vegetation from the bank property to the nearest seed sources for colonization by these species. The Sponsor will monitor the bank to prevent infestation by noxious/exotic vegetation. Noxious/exotic vegetation stem density will be controlled to prevent the colonization of species or the effect of target species establishment. Sponsor may use disking and/or herbicide application during the first three (3) years of growth to reduce competition for seedlings (i.e., disking or mowing between rows of planted trees or chemical applications to encourage survival and growth of desirable plant species).

Table 4: Pine-Hardwood Flatwoods Species Proposed for the Bank Property:

Common Name	Scientific Name	Mast	Percentage
Laurel oak	*Quercus laurifolia*	Hard	10%
Swamp chestnut oak	*Quercus michauxii*	Hard	10%
Willow oak	*Quercus phellos*	Hard	10%
Water oak	*Quercus nigra*	Hard	10%
Cherrybark oak	*Quercus pagoda*	Hard	10%
Water hickory	*Carya aquatica*	Hard	10%
Percent Composition		**60%**	**60%**
Spruce pine	*Pinus glabra*	Soft	15%
Black gum	*Nyssa sylvatica*	Soft	5%
Green ash	*Fraxinus pennsylvanica*	Soft	5%
Red maple	*Acer rubrum*	Soft	5%
Sweet gum	*Liquidambar styraciflua*	Soft	5%
Persimmon	*Diospyros virginiana*	Soft	3%
Mayhaw	*Crataegus opaca*	Soft	2%
Percent Composition		**40%**	**40%**

The Mitigation Work Plan developed for MBMB is depicted as Figure 13.

For a given planting, a minimum of 250 seedlings/saplings per acre will be present (with a 60 to 40 hard mast to soft mast ratio) at the end of the fourth year (i.e., Year 5) following successful attainment of the one-year survivorship criteria. Trees established through natural recruitment may be included in this tally, however, no less than 125 hard mast-producing seedlings per acre must be present. Surviving hard mast seedlings must be representative of the species composition and percentage identified within the mitigation work plan.

5.1.4 Invasive/Noxious Species Control

Invasive and noxious plant species, such as, Chinese tallow tree (*Triadica sebifera*) will be removed using various techniques which may include pre and post-emergent herbicide applications, direct application by spray and/or injection, mowing and any other successful technique during initial planting. The percent cover of invasive plants will be monitored during short-term and long-term success monitoring and appropriate action taken, if needed. (Please reference 5.1.3. Vegetative Plantings 4.e.)

5.1.5 Monitoring

Monitoring shall commence immediately following plantings to establish a baseline for the MBMB. Monitoring will then occur within the spring of years 1, 3 and 5. Following year 5 or achieving short term success criteria, monitoring shall then occur every 3 years until a minimum average canopy coverage of 80% is established.

If it is determined at any time that the MBMB is not progressing at the rate at which it should, monitoring will then begin to occur yearly until, at a minimum, the established interim success criteria are met. Once the long-term success criteria have been met, required thinning may occur following surveying. Surveying shall also be performed following thinning events.

5.2 Proposed Service Area

5.2.1 Primary Service Area

The proposed MBMB is located within USGS Cataloging Unit 08080203, which includes portions of Natchitoches, Rapides, Allen, Calcasieu, Beauregard, Vernon and Jefferson Davis Parishes, Louisiana. MBMB will service HUCs 08080203, 08080204, 08080205 and 08080206 of the Calcasieu Basin. The proposed service area for the MBMB is depicted in Figure 14.

5.3 General Bank Need and Technical Feasibility

MBMB is proposed to provide compensatory mitigation for New Orleans District approved projects within the Calcasieu-Mermentau basin USCG Cataloging Unit 08080203, 08080204 and 08080205.

The mitigation bank project is intended to serve the continued growth and development occurring within southwest Louisiana. The proposed service area is positioned within a substantial growth zone that includes industrial developments, infrastructure and, of course, hydrocarbon exploration and production. This development trend has presented a need for environmental permitting management and compensatory wetland mitigation banking. The position of the bank project along the perimeter of the development, but within the immediate Calcasieu River watershed, provides an immediate opportunity to service future projects while re-establishing and protecting the important bottomland hardwood ecosystem within this watershed. It is believed that the location of the bank is ideal in terms of existing and future growth trends along important tributaries of the Calcasieu River, located in close proximity to the south.

As will be described below, the Sponsor's development team, supported by its agents (development team), have extensive experience in the establishment and management of bottomland hardwood habitat and mitigation banking within the New Orleans, Vicksburg and Mobile Districts. Further, the mitigation bank development team has experience with commercial, industrial and infrastructure developments within the region by assisting with

the regulatory affairs, such as, securing environmental clearances, permits and authorizations as required by the National Environmental Policy Act, and Sections 404 and 401 of the Clean Water Act. It is believed that this experience, knowledge and relationship with the resource agencies regulating the region will provide the tools for a successful bank project.

No significant known conditions exist off site that would impinge upon the Sponsor's ability to sustain the use of this parcel as a mitigation bank. The Sponsor does not foresee any negative impacts associated with the adjacent land uses or future land uses. In fact, given the location of the bank property, hydrologic influence and association with the Calcasieu River watershed, it is believed that the bank property will be successful as a self-sustaining pine-hardwood flatwood forested wetland ecosystem with minimal risks from outside influences.

5.4 Future Ownership and Long-Term Management Strategy

5.4.1 Operations Manager/Long-Term Management

Wetland Mitigation Strategies, LLC
One American Place, Suite 820
Baton Rouge, LA 70825
POC: Mr. Andrew J. Harrison, Jr., Managing Member

5.4.2 Landowner/Long-Term Ownership/Sponsor

Moss Bluff Holdings, LLC
21108 Robertson Road
Hammond, LA 70403

5.4.3 Agent

Headwaters, Inc.
P.O. Box 2836
Ridgeland, Mississippi 39158
POC: Mr. J. Clay Cromwell

5.4.4 Perpetual Site Protection Mechanism

MBMB will be protected in perpetuity by Conservation Servitude, pursuant to Louisiana Revised Statute 9:1271 *et seq*. The Conservation Servitude will be held by a conservation–oriented 501(c)(3) organization and will inure and run with the property title. The Conservation Servitude shall also be recorded in the Calcasieu Parish Clerk of Court Conveyance Office.

The Conservation Servitude will prohibit activities, such as, clear cutting, fill discharges, cattle grazing or other commercial surface development that would diminish the quality or quantity of restored wetlands.

5.4.5 Sponsor Qualifications

Wetland Mitigation Strategies, LLC (WMS), managed by Mr. Andrew J. Harrison, Jr., will be the primary operator for bank land management and office operations. Mr. Harrison holds B.S. and M.S. degrees in wildlife management from Louisiana Tech University (1981) and Louisiana State University (1984). Mr. Harrison later attained a J.D. (1990) and an LL.M. (environmental law) (1991) from Loyola University School of Law and the George Washington University National Law Center, respectively. Following law school, he was assistant regional counsel at the U.S. Environmental Protection Agency, Region IV, for four years and spent an additional year on detail to the Environmental Enforcement Section of the Lands and Natural Resources Division of the U.S. Department of Justice. WMS owns and/or manages mitigation banks. Mr. Harrison began his work in mitigation banks (then areas) in 1996.

WMS will be supported by Headwaters, Inc. and Mr. J. Clay Cromwell in the establishment and management of the mitigation bank. Specifically, Mr. Cromwell with Headwaters, Inc., holds a B.S. degree in forestry from Louisiana State University (2001). Mr. Cromwell and the experienced staff at Headwaters has extensive experience in the establishment and management of mitigation banks within the New Orleans, Vicksburg and Mobile Districts.

6.0 Conclusion

In summary, the MBMB has the potential to re-establish 135.58 acres of pine-hardwood flatwoods habitat within the Calcasieu River floodplain. These lands will be protected and maintained by Conservation Servitude. More detailed information regarding financial assurances, monitoring provisions, and credit release schedules will be provided in the subsequent draft MBI and will reflect current standards within the New Orleans District.

7.0 References

Code of Federal Regulations, Title 33, Parts 325 and 332 and Title 40, Part 230, as published on pages 19594-19704 in the Federal Register dated 10 April 2008.

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http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

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http://soils.usda.gov/survey/online_surveys/louisiana/CalcasieuLA1986/Calcasieu.pdf

Louisiana Department of Environmental Quality, Louisiana Water Quality Inventory: Integrated Report (305(b)/303(d)).
http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/WaterQualityInventorySection305b/2012IntegratedReport.aspx

