



PROSPECTUS

BAYOU BEND MITIGATION BANK

MARCH 2018

PREPARED FOR

U.S. Army Corps of Engineers

ON BEHALF OF

Mrs. Suzanne Jamison

Alsace LLC

PREPARED BY

SWCA Environmental Consultants

PROSPECTUS

BAYOU BEND MITIGATION BANK

Prepared for

U.S. Army Corps of Engineers, Galveston District
Regulatory Branch
P.O. Box 1229
Galveston, Texas 77553-1229

On behalf of

Mrs. Suzanne Jamison
Alsace LLC
PO Box 1174
Huffman, Texas 77336

Prepared by

SWCA Environmental Consultants
10245 West Little York Road, Suite 600
Houston, Texas 77040
(281) 617- 3217
www.swca.com

SWCA Project No. 022024.02

March 2018

This page intentionally left blank.

CONTENTS

1	General Information	1
1.1	Bank Name and Sponsorship	1
1.2	Sponsor and Sponsor’s Agent Qualifications	1
1.3	Location and Current Land Uses	2
2	Service Area	2
3	General Need.....	3
3.1	Watershed Threats	4
3.2	Site-specific Threats.....	4
3.3	Watershed Benefits	5
4	Mitigation Plan	6
4.1	Existing Conditions.....	6
4.1.1	Physiography, Topography, and Land Use	6
4.1.2	Vegetation.....	7
4.1.3	Soils	10
4.1.4	Site Hydrology	10
4.1.5	Wetland Characteristics	10
4.1.6	Stream Characteristics	11
4.2	Mitigation Goals and Objectives	12
4.3	Ecological Suitability.....	13
5	Establishment and Operation.....	14
5.1	Bank Establishment	14
5.2	Credit Determination	15
5.3	Credit Release Schedule	16
6	Ownership and Long-term Management.....	17
7	Water Rights.....	17
8	Mineral Resources.....	17
9	References Cited.....	18

Exhibits

Exhibit 1.	Vicinity Map
Exhibit 2.	Project Area Aerial Photograph
Exhibit 3.	Topographic Map (Huffman Quadrangle)
Exhibit 4.	Service Areas Map
Exhibit 5.	Historical Maps
Sheet 1.	Gazetteer of Texas 1902 Map
Sheet 2.	1916 Topographic Map
Sheet 3.	1920 Topographic Map

- Sheet 4. 1960 Topographic Map
- Sheet 5. 1930 Imagery Map
- Sheet 6. 1969 Imagery Map
- Exhibit 6. NWI, NRCS Soil, and Wetland Delineation Maps (Index plus 3 sheets)
- Exhibit 7. Floodplain Map
- Exhibit 8. Conceptual Mitigation Plan
- Exhibit 9. Easment Map

Appendices

- Appendix A. Wetland Delineation Report
- Appendix B. Preliminary Stream Assessment Report

Tables

- Table 1. NWI Wetland Type Descriptions within the Proposed BBMB 8
- Table 2. Wetland Characteristics 11

This page intentionally left blank.

1 GENERAL INFORMATION

1.1 Bank Name and Sponsorship

The mitigation bank will be known as Bayou Bend Mitigation Bank (BBMB). Alsace LLC (Alsace) will act as the bank's Sponsor. SWCA will act as the Sponsor's Agent.

Contact information for the Sponsor and their Agent are as follows:

Sponsor:

Alsace LLC
PO Box 1174
Huffman, Texas 77336

Contact: Suzanne Jamison
Main: 818-415-1685
Fax: 281-324-3696
Email: Gin-city@sbcglobal.net

Agent:

SWCA Environmental Consultants
10245 West Little York Road, Suite 600
Houston, Texas 77040

Contact: Lee Forbes
Main: 281-617-3217
Cell: 832-544-0482
Fax: 281-617-3277
Email: Lforbes@swca.com

1.2 Sponsor and Sponsor's Agent Qualifications

The Sponsor is a land management company in eastern Harris County, Texas. This Sponsor has successfully established, operated, and managed a 567-acre mitigation bank (Gin City Mitigation Bank [GCMB]) consisting of created or restored wetlands located in Huffman, Texas that is adjacent to the proposed BBMB discussed herein. The Sponsor's abilities to effectively operate a mitigation bank are exemplified by the successful management of the GCMB, including adaptive management to meet and exceed the mitigation banking instrument performance standards under changing and more extreme weather conditions. These extreme weather conditions have included both extreme drought (e.g., the construction/planting of the bank at the end of a four-year drought) and several historic floods in the last three years. As of 2017, the Sponsor has demonstrated 351.2, 137.3, and 335.8 physical, biological, and chemical credits, respectively for GCMB.

SWCA has extensive experience designing, permitting, and developing both stream and wetland mitigation sites, conducting wetland and stream functional assessments, and working with clients and regulatory personnel to establish high-quality mitigation options for unavoidable aquatic resource impacts. SWCA has successfully assisted multiple clients with mitigation bank establishment and permittee-responsible mitigation (PRM) planning in and around Harris County. SWCA has provided design and permitting consulting services for the Katy Hockley, Harris County Umbrella, Gin City, Danza del Rio, Katy Prairie Stream Umbrella, Columbia Bottomlands Conservancy, and West Montgomery Mitigation Banks, as well as dozens of stream and wetland permittee-responsible mitigation (PRM) sites in Texas and throughout the country.

1.3 Location and Current Land Uses

BBMB is located approximately 0.78 mile east of the city of Huffman in Harris and Liberty Counties, Texas, specifically 1.25 miles southeast of the intersection of FM 1960 and FM 2100 (Exhibit 1). The area immediately surrounding the BBMB site is dominated by agriculture and farm land uses followed by suburban residential developments, as shown in the Project Area Aerial Photograph (Exhibit 2). BBMB occurs in the U.S. Geological Survey (USGS) 7.5-minute Huffman, Texas quadrangle at Latitude 30. 016960° North and Longitude 95. 065324° West. Please refer to Exhibit 3 for a topographic map of the area. Exhibit 3 is based on a recent USGS 7.5-minute quadrangle topographic map (topo quad map) for the Huffman Quadrangle, created in 2013. The topographic map (Exhibit 3) shows the relatively flat topography and three unnamed tributaries of Cedar Bayou. The BBMB site was primarily used for agriculture, specifically rice (*Oryza sativa*), soybean (*Glycine max*), and hay production. The agricultural fields are bisected by six irrigation ditches and three Harris County Flood Control District (HCFCD) channels that are lined with forest riparian vegetation. Beyond the BBMB site toward the west are residential and commercial developments along Lake Houston. Agriculture dominates the landscape north, east, and south of the BBMB site.

The greater Houston area has one of the largest urban and suburban populations in the country with estimated population growth of 9.7 percent since 2010 (U.S. Census Bureau 2017). At the county level, population growth rates are projected to be 55 percent by 2040 (Houston-Galveston Area Council [H-GAC] 2016), necessitating infrastructure and development to meet population demands. State highways, county roads, residential and commercial developments are expanding or developing that are likely to impact wetlands, streams, and other aquatic resources and are anticipated to require mitigation. Northeast Houston is projected to have several residential, commercial, and infrastructure projects discussed below in Section 3 (General Need).

On behalf of Mrs. Suzanne Jamison, the main contact for Alsace LLC (Sponsor), SWCA Environmental Consultants (SWCA) developed this prospectus for the BBMB in Huffman, Texas, for consideration by the U.S. Army Corps of Engineers (USACE) Galveston District (SWG), members of the Interagency Review Team (IRT), and the public. BBMB entails the enhancement of 29.5 acres of palustrine forested wetland (PFO) and restoration of approximately 748.5 acres of land historically used for crops and hay for the potential development of palustrine wetlands, riparian buffer zones and streams. Specifically 748.5 acres are intended to be re-established to 584.7 acres of PFO, 10.0 acres of palustrine scrub-shrub PSS, 20.0 acres of palustrine emergent wetlands (PEM), and 133.8 acres of riparian wetlands. Approximately 13,103 linear feet of stream will also be re-established.

