



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
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Special Projects and Policy Team

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Application #: MVN-2022-00769-MB

PUBLIC NOTICE

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [**X**] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344), and/or [] Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 408).

RIVER BEND MITIGATION BANK IN ST. CHARLES PARISH

NAME OF APPLICANT: RES Baratara, LLC, c/o Matrix New World Engineering, 2798 O'Neal Lane, Building F, Baton Rouge, Louisiana 70816, ATTN: Mr. Lee Womack.

LOCATION OF WORK: Located in St. Charles Parish, Sections 20, T-13-S, R-20-E, approximately 5.1 northwest of Boutte, Louisiana, as shown within the enclosed drawings. (Hydrologic Unit Code 08090301, East Central Louisiana Coastal, Baratara Basin) (lat. 29.972315, long. -90.422594).

CHARACTER OF WORK: The project site totals approximately 138.2 acres of pasture and existing wetland forest. The applicant/Sponsor proposes the enhancement of 5.5 acres, rehabilitation of 42.2 acres, and re-establishment of 62.4 acres of bottomland hardwood forest, rehabilitation of 23.7 acres of cypress swamp habitat, reforestation of 3.8 acres of upland buffer, and retention of 0.6 acres of non-mitigation in the form of access roadways. Surface hydrology restoration consists of rendering small field drains to elevations consistent across the site and backfilling/swaling larger ditches to the degree that onsite material is available from degrading access roads or berms along ditches and culvert removal. Following site preparation activities, the site would be planted with appropriate seedlings. The scope of work is detailed in the attached mitigation banking prospectus.

The comment period on the requested Department of the Army Permit will close **30 days** from the date of this public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit request, and must be submitted so as to be received before or by the last day of the comment period. Letters and/or comments concerning the subject permit application must reference the Applicant's Name and the Permit Application Number and can be preferably emailed to the Corps of Engineer's project manager listed above or forwarded to the Corps of Engineers at the address above, **ATTENTION: REGULATORY DIVISION, RG, Brian Breaux.** Individuals or parties may also request an extension of time in which to comment on the proposed work by mail or preferably by emailing the specified project manager listed above. Any request for an extension of time to comment must be specific and substantively supportive of the requested extension and received by this office prior to the end of the initial comment period. The Branch Chief will review the request and the requester will be promptly notified of the decision to grant or deny the request. If granted, the time extension will be continuous and inclusive of the initial comment period and will not exceed a total of 30 calendar days. This public notice is also available for review online at <https://go.usa.gov/xennJ>

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New Orleans District is presently unaware of properties listed on the National Register of Historic Places at or near the proposed work but is pending further review in accordance with the National Historic Preservation Act. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. As deemed necessary, copies of this public notice will be sent to the State Archeologist, State Historic Preservation Officer, and federally listed tribes regarding potential impacts to cultural resources.

Based on the Information Planning and Consultation (IPaC) tool for Endangered Species in Louisiana, as signed on January 27, 2020, between the U.S. Army Corps of Engineers, New Orleans and the U.S. Fish and Wildlife Service, the Corps has determined that the proposed activity would have no effect on any species listed as endangered by the U.S. Department of the Interior.

Our initial finding is that the proposed work would have no effect on any species listed as endangered by the U.S. Department of Commerce, nor affect any habitat designated as critical to the survival and recovery of any such species.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal may result in the destruction, alteration, and/or disturbance of **0.0 acres** of EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. *Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the Louisiana Department of Environmental Quality before a Department of the Army permit could be issued.*

Any person may request within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state with particularity, the reasons for holding a public hearing, and can be preferably emailed to the USACE project manager listed above or mailed to the address listed above.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program (Louisiana Coastal Zone Application P20231009). The Department of the Army permit will not be issued unless the applicant received approval or a waiver of the Coastal Use Permit by the Department of Natural Resources.

You are invited 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 Division

Enclosures



RIVER BEND MITIGATION BANK PROSPECTUS

Based on the 2016 CEMVN Template

Bottomland Hardwood
Re-establishment, Rehabilitation, and Enhancement

Cypress Swamp
Rehabilitation

Located In
St. Charles Parish, Louisiana

Submitted:

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December 2023

Table of Contents

1. INTRODUCTION	1
1.1 BANK LOCATION.....	1
1.2 DRIVING DIRECTIONS	1
2. PROJECT GOALS AND OBJECTIVES.....	1
2.1 PROJECTED GOALS.....	2
2.2 OBJECTIVES	3
3. ECOLOGICAL SUITABILITY OF THE BANK/BASELINE CONDITIONS	4
3.1 LAND USE	5
3.1.1 <i>Historical Land Use</i>	5
3.1.2 <i>Review of USGS Topographical Quadrangles</i>	5
3.1.3 <i>Historical Aerial Photograph Review</i>	6
3.1.4 <i>Existing/Current Land Use</i>	7
3.2 SOILS.....	7
3.3 HYDROLOGY	9
3.3.1 <i>Contributing Watershed</i>	9
3.3.2 <i>Historical Hydrology and Drainage Patterns</i>	9
3.3.3 <i>Existing/Current Hydrology and Drainage Patterns</i>	10
3.3.4 <i>Anticipated Post-Construction Hydrology</i>	11
3.3.5 <i>Jurisdictional Wetlands</i>	11
3.4 VEGETATION.....	11
3.4.1 <i>Historical Plant Community</i>	11
3.4.2 <i>Existing Plant Community</i>	12
3.5 GENERAL NEED FOR THE PROJECT IN THIS AREA.....	14
4. ESTABLISHMENT OF A MITIGATION BANK	15
4.1 SITE RESTORATION PLAN	15
4.1.1 <i>Agricultural Ditch Degradation</i>	15
4.1.2 <i>Hydrological Work Plan</i>	15
4.1.3 <i>Structures</i>	16
4.2 VEGETATION WORK PLAN.....	16
4.2.1 <i>BLH Re-establishment and Rehabilitation</i>	16
4.2.2 <i>BLH Enhancement</i>	17
4.2.3 <i>CYP Rehabilitation</i>	19
4.2.4 <i>Upland Buffer</i>	19
4.2.5 <i>Chemical Control of Invasive / Non-Native Plants</i>	20
4.3 TECHNICAL FEASIBILITY	20
4.4 CURRENT BANK RISKS	20
4.5 LONG-TERM SUSTAINABILITY OF THE BANK	21
5. PROPOSED SERVICE AREA.....	21
6. OPERATION OF THE MITIGATION BANK.....	22
6.1 PROJECT REPRESENTATIVES	22
6.2 QUALIFICATIONS OF THE SPONSOR.....	22
6.3 LONG-TERM OWNERSHIP AND MANAGEMENT REPRESENTATIVES	23

Table of Contents

6.4	BANK PROTECTION	23
6.5	LONG-TERM STRATEGY	24
7.	REFERENCES	25

List of Tables

Tables

Table 1	Proposed Bank Habitats	3
Table 2	Historical Topographic Map Review	5
Table 3	Historical Aerial Photo Review	6
Table 4	Bank Soils	8
Table 5	Planting List for BLH Rehabilitation and Re-Establishment	17
Table 6	Substitution List for BLH Rehabilitation and Re-Establishment	17
Table 7	Planting List for BLH Enhancement	18
Table 8	Substitution List for BLH Enhancement	18
Table 9	Planting List for CYP Rehabilitation	19
Table 10	Planting List for Upland Buffer	20
Table 11	Substitution List for Upland Buffer	20

List of Exhibits

Exhibits

Exhibit 1	Vicinity and Service Area Map
Exhibit 2	Mitigation Existing/Proposed Habitat Plans (2a-2b)
Exhibit 3	Driving Directions
Exhibit 4	Topographic Maps Package (4a-4h)
Exhibit 5	Aerial Maps Package (5a-5i)
Exhibit 6	Current Land Use
Exhibit 7	One-Mile Land Use Land Cover
Exhibit 8	Soils Map
Exhibit 9	Wetland Map
Exhibit 10	Contributing Watershed
Exhibit 11	Elevation Map
Exhibit 12	Existing Hydrology
Exhibit 13	Post-Construction Hydrology
Exhibit 14	Proposed Work Plan
Exhibit 15	Construction Work Plan Cross-Sections (15a-15i)
Exhibit 16	Tree Composition Survey

List of Attachments

Attachments

Attachment 1: Preliminary Jurisdictional Determination

1. Introduction

RES Barataria, LLC (hereinafter the Sponsor) has prepared this prospectus for submittal to the U.S. Army Corps of Engineers – New Orleans District (CEMVN) and the Interagency Review Team (IRT) to provide an overview of the establishment and operation of the proposed River Bend Mitigation Bank (Bank). The details pertaining to the use of this Bank as a wetland mitigation bank shall be specified in the subsequent Mitigation Banking Instrument (MBI).

The Sponsor proposes to provide compensatory mitigation for bottomland hardwood (BLH) and cypress swamp (CYP) impacts in the Louisiana Wetland Rapid Assessment Method, Version 2.0 (LRAM) Barataria Service Basin (**Exhibit 1**). Additionally, the Bank may provide compensatory mitigation for unavoidable impacts to coastal wetland resources under the Louisiana Coastal Resources Program (LCRP) per the provisions of LAC 43:724 and RS 49:214.22 (8). The Bank is in St. Charles Parish, Louisiana and entirely within the Louisiana Coastal Zone (CZ) boundary.

The Sponsor shall enhance 5.5 acres, re-establish 62.4 acres, and rehabilitate 42.2 acres of BLH, while also rehabilitating 23.7 acres of CYP. The Bank will also include approximately 0.6 acres of non-mitigation features composed of existing access roads and approximately 3.8 acres of upland buffer totaling a 138.2-acre Bank (**Exhibit 2b**).

1.1 Bank Location

The 138.2-acre Bank is centered at Latitude 29.972315°, Longitude -90.422594° in Section 20, Township 13 South, Range 20 East of St. Charles Parish, Louisiana. The Bank is 5.13 miles northwest of Boutte, Louisiana within the East-Central Louisiana Coastal watershed (Hydrologic Unit Code (HUC) 08090301) of the Barataria LRAM Service Basin (**Exhibit 1**).

1.2 Driving Directions

From N. Causeway Blvd. take I-10 west and I-310 south 18.2 miles to LA 3127. Take Exit 10 on LA 3127 north 4.1 miles to LA 3160. From LA-3127, turn northeast onto LA-3160 and drive 2.1 miles. Turn left onto Sycamore Street. and follow for 0.2 miles. Turn Left at the 2nd cross street onto Hahn Street. Access to the Bank is via Hahn Street (**Exhibit 3**).

2. Project Goals and Objectives

The Sponsor proposes to enhance 5.5 acres, re-establish 62.4 acres, and rehabilitate 42.2 acres of BLH. Additionally, 23.7 acres of CYP habitat are proposed for rehabilitation. Also, 0.6 acres of existing access road shall be maintained as non-mitigation acreage. An additional 3.8 acres located along the

east Bank boundary are proposed as upland buffer. The overall Bank area consists of 138.2 acres in total. The Bank shall provide additional BLH and CYP functions and values not currently recognized under existing conditions and land use, as well as enhance these values in portions of the Bank where these habitats currently exist.

This project will aid in restoring, enhancing and/or preserving the following wetland functions:

1. Wildlife Habitat (food, water, and shelter)
2. Increased Organic Matter
3. Flood Retention
4. Groundwater Recharge
5. Atmospheric Maintenance
6. Water Quality Improvement; and
7. Opportunities for recreation and education

As defined by *The Natural Communities of Louisiana* published in 2009 by the Louisiana Department of Wildlife and Fisheries (LDWF) and the Louisiana Natural Heritage program (LNHP), BLH forests are forested, alluvial wetlands occupying broad floodplain areas that flank large river systems. BLH forests may be called fluctuating water level ecosystems characterized and maintained by a natural hydrologic regime of alternating wet and dry periods. These forests support distinct assemblages of plants and animals associated with specific landforms, soils, and hydrologic regimes. They are important natural communities for maintenance of water quality, providing a very productive habitat for a variety of fish and wildlife, and in regulation of flooding and stream recharge.

CYP habitats are forested, alluvial swamps growing on intermittently exposed soils. Soils are inundated by surface or ground water on a nearly permanent basis throughout the growing season. CYP habitats are characterized by having low floristic diversity and often sparse understory due to low light conditions and the long hydroperiod. CYP habitats provide important ecosystem functions including, but not limited to, biogeochemical cycling, water maintenance, productive habitat for a variety of fish and wildlife species and regulate flood and stream recharge (LNHP 2009).

2.1 Projected Goals

The goals of the Bank are to: enhance and restore the native vegetative community, restore near natural topography and hydrology, enhance various biogeochemical cycles, improve sediment retention, reduce non-point source pollution, and provide habitat and refuge to wildlife. The holistic goal is to establish a self-sustaining BLH and CYP habitat resistant and resilient to

disturbance events that shall maintain, restore, preserve, rehabilitate, or enhance aquatic ecosystem function and water quality within the Barataria Basin.

Proposed Bank habitats were derived using the historical land use, current land cover, soils, elevations, and the current vegetation data gathered during a wetland delineation and baseline survey within the Bank. The Bank is proposed to enhance, re-establish, and rehabilitate 110.1 acres of BLH as well as rehabilitate 23.7 acres of CYP with 0.6 acre of non-mitigation features composed of an existing access road and 3.8 acres of Upland Buffer totaling a 138.2-acre Bank (**Table 1** and **Exhibit 2b**).

Table 1: Proposed Bank Habitats

BLH		CYP	
Mitigation Type	Acres	Mitigation Type	Acres
Re-establishment - LDNR	34.9	--	--
Re-establishment	27.5		
Rehabilitation - LDNR	41.0	Rehabilitation - LDNR	23.7
Rehabilitation	1.2		
Enhancement - LDNR	5.5	--	--
Total BLH	110.1	Total CYP	23.7
Upland Buffer: 3.8 ac.			
Non-Mitigation: 0.6 ac.			
Total Bank Size: 138.2 ac.			

2.2 Objectives

The goals of the Bank shall be accomplished through the following objectives:

1. Create self-sustainable BLH and CYP forested wetland habitat through selective planting of native species in rehabilitation and enhancement areas, hydrological restoration in rehabilitation areas and manage invasive species across the Bank.
2. Rehabilitation of the vegetative community structure through selective planting of native species and forest management strategies.
3. Soil preparation shall alleviate compaction, increase soil pore water space, and increase the efficiency of various biogeochemical cycles.
4. Vegetative plantings shall be used to restore natural vegetation across the Bank, increase species diversity, increase nutrient and

contaminant uptake, and create a vegetation community indicative of sustainable wetland forested areas.

5. Long-term maintenance shall prevent colonization by noxious plants, erosion along interfaces of drainageways, and trespass vandalism.
6. Control of invasive species, which shall reduce the negative impacts to the existing vegetative community, as well as reduce the seed source that may infiltrate adjacent wetland areas.
7. The cessation of agricultural practices shall aid in reducing nonpoint source pollution and allow the microtopographic sinuosity patterns to re-emerge restoring a more natural flow across the Bank.
8. Restoration shall create improved wildlife habitat, as well as benefit water quality and various biogeochemical cycles.
9. Ensure system stability and continuity by protecting the Bank in perpetuity with a conservation easement; and
10. Ensure the long-term viability and sustainability of the Bank through active and adaptive management activities including, but not limited to, invasive species control, appropriate monitoring, and long-term maintenance.

3. Ecological Suitability of the Bank/Baseline Conditions

This section describes the ecological suitability of the Bank to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the Bank and how that Bank will support the planned types of aquatic resources and function, as stated in 33 CFR 332.8(d)(2)(vii)(B). This section provides the baseline/current Bank conditions on and adjacent to the proposed Bank.

Despite extensive anthropogenic alteration associated with agricultural production, the Bank is ecologically suited to support BLH and CYP wetland habitats based on location, historic and current habitats, proximity to existing forested wetland habitats, historic hydrology, and soil types. These Bank characteristics provide ideal conditions for the establishment of a mitigation bank that will provide additional areas of contiguous forested wetland habitat to support resident and migratory wildlife native to BLH and CYP ecosystems in an area that has experienced significant loss of wetlands to agricultural conversion.

3.1 Land Use

3.1.1 Historical Land Use

The Bank is located within the approximately 25 million-acre Lower Mississippi Alluvial Valley (LMAV). Prior to European settlement and colonization, the LMAV consisted of mostly contiguous BLH and CYP swamp forests with some alterations due to Native Americans (Gardiner and Oliver 2005). Significant deforestation began after colonization required timber harvesting of wetland habitats to satisfy a growing demand. These harvested areas were then converted to agricultural uses. Further deforestation of the LMAV in the 20th Century was due to the construction of major flood control projects, (Lower Mississippi River Joint Venture [LMRJV] 2007). Approximately 20 percent of the original forested acreage of the LMAV remains with much of it in fragmented blocks averaging 158 acres in size (Twedt et al. 1999).

Based on historical topographical quadrangle maps (**Exhibit 4a-4h**) and aerial photographs (**Exhibit 5a-5i**) the Bank historically contained BLH/CYP forested habitats on most of the Bank. Topographical maps and arial photos reveal that sometime prior to or during 1952, the eastern portion of the Bank was cleared for agricultural use, however some of the Bank remained forested along the western end (**Exhibit 5a-5i**). Significant anthropogenic alteration of the Bank associated with agricultural use has continued to present day. **Tables 2** and **3** detail the changes on the land.

3.1.2 Review of USGS Topographical Quadrangles

USGS quadrangle maps were reviewed as a supplement to the historical aerial photographs and to determine the prior use or occupancy of the subject properties. Copies of these USGS quadrangle excerpts are presented in **Exhibits 4a-4h** along with a written observation in **Table 2**.