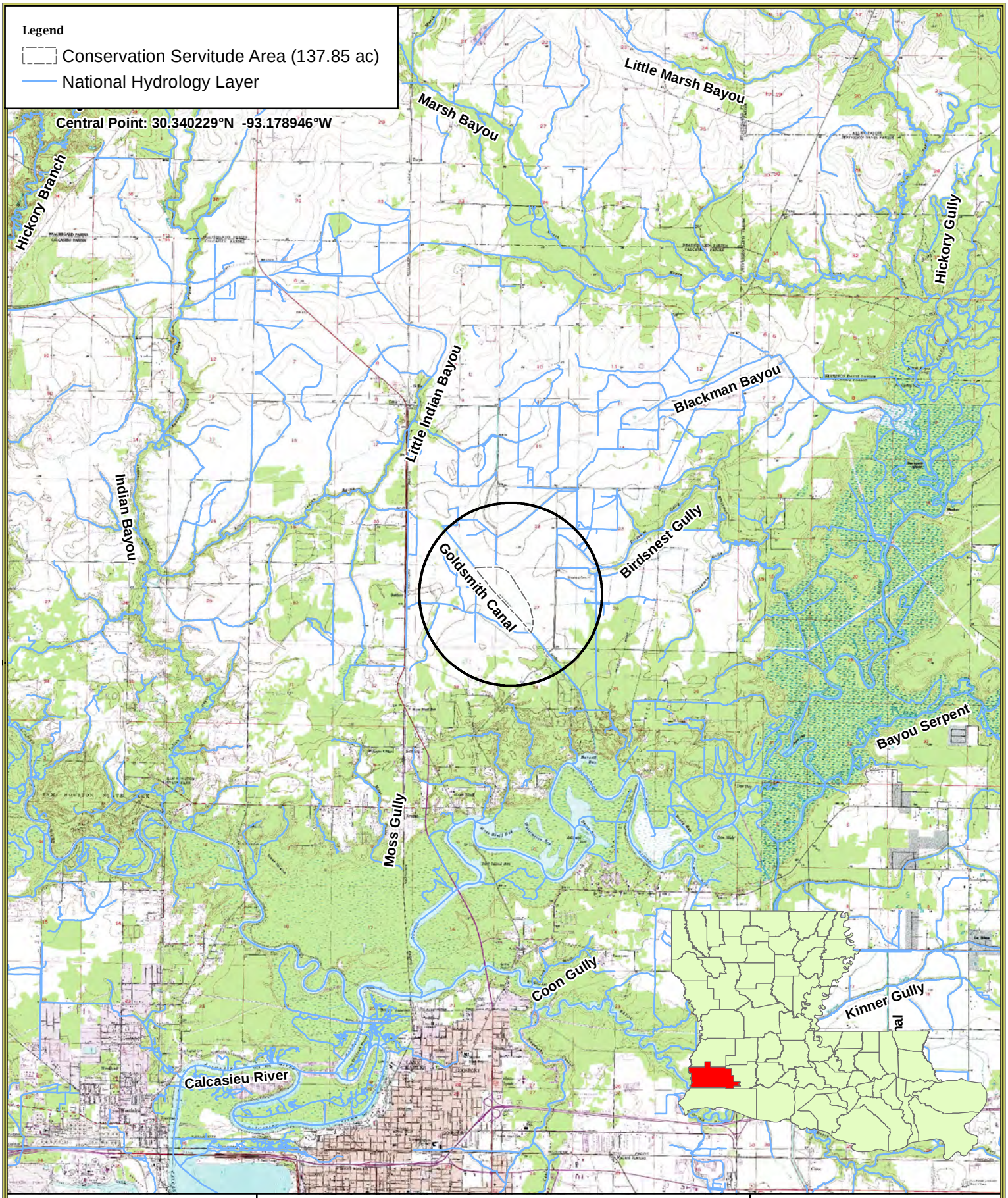
http://www.deq.louisiana.gov/portal/Portals/0/planning/305b/2012/12%20IR1%20Appendix%20A%20Text%20and%20Maps%20FINAL%201-25-13.pdf

National Wetland Plant List, Version 3.2. U.S. Army Corps of Engineers, 2014.
http://wetland_plants.usace.army.mil/

The Natural Communities of Louisiana. Louisiana Department of Wildlife and Fisheries Louisiana Natural Heritage Program 2009.
http://www.wlf.louisiana.gov/sites/default/files/pdf/page_wildlife/6776are%20Natural%20Communities/ LA_NAT_COM.pdf

https://www.sciencebase.gov/catalog/item/5925eb8de4b0b7ff9fb3cc09

Figures



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Moss Bluff Holdings, LLC

Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 1 - Vicinity Map

0 5,000 10,000 Feet
1:100,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USGS MOSS BLUFF NE (LA) Quad Basemap

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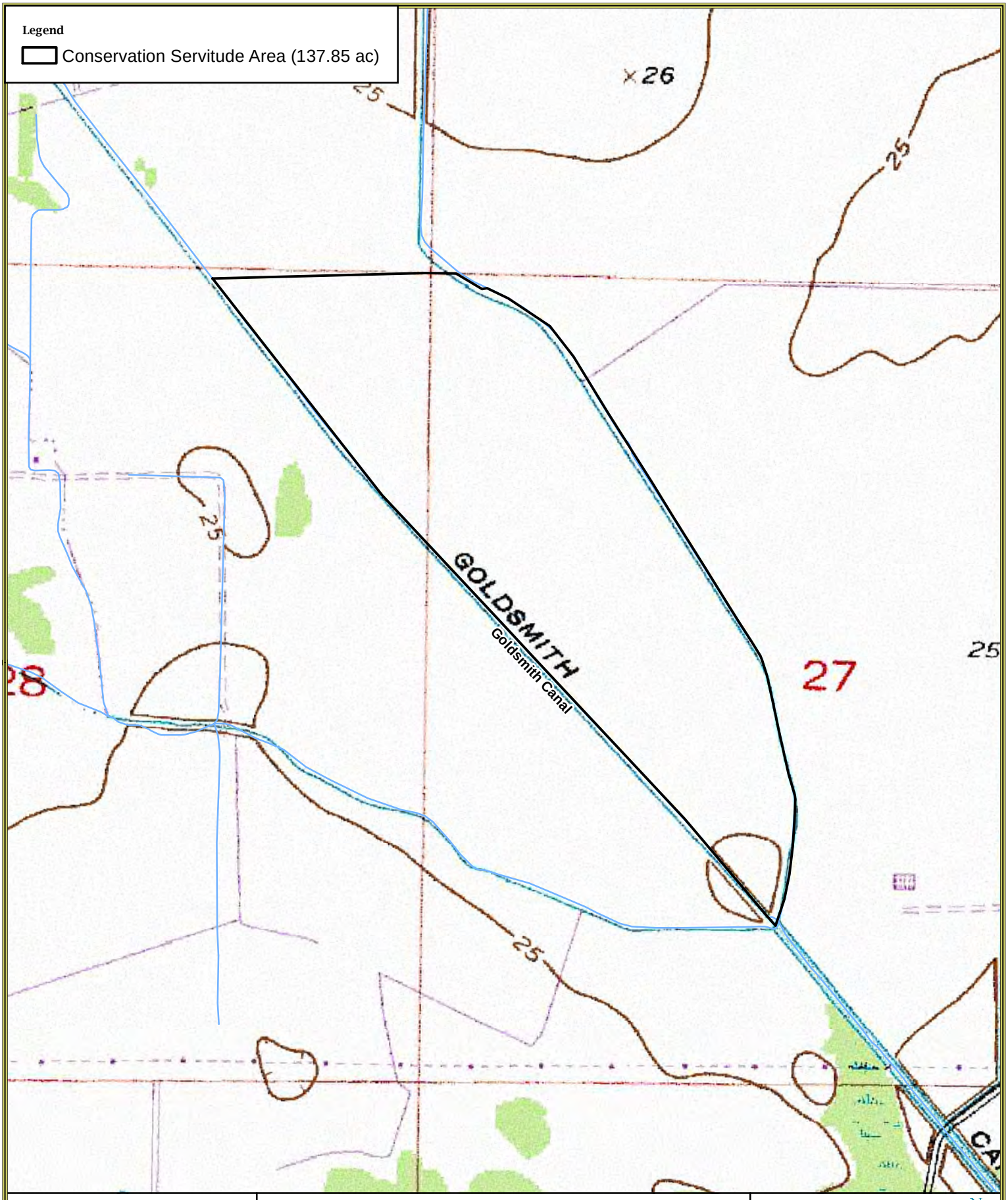

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Figure 2 - Site Location Map

0 500 1,000 Feet
1:10,000
N

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USGS MOSS BLUFF NE (LA) Quad Basemap

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Figure 3 - Site Location Map

0 500 1,000 Feet
1:10,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USDA NAIP 2017 Imagery Basemap

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2	30.34455926	-93.18077922
3	30.34428592	-93.18022657
4	30.34430016	-93.18012242
5	30.3436308	-93.1787937
6	30.33771671	-93.17427884
7	30.33519055	-93.17351516
8	30.33282638	-93.17387061
9	30.34051732	-93.18224121

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[Figure 4 – Survey Plat Map]

0 500 1,000 Feet
1:10,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USDA NAIP 2017 Imagery Basemap

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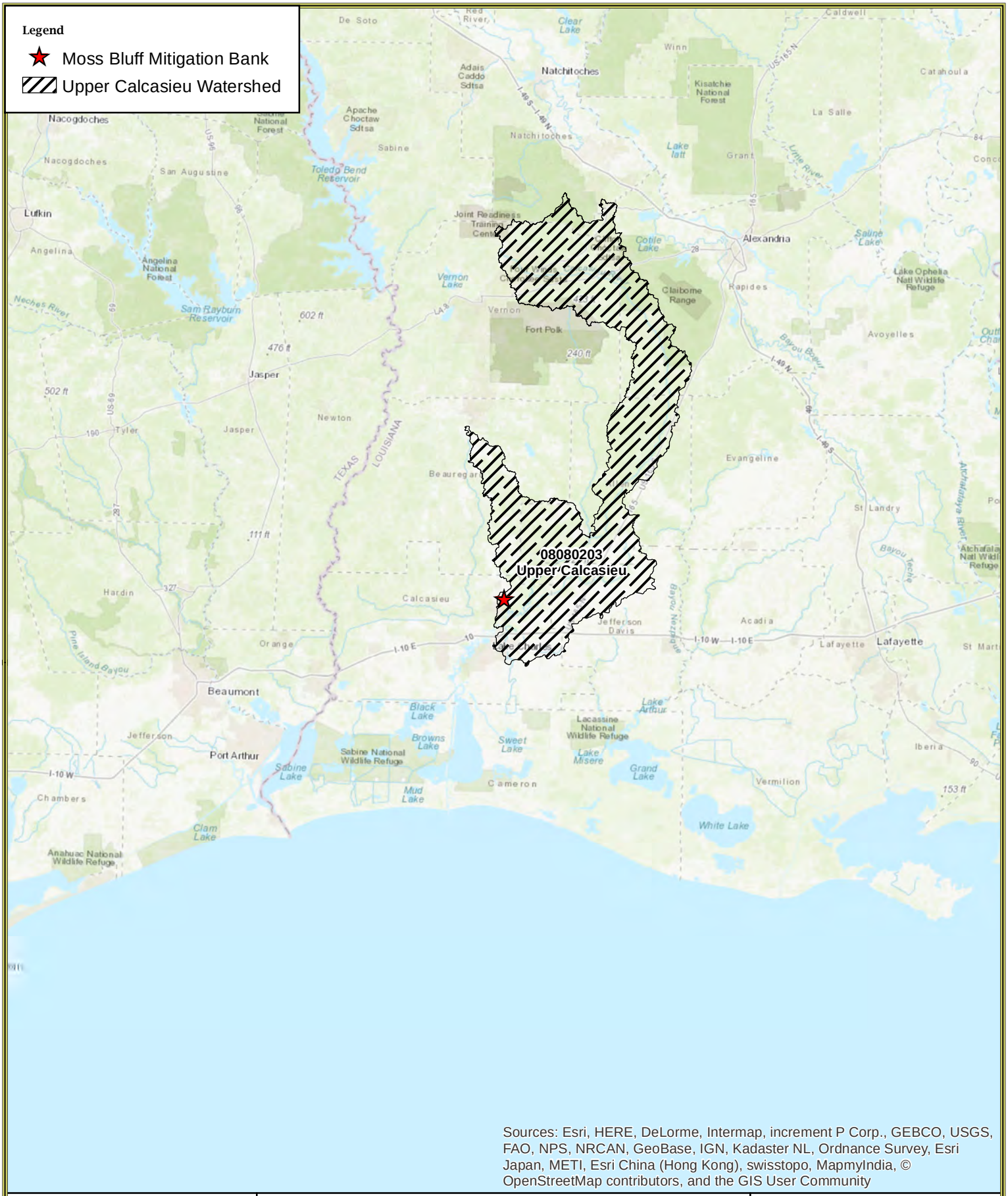