2 SERVICE AREA

The service area of a mitigation bank defines the specific geographic area in which mitigation credits from the bank can be sold to compensate for impacts to aquatic resources. In most USACE Districts, service areas are generally defined by watershed boundaries with ecological regions, or ecoregions (U.S. Environmental Protection Agency (EPA) Level III), often used to modify the service area within a watershed.

The Compensatory Mitigation for Losses of Aquatic Resources Federal Rule requires that all compensatory mitigation be planned using a “watershed approach” (33 Code of Federal Regulations [CFR] 332.3(c)). According to the Rule, the purpose of implementing a watershed approach is “to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites.” Using a watershed approach increases the likelihood that a mitigation bank will be prioritized and located where it will be most beneficial to the water resources in a

given area and best compensate for regional resources that are currently and historically degraded in the watershed.

BBMB is located in the North Galveston Bay Watershed (Hydrologic Unit Code [HUC] 12040203) and the Northern Humid Gulf Coastal Prairies (Level IV) Ecoregion, which is a sub-region of the Western Gulf Coastal Plain (Level III) Ecoregion (Griffith et al. 2007). The boundary for the Flatwoods Level IV Ecoregion within the Southern Tertiary Uplands Level IV Ecoregion is approximately 1 mile west of the proposed BBMB site (Exhibit 4). Ecoregion boundaries are inexact and are typically gradual with transitions from one to the next. Although the overall forest composition of the forested wetlands may differ slightly in these adjacent ecoregions, they share several dominant woody species (e.g., water oak, willow oak, elm, bald cypress) with varying co-dominant species (Griffith and Omernik 2009). The similarity of the forested wetland types illustrates that ecoregion boundaries represent an attempt to approximate the ecotone between ecoregions. BBMB's location within the transition zone between two ecoregions provides the unique ability to represent wetland communities of the hardwood forested wetland habitats of both.

In general, the BBMB will be used to compensate for impacts to jurisdictional riverine forested, emergent, and scrub/shrub wetlands and streams within the service area. Compensation will be provided in the form of riverine forested, emergent, and scrub/shrub wetland and stream credits. The bank shall not compensate for any adverse impacts: 1) to waters of the U.S. including wetlands that are under tidal influence, or 2) that occur on barrier islands or peninsulas.

The entire service area for BBMB is encompassed by the USACE Galveston District and is shown on Exhibit 4. The primary service area is identified as the North Galveston Bay Watershed, and includes portions of Chambers, Harris, and Liberty Counties. Impacts occurring within the primary service area shall be debited on a 1:1 basis. The secondary service area will provide equivalent ecological mitigation to wetland losses in portions of the West Fork San Jacinto, East Fork San Jacinto, and Buffalo-San Jacinto watersheds (HUC 12040101, 12040103, and 12040104, respectively). This area includes portions of Harris, Liberty, Montgomery, and San Jacinto Counties. Exhibit 4 shows the maximum extent of the service areas for the BBMB. All of these watersheds drain portions of Harris County as described above.

On a case by case basis, the USACE, after coordination with the IRT, may authorize use of the bank outside the primary and secondary service areas or in another habitat type when doing so is appropriate, practicable, and environmentally preferable.

3 GENERAL NEED

Mitigation banks are considered preferable to other mitigation mechanisms, such as in-lieu fee and permittee-responsible mitigation. According to 33 CFR 332.3(b)(2):

“Since an approved instrument (including an approved mitigation plan and appropriate real estate and financial assurances) for a mitigation bank is required to be in place before its credits can begin to be used to compensate for authorized impacts, use of a mitigation bank can help reduce risk and uncertainty, as well as temporal loss of resource functions and services. Mitigation bank credits are not released for debiting until specific milestones associated with the mitigation bank site's protection and development are achieved, thus use of mitigation bank credits can also help reduce risk that mitigation will not be fully successful. Mitigation banks typically involve larger, more ecologically valuable parcels, and more rigorous scientific and technical analysis, planning and implementation than permittee-responsible mitigation. Also, development of a mitigation bank requires site identification in advance, project-specific planning, and significant investment of financial resources that is often not practicable for many in-lieu

fee programs. For these reasons, the district engineer should give preference to the use of mitigation bank credits when these considerations are applicable.”

Demand for mitigation credits is directly linked to development activities incurring impacts to where jurisdictional waters of the United States occur. This development includes residential, commercial, and industrial development as well as the municipal infrastructure (roads, drainage, utilities, etc.) that supports them. This development can be correlated at a broad level in growing areas using population and job growth numbers, which are readily available from governmental sources. The Houston-Galveston Area Council has been tasked with compiling and analyzing such growth data in the greater Houston metropolitan area, including Harris and Montgomery Counties, in which the majority of the proposed mitigation bank primary and secondary service areas lie. As discussed in Section 1.3 H-GAC projects population growth rate of 55 percent by 2040 (H-GAC 2016). Consequently state highways, county roads, residential and commercial developments are expanding or developing that are likely to impact wetlands, streams, and other aquatic resources and are anticipated to require mitigation. Below is a discussion of threats to watershed, the general area surround the BBMB site, and specifically at the BBMB site.

3.1 Watershed Threats

The North Galveston Bay watershed includes portions of Chambers, Harris, and Liberty Counties. Nearly 4.6 million people reside in these counties, with Houston listed as the fourth most populous metropolitan area in the nation (U.S. Census Bureau 2017). The H-GAC has compiled household population and jobs change data since 1980 (H-GAC 2016). During the period from 1980 to 2010, the household population of Harris County increased from 2.3 million to just over 4 million. During this same time span, the number of jobs in Harris County increased from 1.3 million to 2.2 million (169 percent) and forecasts predict continued population and jobs growth in Harris County through 2040. Population and job growth numbers can be correlated at broad levels to development including residential, commercial, industrial development, and municipal infrastructure (roads, drainage, utilities, etc.) that supports them. New infrastructure and commercial development will follow closely behind the residential developments to service the new households. The population growth of the region is unprecedented requiring infrastructure development and impacts to aquatic resources throughout the watershed.

The 2014 water quality assessment reports for all of the waterbody segments listed for this watershed are listed as impaired waters due to pollutants (e.g., nickel) or other impairments including bacteria (e.g., fecal coliform), dioxin, and PCB loads (EPA 2014). Cedar Bayou has a 202 square mile drainage area and 128 miles of open stream (HCFCD 2018). The estimated population contributing to the impaired waters specifically in the Cedar Bayou watershed is approximately 59,000 (HCFCD 2018). The upper and middle portions of the Cedar Bayou watershed are relatively less urbanized than downstream portions but they are surrounded by agricultural development and may be subject to development given the metropolitan growth of Houston. The Cedar Bayou watershed has history of several significant flood events that has caused over \$13 million dollars in damages (HCFCD 2018). The continued increase in disturbance within the watershed will result in increased sediment and pollutant loads, increased flood flows, and decreased terrestrial and aquatic wildlife habitat.

3.2 Site-specific Threats

Northeast Houston is projected to have several residential, commercial, and infrastructure projects in the near future. In the vicinity of the proposed BBMB the Texas Department of Transportation (TXDOT) has proposed widening and reconstructing a section of FM 2100 to FM 1960, 1.25 miles northwest of the proposed BBMB (Feuk 2016). Given the expansion of development surrounding Lake Houston, there are several property uses that could be realized beyond mitigation banking such as part of a master planned

community. Alternatively the property could be maintained as is for agricultural use. Both alternatives would decrease the ecological value and potential ecosystem services that would be present if the site were restored to palustrine wetlands and streams.