Table 2: Historical Topographic Map Review

Quadrangle Date	Observations
1891	Shown to have wetlands features south of the Bank.
1932	Shown to have forested features south of the Bank.
1936	Shown to have forested features south and west of the Bank. Waterways are shown to bisect the bank and are adjacent to both the north and south borders.
1952	Shown to have forested features along the northern boundary and southern portions of the Bank. Waterways are shown to bisect the bank and are adjacent to both the north and south borders.
1967	Shown to have forested features along the northern border and southern tip of the Bank. Waterways are shown adjacent to the southern border and moving

	across the center portion of the bank vertically. Development on the Bank is clearly shown for the 1 st time
1979	Shown to have similar features to the 1967 map.
1995	Shown to have forested features across the majority of the bank. Waterways are shown to adjacent to the southern border.
2011	Shown to have similar features to the 1995 map.

3.1.3 Historical Aerial Photograph Review

Aerial photographs were reviewed to investigate historical properties, adjacent land uses, and to observe potential impacts to the subject properties. Copies of these aerial photographs are included as **Exhibit 5a-5i**. **Table 3** provides written observations.

Table 3: Historical Aerial Photo Review

Imagery Date	Observations
1952	Shown to be predominantly cleared of forest habitat for use in agricultural production, with some small forested areas appearing intact.
1961	Shown to have been cleared of virtually all forested areas. Agricultural rows can be seen.
1970	Shown to have most of the forested habitats have been removed and the Bank appears to be planted for sugarcane production
1989	Shown to be overgrown except on the west and east ends and was used for agricultural crop production or as pastureland.
1998	The west portion of the Bank appears to be forested. The east portion of the Bank appears to be primarily in agricultural use. Differs from 1989 in that more Bank appears to be forested area and less for agricultural production.
2004	Approximately 85% of the Bank appears to be in agricultural crop production or as pastureland. Differs from 1998 in that even more of the Bank has been cleared of overgrown area.
2010	Largely unchanged form 2004.
2019	Largely unchanged form 2010.
2023	Shows significant damage due to wildfire

3.1.4 Existing/Current Land Use

Based on communication with the current landowner, the property was purchased in 2005 and was predominately used for cattle grazing and hay production. The most dominant land use on the bank is grassland/pasture 116.8 acres. Cattle grazing ceased on the Bank approximately two (2) years ago and the pasture areas were used for hay production. Additional land cover consists of woody wetlands 21.4 acres (**Exhibit 6**).

A survey was conducted by the Sponsor between April 5-7, 2022, determined the Bank is composed of four (4) distinct habitat types including palustrine forested (PFO) wetlands dominated by soft mast species, palustrine emergent (PEM) wetlands in pasture areas previously used for hay production and cattle grazing, upland pasture areas previously used for hay production and cattle grazing, and forested upland areas dominated by soft mast species. The PFO wetlands are dominated by BLH tree and shrub species (**Exhibit 2a**).

The most dominant land use/cover within a 1-mile buffer area around the boundary is woody wetlands (40.1%), developed commercial/residential areas of low intensity (15.0%), grassland/pasture (8.7%) and herbaceous wetlands (6.4%). Part of the Mississippi River lies within one (1) mile of the Bank (5.6%). Although there is development within one (1) mile of the Bank boundary, this development is mostly residences along the northeastern boundary, with some sparse commercial development mixed in (**Exhibit 7**). Based on current, on-site observations the adjacent land use is as follows:

- a) **North** of the Bank are developed commercial and residential areas along with wooded areas.
- b) **East** of the Bank are developed commercial and residential areas and the Mississippi River.
- c) **South** of the Bank is a mix of forested area and cleared land for agricultural use, with some commercial and residential development. There is also a water treatment facility at the southern end of Bank.
- d) **West** of the Bank is mostly forested area with drainage that eventually feeds into Lac Des Allemands.

3.2 Soils

The U.S. Department of Agricultural (USDA) Gridded Soil Survey Geographic (gSSURGO) database shows the Bank may be underlain by four (4) soil map units (**Exhibit 8**). **Table 4** provides the soil map unit's symbol, name, percent hydric rating, and percent of the Bank the map unit encompasses. Based on

gSSURGO, the most prevalent soil map unit on the Bank is Schriever clay, 0 to 1 percent slopes (Se) followed by Thibaut clay, 0 to 1 percent slopes (Tu).

Table 4: Bank Soils

MUN Symbol	MUN Name	% Hydric	% of Bank
Cc	Cancienne silt loam, 0 to 1 percent slopes	2	9
Se	Schriever clay, 0 to 1 percent slopes	98	48
Sh	Schriever clay, 0 to 1% slopes, frequently flooded	100	14
Tu	Thibaut clay, 0 to 1 percent slopes	10	29

Cancienne Series consists of very deep, level to gently undulating, somewhat poorly drained mineral soils that are moderately slowly permeable. These soils formed in loamy and clayey alluvium. They are on high and intermediate positions on natural levees and deltaic fans of the Mississippi River and its distributaries. Slopes range from 0 to 3 percent. Cancienne soils are somewhat poorly drained; runoff is medium to slow, and permeability is moderately slow. A saturated zone is perched above the clayey lenses or layers and is at 1.5 to 4 feet below the surface during December through April. Most areas are protected from flooding by levees. Along the larger leveed waterways, water between the clayey lenses or layers in the lower part of the solum may be under pressure due to the hydraulic head maintained by the higher water level in the river.

Unprotected areas are subject to occasional or frequent flooding for brief to long durations. Areas with this soil series are used mainly for cropland; sugarcane, soybeans, corn, and wheat are the principal crops. Some acreage is in pasture and hay crops. A significant acreage has been developed for urban, industrial, or residential uses.

Schriever Series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are on the lower parts of natural levees and in backswamp positions on the lower Mississippi River alluvial plain. Slope is dominantly less than 1 percent but ranges up to 3 percent. Surface runoff is high on slopes less than 1 percent and very high on slopes up to 3 percent. Permeability is very slow. Schriever soils are saturated in the layers between 0 and 0.5 foot during the months of December through April in normal years, and moist in the subsoil layers below that. Schriever soils are flooded for brief to very long durations during most years, unless protected by levees. Areas with this soil series are used mostly for cropland; sugarcane, rice, soybeans, wheat, grain sorghum, and oats are the principal crops. Some areas are used for pasture, and hay crops. Frequently flooded areas are mainly in BLH stands.

Thibaut Series consists of very deep, poorly drained, very slowly permeable soils that formed in clayey alluvium over fine-silty alluvium. These soils are on alluvial flats and on the lower parts of natural levees on the alluvial plain of the

Mississippi River and its distributaries. Slope is dominantly less than 0.5 percent but ranges to 3 percent. Surface runoff is slow. Permeability is slow. Thibaut soils are saturated in the layers between 0 and 0.5 foot during the months of January through April during most years, and moist in the subsoil layers below that. Rare to frequent flooding occurs for brief to long periods in areas not protected by levees. Most areas of Thibaut soils are cultivated for sugarcane, soybeans, cotton, small grains, corn, hay, or pasture. A smaller amount of the total acreage is in BLH.

The Bank has been used for agricultural production since at least 1952. Some of the impacts of agricultural production on the soil are reduced productivity within the soil, a loss of organic matter, and compaction from farming equipment. Said compaction tends to lead to a reduction in water availability and increases runoff. Additionally, being used for agricultural production nearly eliminates hydrological connections with the landscape due to rowing practices and creates a non-native monotypic unsustainable vegetative community.

During the wetland delineation conducted between April 5-7, 2022, soil samples were collected between the surface and approximately 20 inches. Based on field observations, soils across the site were predominately hydric (**Exhibit 9**).

3.3 Hydrology

3.3.1 Contributing Watershed

The contributing watershed was identified using data from USGS National Hydrography Dataset (NHD) (**Exhibit 10**). Flow directional arrows were added to the NHD flowlines to identify which water features collect water on the Bank. Based on the NHD, the existing drainage area empties along the southern boundary of the Bank and flows south into St. Charles Canal and Lac des Allemands, approximately 7.7 miles southwest of the Bank area (**Exhibit 10**).

3.3.2 Historical Hydrology and Drainage Patterns

Historic or pre-development sources of surface water on the Bank were likely precipitation and surface water flooding from the surrounding swamp, given the Banks' physiographic position in a backswamp area, and possible overflow from the nearby Mississippi River. Unfortunately, there is very little available data that provides accurate information of the true drainage patterns of the Bank prior to development. The historical topographical maps show what may be drainage canals as early as 1932 running perpendicular through the entire Bank, with the direction of flow remaining in a general northeast to southwest direction. Historic USGS topographic maps and aerial photos suggest the site was clearly developed by 1952 with the addition of agricultural drainage ditches to divert flow towards the southern boundary of the Bank, then out and away. Historical topographical maps suggest wetland features in the areas surrounding the Bank,

and within the Bank boundaries (**Exhibit 4a-4h**). Post development drainage patterns were derived from a combination of topographic map contours and surface elevation data from the Louisiana Oil Spill Coordinator's Office (LOSCO) Light Detecting and Ranging (LiDAR) dataset (**Exhibit 11**).

These elevation datasets suggest that the Bank drainage generally drains northeast to southwest down the Bank into several agricultural drainage ditches along the interior of the Bank. This drainage pattern is due to the change in elevation from 10' in the northern point of the Bank, to 1' near the southern end of the Bank (**Exhibit 11**). The gradual degradation in slope along the Bank suggests that sheet flow should occur in a southwestern direction across the entirety of the Bank, however the existing interior ditches interfere with the natural drainage process.

Restoration of the historical hydrology within the Bank is anticipated to occur post-construction once the interior agricultural draining features are rendered ineffective.

3.3.3 Existing/Current Hydrology and Drainage Patterns

The USGS National Hydrography Database (NHD) shows two (2) unnamed waterbody drainage features adjacent to the Bank (**Exhibit 10**). Adjacent to the southern boundary of the Bank, there is an external drainage feature between the Bank and Hahn Street. Based on the 2017 DEM elevations and field observations, this drainage feature appears to flow from the northeastern portion of the Bank near the existing neighborhood and barn structure to the southwestern point near the water treatment facility. It appears to tie into the stormwater drainage system of the neighborhood and is the likely outfall for stormwater after rain events. Given that it is not within the boundaries of the proposed Bank, no restoration efforts are proposed regarding this drainage feature. The NHD also shows a large canal that borders the Bank on the western end. Elevations and field observations suggest the flow for this drainage is approximately north to south. This canal seems to serve to divert excess drainage into the Saint Charles Canal. Much like the southern ditch, this drainage feature lies outside the boundaries of the Bank, and no restoration efforts are associated with it. The Sponsor has obtained a letter from St. Charles Parish indicating that the Parish will not require the use of any maintenance servitudes on the Bank site.

Hydrology on the Bank is influenced primarily by rainfall and overland flow associated with elevation changes in the Bank. A multitude of small drainage features can be seen on aerial imagery and were also observed during field reconnaissance within the interior of the Bank running northeast to southwest, following elevation decreases. These small drainages appear to have been constructed to allow surface water to drain into larger interior drainage features that move water south into the large ditch along Hahn Street (**Exhibit 12**). Once

water enters the drainage ditch paralleling the southern boundary and Hahn Street, water flows southwest toward the water treatment facility, eventually out-falling into the large canal that borders the Bank in the west. Water within the canal flows southwest beyond the Bank, continuing in what appear on aerial imagery to be man-made drainage canals, until finally outfall into Lac des Allemands and Bayou des Allemands, approximately 7.71 miles southwest of the Bank.

During the wetland delineation performed by the Sponsor between April 5-7, 2022, wetland hydrology criteria were assessed based on observation of primary and/or secondary field indicators. Hydrology indicators observed at the Bank include surface water, high water table, saturation, water marks, oxidized rhizospheres on living roots, crayfish burrows, and positive FAC-Neutral Test. The wetland criterion for hydrology was met at 16 of the 24 sample locations established by the Sponsor's biologists to characterize the Bank.

3.3.4 Anticipated Post-Construction Hydrology

After construction is complete, the Bank's hydrology shall be primarily driven by precipitation, overland flow, run off, and a high water table. The interior man-made drainage features will be rendered ineffective to the maximum extent possible with in-situ earthen material to promote ground-water recharge while providing slower, more natural overland flow of water that is currently rerouted into the internal agricultural drainage ditches. This will increase surface water retention and upper soil saturation necessary for the Bank's success. It is anticipated that the overland flow of water will be more naturally restored to a general northeast-southwest direction from the eastern BLH areas into the western CYP areas following the natural elevation contours (**Exhibit 13**).

Hydrologic restoration achieves many objectives by improving water quality, biogeochemical cycling, and the hydrologic cycling, which will inundate soils and restore them to their native historic hydric processes.

3.3.5 Jurisdictional Wetlands

The Jurisdictional Determination for the Bank is included as **Attachment 1**. Approximately 73 acres of potential jurisdictional wetlands were identified by the Sponsor.

3.4 Vegetation

3.4.1 Historical Plant Community

The U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) shows the vegetation within the Bank as predominantly Freshwater Forested/Shrub

wetlands (PFO1Ad or PSS1Ad), with an approximately 36-acre block in the southwestern portion of the Bank having no NWI designation.

The Bank is in the Mississippi Alluvial Plain Level III Ecoregion and the Inland Swamps Level IV Ecoregion (73n; Environmental Protection Agency [EPA] 2003; Omernik 1987), the Mississippi Delta Cotton and Feed Grains Region Land Resource Region (LRR O), and the Southern Mississippi River Alluvium Major Land Resource Area (MLRA 131A; Natural Resources Conservation Service [NRCS] 2006).

The Inland Swamps Ecoregion contains the largest BLH forest swamps in North America. The historic natural vegetation of this Level IV Ecoregion was dominated by bald cypress (*Taxodium distichum*) and tupelo gum (*Nyssa* spp.), which are generally intolerant of brackish water except for short periods, such as during a hurricane. In areas flooded less frequently, live oak (*Quercus virginiana*) dominant forests, overcup oak (*Quercus lyrata*) – water hickory (*Carya aquatica*) forest and oak (*Quercus* spp.) – sweetgum (*Liquidambar styraciflua*) forests were commonly found. In areas where freshwater flooding was more prolonged, the vegetation community was historically dominated by species of grasses, sedges, and rushes. Specifically, wetland vegetation in highly inundated areas typically included water hyacinths (*Eichhornia* spp.), water lily (*Nymphaea* spp.), cattails (*Typha* spp.), and duckweed (*Lemna* spp.) (EPA 2003).

Sometime during or prior to 1952 much of the Bank was converted to agricultural production, which has continued to this day. Given the soil type, landscape position and observation of neighboring, extant forests, the native plant community on the Bank was likely mixed, deciduous BLH and CYP tree species with elements of palustrine emergent (PEM) wetlands.

3.4.2 Existing Plant Community

The Sponsor observed four (4) distinct habitat types on the Bank during the wetland delineation conducted between April 5-7, 2022. Dominant vegetative species present at each data point location were recorded for each of the following vertical strata: tree, sapling, shrub, herbaceous and woody vine. Percent cover for each dominant species was determined by visual estimation. Indicator statuses for dominant vegetation on the Bank consist of facultative upland (FACU), facultative (FAC), facultative wetland (FACW), and obligate wetland (OBL) species.

Within the wet pasture or PEM habitats described in the wetland delineation report, dominate species observed included shoreline sedge (*Carex hyalinolepis*), lamp rush (*Juncus effusus*), southern dewberry (*Rubus trivialis*), savannah-panic grass (*Phanopyrum gymnocarpon*), common spike-rush (*Eleocharis palustris*), flat-stem spike-rush (*Eleocharis compressa*), alligator

weed (*Alternanthera philoxeroides*), bermudagrass (*Cynodon dactylon*), and common fox sedge (*Carex vulpinoidea*).

The upland forested upland habitat was dominated by American elm (*Ulmus americana*) and sugarberry (*Celtis laevigata*) in the tree stratum, Chinese tallow (*Triadica sebifera*), elderberry (*Sambucus nigra*) and *Ulmus americana* in the sapling/shrub stratum, Japanese honeysuckle (*Lonicera japonica*), meadow garlic (*Allium canadense*) dominated the herbaceous stratum. Upland pasture habitat was dominated by *Cynodon dactylon*, common chickweed (*Stellaria media*), and Vasey's grass (*Paspalum urvillei*).

Areas of forested wetlands or PFO habitats were dominated by species such as red maple (*Acer rubrum*), *Triadica sebifera*, *Ulmus americana*, green ash (*Fraxinus pennsylvanica*), *Celtis laevigata*, black willow (*Salix nigra*) in the tree stratum. The sapling/shrub stratum was dominated by *Acer rubrum*, rough-leaf dogwood (*Cornus drummondii*), water oak (*Quercus nigra*), and dwarf palmetto (*Sabal minor*). Shoreline sedge (*Carex hyalinolepis*), *Juncus effusus*, raven-foot sedge (*Carex crus-corvi*), cress-leaf groundsel (*Packera glabella*), swamp smartweed (*Persicaria hydropiperoides*), and tall ironweed (*Vernonia gigantea*) dominated the herbaceous stratum.

Very few hard mast species and a high percentage of soft mast species were observed in the BLH habitats. In the BLH habitat in the southwestern corner of the Bank, close to the water treatment facility, the trees appeared to be crowned and many trees had fallen, suggesting this area contains significantly saturated soils and/or prolonged inundation and is stunting tree growth, leading to high mortality, and preventing successful BLH habitat regeneration.

On March 22, 2023, biologists conducted a tree composition survey on the existing PFO habitats. Eleven, tenth-acre plots (4 in the BLH Enhancement and 7 in the CYP Rehabilitation) were assessed, documenting species diversity.

Within the proposed BLH enhancement areas, 8 of the 119 stems counted were hard mast species (all *Quercus* sp.). Hard mast species comprised only 12% of the total basal area in the plots. Additionally, 27 Chinese tallow and black willow stems were observed, for an average invasive/exotic coverage of approximately 6.25%. Chinese tallow and black willow comprised 8% of the total basal area within the plot. Other dominant soft mast species included *Acer rubrum*, *Fraxinus pennsylvanica*, *Ulmus americana*, and *Celtis laevigata*.