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Figure 5 - Watershed Location Map

0 75,000 150,000 Feet
1:1,500,000

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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

ESRI Topographic Basemap

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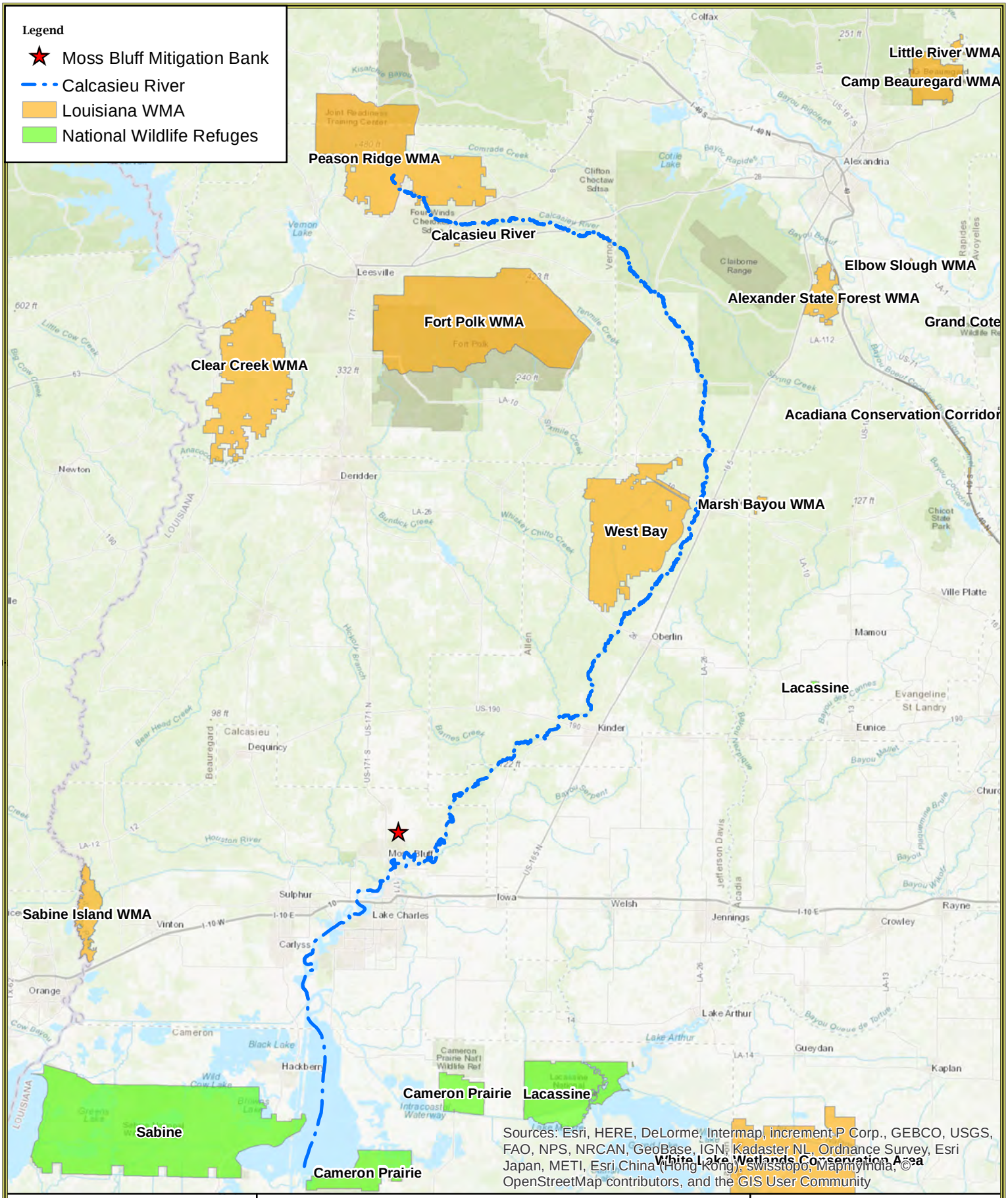

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Figure 6 - Calcasieu River Basin Map

0 40,000 80,000 Feet
1:800,000
N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

ESRI USA Topographic Basemap

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Figure 7A – Historic Aerial Map

0 500 1,000 Feet
1:10,000
N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1940 Aerial Imagery

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Figure 7B – Historic Aerial Map

0 500 1,000 Feet
1:10,000

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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1954 Aerial Imagery

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Figure 7C - Historical Aerial Map

0 400 800 Feet
1:8,000

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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1971 Aerial Imagery

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Figure 7D - Historical Aerial Map

0 400 800 Feet
1:8,000

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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1975 Aerial Imagery

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Figure 7E - Historical Aerial Map

0 400 800 Feet
1:8,000
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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1988 Aerial Imagery

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Figure 7F - Historical Aerial Map

0 400 800 Feet
1:8,000
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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

1998 Aerial Imagery

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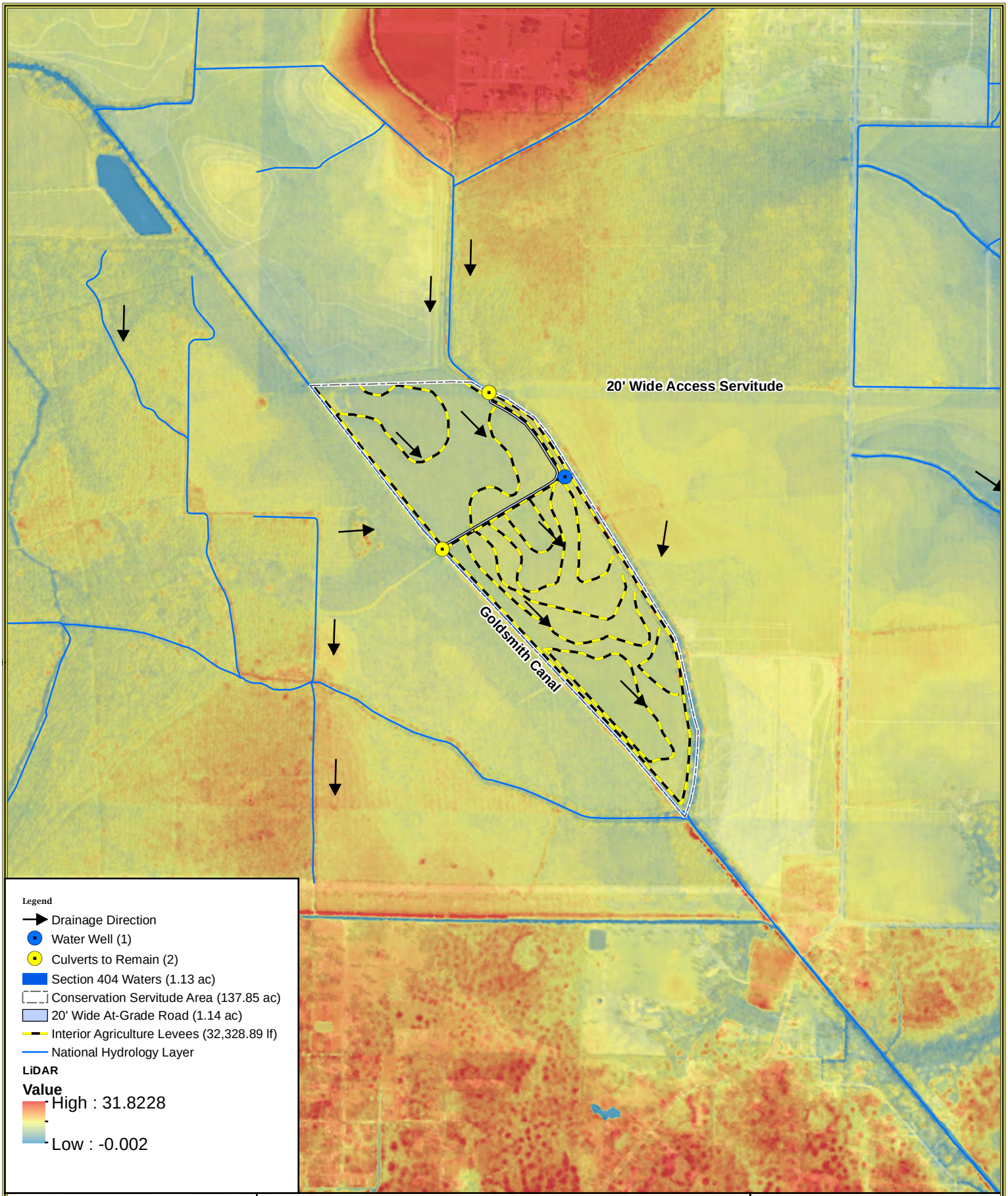