In the broader vicinity, recent and upcoming major TXDOT and county highway projects in the area will support the growth of the Kingwood, Lake Houston, Humble, and Atascocita areas. For example, Kingwood will have major expansions of residential communities (Sarnoff 2015). Segments of the Grand Parkway (SH 99), which is being constructed through the southern part of Montgomery County, will provide a major alternative route to the area that will spur growth. Exxon Mobil based their decision to relocate their corporate offices and 10,000 jobs to a new campus located adjacent to the intersection of I-45 and the new SH-99 tollroad. Similarly, the improvement and extension of SH 249 northward from the Sam Houston Parkway (SH-Beltway 8) through Montgomery County as a tollroad is expected to drive development between Tomball and Todd Mission. With the completion of the Grand Parkway to Highway 59 in Northern Harris County, real estate development will continue to increase within BBMB's secondary service area. Several commercial development projects are planned to be constructed just inside the SH-Beltway 8 tollroad. Generation Park will be located just south of Summerwood High School, but proposes to develop 4,000 acres of wooded areas adjacent to SH-Beltway 8. Generation Park is proposed as a large-scale master planned facility hoping to attract Fortune 500 companies, manufacturing facilities, and logistical operations. This strategic location allows for a close proximity to major transit hubs such as SH-Beltway 8 and Union Pacific Railroad Lines which all filter towards the Houston Ship Channel. Over the next 2 years, Generation Park also plans to build more than 20 miles of roads and 50 miles of hike-and-bike-trails. Projects on currently vacant lands in Harris County are likely to continue and require Clean Water Act (CWA) Section 404 permitting and potential mitigation. The historic and forecasted growth and development in the Houston metropolitan area and the placement of the primary and secondary service areas for the proposed BBMB support a robust and growing demand for mitigation credits.

3.3 Watershed Benefits

The agricultural practices in the northern portion of the North Galveston Bay watershed likely contribute to the bacterial loads documented in the 2014 water quality assessment reports (EPA 2014). Thus restoration of wetland and stream habitat in this area may improve downstream water quality through sediment, pollutant and nutrient sequestration. Given the history of flood events in Cedar Bayou the proposed BBMB will provide an important ecosystem service of floodwater detention. Conservation of habitat surrounding Cedar Bayou in the form of the proposed mitigation bank will also improve downstream water quality including areas designated as critical wildlife habitat at the mouth of Cedar Bayou (HCFCD 2018). The proposed BBMB is adjacent to the GCMB and thus creates potential to restore twice (1,346 acres) the acreage of Cedar Bayou floodplain that would provide a connected swath of forested wetlands and streams than the GCMB (567 acres) is providing alone.

The proposed additional credit sales of established banks and new mitigation banks in Harris County indicates an immature mitigation market and demand for mitigation credits and opportunity near-term credit sales. BBMB will address the current need for stream credits in the primary service area given there are currently no active banks offering stream credits within the North Galveston Bay Watershed (HUC 12040203) as a primary service area. Given the predicted population increases and infrastructure development in Harris County and surrounding counties, the Sponsor believes that currently existing and proposed banks will not be sufficient to provide enough credits to mitigate unavoidable impacts to aquatic resources from Harris County infrastructure projects over the next 50 years. The Sponsor therefore believes there is a sound general need for the proposed BBMB.

4 MITIGATION PLAN

4.1 Existing Conditions

4.1.1 *Physiography, Topography, and Land Use*

The proposed bank site is located in the Western Gulf Coastal Plains Level III Ecoregion (34) and the Northern Humid Gulf Coastal Prairies Level IV Ecoregion (34a) (Exhibit 4) (Griffith et al. 2007). The ecoregion is characterized as flat or gently sloping coastal plains with low relief. According to a recent topographic survey conducted on-site January 2018, the maximum elevation on the property is approximately 68 feet above mean sea level (ft amsl) along the tops of bermed areas. The remainder of the site is between 58.3 ft amsl and 67.2 ft amsl, averaging 63.7 ft amsl including the berms. There are 1 – 2 foot elevation changes along the irrigation ditches, HCFCD channels, and berms, as well as toward the centers of the fields that reflect site hydrology manipulations that took place via levees as shown in the 1969 imagery map (Exhibit 5 – Sheet 6). More broadly the floodplain gradually dips east towards Cedar Bayou. The low relief and flat topography results in low gradient streams and rivers and broad floodplains. The waterbodies may contain sand, silt, or clay substrates. The terrestrial substrates are typically clay with poor drainage or sandy. These soils are derived from the Beaumont Formation typified by dark clay Vertisols, dark fertile Mollisols, and saturated clay Alfisols. These Vertisols have a high shrink-swell potential that may result in geometric microtopography, called gilgai. These small, depressional areas create a high potential for wetlands as water pools on the surface for the required hydrology (U.S. Department of Agriculture [USDA] 2011). The flat topography, gilgai, broad floodplain, and soil types result in inundated and saturated areas for parts of the year. BBMB is relatively flat but is dissected by numerous ditches used for farming and flood control purposes. Site specific soil characteristics are discussed below in the Soils Section (4.1.3). The region typically receives between 37 and 58 inches of precipitation annually with an average of 47.5 inches (USDA 2015).

The boundary for the Flatwoods Level IV Ecoregion within the Southern Tertiary Uplands Level IV Ecoregion is approximately 1 mile west of the proposed BBMB. This ecoregion is also characterized by low elevation, gentle slopes, low gradient streams, and inundated or saturated areas. Instead of gilgai, pimple mounds or small hummocks are present, soils textures are relatively more sandy and more forested consisting of pines and hardwoods with some interspersions of wet savanna (Griffith et al. 2007).

Almost all of the remnant coastal prairies have been converted to cropland, rangeland, pasture, or urban land uses. The exotic Chinese tallowtree (*Triadica sebifera*) and Chinese privet (*Ligustrum sinense*) have invaded large areas in this region. Some loblolly pine (*Pinus taeda*) occurs in the northern part of the region in the transition to the South Central Plains (35). The landscape in the immediate vicinity of the proposed BBMB site has been managed for silviculture or agriculture, specifically rice, soybean, and hay production for over a century (Gannett 1902). Agriculture continues to be the dominant land use in the area. As northeast Harris County continues to develop other land use (i.e. commercial, residential, and infrastructure development) is expected to occur.

Prior to agricultural development, the proposed BBMB likely contained characteristics of both ecoregions given its proximity to the boundary of the two. Historical maps also indicate that the area surrounding BBMB was forested (Exhibit 5 – Sheet 1) (Gannett 1902). Land conversion due to settlement, timber extraction and agriculture began in the late 1840s and early 1900s in the area surrounding northeast Harris County and adjacent Liberty County (Gannett 1902). These activities resulted in substantial alteration of vegetation, soils, and hydrology from the natural condition thus complicating the understanding of local natural landscape. The topographic maps of the early 1900s were charted by the U.S. Army primarily to assess the feasibility of railroad routes, thus it is difficult to determine the extent, number, and precise

location of physiographic features such as forested wetlands, streams, and waterbodies in the vicinity of the proposed BBMB site. Nonetheless, the patterns of the contour lines on the 1916 and 1920 topographic maps (Exhibit 5 – Sheets 2 and 3, respectively) indicate the presence of 3 ephemeral or intermittent water bodies that drain southeast toward Cedar Bayou. The historical aerial imagery shows pockets of forests in areas that had not been cleared west and northeast of the BBMB site, particularly around the Cedar Bayou floodplain (Exhibit 5 – Sheets 5 and 6), suggesting that the proposed BBMB was historically forested. Anecdotal accounts by farmers describe levee designs that capitalize on the existing site hydrology (i.e. waterbodies) as shown in Exhibit 5 - Sheet 6. Thus, although the landscape has been developed for over a century, historical maps and anecdotal accounts are indicative that the area was historically a forested floodplain bisected by ephemeral and intermittent streams that drain southeast toward Cedar Bayou. This evidence in addition to the topography of the site and proximity to Cedar Bayou suggests that the proposed bank site is suited to support wetland habitats and specifically PFO, PSS and PEM wetland communities as well as ephemeral and intermittent streams.