Within the proposed CYP Rehabilitation areas, only soft mast trees were observed (346 stems in total), though no bald cypress were counted. Additionally, 168 Chinese tallow and black willow stems were observed, for an average invasive/exotic coverage of approximately 21%. Chinese tallow and black willow comprised 41% of the total basal area within the plots. This area was significantly impacted by a forest fire in August 2023 (**Exhibit 5i**).

3.5 General Need for the Project in this Area

Wetland losses in the northern Gulf Coastal Region of the United States have become a pressing issue that requires critical action to address. The Barataria Basin alone has lost an average of 5,700 acres per year between 1974 and 1990 through various means ranging from natural sea-level erosion, wind, tides, currents, herbivory, and subsistence, to man-made causes such as levee construction and development (lacoast.gov). Wetlands within this basin are critical in that they not only provide storm protection, but they also serve as important wildlife habitats for a wide range of species including migratory waterfowl and other birds, finfish, shellfish, furbearers, and alligators.

The restoration of BLH and CYP wetlands on the Bank will provide additional wetland functions and values, which are not realized in the Bank's current condition. These include, but are not limited to, expanding the acreage of existing BLH and CYP forest; increasing the quality of wildlife habitat; increased organic matter, and increasing watershed water quality by retiring existing agricultural land from production.

BLH habitats, specifically, are important for a variety of fauna, important for water quality maintenance and important in regulating flooding and stream recharge. BLH forest loss is estimated to be 50 to 75 percent of the original pre-settlement acreage (LNHP 2009). Furthermore, BLH in Louisiana are known to support 61 Species of Greatest Conservation Need (SGCN) which include 1 mollusk species, 1 crustacean species, 6 arthropods species, 5 amphibian species, 4 reptile species, 20 bird species, 10 mammal species, and 14 plant species. Baldcypress-Tupelo-Blackgum Swamps support 37 SGCN which include 4 arthropod species, 3 amphibian species, 3 reptile species, 9 bird species, 6 mammal species, and 12 plant species. Freshwater floating marshes support 18 SGCN which include 1 arthropod species, 1 reptile species, 13 bird species, 1 mammal species, and 2 plant species (Holcombe et al. 2015).

CYP habitat has been reduced state-wide by an estimated 25 to 50 percent of the original pre-settlement acreage. All of Louisiana's swamps are threatened by land loss and encroaching interests which prevent adequate regeneration of these habitats (LNHP 2009). Furthermore, CYP habitats support 18 species of conservation concern. Therefore, the Bank shall protect both habitats by adding to its diminishing acreage, reintroducing the natural hydrologic regime, and native vegetation.

The Barataria Basin is constantly experiencing development and urbanization that will inevitably lead to unavoidable impacts to local wetlands.

This Bank is needed to allow for mitigation to offset industrial and population growth. Not only will this Bank provide offsets for projects such as pipelines and roadways, but it will also help with natural processes such as storm water

retention, flood storage, and help provide a habitat for species of greatest conservation need.

4. Establishment of a Mitigation Bank

This section described how the mitigation bank will be established, as stated in 33 CFR 332.8(d)(2) (ii); the technical feasibility of the proposed mitigation bank, as stated in 33 CFR 332.8(d)(2) (iv); and the assurance of sufficient water rights to support the long-term sustainability of the mitigation bank, as stated in 33 CFR 332.8(d)(2)(vii)(A).

4.1 Site Restoration Plan

This section provides information on the proposed soils/hydrologic and vegetative work that was determined to be necessary for rehabilitation and/or enhancement of the proposed Mitigation Bank. The construction work plan is attached as **Exhibit 14**.

The Sponsor is proposing to enhance 5.5 acres, re-establish 62.4 acres, and rehabilitate 42.2 acres of BLH. Additionally, 23.7 acres that was burned by a forest fire is proposed for CYP rehabilitation. There will also be 0.6-acre of existing access road and 3.8 acres of upland buffer located along the east Bank boundary. The overall Bank area consists of approximately 138.2 acres.

The proposed construction work plan (**Exhibit 14**) involves the cessation of agricultural operations, restoration of surface hydrology, and afforestation with native vegetation. Details on the proposed restoration plan for the Bank are provided below in more detail and in **Exhibits 14 and 15a-15i**.

4.1.1 Agricultural Ditch Degradation

Agricultural fields within the Bank shall be mechanically prepared for vegetative plantings through grading and filling.

- Approximately 30,926 linear feet (LF) of the Bank have remnant internal ditches that will be recontoured as the Bank is disced and graded (**Exhibit 14**).
- Subsoiling may be used to alleviate soil compaction and encourage air and water pore space for root growth.

4.1.2 Hydrological Work Plan

In converting the property to agricultural use, certain hydrological modifications were put in place to control Bank hydrology using anthropogenic methods. To restore the Bank to a more natural hydrologic state and meet the objectives for the Bank the following shall occur (**Exhibit 14**) and is:

- 1) Four (4) existing culverts shall be removed from within the Bank (**Exhibit 14**).
- 2) Five (5) existing culverts located in the stormwater ditch shall remain functional along the southern border (**Exhibit 14**). The culverts parallel Hahn Street. They do not drain the Bank but provide access to the Bank from Hanh Street.
- 3) Approximately 4,369 LF of large internal ditches are to be backfilled to the maximum extent practical with in-situ earthen material (**Exhibits 14 and 15a, 15b, 15h, and 15i**).
- 4) Approximately 947 LF of above-grade road will be graded into the adjacent roadside ditch and will remain within this boundary for access (**Exhibit 14**).
- 5) Approximately 344 LF of at-grade road will remain within this boundary for access (**Exhibit 14**).

4.1.3 Structures

Approximately 6,137 LF of fencing is to be removed from the eastern portion and interior of the Bank (**Exhibit 14**).

4.2 Vegetation Work Plan

Numerous Bank objectives shall be achieved through afforestation of native plant species. Planting shall positively affect the physical structure of the area and restore biogeochemical processes in the soil considerably through additional plant and invertebrate detritus. Additionally, it shall provide improved biotic conditions and create habitat for mammals, amphibians, reptiles, arachnids, insects, and migratory birds. Restored forested and vegetative habitats filter sediment runoff from the Bank and help prevent deposition downstream. Furthermore, it provides atmospheric maintenance and natural aesthetics to the area. The following sections provide details on planting specifications for each of the proposed mitigation habitat types:

4.2.1 BLH Re-establishment and Rehabilitation

In areas proposed as BLH re-establishment and rehabilitation, tree plantings shall consist of one (1) or two (2) year old bare-root seedlings and/or potted trees composed of a mixture of the hard and soft mast species listed in **Table 5**, obtained from a Louisiana registered, licensed nursery. If seedlings listed in **Table 5** are not available or there is only a limited supply, then substitutions may be made from **Table 6**. The Sponsor will mix species, in such a manner that will ensure adequate species diversity and that monotypic tree rows will not be established. Adequate time will be allowed for reserving seedlings from nurseries.

Table 6 provides a cursory list of potential planting substitutions. The species proposed as substitutions have been provided but no percentages have been listed at this time, as their need is unknown. Quantities for substitution species would be provided in the As-Built Report if a species were used to replace another species in **Table 5**.

Seedlings will be hand planted on a 9' by 9' spacing in rows, to achieve an initial stand density of 538 seedlings per acre. Hard and soft mast species will be planted to achieve an overall Bank composition, on average, of 60-70 percent hard mast species. The Sponsor is proposing an initial planting mixture of 70% hard mast to 30% soft mast due to the high soft mast seed stock both on the Bank and on adjacent properties, as well as the proclivity for soft mast recruitment during early stages of the Bank. It is anticipated that the increased hard mast planting will allow the Bank to meet the 60:40/50:50 hard mast to soft mast ratio as required in the Interim and Long-Term Success Criteria of the most recent BLH Mitigation Work Plan template.

Planting will occur between December 15 through March 15. The specific list and number of planted species, which is dependent upon availability, shall be provided in the As-Built Report.

Table 5: Planting List for BLH Rehabilitation and Re-Establishment

Scientific Name	Common Name	Mast	Percentage
<i>Quercus lyrata</i>	Overcup Oak	Hard	15
<i>Quercus texana</i>	Nuttall Oak	Hard	15
<i>Quercus nigra</i>	Water Oak	Hard	10
<i>Quercus phellos</i>	Willow Oak	Hard	10
<i>Carya aquatica</i>	Water Hickory	Hard	10
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Hard	10
<i>Taxodium distichum</i>	Bald Cypress	Soft	10
<i>Acer rubrum</i>	Red Maple	Soft	5
<i>Liquidambar styraciflua</i>	Sweetgum	Soft	5
<i>Celtis laevigata</i>	Sugarberry	Soft	5
<i>Ulmus americana</i>	American Elm	Soft	5

Table 6: Substitution List for BLH Rehabilitation and Re-Establishment

Scientific Name	Common Name	Mast
<i>Quercus laurifolia</i>	Laurel Oak	Hard
<i>Quercus pagoda</i>	Cherry-Bark Oak	Hard
<i>Carya x lecontei</i>	Bitter Pecan	Hard
<i>Platanus occidentalis</i>	American Sycamore	Soft

4.2.2 BLH Enhancement

In areas proposed as BLH enhancement, tree plantings shall consist of one (1) or two (2) year old bare-root seedlings and/or potted trees composed of the hard

mast species listed in **Table 7**, obtained from a Louisiana registered, licensed nursery grower. If seedlings listed in **Table 7** are not available or there is only a limited supply, then substitutions may be made from **Table 8**. The Sponsor will mix species prior to planting in such a manner that will ensure adequate species diversity and that monotypic tree rows will not be established. Adequate time will be allowed for reserving seedlings from nurseries.

This area is currently dominated by soft mast species intermingled with Chinese tallow and black willow. As such, no additional planting of soft mast species is proposed. In order to ensure the Bank's success, invasive species management, as well as soft mast thinning, will occur in this area. During the removal (chemical and mechanical control) of the Chinese tallow and black willow other dominant soft mast species will be targeted for removal/control to lower the existing soft mast percentage in the enhancement area to 35-40 percent prior to the hard mast species planting. Soft mast species targeted for removal, concurrent with Chinese tallow and black willow, include *Acer rubrum*, *Ulmus americana*, and *Fraxinus pennsylvanica*.

Table 8 provides a cursory list of potential planting substitutions. The species proposed as substitutions have been provided but no percentages have been listed at this time, as their need is unknown. Quantities for substitution species would be provided in the As-Built Report if a species were used to replace another species in **Table 7**.

Seedlings will be hand planted on a 12' by 12' spacing in rows to achieve an initial stand density of 302 seedlings per acre.

Planting will occur between December 15 through March 15. The specific list and number of planted species, which is dependent upon availability, shall be provided in the As-Built Report.

Table 7: Planting List for BLH Enhancement

Scientific Name	Common Name	Mast	Percentage
<i>Quercus lyrata</i>	Overcup Oak	Hard	20
<i>Quercus texana</i>	Nuttall Oak	Hard	20
<i>Quercus nigra</i>	Water Oak	Hard	15
<i>Quercus phellos</i>	Willow Oak	Hard	15
<i>Carya aquatica</i>	Water Hickory	Hard	20
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Hard	10

Table 8: Substitution List for BLH Enhancement

Scientific Name	Common Name	Mast
<i>Quercus laurifolia</i>	Laurel Oak	Hard
<i>Quercus pagoda</i>	Cherry-Bark Oak	Hard
<i>Carya x lecontei</i>	Bitter Pecan	Hard

4.2.3 CYP Rehabilitation

In areas proposed as CYP Rehabilitation, tree plantings shall consist of one (1) or two (2) year old bare-root seedlings and/or potted trees composed of a mixture of primarily (80%) bald cypress along with other soft mast species listed in **Table 9**. The seedlings will be obtained from a Louisiana registered, licensed nursery grower. The Sponsor will mix species in such a manner that will ensure adequate species diversity. Adequate time will be allowed for reserving seedlings from nurseries. This area is currently dominated by soft mass species, including a predominance of Chinese tallow and black willow. In order to ensure the Bank's success, invasive species management will occur in this area, accompanied by the soft mast species planting.

Seedlings will be hand planted on a 12' by 12' spacing in rows to achieve an initial stand density of 302 seedlings per acre.

Planting will occur between December 15 through March 15. The specific list and number of planted species, which is dependent upon availability, shall be provided in the As-Built Report.

Table 9: Planting List for CYP Rehabilitation

Scientific Name	Common Name	Mast	Percentage
<i>Taxodium distichum</i>	Bald Cypress	Soft	80
<i>Nyssa aquatica</i>	Tupelo gum	Soft	15
<i>Nyssa biflora</i>	Swamp blackgum	Soft	5

4.2.4 Upland Buffer

In areas proposed as Upland Buffer, tree plantings shall consist of one (1) or two (2) year old bare-root seedlings and/or potted trees composed of the hard mast species listed in **Table 10**, obtained from a Louisiana registered, licensed nursery grower. If seedlings listed in **Table 10** are not available or there is only a limited supply, then substitutions may be made from **Table 11**. The Sponsor will mix species prior to planting in such a manner that will ensure adequate species diversity and that monotypic tree rows will not be established. Adequate time will be allowed for reserving seedlings from nurseries.

Table 11 provides a cursory list of potential planting substitutions. The species proposed as substitutions have been provided but no percentages have been listed at this time, as their need is unknown. Quantities for substitution species would be provided in the As-Built Report if a species were used to replace another species in **Table 10**.

Seedlings will be hand planted on a 12' by 12' spacing in rows to achieve an initial stand density of 302 seedlings per acre.

Planting will occur between December 15 through March 15. The specific list and number of planted species, which is dependent upon availability, shall be provided in the As-Built Report.

Table 10: Planting List for Upland Buffer

Scientific Name	Common Name	Mast	Percentage
<i>Quercus nuttallii</i>	Nuttall Oak	Hard	15
<i>Quercus nigra</i>	Water Oak	Hard	15
<i>Quercus phellos</i>	Willow Oak	Hard	15
<i>Carya illinoensis</i>	Pecan	Hard	15
<i>Celtis laevigata</i>	Sugarberry	Soft	10
<i>Diospyros virginiana</i>	Common Persimmon	Soft	5
<i>Liquidambar styraciflua</i>	Sweetgum	Soft	5
<i>Morus rubra</i>	Red Mulberry	Soft	10
<i>Ulmus americana</i>	American Elm	Soft	10

Table 11: Substitution List for Upland Buffer

Scientific Name	Common Name	Mast
<i>Quercus michauxii</i>	Swamp Chestnut Oak	Hard
<i>Quercus pagoda</i>	Cherry-Bark Oak	Hard
<i>Platanus occidentalis</i>	American Sycamore	Soft

4.2.5 Chemical Control of Invasive / Non-Native Plants

Chemical or mechanical control of existing or recruited problematic invasive and non-native species will occur on an as needed basis throughout the life of the Mitigation Bank.

4.3 Technical Feasibility

Construction work required to develop the Bank is routine, technically feasible and based on currently accepted restoration methods. The mitigation activities are 1) bank preparation, 2) vegetation planting and 3) monitoring. The presence of hydric soils and relatively low relief of the Bank indicate that minimal soil work shall be required for the successful restoration of BLH and CYP habitat. Existence of BLH adjacent to the Mitigation Bank indicate a high potential for successful restoration. Drainage modifications shall provide for a natural and historic water regime creating a more self-sustaining Bank. Furthermore, the Bank's conservation objective shall be achieved through preservation of the Bank from future development activities through legal documentation (e.g. conservation easements).

4.4 Current Bank Risks

The Sponsor does not foresee any adverse impacts to the Bank resulting from continued existence and operation of neighboring land uses. There is a water

treatment facility directly abutting the Bank, however the Sponsor projects the Bank to receive no more than minimal static negative effects from anthropomorphic influences.

4.5 Long-Term Sustainability of the Bank

The Bank Sponsor shall be the responsible agent for the long-term management of the Bank unless a third-party entity is established and given authority to maintain the Bank in perpetuity through approval by the IRT.

The primary long-term strategy of the Bank is self-sustaining with relatively low maintenance. This management strategy is linked to the development stage of the mitigation banking process, particularly in the design and establishment of the Bank. Native planting and increased natural flood attenuation shall provide these ecological benefits with minimal routine maintenance or attention after establishment. However, if the Bank is underperforming, the Bank Sponsor shall intervene. The intervention may include exotic/invasive management or easement enforcement actions. The strategies shall be tailored to specific disturbances in order to achieve optimal results.

Prior to final release and in accordance with the timelines established in the final MBI, the Bank Sponsor shall establish financial assurances supporting the Mitigation Bank's long-term maintenance plan. Any expenditure must be related to the maintenance of the Bank and be approved by the USACE.

5. Proposed Service Area

This section identifies the proposed services areas as stated in 33 CFR § 332.8(d) (2) and the general need for the proposed mitigation Bank in this area as stated in 33 CFR § 332.8(d)(2)(iv).

The proposed service area was determined by identifying which watershed basin the Bank is in according to the watersheds identified in the USACE created LRAM document. The Bank is in the LRAM Barataria Service Basin and the watershed is composed of the East-Central Louisiana Coastal (USGS HUC 08090301).

The proposed Bank was derived based on needs within the LRAM watershed by examining the following variables:

1. Shall provide mitigation for activities associated with the continued urban growth.
2. Shall provide mitigation for the area, which has a history of anthropogenic development.
3. Shall improve water quality in the local and downstream watershed.

4. Shall increase habitat for and support native flora and fauna.
5. Shall provide compensatory mitigation for the USACE New Orleans district approved projects within the Barataria LRAM Basin.
6. Shall increase the hydrological connection with the surrounding wetlands; and
7. Shall support the goals for various statewide approved management plans.

6. Operation of the Mitigation Bank

This section describes how the proposed Bank will be operated, as stated in 33 CFR 332.8(d)(2) (ii) and provides details on the proposed ownership arrangements and long-term management strategy for the mitigation bank, as stated in 33 CFR 332.8(d)(2) (v.)