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Figure 8 – Current Hydrology Map

0 750 1,500 Feet
1:15,000

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NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

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S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 7 - Current Hydrology Map.mxd

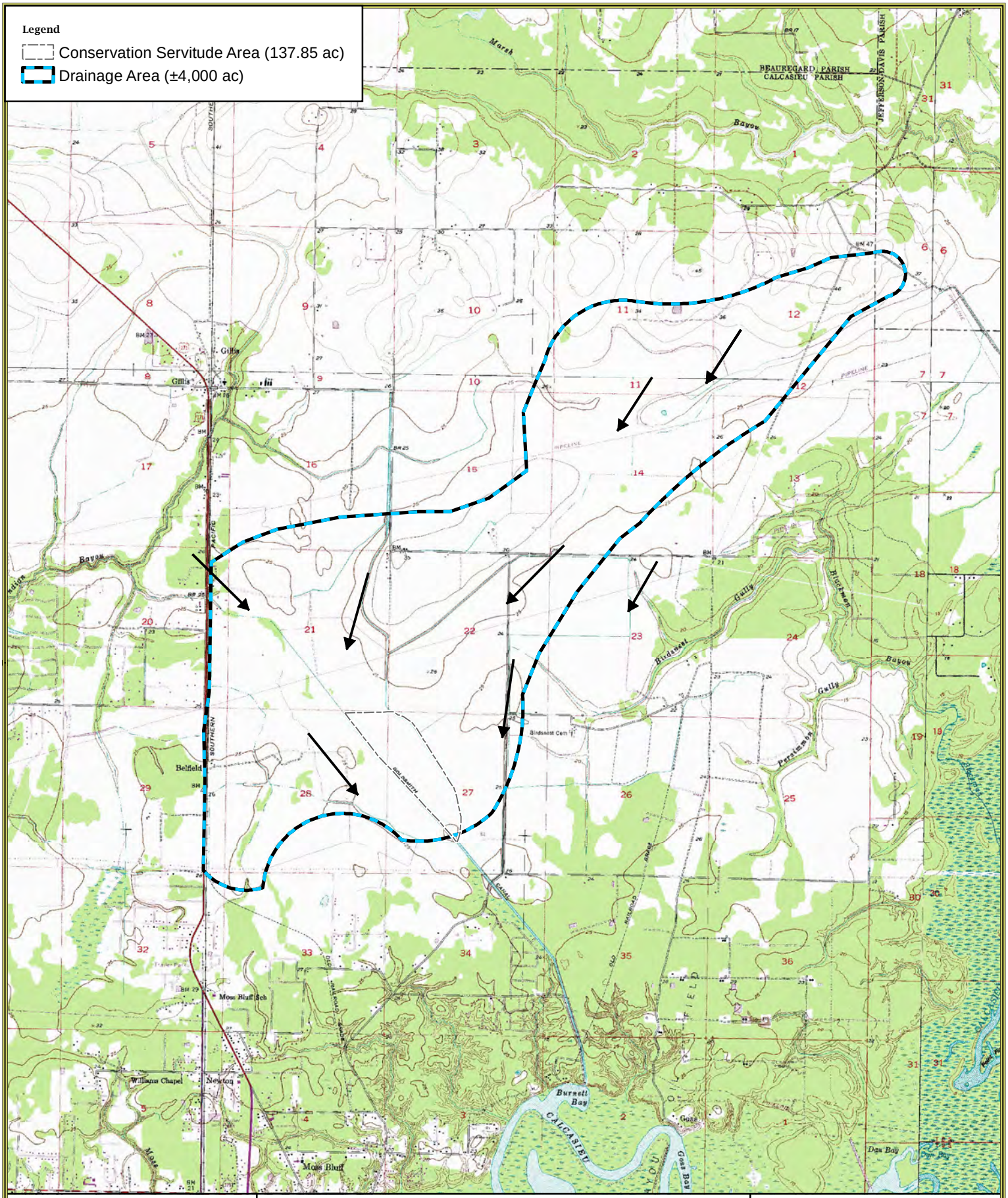

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Figure 9 - Historic Hydrology Map

0 2,500 5,000 Feet
1:50,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USGS MOSS BLUFF NE (LA) Quad Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 7 - Historic Hydrology Map.mxd

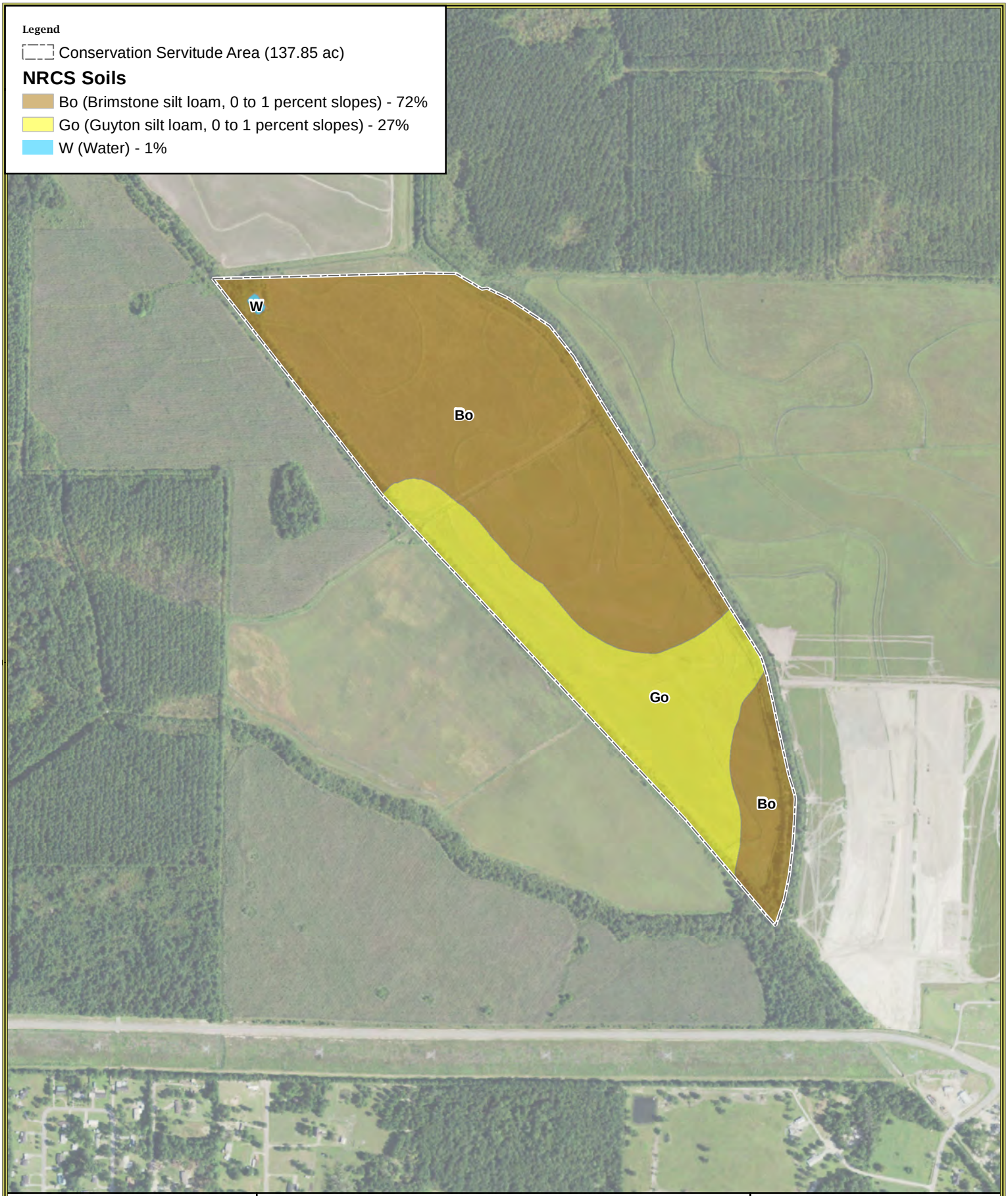

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Figure 10 - NRCS Soils Location Map

0 500 1,000 Feet
1:10,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USDA NAIP 2017 Imagery Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 8 - NRCS Soils Location Map.mxd