4.1.2 Vegetation

The historical wooded area shown in the 1902 Gazetteer of Texas (Exhibit 5 – Sheet 1) was quiet extensive, and likely comprised of mixed pine-hardwood forest interspersed with savanna or wet prairie areas, according to the two Level III ecoregions - South Central Plains and Western Gulf Coastal Plains described for this area (Griffith et al. 2007). The historical vegetation of the Northern Humid Gulf Coastal Prairies (Level IV) ecoregion was mostly grasslands with a few clusters of oaks, known as oak mottes or maritime woodlands. However the bank is located in close proximity to the border between the Northern Humid Gulf Coastal Prairies the Flatwoods (Level IV) ecoregions. Therefore the proposed bank likely contained a mix of pine-hardwoods stands and oak mottes able to support hydrophytic woody vegetation within the proposed bank site prior to its conversion to agricultural land use. Currently, BBMB consists mostly of rice, soybean, and hay production. The BBMB also contains three agricultural reservoirs in the northeast corner (Seaberg Reservoirs #1, #2 and #4) and approximately 101 acres of forest located around these reservoirs. Forested riparian zones are located along the waterbodies. Exhibit 6 includes a map sheet index followed by a map comprised of three sheets that depict the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) wetlands, the Natural Resources Conservation Services' (NRCS) soils units, and delineated wetlands and waterbodies from a field delineation conducted by SWCA.

According the USFWS NWI data, the BBMB site contains 28.9 acres of PFO wetlands, 0.6 acres of PEM wetlands, 50.6 acres of palustrine farmed wetlands (Pf), and 159.5 acres of waterbodies including Cedar Bayou, streams/ditches/channels, ponds, and reservoirs. Table 1 provides a list of the USFWS NWI features for the BBMB site. The USFWS NWI delineated PFO and PEM wetlands are located in northeast portion of the property by the Seaberg reservoirs #1, #2, and #4 (Exhibit 6 – Sheet 1). The PEM wetlands are currently forested and likely to be delineated as PFO if these areas satisfy the remaining wetland criteria assessed during a field delineation. The USFWS NWI data depicts broad patches of Pf wetlands located toward the west, south and eastern property edges (Exhibit 6 – Sheet 3). Finally the USFWS NWI also depicts waterbodies on-site that are discussed in the Site Hydrology Section (4.14) below. The remainder of the BBMB site is depicted as upland (Exhibit 6 – Sheet 2). Refer to Table 1 for a more detailed description of the wetland types and additional waterbody features found within the NWI mapping of the proposed BBMB.

Table 1. NWI Wetland Type Descriptions within the Proposed BBMB

Type	System	Subsystem	Class	Subclass	Water Regime	Other Modifiers
Palustrine Emergent (PEM) Wetlands						
PEM1Cx	Palustrine	--	Emergent	Persistent	Seasonally Flooded	Excavated
Palustrine Farmed (Pf) Wetlands						
Pf	Palustrine	--	--	--	--	Farmed
Palustrine Forested (PFO) Wetlands						
PFO1A	Palustrine	--	Forested	Broad-Leaved Deciduous	Temporary Flooded	--
PFO1C	Palustrine	--	Forested	Broad-Leaved Deciduous	Seasonally Flooded	--
PFO1Fh	Palustrine	--	Forested	Broad-Leaved Deciduous	Semipermanently Flooded	Diked/Impounded
Ponds						
PAB4Fh	Palustrine	--	Aquatic Bed	Floating Vascular	Semipermanently Flooded	Diked/Impounded
PUBFx	Palustrine	--	Unconsolidated Bottom	--	Semipermanently Flooded	Excavated
PUBHh	Palustrine	--	Unconsolidated Bottom	--	Permanently Flooded	Diked/Impounded
PUBHx	Palustrine	--	Unconsolidated Bottom	--	Permanently Flooded	Excavated
Lakes						
L1UBHh	Lacustrine	Limnetic	Unconsolidated Bottom	--	Permanently Flooded	Diked/Impounded
L1AB4Hh	Lacustrine	Limnetic	Aquatic Bed	Floating Vascular	Permanently Flooded	Diked/Impounded
L2AB4Hh	Lacustrine	Littoral	Aquatic Bed	Floating Vascular	Permanently Flooded	Diked/Impounded
Riverine						
R2UBHx	Riverine	Lower Perennial	Unconsolidated Bottom	--	Permanently Flooded	Excavated
R4SBC	Riverine	Intermittent	Streambed	--	Seasonally Flooded	--
R4SBCx	Riverine	Intermittent	Streambed	--	Seasonally Flooded	Excavated
R5UBFx	Riverine	Unknown Perennial	Unconsolidated Bottom	--	Semipermanently Flooded	Excavated
R5UBH	Riverine	Unknown Perennial	Unconsolidated Bottom	--	Permanently Flooded	--

SWCA conducted a wetland and waterbody delineation of 679.5 acres of the BBMB site on January 3–9, 2017. This delineation has not been verified by the USACE, but this delineation report is included as Appendix A. The delineation map has also been included in Exhibit 6 for reference and comparison with USFWS NWI and NRCS soils data, as discussed above. The 259-acre forested area surrounding the three reservoirs in the northeast portion of the property has not been field delineated but does show the NWI data (Exhibit 6 – Sheet 1).

During the field delineation SWCA documented one PEM wetland vegetation community type, and two upland vegetation community types consisting of herbaceous uplands and forested uplands. SWCA delineated two PEM wetlands adjacent to irrigation ditches that totaled 1.154 acres (Exhibit 6 – Sheet 3). A description of the PEM wetlands including vegetation is provided in the Wetland Characteristics Section (4.1.5) below. The herbaceous uplands are located throughout the BBMB site and the forested uplands are located in the northern portion of the site (Exhibit 6 – Sheets 1 – 3). A description of the upland vegetation is provided below.

SWCA's field wetland delineation indicated that herbaceous uplands are dominated by peppervine (*Ampelopsis arborea*), perennial ragweed (*Ambrosia psilostachya*), broom-sedge (*Andropogon virginicus*), sacatrapo (*Caperonia palustris*), Bermuda grass (*Cynodon dactylon*), woodrush flat sedge, southern crab grass (*Digitaria ciliaris*), sand spike-rush, round-head rush (*Juncus validus*), chocolate-weed (*Melochia corchorifolia*), Vasey's grass (*Paspalum urvillei*), southern dewberry (*Rubus trivialis*), curly dock (*Rumex crispus*), peatree (*Sesbania herbacea*), tall goldenrod (*Solidago altissima*), broom-corn (*Sorghum bicolor*), St. Augustine grass (*Stenotaphrum secundatum*), farewell-summer (*Symphotrichum lateriflorum*), and Brazilian vervain (*Verbena incompta*). The few saplings and shrubs present in herbaceous uplands consist mainly of eastern baccharis. Please refer to Appendix A for additional details of the delineation.

SWCA's field wetland delineation indicated that forested uplands primarily occur in the northwest portion of the site. These forested areas are dominated by sweet-gum, water oak (*Quercus nigra*), loblolly pine, and cedar elm (*Ulmus crassifolia*). Dominant sapling and shrub species include yaupon, Chinese privet, and sweet-gum. Perennial ragweed, woodrush flat sedge, flat-top goldentop (*Euthamia gymnospermoides*), saw-tooth blackberry, and Brazilian vervain are the dominant herbaceous species, and Japanese honey-suckle and fringed greenbrier (*Smilax bona-nox*) are the dominant woody vines. The herbaceous layer is dominated by giant ragweed and wild rye (*Elymus canadensis*). Please refer to Appendix A for additional details of the delineation.

The USFWS NWI data is inconsistent with SWCA field delineations (Exhibit 6). The USFWS NWI data in Exhibit 6 – Sheet 3 shows broad patches of Pf wetlands located toward the west, south, and eastern property edges. These areas were categorized as herbaceous uplands during SWCA's field wetland delineation due to their lack of hydrologic indicators, hydrophytic vegetation or hydric soil (Appendix A). The USFWS NWI data also indicates the presence of PEM in the northeast portion of the site that was formerly open in the early 1980s but is currently completely forested and thus may be PFO. The waterbody data is relatively consistent between USFWS and SWCA field delineation in regards to the location and type of waterbody features and intermittent or ephemeral man-made or altered ditches, and channels with two exceptions. The SWCA field delineation does not show a man-made pond nor an irrigation ditch adjacent to a PEM (WETA004) (Exhibit 6 – Sheet 3). The USFWS NWI data are designed to provide reconnaissance level information to guide on-site field delineation to potential locations of wetlands based on vegetation, hydrology and geography shown on high altitude imagery. Consequently field delineations should be considered as the more accurate and precise locations of

wetlands. The PEM wetland areas delineated by SWCA are not depicted in the NWI data but these areas meet the USACE criteria for PEM wetlands.