6.1 Project Representatives

*Owner/Sponsor: RES Barataria, LLC
c/o Resource Environmental Solutions, LLC
412 N. Settlers Trace Blvd., Suite 200
Lafayette, Louisiana 70508
Point of Contact: Frank Cuccio
Email: fcuccio@res.us
Phone Number: (337)443-6902*

*Agent: Resource Environmental Solutions, LLC
6575 West Loop South, Suite 300
Houston, Texas 77401
Point of Contact: Matt Genotte
Email: mgenotte@res.us
Phone Number: (346) 310-6211*

6.2 Qualifications of the Sponsor

RES' experience includes:

- Restoration, enhancement, and preservation of 62,637 acres of wetlands
- Restoration of over 525 miles of streams
- Rehabilitation, preservation, and/or management of over 15,000 acres of special-status species habitat
- Currently, conduct monitoring and maintenance (including invasive species management) for over 50,000 acres of mitigation habitat
- Successful close-out of over 100 mitigation sites

- Permitting and development of over 200 permittee-responsible mitigation projects
- Design, permitting, management, and development of 197 wetland, stream, species, and conservation banks
- Delivery of 20,000 acres of custom, turnkey mitigation solutions
- Design and construction of over 350 stormwater management facilities
- Reductions of over 280 tons of water quality nutrients
- Planting of over 20,000,000 trees across all operating regions
- Development and operation of nurseries in six states including the largest coastal nursery in Louisiana
- Facilitation of compensatory mitigation and nutrient offsets for over 3,980 federal and state permits

We draw on our dedicated, in-house resources and deep experience across all phases of ecological restoration projects in defining our project approach, which seeks to balance performance and cost in the manner that is most beneficial to our clients.

6.3 Proposed Long-Term Ownership and Management Representatives

RES Barataria, LLC currently owns the Bank property and all surface rights. RES will be the Long-term Steward unless a third-party entity is established and given authority to maintain the bank in perpetuity through approval by the IRT.

6.4 Bank Protection

The Owner of the proposed Bank shall burden the Bank with a perpetual Conservation Servitude in accordance with the Louisiana Conservation Servitude Act, R.S. 9:1271 et seq. The Conservation Servitude shall be signed and filed in the St. Charles parish offices with the MBI and Department of Army (DA) permits attached. The conservation servitude shall be filed prior to performing any work authorized by DA permit MVN-2022-00769. After filing, a copy of the recorded Conservation Servitude will be provided to CEMVN clearly showing the book, page, and date of filing. Upon receipt of a copy of the recorded Conservation Servitude, CEMVN will advise the Sponsor in writing that work may proceed.

Prior to execution of the Conservation Servitude, the Sponsor shall ensure that the entity proposed to hold the Conservation Servitude is a CEMVN approved Holder by virtue of being either a governmental body empowered to hold an interest in immovable property under the laws of the State of Louisiana or the United States of America; or a non-profit corporation organized pursuant to Louisiana's Non-Profit Corporation Law, Title 12, Sections 201-269 of the Louisiana Revised Statutes, the purposes or powers of which include retaining or protecting the natural, scenic, or open-space values of immovable property;

assuring the availability of immovable property for agricultural, forest, recreational or open- space use; protecting natural resources; maintaining or enhancing air or water quality; or preserving the historical, archaeological or cultural aspects of unimproved immovable property. Upon execution of the Conservation Servitude previously described, the Holder shall hold and enforce the conservation servitude placed on the Bank and the Bank shall be protected in perpetuity. Modification of the conservation servitude is not permissible without prior written authorization from CEMVN. Any request to modify the Conservation Servitude, or to the rights and obligations created under it, shall be made in writing, and forwarded to CEMVN for review and approval. All requests must describe existing language and the requested modification.

Modification of the conservation servitude is not permissible without prior written authorization from CEMVN. Any request to modify the Conservation Servitude, or to the rights and obligations created under it, shall be made in writing, and forwarded to CEMVN for review and approval. All requests must describe existing language and the requested modification.

The Owner acknowledges and agrees that the conservation servitude applies to all of the Mitigation Bank within the boundary of the mitigation Bank and not just those portions of the Mitigation Bank identified as wetlands.

The Conservation Servitude shall allow for annual monitoring and, if necessary, maintenance of the Bank. These activities shall be conducted in accordance with the terms and conditions of the MBI and entered in to by RES Barataria, LLC, CEMVN and the IRT. Maintenance includes all monitoring, long-term management, reporting, adaptive management, if needed, and all work required and identified in the MBI, to be developed pending approval of the Prospectus.

6.5 Long-Term Strategy

To ensure long-term sustainability of the resource, the Long-term Steward will perform all necessary work to maintain the Bank consistent with the goals and objectives established in the MBI.

Specific long-term maintenance may include:

1. Wetland delineations as established in the MBI.
2. Hydrological maintenance and modifications, as needed.
3. Thinning of soft mast, as needed.
4. Eradication of noxious or invasive species, as needed; and
5. Supplemental planting events, as needed.

During visits to the Bank, potential issues will be identified, evaluated, and mapped.

7. REFERENCES

1. Environmental Protection Agency. 2003. Level III ecoregions of the continental United States (revision of Omernik 1987): Corvallis, OR, U.S. Environmental Protection Agency – National Health and Environmental Effects Research Laboratory, Map M-1, various scales.
2. Gardiner, E.S. and J.M. Oliver. 2005. Restoration of bottomland hardwood forest in the Lower Mississippi Alluvial Valley In: Restoration of boreal and temperate forests in the Lower Mississippi Alluvial Valley, Stanturf, J.A.; Madsen, P., eds. Boca Raton, FL.
3. Holcomb, S.R., A.A. Bass, C.S. Reid, M.A. Seymour, N.F. Lorenz, B.B. Gregory, S.M. Javed, K.F. Balkum. 2015. Louisiana Wildlife Action Plan. Louisiana Department of Wildlife and Fisheries. Baton Rouge, Louisiana.
4. https://lacoast.gov/new/about/basin_data/ba/default.aspx
5. Louisiana Natural Heritage Program (2009) The Natural Communities of Louisiana. Louisiana Department of Wildlife and Fisheries.
6. Louisiana Wildlife and Fisheries Louisiana Natural Heritage Program. Updated 2009. *The Natural Communities of Louisiana*. Accessed February 21, 2018.
http://www.wlf.louisiana.gov/sites/default/files/pdf/page_wildlife/6776-Rare%20Natural%20Communities/LA_NAT_COM.pdf
7. Lower Mississippi Valley Joint Venture (2007) Restoration, Management and Monitoring of Forest Resources in the Mississippi Alluvial Valley: Recommendations for Enhancing Wildlife Habitat, Version 5.2 (FINAL REPORT). Wilson, R., K. Ribbeck, S. King, and D. Twedt. Lower Mississippi Valley Joint Venture Forest Resource Conservation Working Group.
8. Natural Resources Conservation Service (2006) Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. United States Department of Agriculture Handbook 296.
9. Omernik, J.M. (1987) Ecoregions of the Conterminous United States (map supplement): Annals of the Association of American Geographers, v. 77, no. 1, p. 118-125, scale 1:7,500,000.
10. Twedt, D., D. Pashley, C. Hunter, A. Mueller, C. Brown and B. Ford (1999) Partners in Flight Bird Conservation Plan for the Mississippi Alluvial Valley, Version 1.0.

11. U.S. Army Corps of Engineers (2017) Louisiana Wetland Rapid Assessment Method For use within the Boundaries of the New Orleans District, Version 2.0.

Appendix
Exhibits 1 – 16



RIVER BEND MITIGATION BANK - DRIVING DIRECTIONS

Date: 1/27/2023

Drawn by: BL

Checked by: SH





Legend

 Site Location (138.2 acres)

0 300 600

Feet

EXHIBIT 5d

RIVER BEND MITIGATION BANK - 1989 AERIAL

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

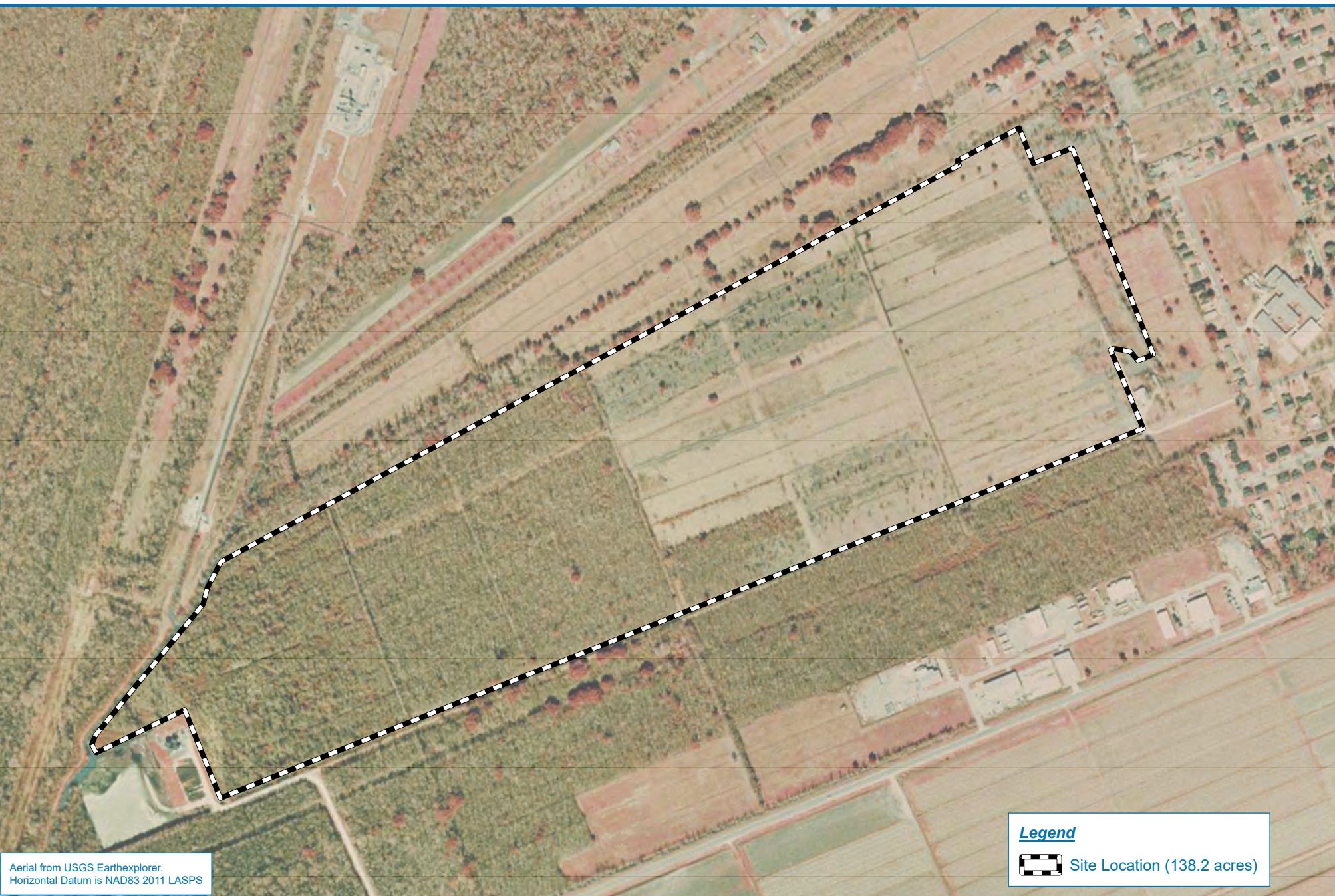
Date: 1/24/2023

Drawn by: BL

Checked by: BM




Document Path: C:\Users\jagraw\OneDrive\Projects\2022\22-460 River Bend Mitigation Bank\Drawings\017758 RiverBend_Mitigation_Bank\Map\01103023.aprx



Aerial from USGS Earthexplorer.
Horizontal Datum is NAD83 2011 LASPS

Legend

 Site Location (138.2 acres)

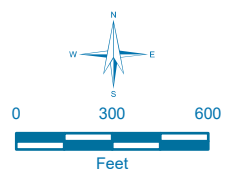


EXHIBIT 5e

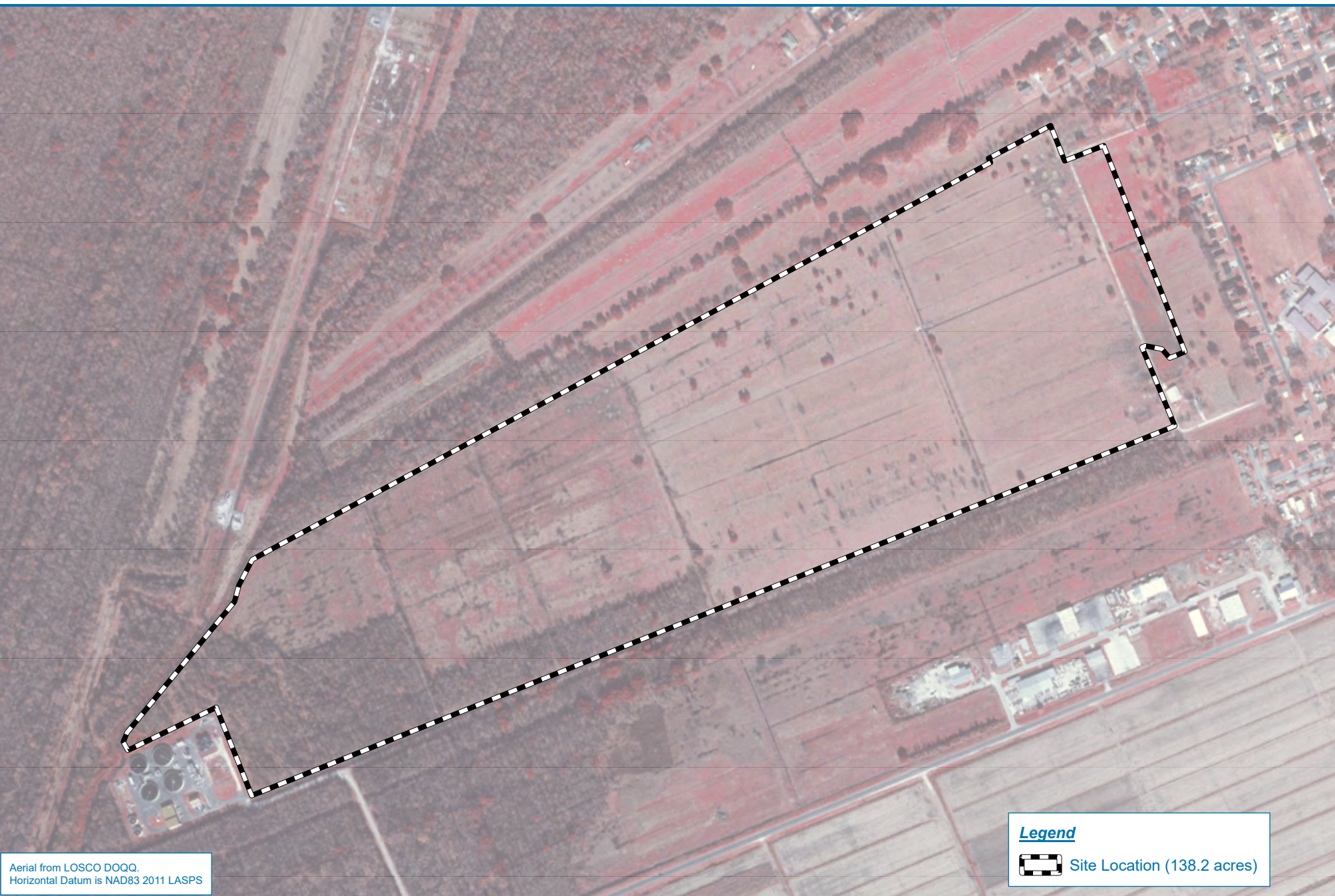
RIVER BEND MITIGATION BANK - 1998 AERIAL

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 1/24/2023
Drawn by: BL
Checked by: BM




Document Path: C:\Users\jgarcia\OneDrive\Documents\Projects\River Bend Mitigation Bank\Map\Prospectus\River Bend Mitigation Bank Prospectus Exhibit MNWE 01103023.aprx



Aerial from LOSCO DOQQ.
Horizontal Datum is NAD83 2011 LASPS

Legend

 Site Location (138.2 acres)

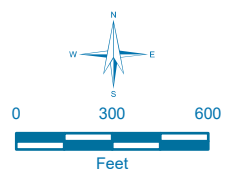


EXHIBIT 5f

RIVER BEND MITIGATION BANK - 2004 AERIAL

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 1/24/2023
Drawn by: BL
Checked by: BM




Document Path: C:\Users\jgarcia\OneDrive\Documents\Projects\River Bend Mitigation Bank\Prospectus\ENR\01103023.aprx



Aerial from LOSCO DOQQ.
Horizontal Datum is NAD83 2011 LASPS

Legend

 Site Location (138.2 ac)

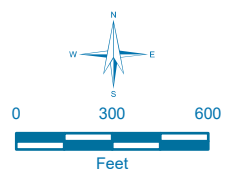


EXHIBIT 5g

RIVER BEND MITIGATION BANK - 2010 AERIAL

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 1/24/2023
Drawn by: BL
Checked by: BM