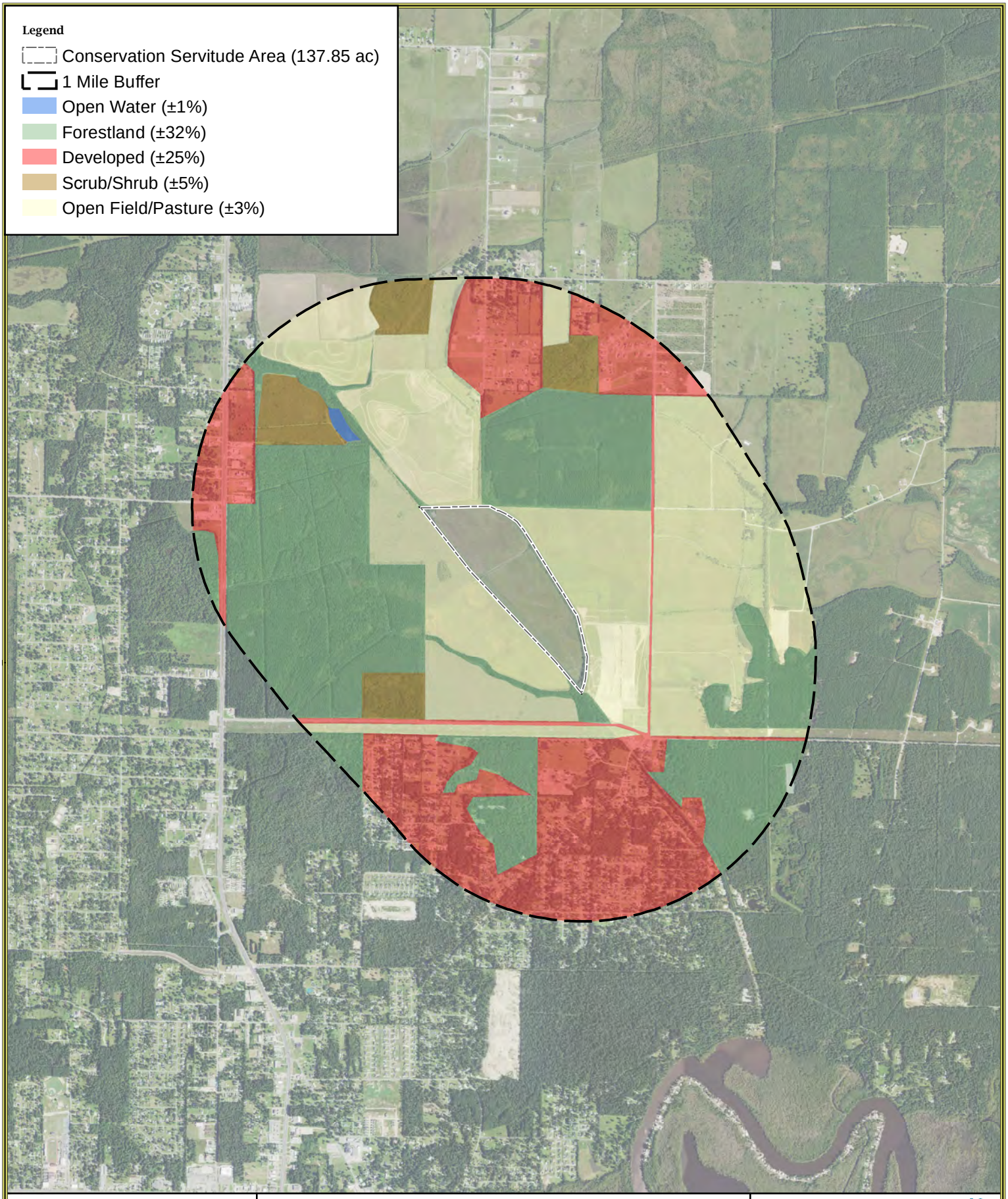

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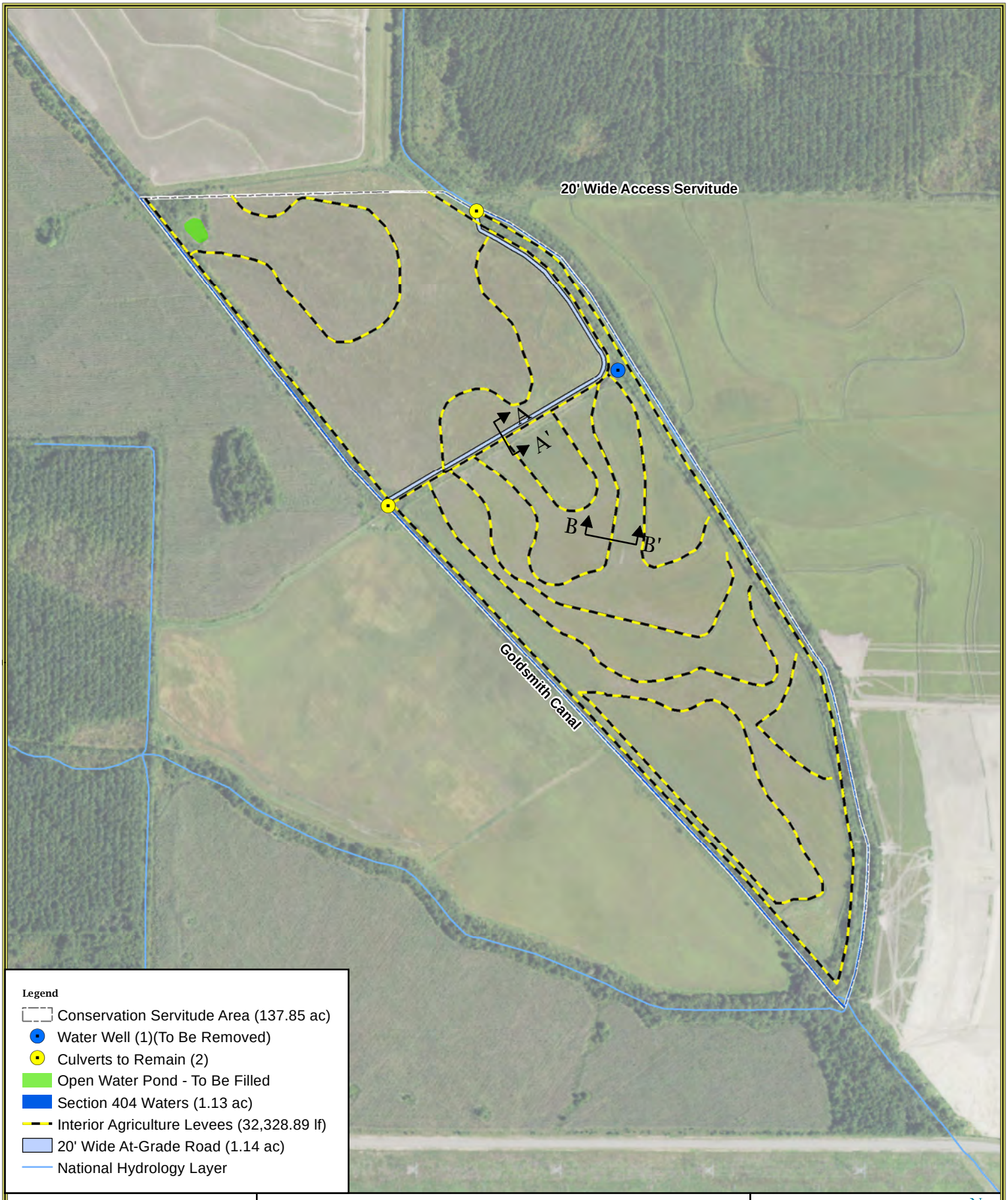
Figure 11 – Surrounding Land Use Map

0 1,750 3,500 Feet
1:35,000
N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USDA NAIP 2017 Imagery Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 9 - Surrounding Land Use Map.mxd



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Date Created: 4/26/2019 | Created by: JDL

Moss Bluff Mitigation Bank
Moss Bluff Holdings, LLC

Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 12 – Hydrological Work Plan Map

0 400 800 Feet
1:8,000

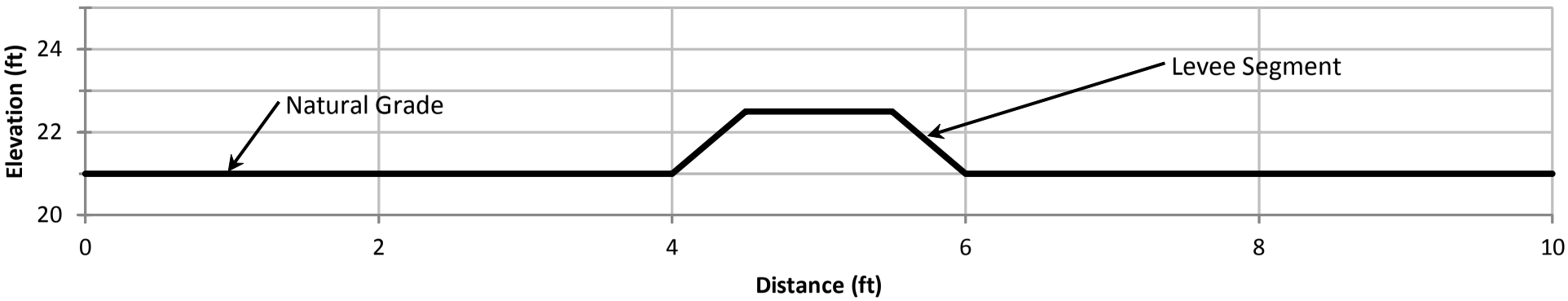
N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

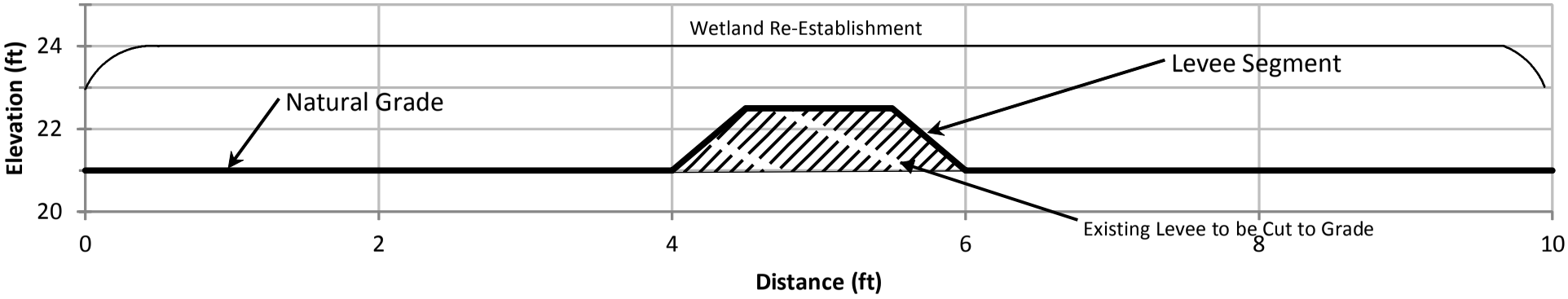
USDA NAIP 2017 Imagery Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 11 - Hydrological Work Plan Map.mxd