4.1.3 Soils

Project area soils are derived from the Beaumont Formation typified by dark clay Vertisols, dark fertile Mollisols, and saturated clay Alfisols. Across the ecoregion the soils are mostly fine-textured, clay, clay loam, or sandy clay loam. Within the proposed BBMB site the topography is flat with relatively homogenous soils. As described above, Exhibit 6 depicts NRCS soil map units (NRCS 2008). There are four soil map units: Beaumont clay (BeaA), League clay (LeaA), Leton loam (LetA), and Viterbo silty clay loam (VirA). All have 0-1 percent slopes. Field surveys indicate soil textures were clay in the central and northern portions of the property in the LeaA and BeaA soil map units. The southern portion of the property contained sand clay loam textures the LetA soil map unit is located. All four soil maps units are categorized as hydric soils that may be attributed to the fine to moderately fine soil textures result in poor drainage and ponding. Additionally the bisecting channels and proximity to Cedar Bayou has elevated the water tables. Soil pedons showed redox features, depleted matrices, or redox dark surfaces in wetlands and some upland areas.

4.1.4 Site Hydrology

As shown in Exhibit 7, most of the property is located in the floodway, 100-year or 500-year flood zones of Cedar Bayou as determined by the Federal Emergency Management Agency (FEMA 2018). Approximately 149.4 acres are located within the floodway of Cedar Bayou. It should be noted that the straight line lateral boundary of the 500-year floodplain through the two BBMB tracts in the northeast corner of the site (and east of Cedar Bayou) coincide with the county line (refer to Exhibit 3), are not natural (floodplain limits are rarely straight lines through open lands or ponds), and are likely approximated boundaries established by FEMA and the HCFCD in the development of their floodplain maps for Harris County. Further, these two BBMB tracts are identified as a pond and an extremely flat open land tract, as shown on Exhibit 3. As such, it is almost certain that the entirety of these two BBMB tracts are located within the 500-year floodplain. Nearby USGS stream gauge data and FEMA maps indicate that overbank flooding events are infrequent with flooding of the property occurring during extreme rainfall events. The USFWS NWI data depicts 6 irrigation ditches (R2UBHx, R4SBCx, R5UBFx), 1 flood control channel (R4SBCx), 7 man-made ponds (PAB4Fh, PUBFx, PUBHh and PUBHx) and 3 reservoirs subdivided by their subclass and hydrologic regimes (L1UBHh, L1AB4Hh, L2AB4Hh, PUBHh) (Exhibit 6 – Sheets 1 - 3). The NWI data waterbody data is consistent with the waterbody delineation conducted by SWCA (Appendix A). During the field delineation SWCA delineated six man-made irrigation ditches, three HCFCD flood control channels (Q134-00-00, Q134-01-00, and Q136-00-00), and one modified tributary of Cedar Bayou that total 46,375.09 linear feet. The hydrology of these waterbodies is primarily dependent on precipitation and overland sheet flow and secondarily from flooding events of Cedar Bayou. These waterbodies retain water for prolonged periods following rainfall and drain southeast toward Cedar Bayou. The three reservoirs within the northeast portion of the BBMB tracts (Seaberg Reservoirs 1, 2, and 4 – refer to Exhibit 6 - Sheet 1) are enclosed in earthen levees and are primarily dependent on precipitation for hydrology, with secondary hydrology from flooding events of Cedar Bayou only occurring during extreme events when the levees are overtopped by the Cedar Bayou floodwaters.

4.1.5 Wetland Characteristics

SWCA conducted a wetland and waterbody delineation of all of the BBMB tracts except for the northeast most tracts shown on Exhibit 6 – Sheet 1 on January 3–9, 2017. This partial wetland and waterbody

delineation documented two PEM wetlands within the remaining tracts of the BBMB site, as shown in Exhibit 6 – Sheets 2 and 3, totaling 1.154 acres (Table 2). These wetlands met the USACE criteria as defined in the federal regulations 40 CFR Part 230 §230.3. They contained surface water or saturation, under exceptionally dry conditions, hydric soils, and hydrophytic vegetation. These wetlands are dominated by sand spike-rush (*Eleocharis montevidensis*), dog-fennel (*Eupatorium capillifolium*), torpedo grass (*Panicum repens*), swamp smartweed (*Persicaria hydropiperoides*), and short-bristle horned beak sedge (*Rhynchospora corniculata*). The sparse shrub layer is dominated by eastern baccharis (*Baccharis halimifolia*). Scattered tree species, where present, include red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and black willow (*Salix nigra*). Invasive Chinese tallowtree and woodrush flat sedge (*Cyperus entrerianus*) are present as dominant or sub-dominant species in PEM wetlands. Refer to Appendix A for the wetland delineation report and the wetland delineation map for the partial wetland delineation. Note that this wetland delineation report has not yet been verified by the USACE. Alsace intends to retain SWCA to delineate the remaining tracts of the BBMB (refer to Exhibit 6 – Sheet 1) and to implement an interim hydrogeomorphic (HGMi) functional assessment and reporting effort for all tracts of the BBMB to determine the functional capabilities of each wetland identified.

Table 2. Wetland Characteristics

Wetland ID	Vegetation Community Type	Acreage within Project Area*
WETA003	PEM	0.500
WETA004	PEM	0.654
Total		1.154

* Acreages were rounded to the nearest 0.001 acre.

4.1.6 Stream Characteristics

Alsace retained SWCA to perform a preliminary geomorphic stream assessment of several stream reaches that are being considered for the development of a new mitigation bank on lands owned or optioned by Alsace or their partners. Figure 1 within the preliminary stream assessment report (Appendix B) shows the geomorphic stream assessment study area and stream reaches on the USGS 2013 7.5-minute topographical quadrangle map (Huffman, Texas). The studied streams include five unnamed tributaries (UT-1, UT-2, UT-3, UT-4, and UT-5) to Cedar Bayou shown on a recent aerial photograph in Figure 2 in Appendix B

UT 1 is a channelized drainage canal which begins at the northwestern portion of the southwest BBMB tracts and flows eastward for approximately 1.5 miles into another unnamed tributary to Cedar Bayou. The beginning of UT 1 has a long pool feature due to its low slope. UT 2 is a channelized drainage canal which begins at the western boundary of the southwest BBMB tracts and flows east and northeast for 1,416 feet and into UT 1. UT 3 is a channelized drainage ditch which begins at the northern boundary of the southwest BBMB tracts and flows south for 2,947 feet and into UT 1. UT 4 is a channelized drainage ditch which begins at the southwestern boundary of the southwest BBMB tracts and flows northeast for 1,381 feet and into UT 1. UT 5 is a channelized drainage ditch which begins at the northern boundary of the southwest BBMB tracts and flows southeast for 3,576 feet and into UT 1.

Typical of drainage ditches and canals in the region, all five channels were straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the streams and led to sedimentation problems. In certain areas the streams possess a nearly level bed with bank slopes that are generally very low. This is characterized by their stagnant water and low sediment carrying competency.

The results of this preliminary stream assessment found the streams assessed are impaired mainly due to changes in watershed land use and anthropological hydromodification and have potential to be restored to a better functioning system. Specific recommendations and design for the restoration of the streams should be developed in the future. Refer to Appendix B for the preliminary stream assessment report.

4.2 Mitigation Goals and Objectives

The goals of the BBMB are to enhance 29.5 acres of PFO, and to restore and establish 614.7 acres of wetlands, 133.8 acres of riparian buffer, and 13,103 linear feet of streams within the Alsace property to provide compensatory mitigation for unavoidable aquatic resource impacts within watersheds that traverse or abut Harris and Liberty Counties. The conceptual mitigation plan to meet the goals for the site is shown in Exhibit 8.