EXHIBIT 5I

RIVER BEND MITIGATION BANK - 2023 POST-FIRE IMAGE
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

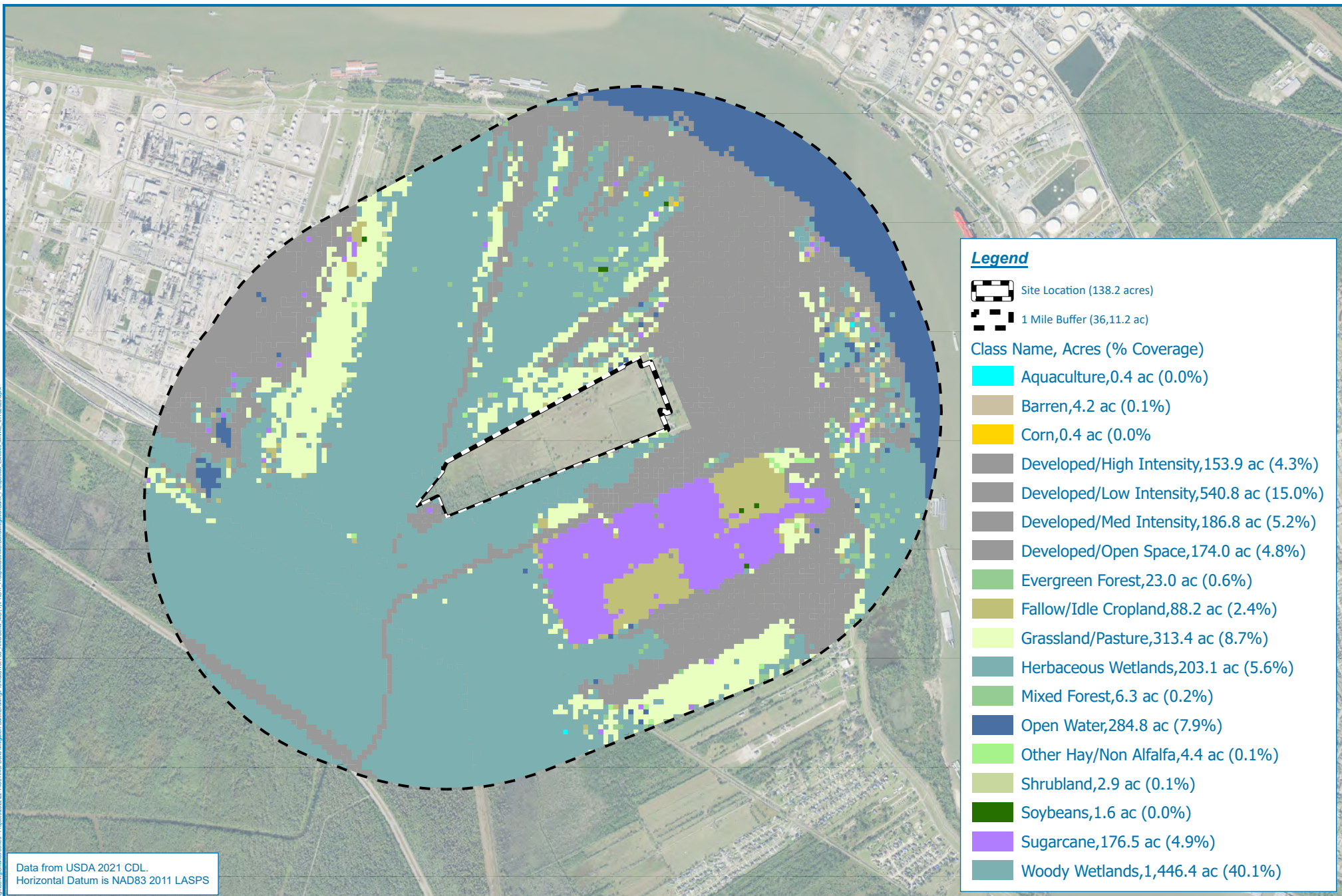
Date: 9/12/2023

Drawn by: CDG

Checked by:























Document Path: C:\Users\jgasper\MapInfo\New World Engineering\Chattahoochee - Project\022222-1-401 River Bend Mitigation Bank\Cratich\p\022222-1-401 River Bend Mitigation Bank\Proposals - Exhibits - MNWE - 01103023.aprx



Data from USDA 2021 CDL.
Horizontal Datum is NAD83 2011 LASPS

Legend

-  Site Location (138.2 acres)
 -  1 Mile Buffer (36,112 ac)
- Class Name, Acres (% Coverage)
-  Aquaculture, 0.4 ac (0.0%)
 -  Barren, 4.2 ac (0.1%)
 -  Corn, 0.4 ac (0.0%)
 -  Developed/High Intensity, 153.9 ac (4.3%)
 -  Developed/Low Intensity, 540.8 ac (15.0%)
 -  Developed/Med Intensity, 186.8 ac (5.2%)
 -  Developed/Open Space, 174.0 ac (4.8%)
 -  Evergreen Forest, 23.0 ac (0.6%)
 -  Fallow/Idle Cropland, 88.2 ac (2.4%)
 -  Grassland/Pasture, 313.4 ac (8.7%)
 -  Herbaceous Wetlands, 203.1 ac (5.6%)
 -  Mixed Forest, 6.3 ac (0.2%)
 -  Open Water, 284.8 ac (7.9%)
 -  Other Hay/Non Alfalfa, 4.4 ac (0.1%)
 -  Shrubland, 2.9 ac (0.1%)
 -  Soybeans, 1.6 ac (0.0%)
 -  Sugarcane, 176.5 ac (4.9%)
 -  Woody Wetlands, 1,446.4 ac (40.1%)

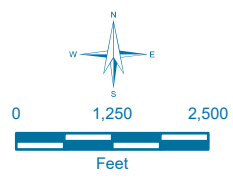


EXHIBIT 7

RIVER BEND MITIGATION BANK - 1-MILE LAND USE LAND COVER

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 1/24/2023
Drawn by: BL
Checked by: BM
Project No.: 106305



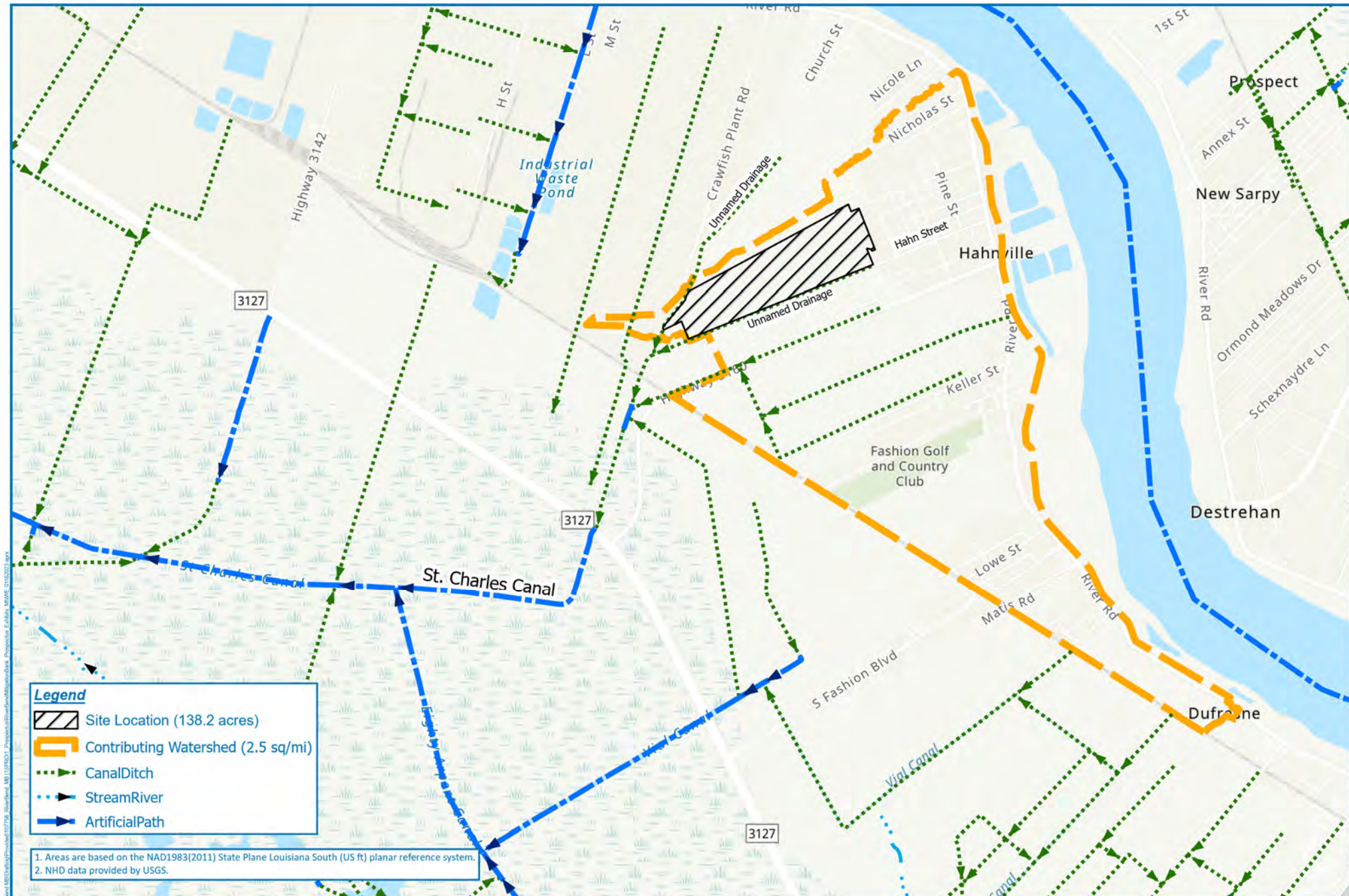


EXHIBIT 10

RIVER BEND MITIGATION BANK - CONTRIBUTING WATERSHED
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 11/27/2023

Drawn by: BL

Checked by: BM

Project No.: 106305



Document Path: C:\Users\jagraw\OneDrive\New World Engineering\Charles Jones - Project\2022\22-140 River Bend Mitigation Bank\Drawings\Proposed Elevation Map\110719 River Bend Mitigation Bank - Elevation Map.mxd



Elevation data from NOAA 2017 DEM.
Horizontal Datum is NAD83 2011 LASPS

Legend

- Site Location (138.2 ac)
- One FT Contours

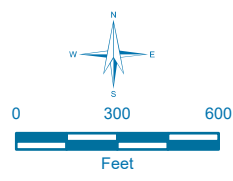


EXHIBIT 11

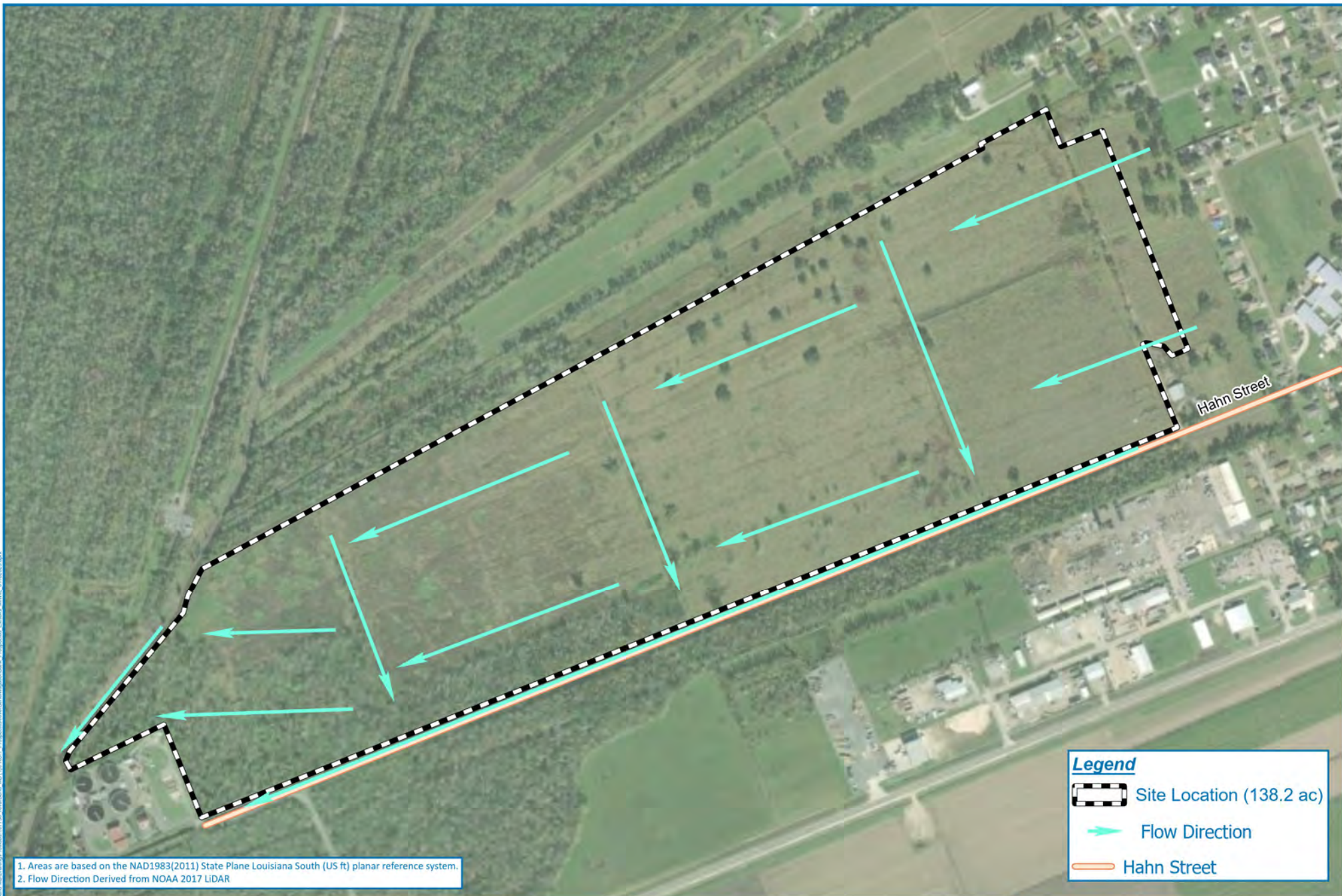
RIVER BEND MITIGATION BANK - ELEVATION MAP

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 1/30/2023
Drawn by: BL
Checked by: BM
Project No.: 106305



Document Path: W:\Projects\2023\1460 RES River Bend Mitigation Bank\1460 RES River Bend Mitigation Bank\Prospectus_Fishkill_May09_01152023.aprx



1. Areas are based on the NAD1983(2011) State Plane Louisiana South (US ft) planar reference system.
2. Flow Direction Derived from NOAA 2017 LIDAR

Legend

-  Site Location (138.2 ac)
-  Flow Direction
-  Hahn Street

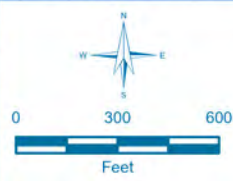


EXHIBIT 12

RIVER BEND MITIGATION BANK - EXISTING HYDROLOGY

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

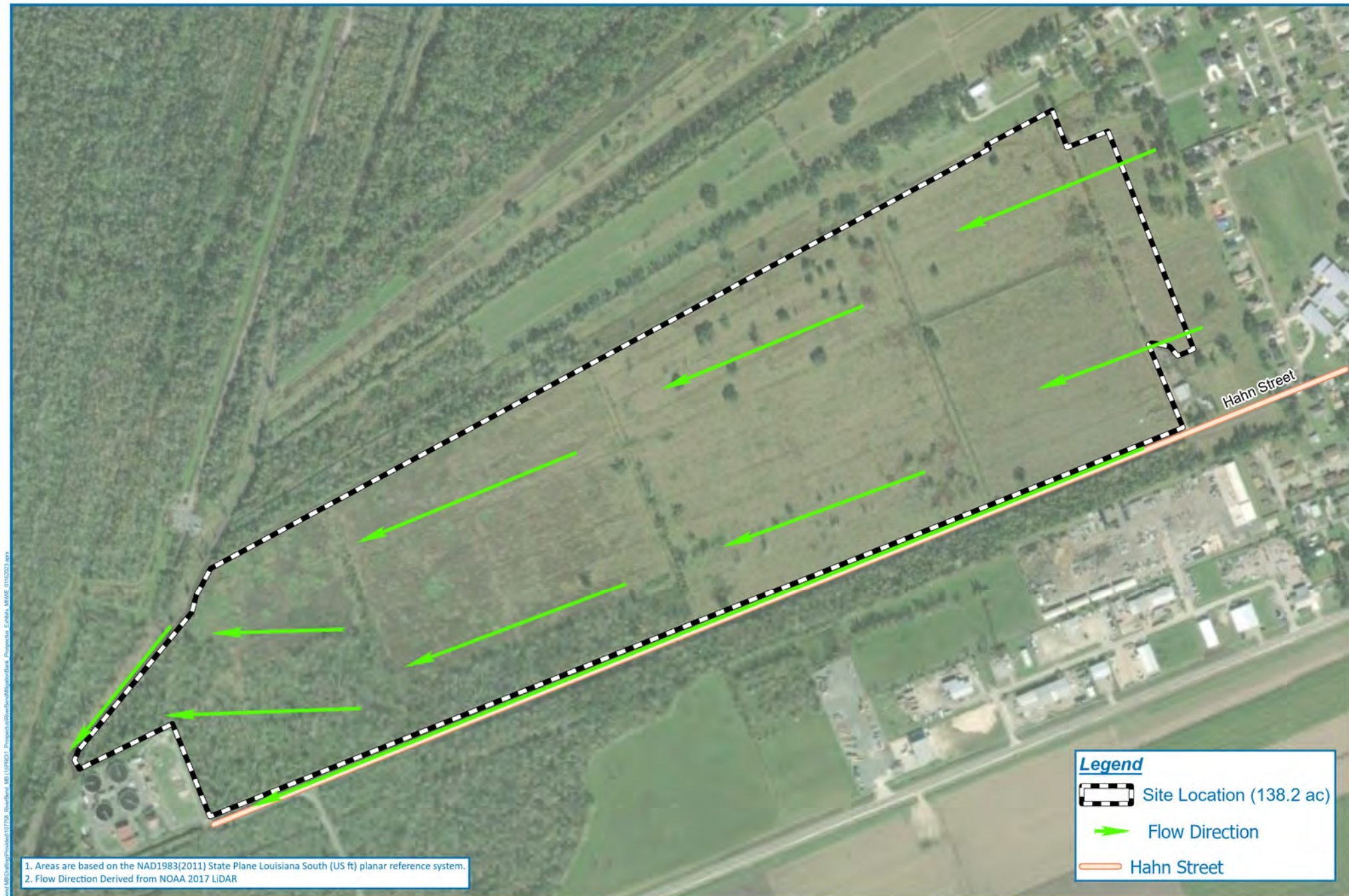
Date: 11/27/2023

Drawn by: BL

Checked by: BM

Project No.: 106305





1. Areas are based on the NAD1983(2011) State Plane Louisiana South (US ft) planar reference system.
2. Flow Direction Derived from NOAA 2017 LIDAR