Typical Cross Section A-A' Existing Conditions



Typical Cross Section A-A' Existing Conditions



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Moss Bluff Holdings, LLC

Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 12A - Hydrological Work Plan Map

0 155,000 310,000 Feet

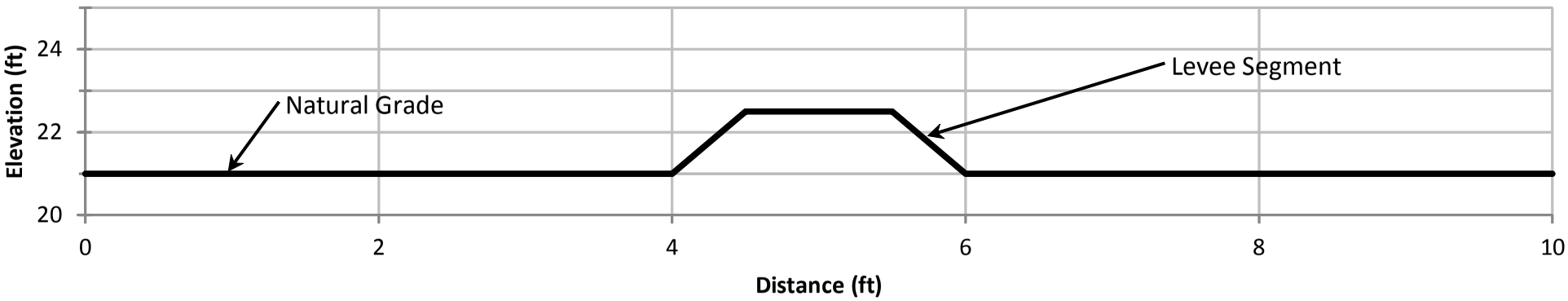
1:3,126,422

N

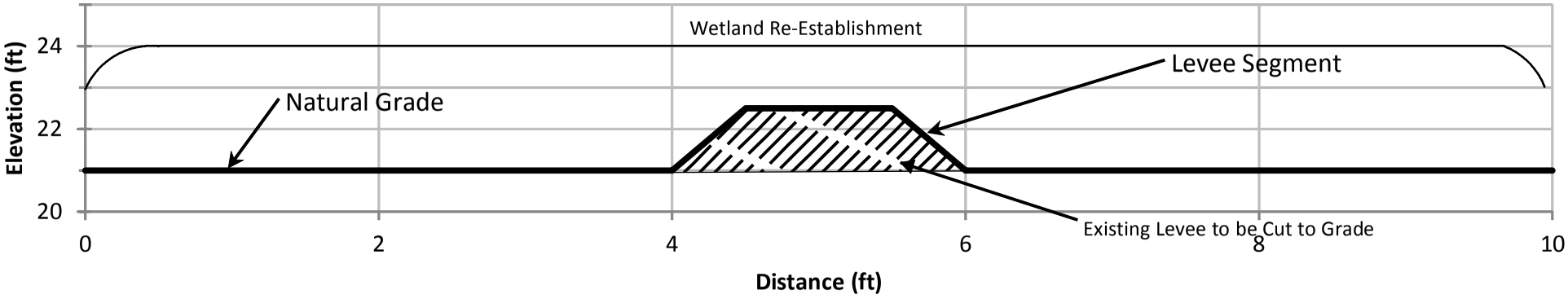
NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Cross Section.mxd

Typical Cross Section B-B' Existing Conditions



Typical Cross Section B-B' Existing Conditions



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Moss Bluff Mitigation Bank
Moss Bluff Holdings, LLC

Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 12B - Hydrological Work Plan Map

0 155,000 310,000 Feet

1:3,126,422

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

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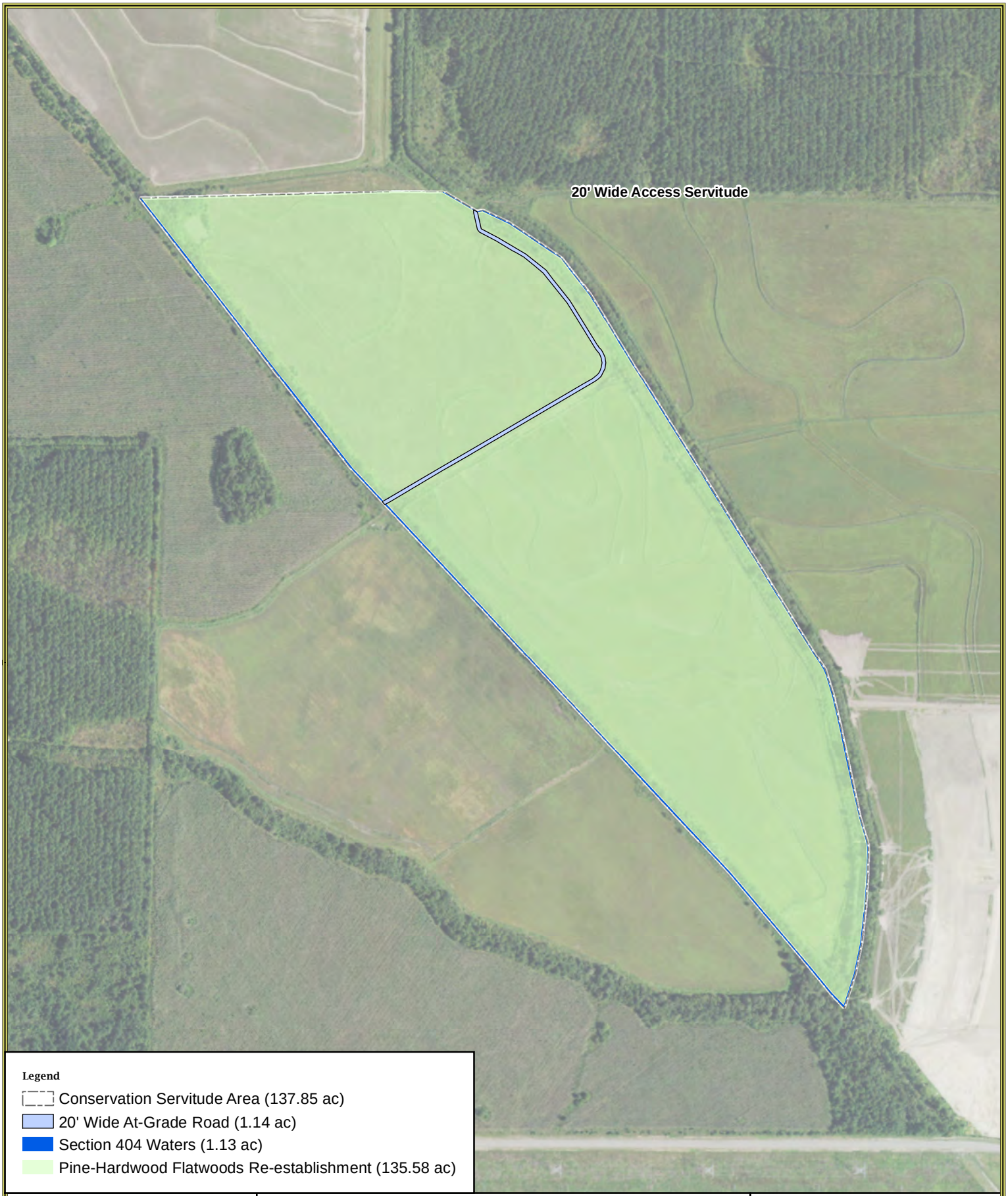

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Moss Bluff Mitigation Bank
Moss Bluff Holdings, LLC

Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 13 - Wetland Mitigation Plan Map