The specific mitigation goals of the wetland components of the project include:

- Restoration of approximately 20.0 acres of PEM, 10.0 acres of PSS, and 584.7 acres of PFO wetlands in the active agricultural areas at the site, which include or have included rice (*Oryza sativa*), soybean (*Glycine max*), and hay fields, and cattle grazing;
- Enhancement of approximately 29.5 acres of PFO wetlands that are indicated as wetlands in the NWI (Exhibit 6), but that have been invaded by invasive species including Chinese tallowtree.

The objectives necessary to achieve these wetland mitigation goals include improving water quality, enhancing flood attenuation, and restoring aquatic and bottomland hardwood habitat, which will be accomplished by:

- Removing nonpoint sources of pollution associated with agricultural row crop and hay production activities including eliminating the broadcasting of fertilizer, pesticides, and other agricultural materials into and adjacent to wetlands.
- Restoring historic microtopography to the site via excavation of small depressions to a depth consistent with the argillic soil strata while leaving topsoil sufficient to restore wetland flora.
- Lifting the restored streams back onto the historic, upper floodplains, as described below, thereby providing more frequent and prolonged flooding of the adjacent restored wetlands and a higher water table.
- Increase the wetland roughness via the new micro-topography and newly-planted wetland plants, thereby reducing overland flow velocities and increasing floodwater retention on the restored wetlands.
- Sequestration of nutrients and pollutants in the newly-planted wetlands vegetation and restoration of the natural nutrient cycles previously disrupted by agriculture, logging, mining, and urbanization in the watershed.
- Increasing and improving wildlife habitat and wildlife migration corridors in the restored wetland areas.
- Increasing floral and faunal biodiversity, overall species richness, and habitat connectivity, while decreasing fragmentation along the overall wetland/riparian corridor system.

The specific mitigation goals of the stream and riparian buffer components of the project include:

- Re-Establishment of approximately 7933.7 lf of Unnamed Tributary (UT) #1, 1,376.7 lf of UT #2, and 3,792.9 lf of UT #5, totaling 13,103 lf; and,
- Re-Establishment of approximately 133.8 acres of associated riparian buffer (based on a 400-ft buffer overall width).

The objectives necessary to achieve these stream and riparian buffer mitigation goals include improving water quality, enhancing flood attenuation, and restoring aquatic and riparian habitat, which will be accomplished by:

- Removing nonpoint sources of pollution associated with agricultural production activities including a) eliminating the broadcasting of fertilizer, pesticides, and other agricultural materials into and adjacent to streams; and b) establishing a vegetative buffer adjacent to streams to treat surface runoff which may be laden with sediment and/or agricultural pollutants from the adjacent landscape.
- Reducing sedimentation within onsite and downstream receiving waters through a) reduction of bank erosion associated with vegetation maintenance, and agricultural plowing, and b) planting a diverse woody vegetative buffer adjacent to the BBMB site's streams.
- Re-establishing stream stability and the capacity to transport watershed flows and sediment loads by restoring a stable dimension, pattern, and profile supported by natural in-stream habitat and grade/bank stabilization structures.
- Promoting floodwater attenuation through a) reconnecting bankfull stream flows to the abandoned floodplain terrace; b) restoring secondary, entrenched tributaries thereby reducing floodwater velocities within smaller catchment basins; and c) re-vegetating the BBMB site's floodplains to increase frictional resistance on floodwaters crossing the BBMB.
- Improving aquatic habitat by enhancing stream bed variability and the use of in-stream structures.
- Re-establishing and protecting the appropriate native prairie vegetation within the riparian buffer corridor.
- Providing a wildlife corridor and refuge in an area extensively developed for agriculture.

In summary, BBMB will improve chemical, physical, and biological functions of the restored streams and wetlands within the project boundaries.

4.3 Ecological Suitability

The proposed BBMB site is conducive to the BBMB's goals and objectives of restoration, enhancement, and establishment of riverine wetlands and streams within the Alsace property. The historical ecological setting of the proposed BBMB site was likely comprised of floodplain forest and wet prairie habitat with at least three intermittent streams. Although the contemporary landscape is predominantly comprised of rice, soybean, and hay production, the site currently supports wetland vegetation communities. The vegetation on-site are generally facultative or facultative wet species. The soils are hydric with poor drainage and ponding. This site is located in the Cedar Bayou floodplain and also contains a high water table and depressional areas to facilitate ponding.

The three streams proposed for re-establishment have been subjected to channelization and entrenchment (loss of access to an adequate floodplain through incision and over excavation), riparian buffer

destruction, and watershed hydromodification. Their restoration will mitigate these damages and restore natural hydrology to the adjacent wetlands. Existing topography already allows floodwater, rain water, and groundwater to access the majority of the site. With additional site work and restored hydrology, the majority of proposed wetland areas previously disturbed by agriculture can be transformed into wetlands.

In summary, the site has the vegetation, soils, and hydrology suitable for restoring and enhancing riverine wetlands and streams. The adjacent GBMB has successfully met performance criteria demonstrating the suitability of the area to restore wetlands from agriculture practices.

The establishment of the BBMB is anticipated to provide numerous benefits in addition to compensatory mitigation for unavoidable aquatic resource impacts. Converting BBMB's agricultural lands to restored wetlands and streams will provide several ecosystem services to watershed and downstream communities. With increasing intensity of storms, flooding events are becoming more frequent. Wetland and riparian restoration may help mitigate downstream flooding. The physical structure of wetland and riparian vegetation will decrease runoff velocity, increase floodwater detention time, increase sediment accretion and pollutant sequestration, and decrease nutrient loads downstream. Restoration of wetlands and streams will also increase the ecological function of the landscape compared to the existing agricultural state. The wetland and stream restoration would be reciprocally beneficial. The lift of the unnamed streams back onto the historic Cedar Bayou floodplain would provide more frequent water and prolonged flooding to the adjacent wetlands. The restoration of wetlands will sequester sediments and nutrients, reduce erosion, and assist in groundwater recharge. Stream restoration activities such as 400-foot riparian buffer restoration and alterations to the disturbed stream channels' dimension, pattern, and profile will stabilize and reduce stream bank erosion. Installation of in-stream habitat structures using pools, riffles, logs, etc. will increase submerged woody and leafy debris, the amount of available aquatic habitat, and will improve water quality. Terrestrial and aquatic wildlife may also benefit via increases in available habitat and corridors, improvements in water quality, and habitat diversity through the removal of invasive vegetation and the reforestation of the wetland habitats. With the adjacent GCMB, approximately 1,370 acres of Cedar Bayou floodplain would be restored and provide a connected swath of forested wetlands and streams. Lastly, the rapid growth of northeast Harris County suggests mitigation for impacts to aquatic resources will be needed and the limited available stream and forested wetlands credits in the primary service area indicates need for the proposed BBMB.

4.4 Establishment and Operation

4.5 Bank Establishment

Alsace will procure the financial resources, planning, and scientific professional services required to successfully restore, enhance, and establish wetlands and streams proposed for inclusion in the BBMB. Alsace will perform all restoration, enhancement, and establishment activities, provide for financial assurances (per 33 CFR 332.3[n]) and long-term protection mechanisms (per 33 CFR 332.7[a]), administer the sale and accounting of credits, and complete all record-keeping and reporting requirements for the BBMB.

As part of the review process, SWCA will assist Alsace in drafting a Mitigation Banking Instrument (MBI) for review and approval by the USACE and the IRT in accordance with 33 CFR 332.8(d)(6-8). The MBI shall establish the BBMB and outline the operating agreement for the BBMB. The MBI will detail BBMB's service area, accounting procedures, provisions stating Alsace's legal responsibility for providing compensatory mitigation upon secured credits, default and closure provisions, reporting protocols, mitigation plans, credit release schedules, and other information required for inclusion by the USACE.