Legend

 Site Location (138.2 ac)

 Flow Direction

 Hahn Street

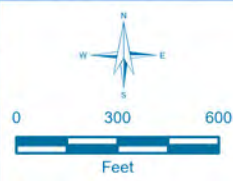


EXHIBIT 13

RIVER BEND MITIGATION BANK
ANTICIPATED POST-CONSTRUCTION HYDROLOGY

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 11/27/2023

Drawn by: BL

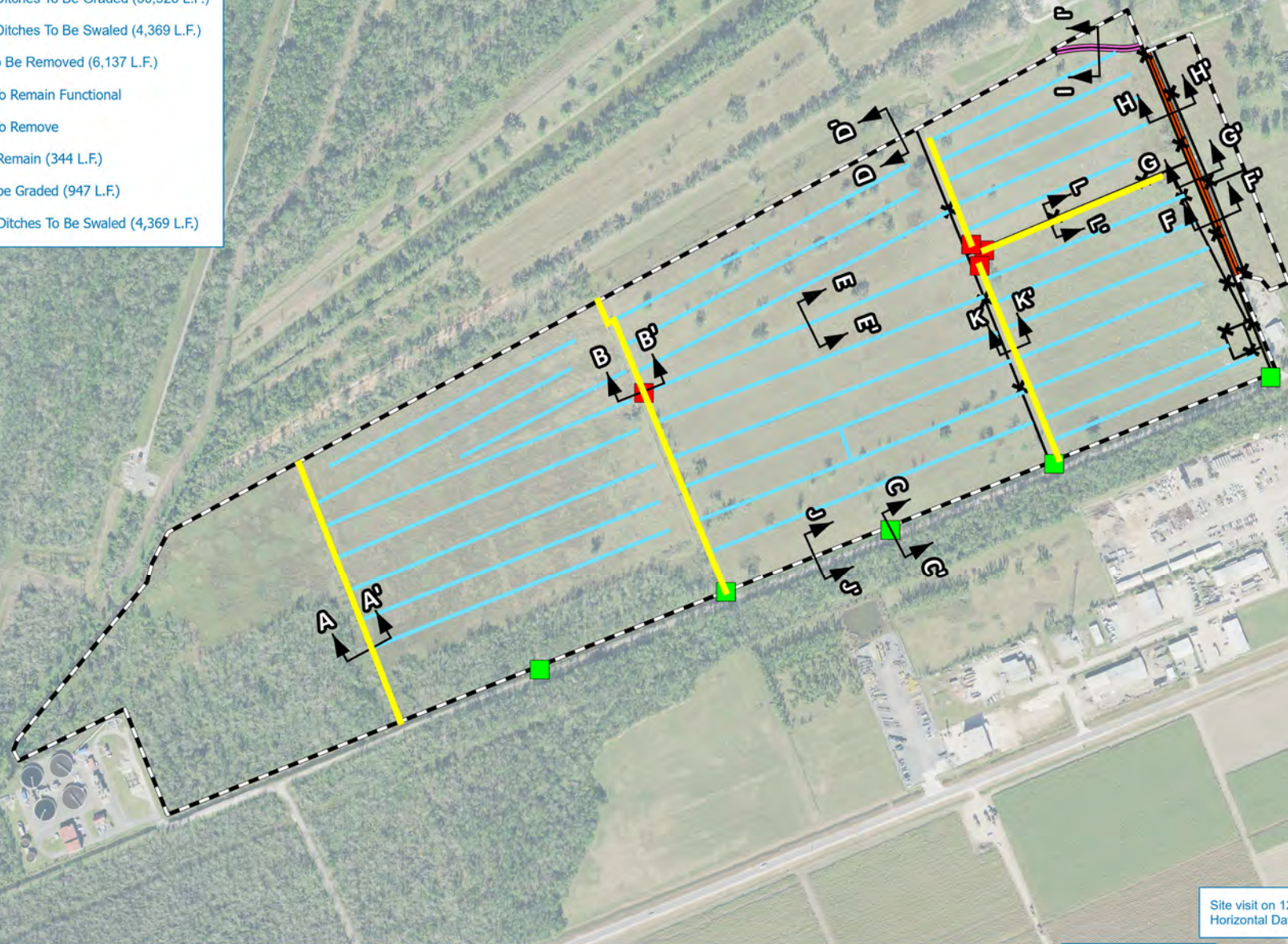
Checked by: BM

Project No.: 106305



Legend

- Site Location (138.2 ac)
- Cross Section Location
- Internal Ditches To Be Graded (30,926 L.F.)
- Internal Ditches To Be Swaled (4,369 L.F.)
- Fence To Be Removed (6,137 L.F.)
- Culvert To Remain Functional
- Culvert To Remove
- Road To Remain (344 L.F.)
- Road to be Graded (947 L.F.)
- Internal Ditches To Be Swaled (4,369 L.F.)



Site visit on 12/20/2021.
Horizontal Datum is NAD83 2011 LASPS



EXHIBIT 14

RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

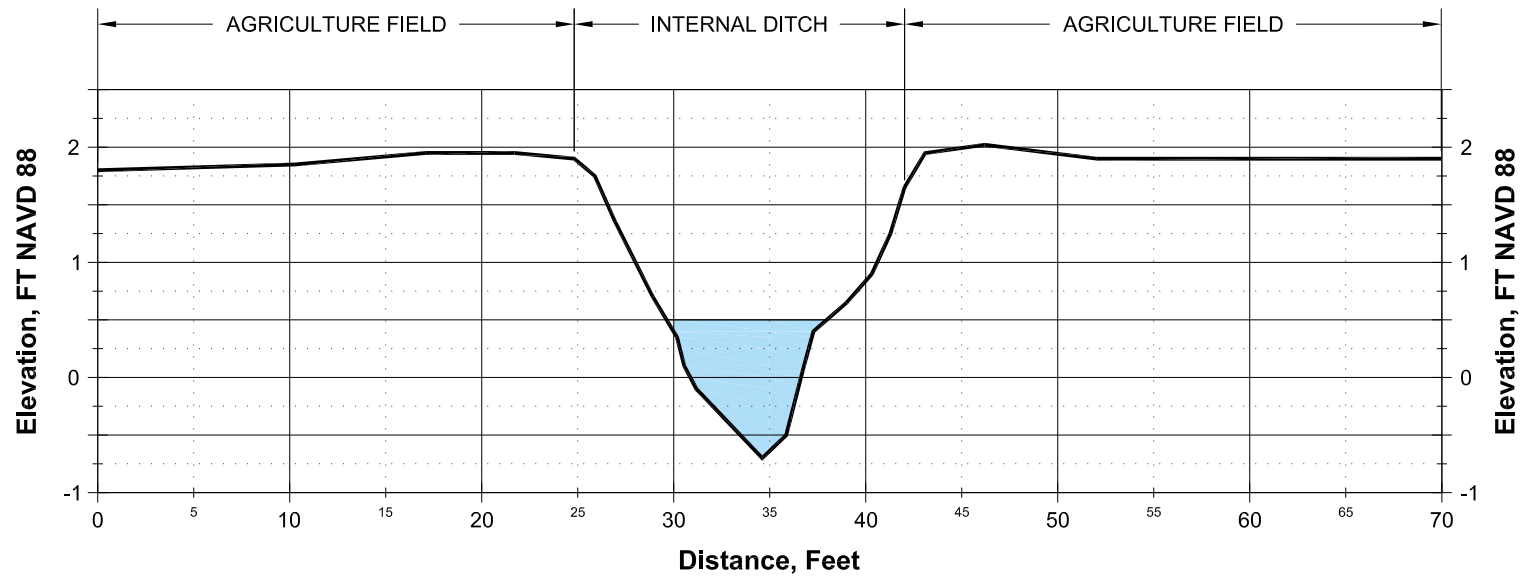
Date: 11/30/2023

Drawn by: BL

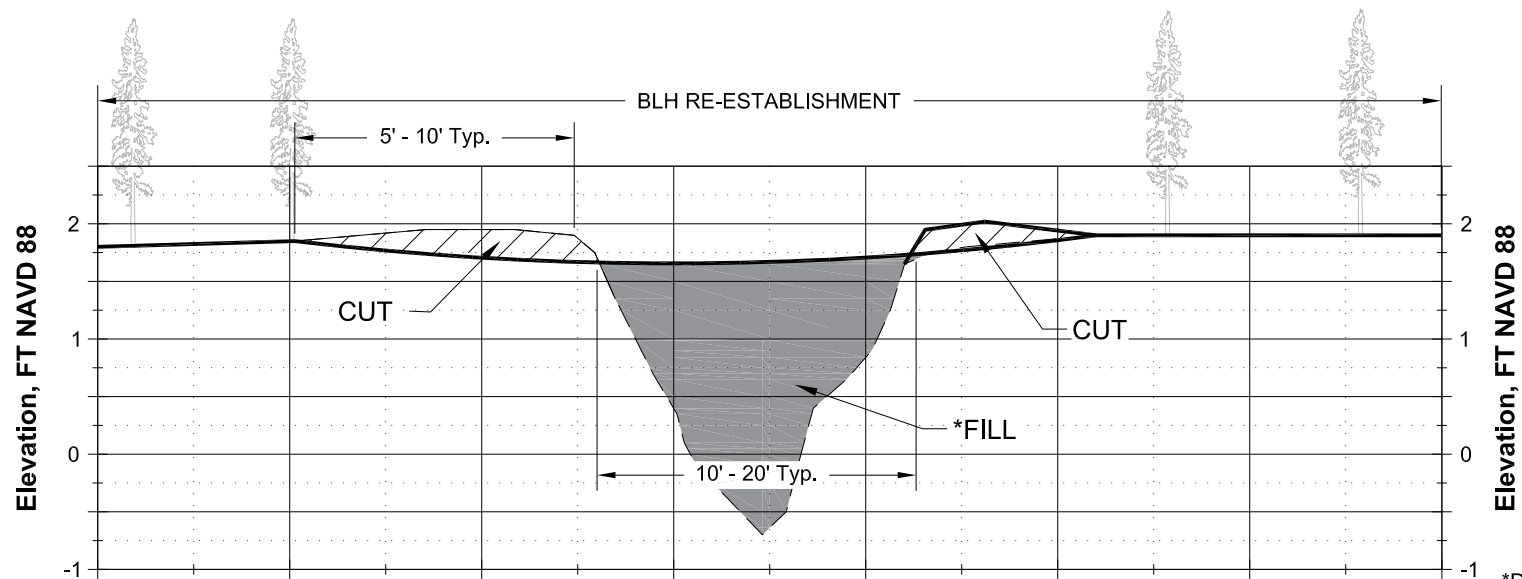
Checked by: SH

Project No.: 106305





PRE-CONSTRUCTION TYPICAL EXISTING INTERNAL DITCH CROSS-SECTION A-A'



POST-CONSTRUCTION TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION A-A'

*Ditch to be filled to the extent that adjacent cut material will allow.

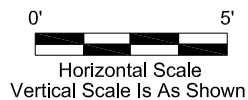


EXHIBIT 15a

**RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION A-A'**

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

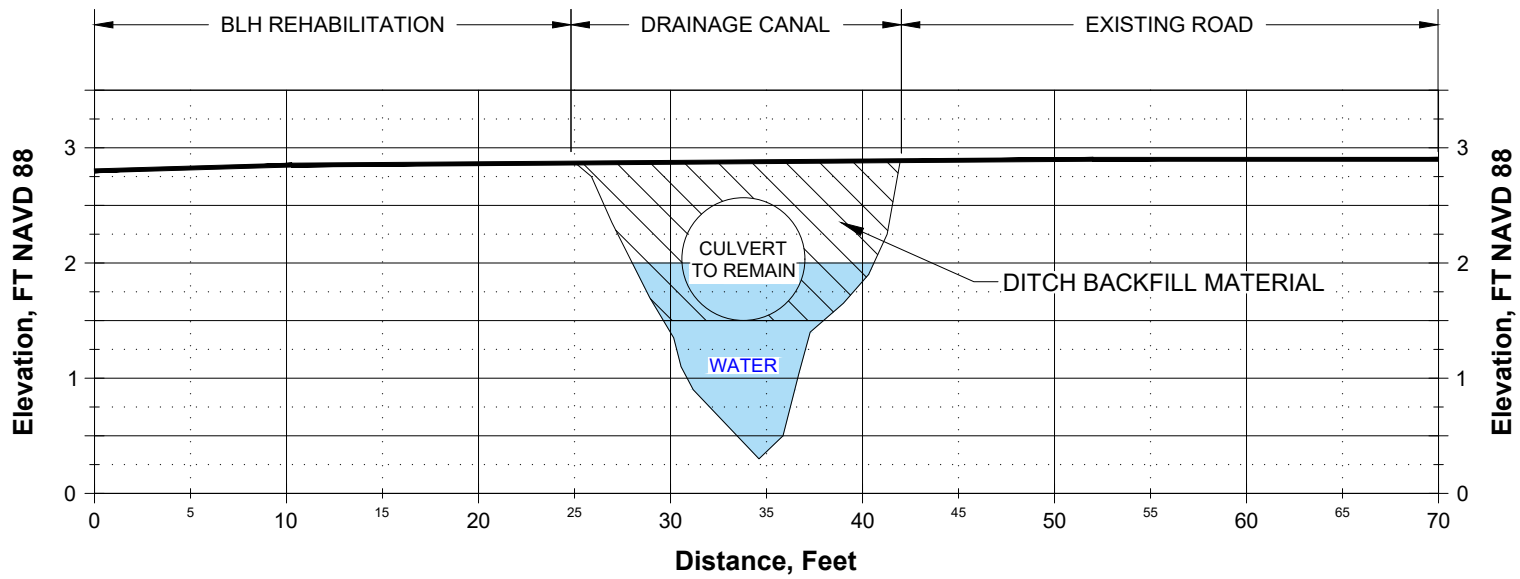
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Drawn by: BL

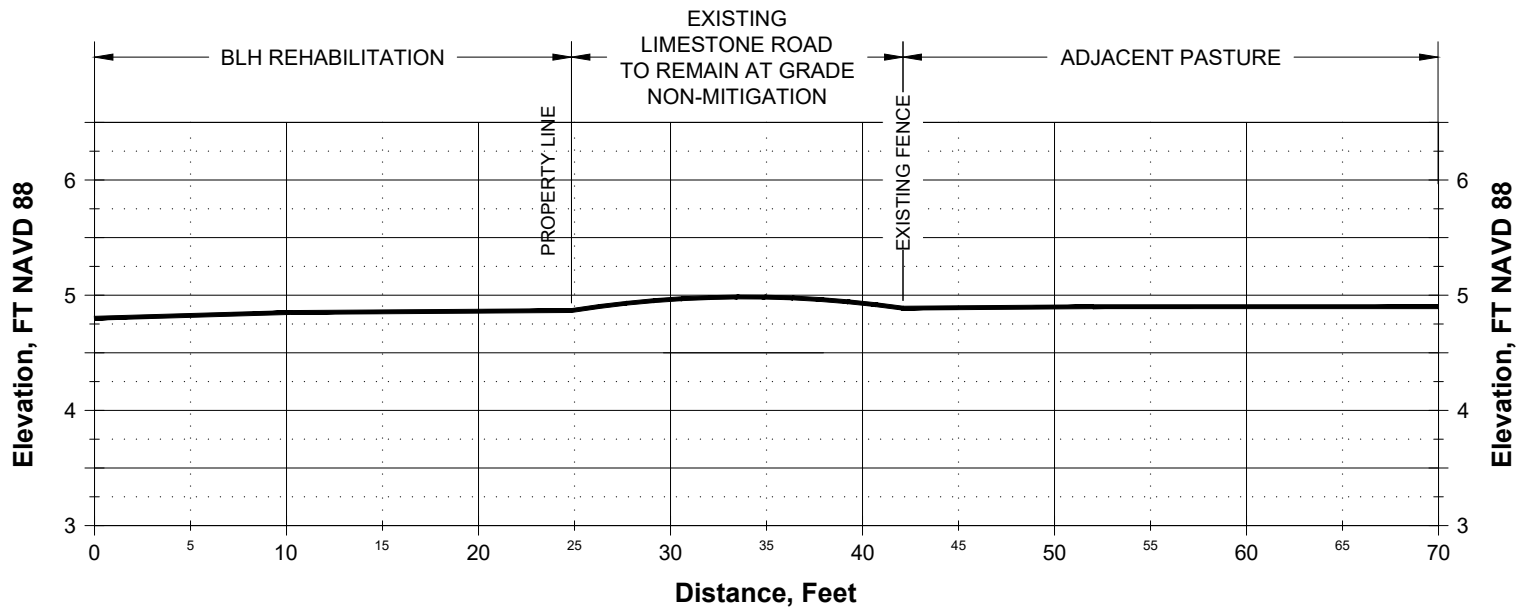
Checked by: SH

Project No.: 106305





TYPICAL EXISTING CULVERT TO REMAIN CROSS-SECTION C-C'

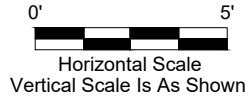


TYPICAL EXISTING ROAD TO REMAIN AT GRADE CROSS-SECTION D-D'

EXHIBIT 15c

RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
TYPICAL EXISTING CULVERT & ROAD TO REMAIN CROSS-SECTIONS C-C' & D-D'