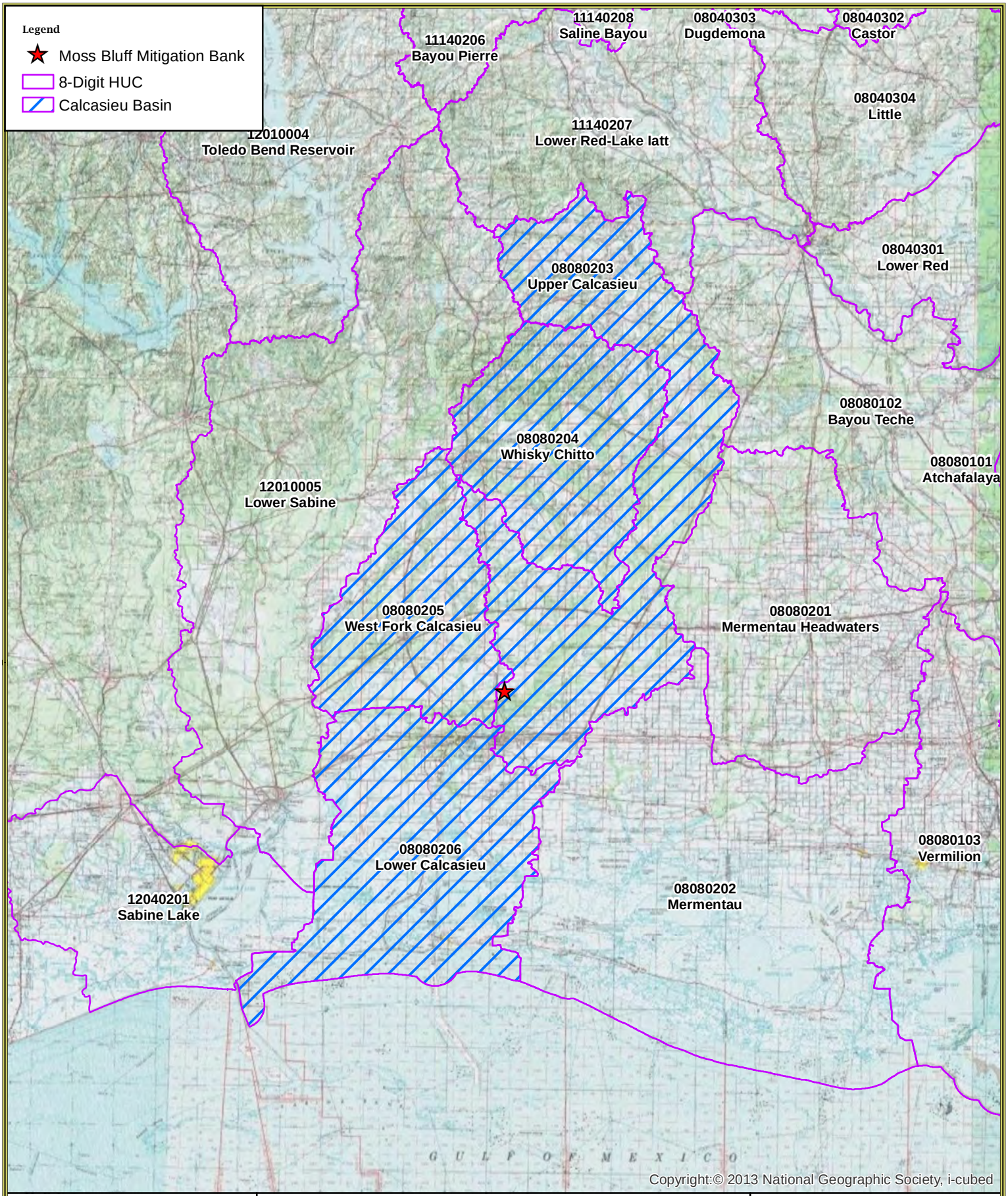
0 400 800 Feet
1:8,000

N

NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

USDA NAIP 2017 Imagery Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 12 - Wetland Mitigation Plan Map.mxd



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Date Created: 4/26/2019 | Created by: JDL

Moss Bluff Mitigation Bank
Moss Bluff Holdings, LLC
Sec. 27 & 28 - T 8S - R 8W
Calcasieu Parish, Louisiana

Figure 14 - Service Area Map

0 60,000 120,000 Feet
1:1,200,000

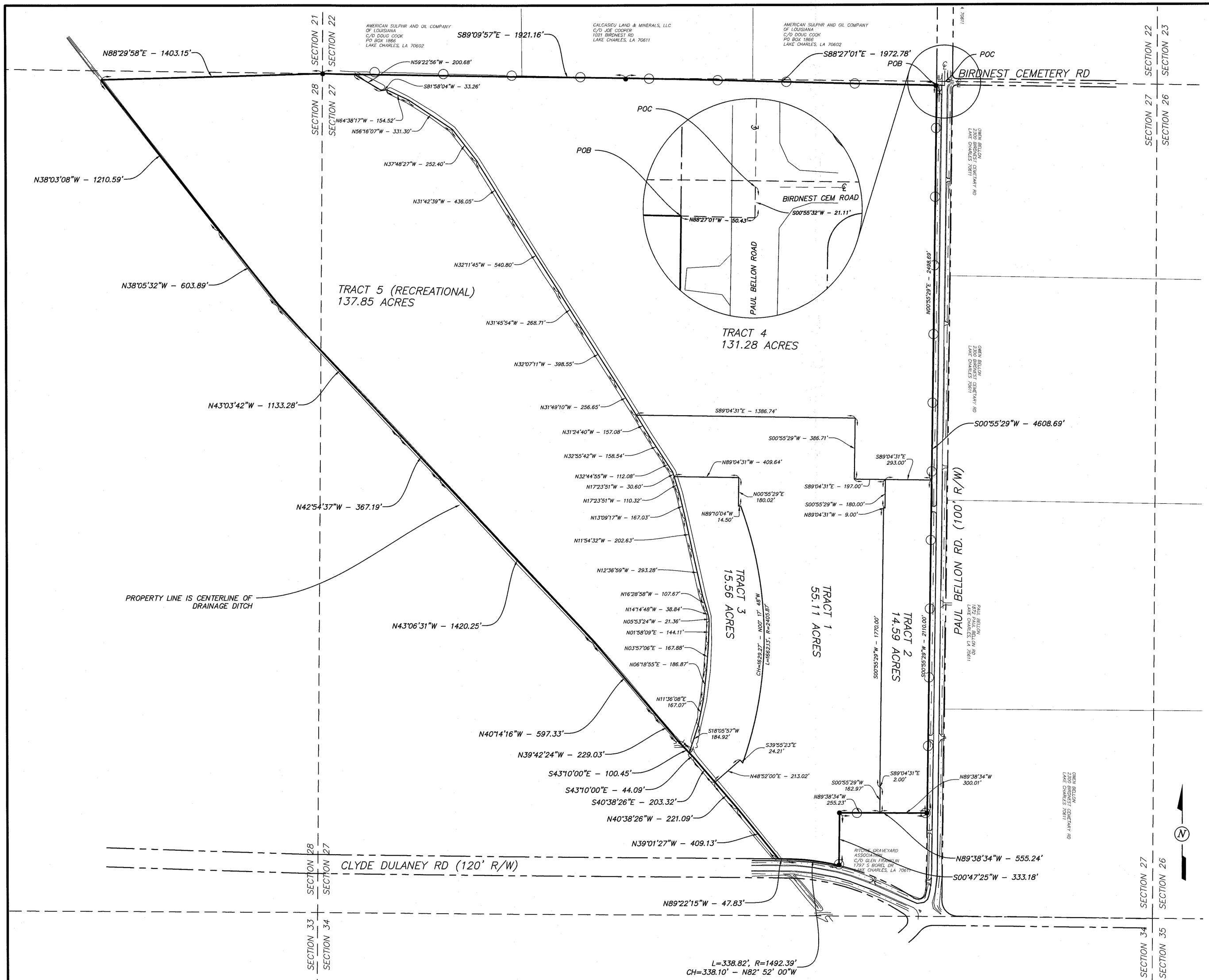
N

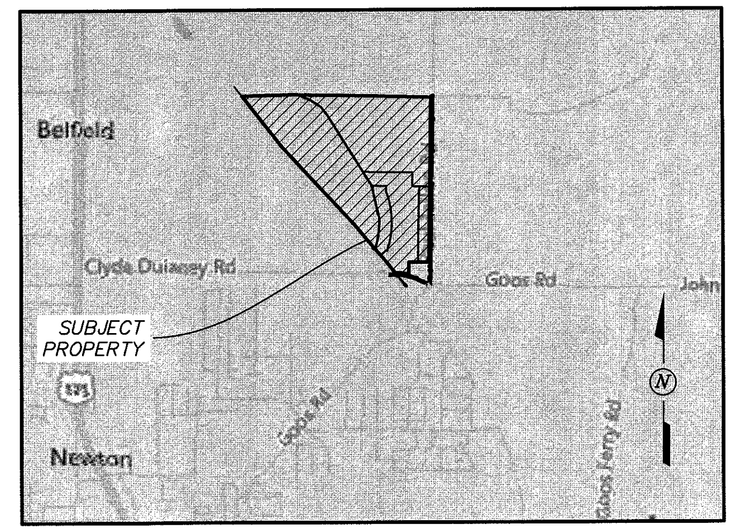
NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US

ESRI World Topography Basemap

S:\PROJECT FILES\Harrison, Andrew\Moss Bluff\Mapping\Figure 12 - Service Area Map.mxd

Appendices





VICINITY MAP

0' 3000' 6000'

SCALE: 1" = 3000'

LEGEND

- STREET R/W
- LIMITS OF DEVELOPMENT
- SET 1/2" IRON ROD
- FENCE
- CENTERLINE DITCH
- APPROXIMATE SECTION LINE

GENERAL NOTES:

1. THIS SURVEYOR HAS MADE NO ATTEMPT REGARDING RESEARCH INTO SERVITUDES, EASEMENTS, RIGHT OF WAYS, OR PIPELINES AND SHALL NOT BE RESPONSIBLE FOR SUCH ENCUMBRANCES. IN ADDITION, NO ATTEMPT HAS BEEN MADE BY THIS SURVEYOR TO VERIFY TITLE OR ACTUAL LEGAL OWNERSHIP.
2. UTILITIES ARE NOT SHOWN ON THIS PLAT. THE INTENTION OF THIS PLAT IS TO SHOW BOUNDARY ONLY.
3. TRACTS 1–5 DO NOT HAVE PROPERTY CORNERS SET DO TO ON GOING DEVELOPMENT WITHIN THIS PROPERTY.

BASIS OF BEARINGS:

BEARINGS AND DISTANCES ARE BASED ON GPS OBSERVATIONS WITH THE FOLLOWING CRITERIA:

COORDINATE SYSTEMUS	STATE PLANE 1983	ZONE	LOUSIANA SOUTH 1702
PROJECT DATUM	NAD 1983 (2011)		
VERTICAL DATUM	NAVD 88	GEOID MODEL	GEOID12A
COORDINATE UNITS	US FT	DIST. AND ELEV. UNITS	US FT.

LEGAL DESCRIPTION
PORTER'S COVE SUBDIVISION
354.39 Acres

THAT CERTAIN TRACT OF LAND SITUATED IN SECTIONS 27 & 28, TOWNSHIP 8 SOUTH, RANGE 8 WEST, CALCASIEU PARISH, LOUISIANA, CONTAINING 354.39 ACRES AND BEING MORE FULLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF CENTERLINES OF BIRDNEST CEMETERY ROAD AND PAUL BELLON ROAD, THENCE PROCEED SOUTH 00°55'32" WEST A DISTANCE OF 21.11 FEET ALONG CENTERLINE OF PAUL BELLON ROAD; THENCE NORTH 88°27'01" WEST A DISTANCE OF 50.43 TO THE POINT OF BEGINNING (POB).