The goals of the BBMB are to enhance 29.5 acres of riverine forested wetlands, and restore and establish approximately 584.7 acres of riverine forested wetlands, 10.0 acres of riverine scrub-shrub wetlands, and 20.0 acres of riverine emergent wetlands. This acreage does not include a 2.73-acre tract used for PRM by DCP Midstream, LLC (DCP), located in the northern portion of the proposed BBMB. This PRM is intended for compensatory mitigation for unavoidable impacts to 3.0 acres of PFO wetlands. The proposed forested wetlands of the BBMB that will surround this PRM will facilitate the objectives of the existing PRM to restore this tract of land to PFO wetlands. The proposed BBMB also aims to re-establish approximately 133.8 acres of riparian buffer and 13,103 linear feet of modified unnamed stream channels that drain into the Cedar Bayou floodplain. The proposed estimated restoration of 13,103 linear footage of stream is a baseline estimate of a straight channel is anticipated to increase to be between 15,840 and 19,800 linear feet based on the increased sinuosity as these streams become re-established. The MBI will detail the amount and type of credits associated with the wetlands located within the re-established riparian buffer. Final acreages of wetland and riparian buffer and linear feet of stream to be enhanced or restored/re-established at the site will be determined and presented in the draft MBI for BBMB.

BBMB will be operated by Alsace as a commercial wetlands and streams mitigation bank to offset impacts to aquatic resources associated with USACE Galveston District permits issued under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. BBMB will operative via credit sales of established, restored, and rehabilitated wetland and stream FCUs. Credits will be released, added, or reduced from the ledger pending verification of FCUs from USACE and implementation of the proposed MBI for the BBMB. The number of credits released for different categories of functional capacity will be in accordance to the credit release schedule. Credit sales are restricted to functional category credit pools. Once credits of the most limited functional category is exhausted no other credits from other functional categories will be sold until additional credits for the exhausted category is released by the USACE and added to the account. Credit determination for existing and future restored wetlands will be based on their functional assessment.

4.6 Credit Determination

The Sponsor proposes the use of the Interim Hydrogeomorphic Models (HGMi) for Riverine Herbaceous/Shrub and Riverine Forested wetlands to assess and quantify wetland functions being restored, established, and or enhanced by the BBMB. Similarly, the USACE Galveston District Stream Condition Assessment Standard Operating Procedure (SOP) will be used to assess and quantify stream functions. Alternate functional assessment methodologies may be employed as agreed upon by the USACE and the Sponsor. Specific credit calculations will be provided in the MBI.

Credit to debit ratios of mitigation to permitted impacted wetlands vary according to the type of credit and location of both the service area and permitted impacted wetlands. Restoration and enhancement credit ratios for mitigation of potentially impacted wetlands ranges from 1:1 up to 1.5:1 depending upon the service area and location of permitted impacted wetlands. The entire service area for BBMB is encompassed by the USACE Galveston District. The primary service area of mitigation for permitted impacts to wetlands and waters of the U.S. is the North Galveston Bay HUC (12040203) which includes portions of Chambers, Harris, and Liberty Counties. The secondary service area is comprised of the West Fork of the San Jacinto River, East Fork of the San Jacinto River, and Buffalo-San Jacinto watersheds (HUC 12040101, 12040103, and 12040104, respectively). This area includes portions of Harris, Liberty, Montgomery, and San Jacinto Counties.

The proposed BBMB site has been continuously farmed or otherwise function below their natural, undisturbed potential and would thus benefit from restoration, establishment, and enhancement activities. The site has low aquatic functional capacity that also translates to high ecological or functional lift potential associated with restoration/establishment and subsequent protection. The higher number of

credits generated by restoring, establishing, and enhancing aquatic functions makes the site a desirable area for establishment of the BBMB.

Mitigation activities will consist of wetland establishment and enhancement and stream and riparian buffer re-establishment, rehabilitation, and enhancement, primarily within areas formerly disturbed by farming. Mitigation activities will include restoration of native vegetation and removal of non-native and invasive vegetation. A detailed mitigation work plan will be provided in the MBI.

4.7 Credit Release Schedule

Credit releases are contingent on the attainment of performance standards and fulfillment of administrative requirements specified in the MBI for each wetland assessment area according to the following schedule:

1. *Administrative:* Sponsor may apply for a release of 15% of the 10 year projected forested FCUs and 10% of the 10 year projected coastal prairie (scrub-shrub and emergent) FCUs available upon the execution of this MBI, filing of the USACE approved conservation easement, ceasing all land uses that are not consistent with this MBI, and establishment of appropriate USACE approved financial assurance mechanisms.
2. *Construction/Planting Activities:* Sponsor may apply for a release of 15% of the 10 year projected forested FCUs and 10% of the 10 year projected coastal prairie (scrub-shrub and emergent) FCUs upon construction of hydrologic improvements (e.g., microtopography), site preparation, and vegetation re-establishment as specified in the MWP.
3. *Subsequent Credit Releases:* Sponsor may apply for a release of additional credits based on quantified increases in the functional values of the wetlands within the bank. Each credit release request will be for the entire bank. Functional assessments will be conducted on each unit a minimum of six times, at approximately years 1, 3, 5, 7, 10, and 15 following submittal of as-built drawings to the USACE. Release of these credits at years 3, 5, 7, 10, 15 and beyond may be approved following USACE verification of the Sponsor's determination. No more than one credit release per year that necessitates an IHGM verification will be authorized.

Under no circumstances will credits be sold before they are released by the USACE, in coordination with the IRT. If at any time this occurs, WMMB will be immediately suspended. All credit releases shall be contingent on the Sponsor being in compliance with the terms and conditions of the permit and MBI with all associated documents.

The Sponsor has requested "advanced credits" (or advanced debiting) of 15%, 10% and 10% of the projected year 10 lift for the forested, scrub-shrub and emergent wetlands, respectively. Accordingly, upon executing the MBI, filing a USACE-approved conservation easement, and the execution of a USACE-approved financial assurance, the USACE will release 15% of the forested and 10% of the emergent wetlands' 10 year projected credits. Additionally, completion of construction and planting activities will result in the release of an additional 15% of the forested and 10% of the scrub-shrub and emergent wetlands' 10 year projected credits. All subsequent credit releases will occur only when future functional assessments submitted by the sponsor are verified by USACE, in coordination with IRT, to show an increase in FCUs of the three functional categories that exceeds the respective number of the advanced credit released.

To account for potential temporal losses that may be associated with the sale of advanced credits for DA permitted activities, an additional 10% of FCUs from each functional category will be debited from the appropriate ledger for every 12 months following credit transaction that an advanced debit is unrealized on the bank. In addition, after 48 months of credit release for forested areas and 24 months for coastal prairie

(scrub-shrub and emergent) areas, all unsold advanced credits will be revoked until such time that they are earned, as verified by the USACE in coordination with the IRT.

BBMB presents few impediments to successful completion of restoration objectives for a wetland and stream mitigation bank. There are two pipelines, one utility line, and three HCFCF flood control channels (Q134-00-00, Q134-01-00, and Q136-00-00) easements, as well as the existing conservation easement for the adjacent GCMB (Exhibit 9).

No mitigation credits will be sought for portions of BBMB mitigation sites that are subjected to existing easements or encumbrances. Should any easements be relinquished, the Sponsor may seek USACE approval to receive additional credits for restoration of aquatic resources within former rights-of-way (ROWs).

5 OWNERSHIP AND LONG-TERM MANAGEMENT

Each site within the BBMB will be owned by Alsace (Sponsor). The Sponsor has the financial capability to satisfy the financial obligations of the BBMB. The Sponsor will manage the BBMB. Each BBMB site will be self-sustaining with long-term management activities limited primarily to items such as inspections, controlling invasive species, and boundary maintenance.

6 WATER RIGHTS

BBMB sites will be designed to be driven by natural hydrology from irrigation ditches, HCFCF flood control channels, adjacent waterbody overbank flooding, direct precipitation, and ground water inputs where practicable. These water sources will drive the sustainability of BBMB sites. Should a severe precipitation deficit occur, BBMB has a potential supplemental water source via the adjacent landowner (Gin City Land Company, Inc.). A Memorandum of Agreement (MOA) between Alsace and Gin City Land Company, Inc. may be created to provide priority access to the water rights held by Gin City Land Company, Inc. (Certificate of Adjudication 09-3913) to BBMB. According to the Certificate of Adjudication, Gin City Land Company, Inc. bears agricultural water rights to withdraw up to 1542.376 acre-feet of water annually from Cedar Bayou.