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA



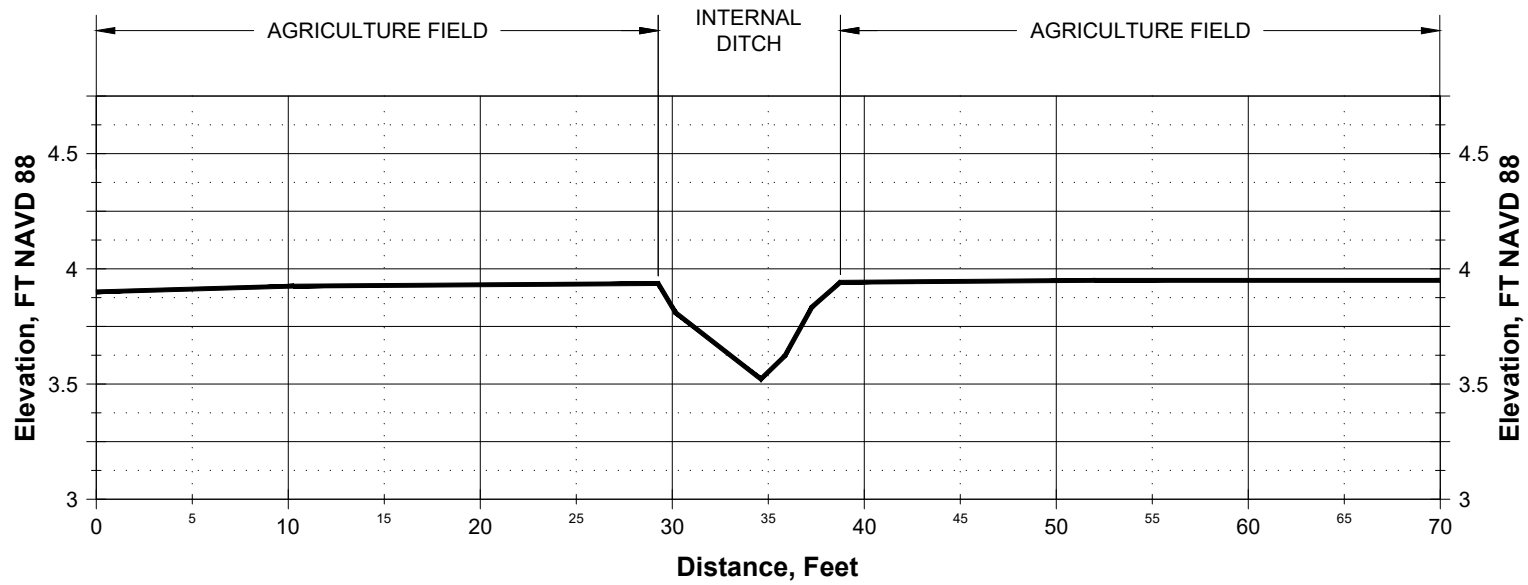
Date: 01/24/2023

Drawn by: BL

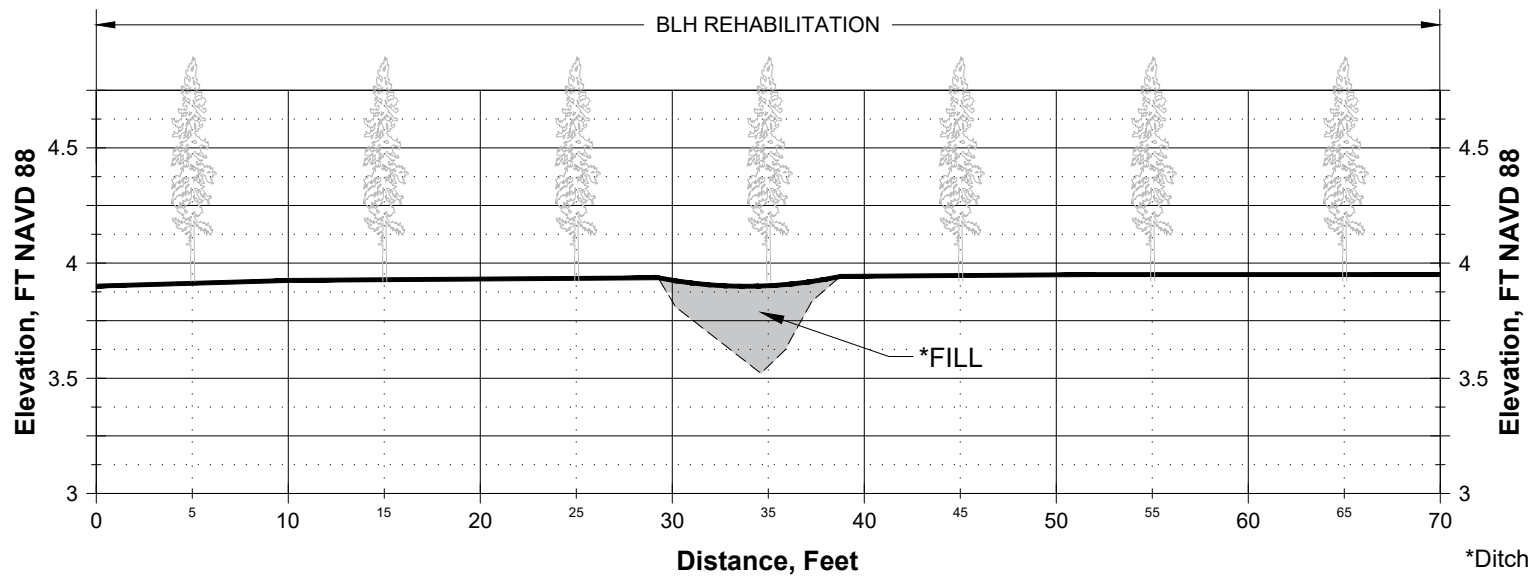
Checked by: SH

Project No.: 106305





TYPICAL INTERNAL DITCH CROSS-SECTION E-E'



TYPICAL INTERNAL DITCH TO BE GRADED BY DISCING CROSS-SECTION E-E'

*Ditch to be filled to the extent that adjacent discing material will allow.

EXHIBIT 15d

**RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
TYPICAL INTERNAL DITCH TO BE GRADED BY DISCING CROSS-SECTION E-E'**

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA



Horizontal Scale
Vertical Scale Is As Shown

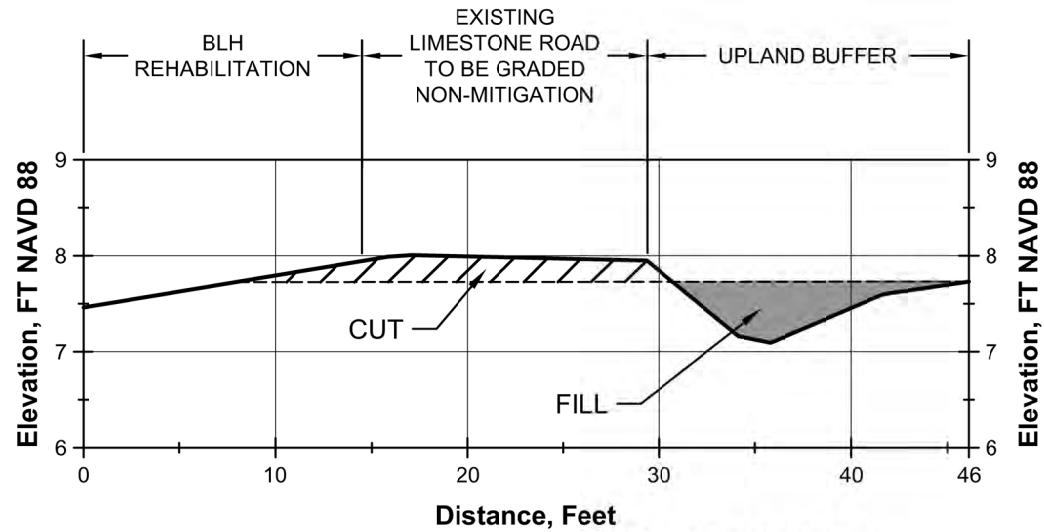
Date: 01/24/2023

Drawn by: BL

Checked by: SH

Project No.: 106305

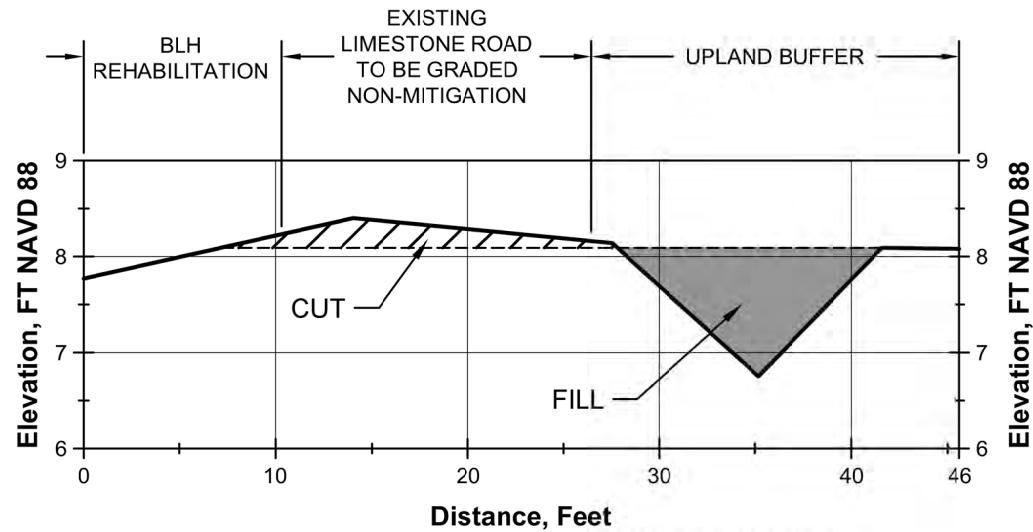




0' 10'

Horizontal Scale
Vertical Scale Is As Shown

TYPICAL ROAD GRADING CROSS-SECTION F-F'



0' 10'

Horizontal Scale
Vertical Scale Is As Shown

TYPICAL ROAD GRADING CROSS-SECTION G-G'

EXHIBIT - 15e

**RIVER BEND MITIGATION BANK
TYPICAL ROAD GRADING CROSS-SECTIONS F-F' & G-G'
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA**

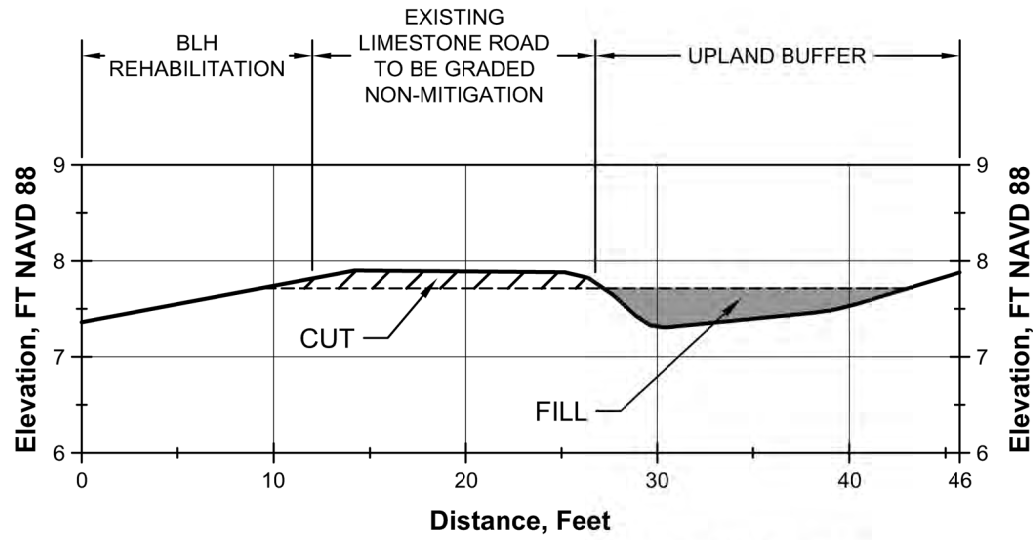
Date: 04/10/2023

Drawn by: AR

Checked by: CT

Project No.: 106305

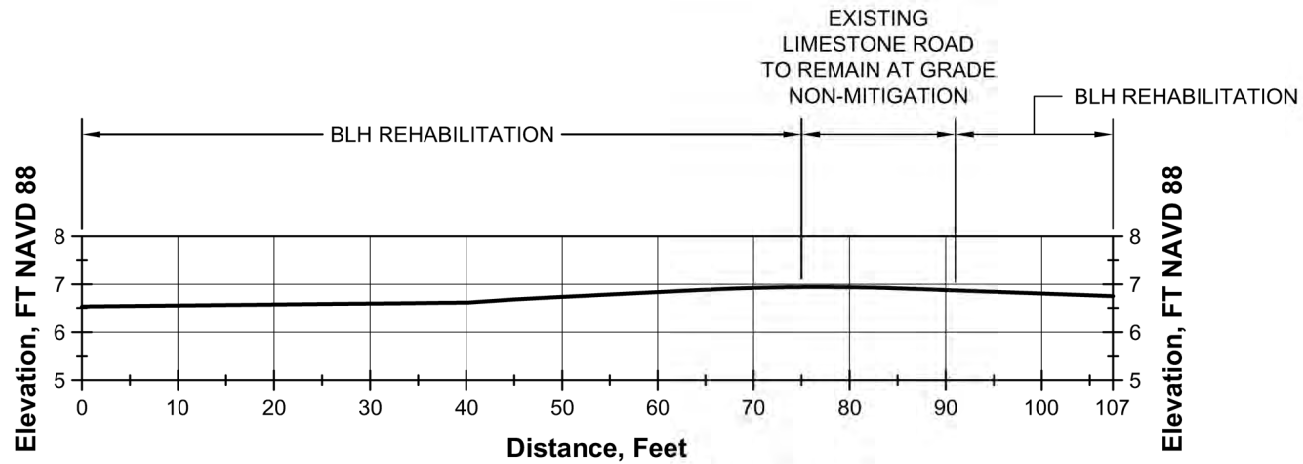




0' 10'

Horizontal Scale
Vertical Scale Is As Shown

TYPICAL ROAD GRADING CROSS-SECTION H-H'



0' 20'

Horizontal Scale
Vertical Scale Is As Shown

TYPICAL ROAD CROSS-SECTION I-I'

EXHIBIT - 15f

**RIVER BEND MITIGATION BANK
TYPICAL ROAD GRADING AND ROAD TO REMAIN CROSS-SECTIONS H-H' & I-I'
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA**

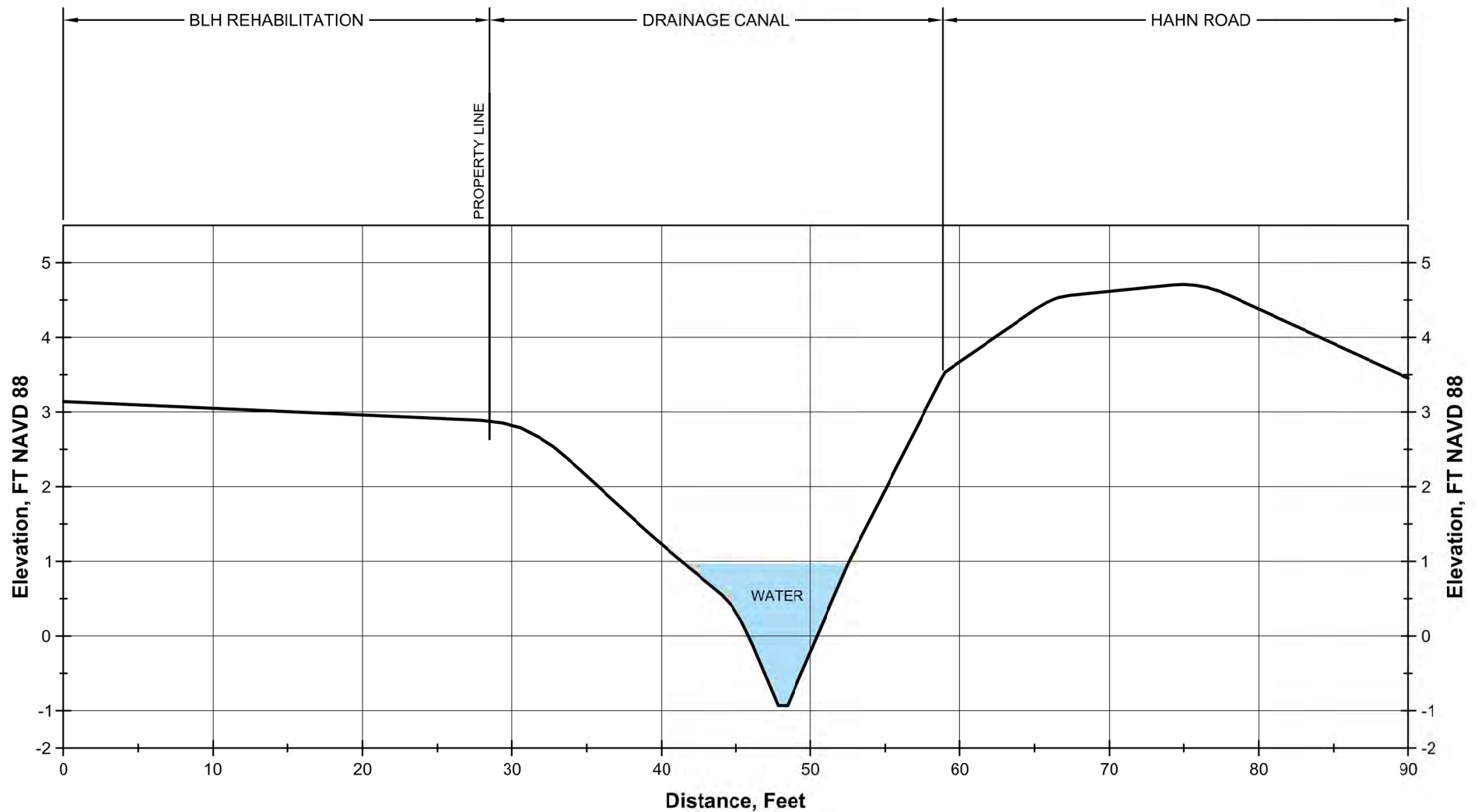
Date: 04/10/2023

Drawn by: AR

Checked by: CT

Project No.: 106305





TYPICAL CROSS-SECTION J-J'