THENCE SOUTH 00°55'29" WEST A DISTANCE OF 4608.69 FEET;
THENCE NORTH 89°38'34" WEST A DISTANCE OF 555.24 FEET;
THENCE SOUTH 00°47'25" WEST A DISTANCE OF 333.18 FEET;
THENCE PROCEED ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 1492.39 FEET, AN ARC DISTANCE OF 338.82 FEET, A CHORD BEARING OF NORTH 82°52'00" WEST AND A CHORD DISTANCE OF 338.10 FEET;
THENCE NORTH 39°01'27" WEST A DISTANCE OF 409.13 FEET;
THENCE NORTH 40°38'26" WEST A DISTANCE OF 424.41 FEET;
THENCE NORTH 43°10'00" WEST A DISTANCE OF 144.54 FEET;
THENCE NORTH 39°42'24" WEST A DISTANCE OF 229.03 FEET;
THENCE NORTH 40°14'16" WEST A DISTANCE OF 597.33 FEET;
THENCE NORTH 43°06'31" WEST A DISTANCE OF 1420.25 FEET;
THENCE NORTH 42°54'37" WEST A DISTANCE OF 367.19 FEET;
THENCE NORTH 43°03'42" WEST A DISTANCE OF 1133.28 FEET;
THENCE NORTH 38°05'32" WEST A DISTANCE OF 603.89 FEET;
THENCE NORTH 38°03'08" WEST A DISTANCE OF 1210.59 FEET;
THENCE NORTH 88°29'58" EAST A DISTANCE OF 1403.15 FEET;
THENCE SOUTH 89°09'57" EAST A DISTANCE OF 1921.16 FEET;
THENCE SOUTH 88°27'01" EAST A DISTANCE OF 1972.78 FEET TO THE POINT OF BEGINNING (POB).

I hereby declare that this plat is representative of survey performed under my supervision and guidance and in accordance with the applicable standards of practice as stipulated in the Rules of Professional Conduct set forth by the L.S.B.R.P.E.L.S. and conforming to a Class C Survey described therein.

REFERENCE PLATS:

1. PLAT SHOWING PROPOSED RIGHT OF WAY FOR HIGHLINE ROAD WARD 1. CALCASIEU PARISH, LA. ENGINEERING DEPARTMENT LAKE CHARLES, LA. DATED MAY 30, 2001.

2. PLAT SHOWING PROPOSED RIGHT OF WAY FOR PAUL BELLON ROAD WARD 1. CALCASIEU PARISH, LA. ENGINEERING DEPARTMENT LAKE CHARLES, LA. DATED FEBRUARY 06, 2002.

DATE	DESCRIPTION	BY
3-21-17	REVISED TRACT NUMBERS AND LOCATIONS	
	REVISED	

PLAT SHOWING PROPERTY BELONGING TO

6844, LLC

LOCATED IN SECTIONS 27 & 28, T8S, R8W, CALCASIEU PARISH, LOUISIANA

DATE OF PLAT: MARCH 21, 2017

0' 150' 300' 600'

SCALE: 1" = 300'

STATE OF LOUISIANA
Travis P Laurent
REG. No. 4992
3-21-17
PROFESSIONAL
LAND SURVEYOR

PAUL L. MIERS ENGINEERING, LLC

CIVIL ENGINEERS — LAND SURVEYORS

104 WESTMARK BLVD, SUITE 2A
PHONE (337) 981-7792

LAFAYETTE, LOUISIANA 70506
FAX(337) 981-7797

BPN 4376
SPN
FILE D
DWG

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVENUE
NEW ORLEANS, LOUISIANA 70118

REPLY TO
ATTENTION OF
Operations Division
Surveillance and Enforcement Section

August 29, 2016

Mr. Rhett Francois
Trusted Compliance, LLC
104 Innisbrook Dr.
Broussard, Louisiana 70518

Dear Mr. Francois:

Reference is made to your request, on behalf of Guidry Land Development, LLC, for a U.S. Army Corps of Engineers' jurisdictional determination on property located in Sections 27 and 28, Township 8 South, Range 8 West, Calcasieu Parish, Louisiana (enclosed map). Specifically, this property is identified as a 340 acre agriculture field (Farm 4198, Tract 7771) on and west of Paul Bellon Road in Lake Charles.

Based on review of recent maps, aerial photography, soils data, and the information provided with your request, we have determined that this property is not in a wetland subject to Corps' jurisdiction. However, a Department of the Army permit under Section 404 of the Clean Water Act will be required if you propose to deposit dredged or fill material into other waters subject to Corps' jurisdiction. Other waters that may be subject to Corps' jurisdiction are indicated in blue on the map.

This delineation/determination has been conducted to identify the limits of the Corps' Clean Water Act jurisdiction for the particular site identified in your request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If the property owner or tenant is a USDA farm participant, or anticipates participation in USDA programs, a certified wetland determination should be requested from the local office of the Natural Resources Conservation Service prior to starting work.

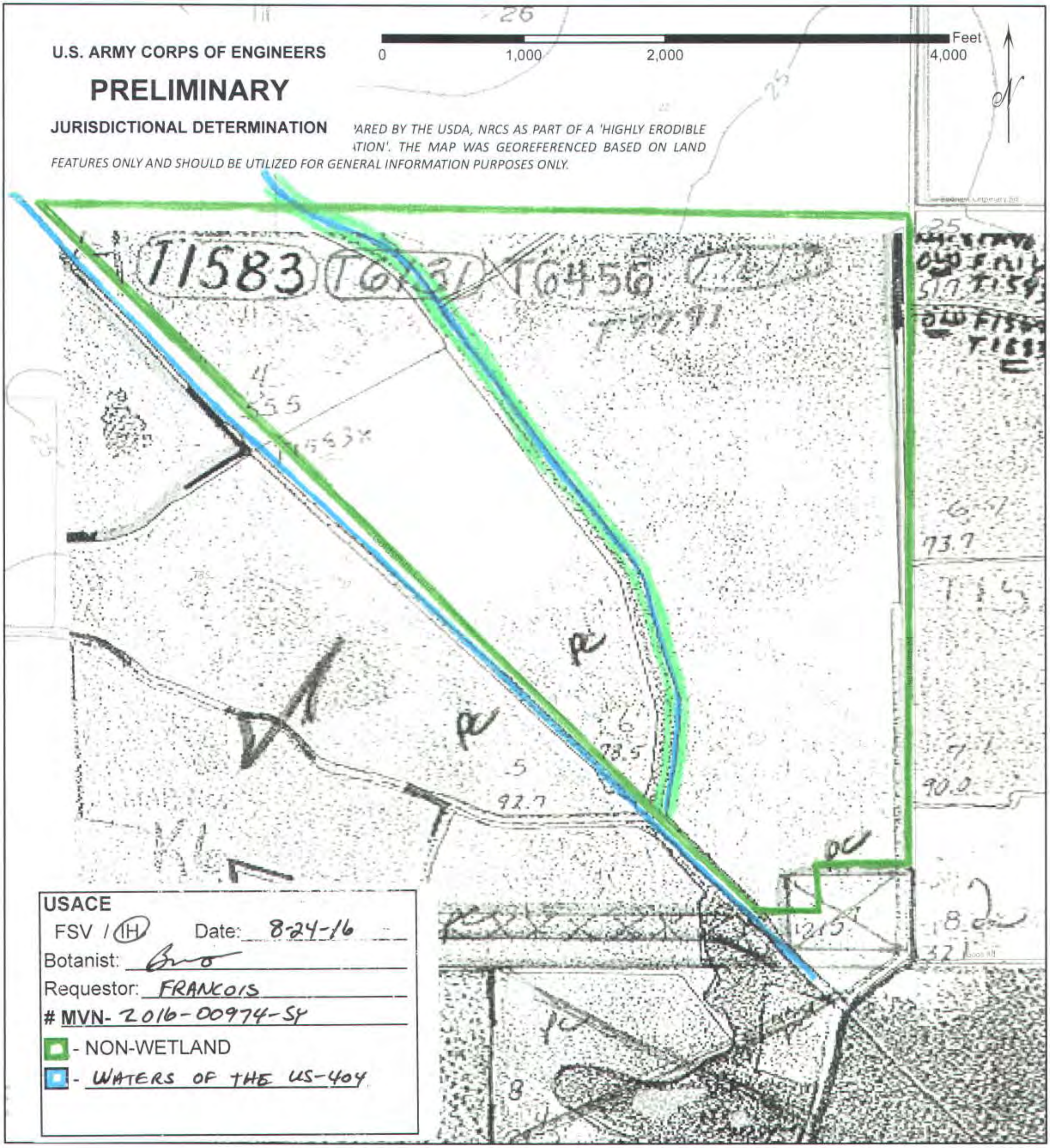
You and your client are advised that this preliminary jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision prior to the expiration date or the District Commander has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.

Should there be any questions concerning these matters, please contact Mr. Brian Oberlies at (504) 862-2275 and reference our Account No. MVN-2016-00974-SY. If you have specific questions regarding the permit process or permit applications, please contact our Western Evaluation Section at (504) 862-2261.

Sincerely,

for Martin S. Mayer
Chief, Regulatory Branch

Enclosures



VICINITY

TRUSTED COMPLIANCE
united in excellence

	REV #	DATE	DESCRIPTION	DWN	QC
GUIDRY LAND DEVELOPMENT +/- 340 AC. TRACT SECTIONS 27 & 28, T08S, R08W CALCASIEU PARISH, LA				RJF	
Sheet 1 of 1 Closing Date: 08/23/2016					

Author: RJF | QC: JCR | Job No.: N/A | Proj. No.: N/A | Misc.:

File: C:\Trusted Compliance, LLC\PROJECTS\