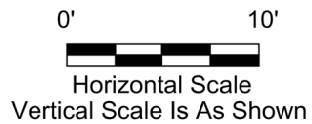


EXHIBIT - 15g

**RIVER BEND MITIGATION BANK
TYPICAL DRAINAGE CANAL AND HAHN ROAD CROSS-SECTIONS J-J'
ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA**

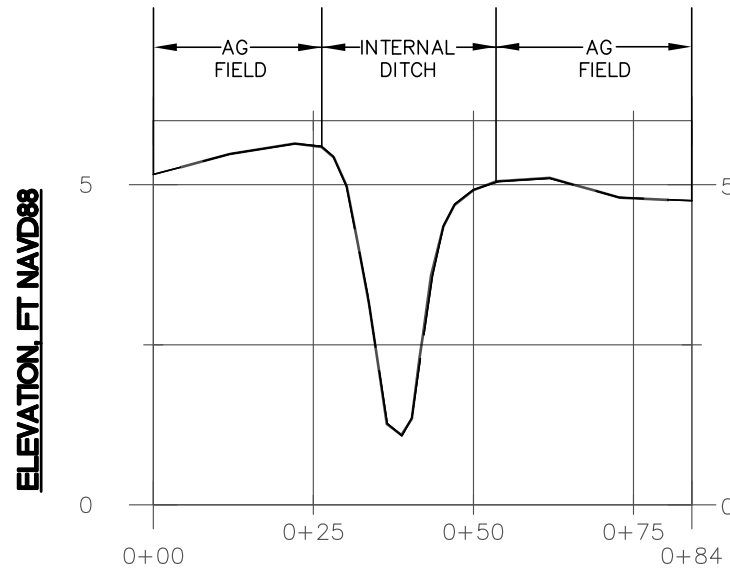
Date: 04/10/2023

Drawn by: AR

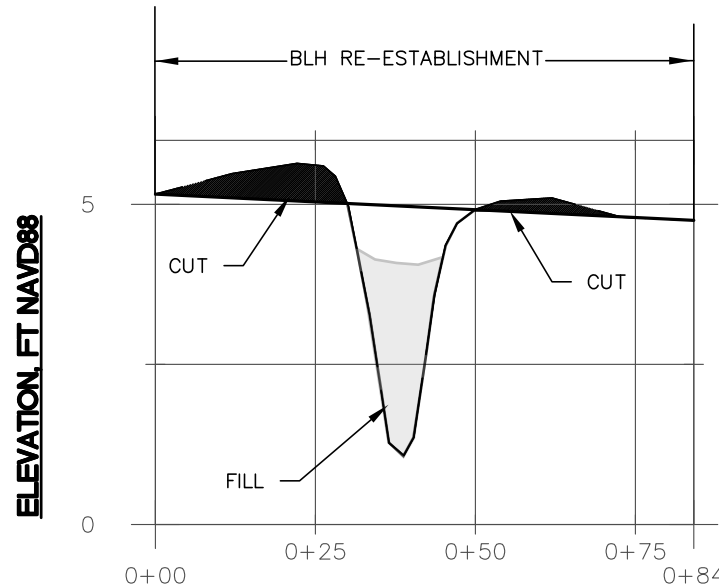
Checked by: CT

Project No.: 106305





PRE-CONSTRUCTION TYPICAL EXISTING INTERNAL DITCH CROSS-SECTION K-K'



POST-CONSTRUCTION TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION K-K'

*Ditch to be filled to the extent that adjacent cut material will allow.

EXHIBIT 15h

**RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION K-K'**

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

0' 30'
Horizontal Scale
Vertical Scale Is As Shown
And Exaggerated By 10

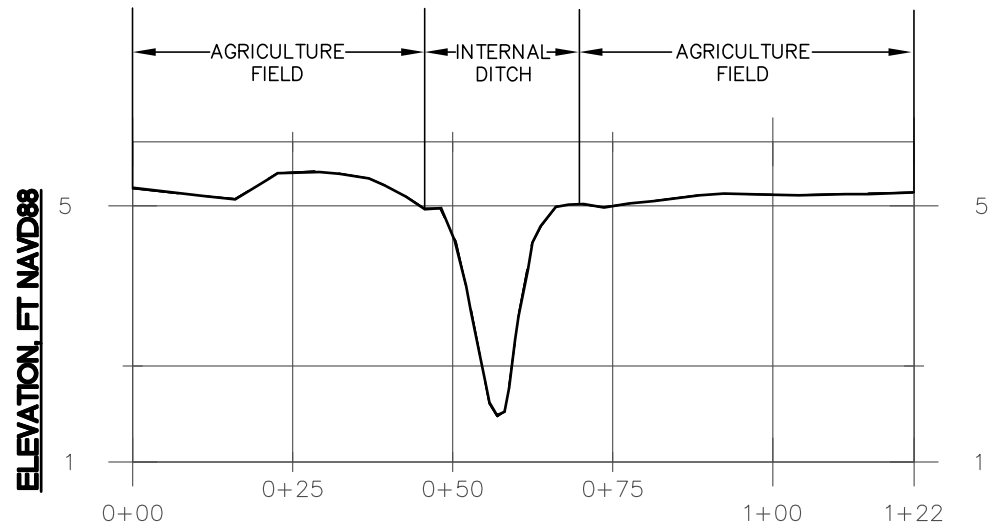
Date: 11/29/2023

Drawn by: BJR

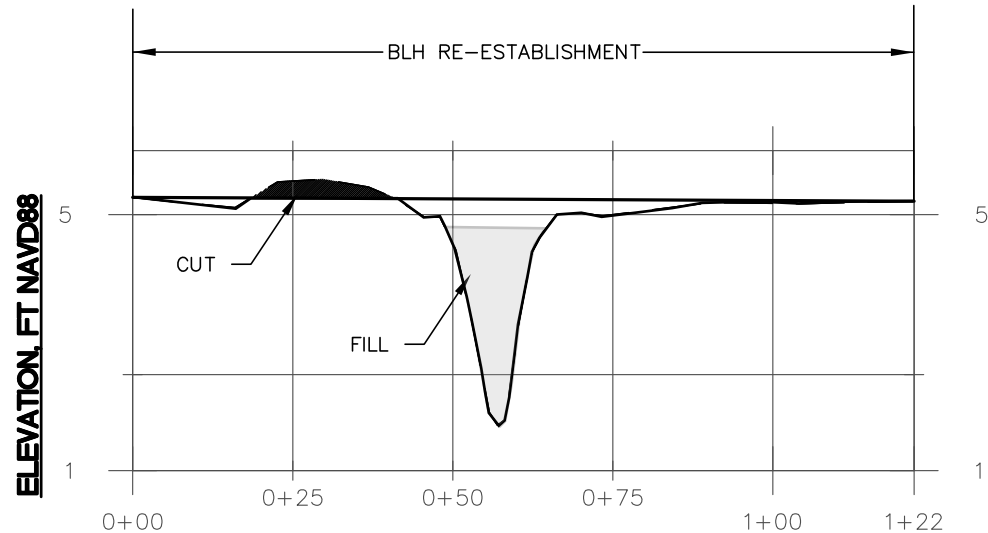
Checked by:

Project No.: 106305





PRE-CONSTRUCTION TYPICAL EXISTING INTERNAL DITCH CROSS-SECTION L-L'



POST-CONSTRUCTION TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION L-L'

*Ditch to be filled to the extent that adjacent cut material will allow.

EXHIBIT 15I

**RIVER BEND MITIGATION BANK - CONSTRUCTION WORK PLAN
TYPICAL INTERNAL DITCH TO BE SWALED CROSS-SECTION L-L'**

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

0' 30'
Horizontal Scale
Vertical Scale Is As Shown
And Exaggerated By 10

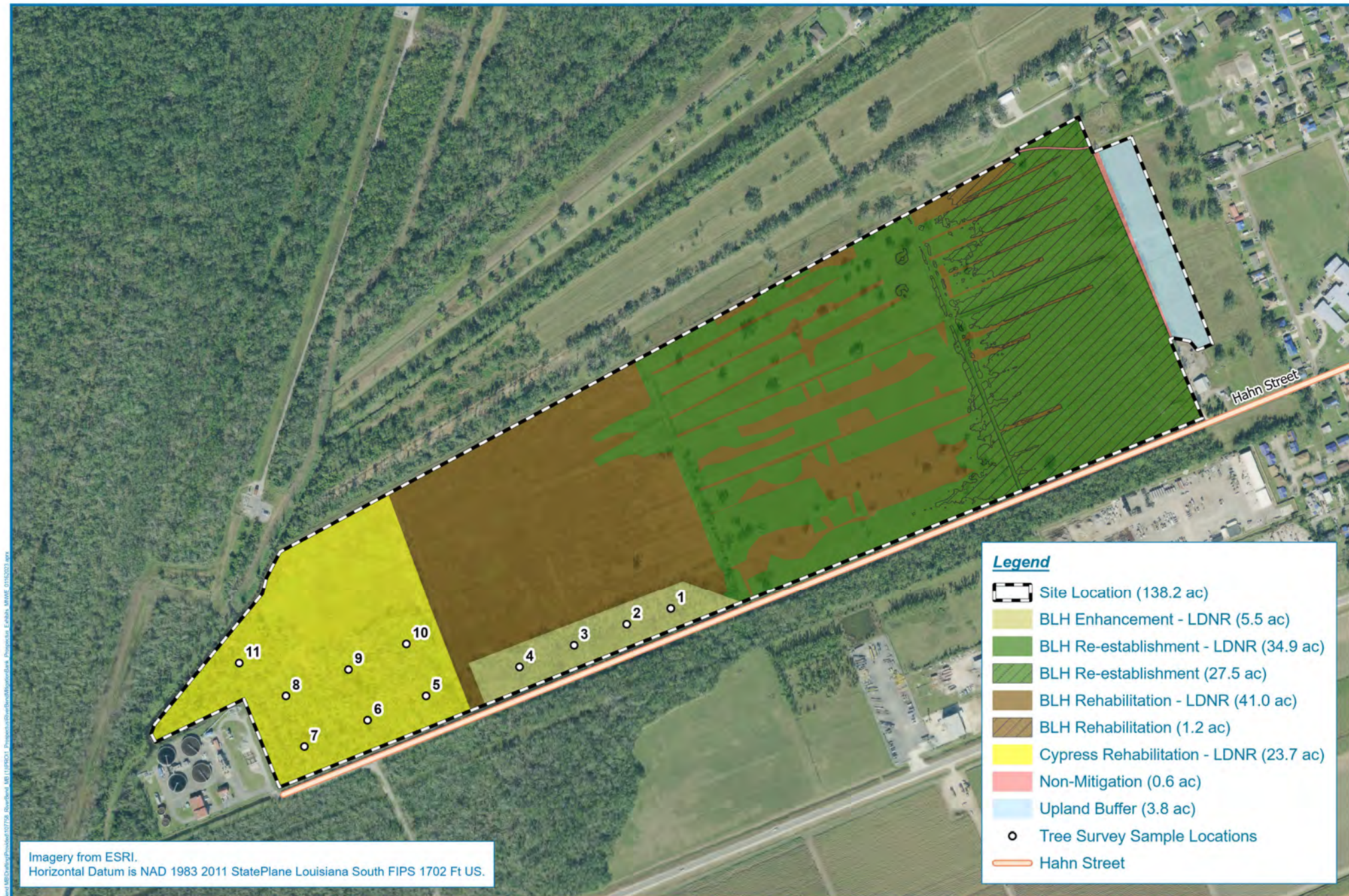
Date: 11/29/2023

Drawn by: BJR

Checked by:

Project No.: 106305





Imagery from ESRI.
Horizontal Datum is NAD 1983 2011 StatePlane Louisiana South FIPS 1702 Ft US.

Legend

- Site Location (138.2 ac)
- BLH Enhancement - LDNR (5.5 ac)
- BLH Re-establishment - LDNR (34.9 ac)
- BLH Re-establishment (27.5 ac)
- BLH Rehabilitation - LDNR (41.0 ac)
- BLH Rehabilitation (1.2 ac)
- Cypress Rehabilitation - LDNR (23.7 ac)
- Non-Mitigation (0.6 ac)
- Upland Buffer (3.8 ac)
- Tree Survey Sample Locations
- Hahn Street

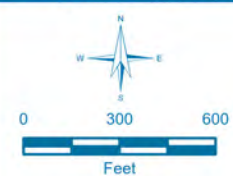


EXHIBIT 16

RIVER BEND MITIGATION BANK - TREE COMPOSITION SURVEY

ST. CHARLES PARISH - BARATARIA BASIN, STATE OF LOUISIANA

Date: 11/27/2023
Drawn by: CET
Checked by: CEJ
Project No.: 106305

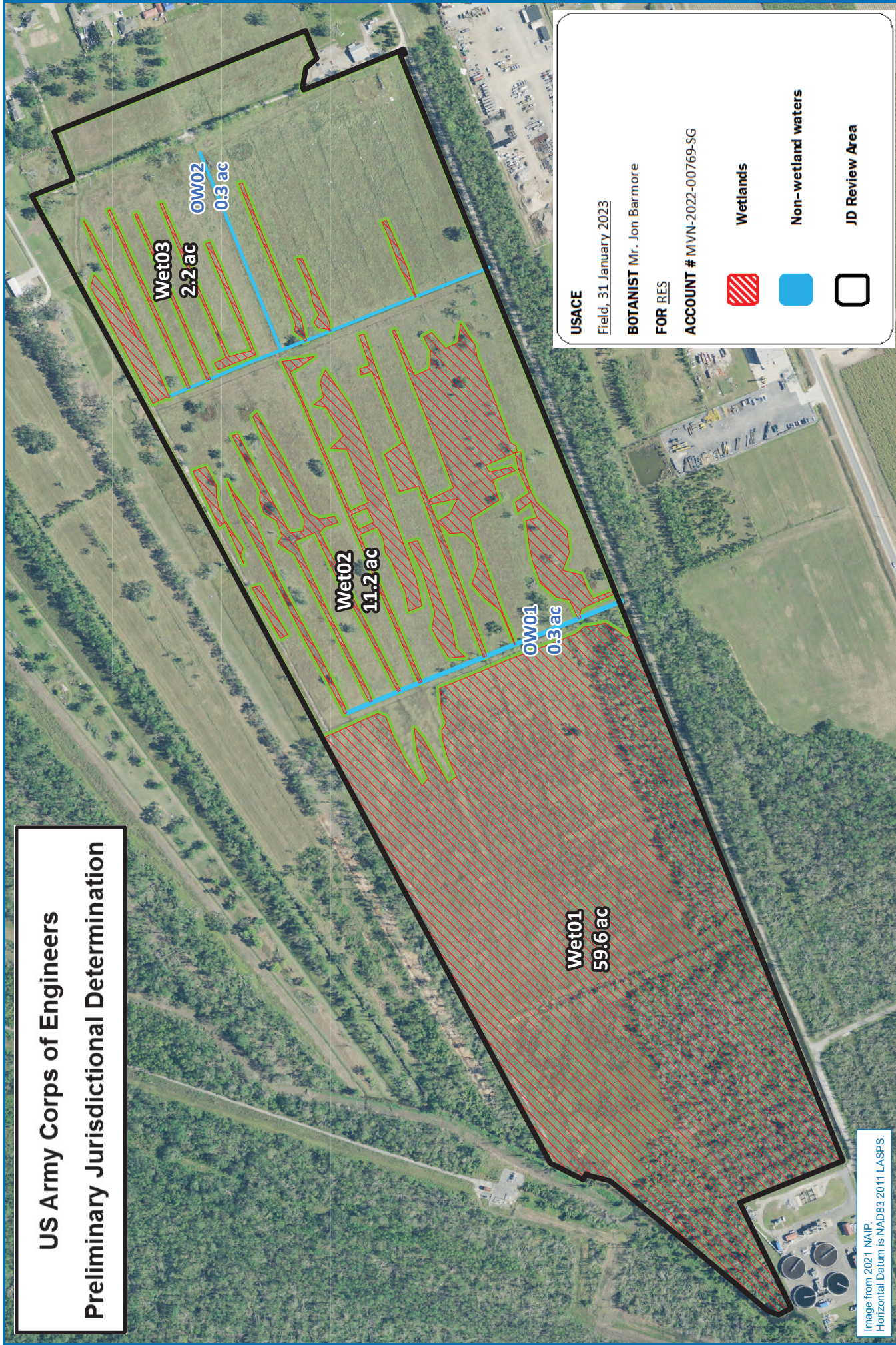


Document Path: W:\Projects\2023\1460 RES River Bend Mitigation Bank\River Bend Mitigation Bank - Prospects - Exhibits - 01162023.aprx

Attachment 1

Preliminary Jurisdictional Determination

US Army Corps of Engineers Preliminary Jurisdictional Determination



USACE
Field, 31 January 2023
BOTANIST Mr. Jon Barmore
FOR RES
ACCOUNT # MVN-2022-00769-SG

Wetlands
 Non-wetland waters
 JD Review Area

Image from 2021 NAIP.
Horizontal Datum is NAD83 2011 LASPS.

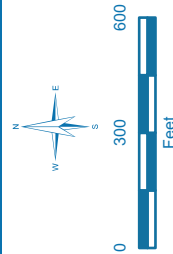


FIGURE 3
BAYOU FLEET SITE
POTENTIAL JURISDICTIONAL FEATURES
ST. CHARLES PARISH, LOUISIANA

Date: 5/2/2022
Drawn by: JT
Checked by: EE