7 MINERAL RESOURCES

The Sponsor does not own the subsurface mineral rights for the property, the Sponsor will develop a Mineral Management Plan (MMP) to reduce the risk of impinging on the mitigation bank for the MBI.

8 REFERENCES CITED

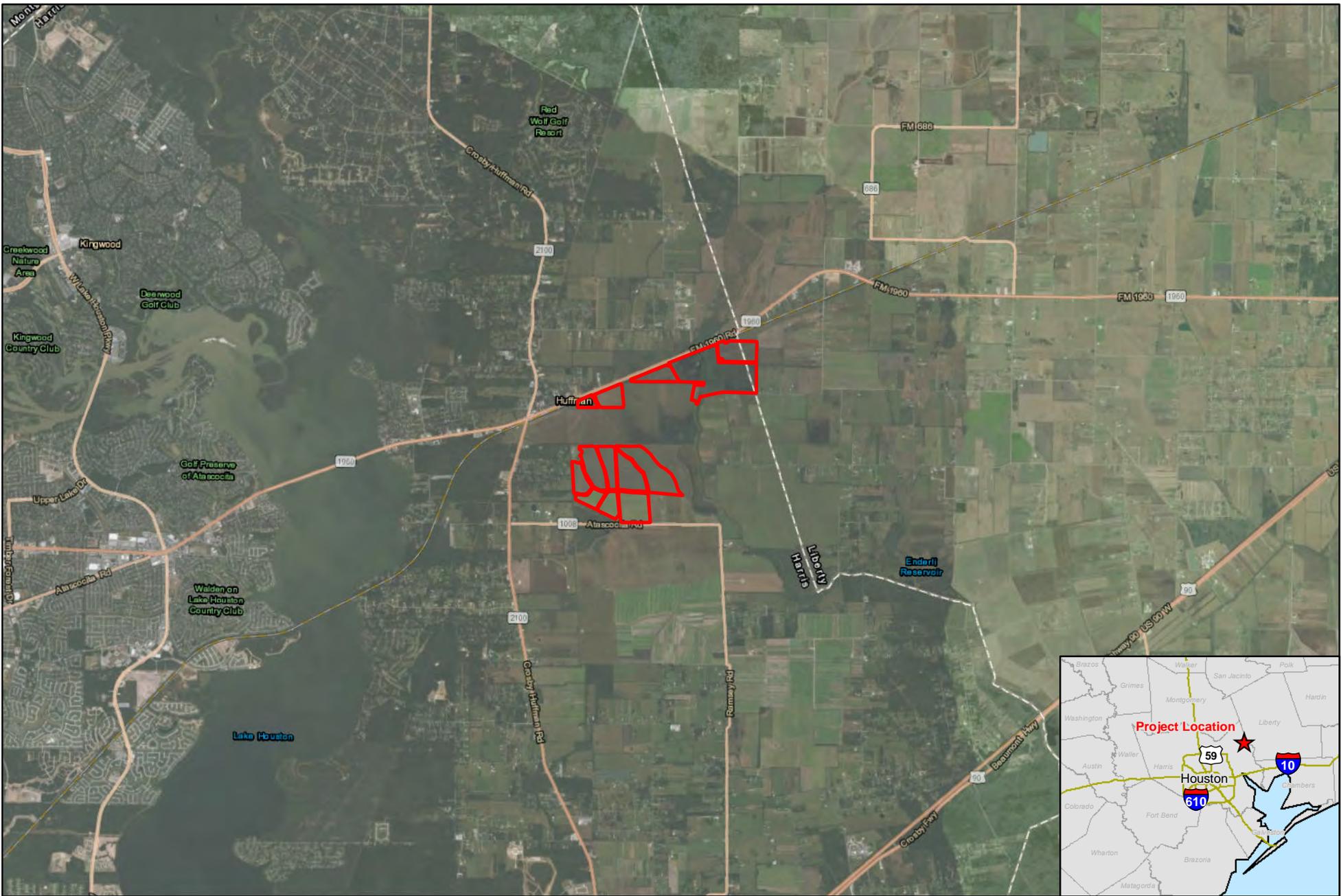
- Federal Emergency Management Agency (FEMA). 2018. FEMA Flood Map Service Center. Available at: <https://msc.fema.gov/portal>. Accessed on January 2018.
- Federal Register. 2006. 33 CFR Parts 325 and 332. Compensatory mitigation for losses of aquatic resources; proposed rule. Vol. 71 (59):15520-15556. March 28, 2006.
- Feuk, M. 2016. Widening of FM2100 in Huffman proposed to improve safety, mobility. *Houston Chronicle*. Available at: <http://www.chron.com/neighborhood/lakehouston/news/article/Widening-of-FM2100-in-Huffman-proposed-to-improve-10807085.php>. Accessed January 2018.
- Gannett, Henry. 1902. *A Gazetteer of Texas*. U.S. Geological Survey. Available at: <https://pubs.usgs.gov/bul/0190/report.pdf>. Accessed on January 2018.
- Griffith, G.E., Bryce, S.A., Omernik, J.M., and Rogers. 2007. Ecoregions of Texas. Corvallis, Oregon: U.S. Environmental Protection Agency.
- Griffith, G.E. and J.M. Omernik. 2009. Ecoregions of Texas (EPA). In *Encyclopedia of Earth*, edited by C.J. Cleveland. Environmental Information Coalition, National Council for Science and the Environment, Washington, D.C. Available at: [http://www.eoearth.org/article/Ecoregions_of_Texas_\(EPA\)](http://www.eoearth.org/article/Ecoregions_of_Texas_(EPA)). Accessed January 2018.
- Harris County Flood Control District. 2018. Cedar Bayou. Available at: <https://www.hcfdc.org/projects-studies/cedar-bayou/>. Accessed January 2018.
- Natural Resources Conservation Service (NRCS). 2008. SoilWeb Survey. Available at: <https://casoilresource.lawr.ucdavis.edu/soilweb-apps/>. Accessed on January 2018.
- Sarnoff, N. 2015. Kingwood to grow along with the area around it. *Houston Chronicle*. Available at: <http://www.houstonchronicle.com/business/real-estate/article/Kingwood-to-grow-along-with-the-area-around-it-6422843.php>. Accessed January 2018.
- SWCA Environmental Consultants. 2017. *Wetland delineation report for phase 2 of the Gin City Mitigation Bank Project in Harris and Liberty Counties, Texas*.
- U.S. Census Bureau. 2017. Quick Facts database. Available at: <https://www.census.gov/quickfacts/fact/table/US/PST045217>. Accessed on January 2018.
- U.S. Environmental Protection Agency. 2014. Watershed Quality Assessment Report. Available at: https://iaspub.epa.gov/tmdl_waters10/attains_watershed.control?p_huc=12040203&p_cycle=&p_report_type=T. Accessed on January 2018.
- U.S. Department of Agriculture (USDA). 2011. Technical Note No. 3: Soil Hydrodynamic Interpretations for Wetlands. U.S. Department of Agriculture, Natural Resources Conservation Service. Available at: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/water/wetlands/restore/>. Accessed January 2018.
- _____. 2015 WETS table rainfall data. Available at: <http://agacis.rcc-acis.org/48339/wets/results>. Accessed June 2015.

_____. 2017. Web Soil Survey. U.S. Department of Agriculture, Natural Resources Conservation Service. Available at: <http://websoilsurvey.nrcs.usda.gov>. Accessed January 2018.

U. S. Fish and Wildlife Service (USFWS). 2017. National Wetlands Inventory Wetlands Mapper. Available at: <https://www.fws.gov/wetlands/data/Mapper.html>. Accessed on January 2018.

Exhibits

Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\BID\REPORT MAPS\Prospectus - Bayou Bend - Bayou Bend Vicinity Map.mxd

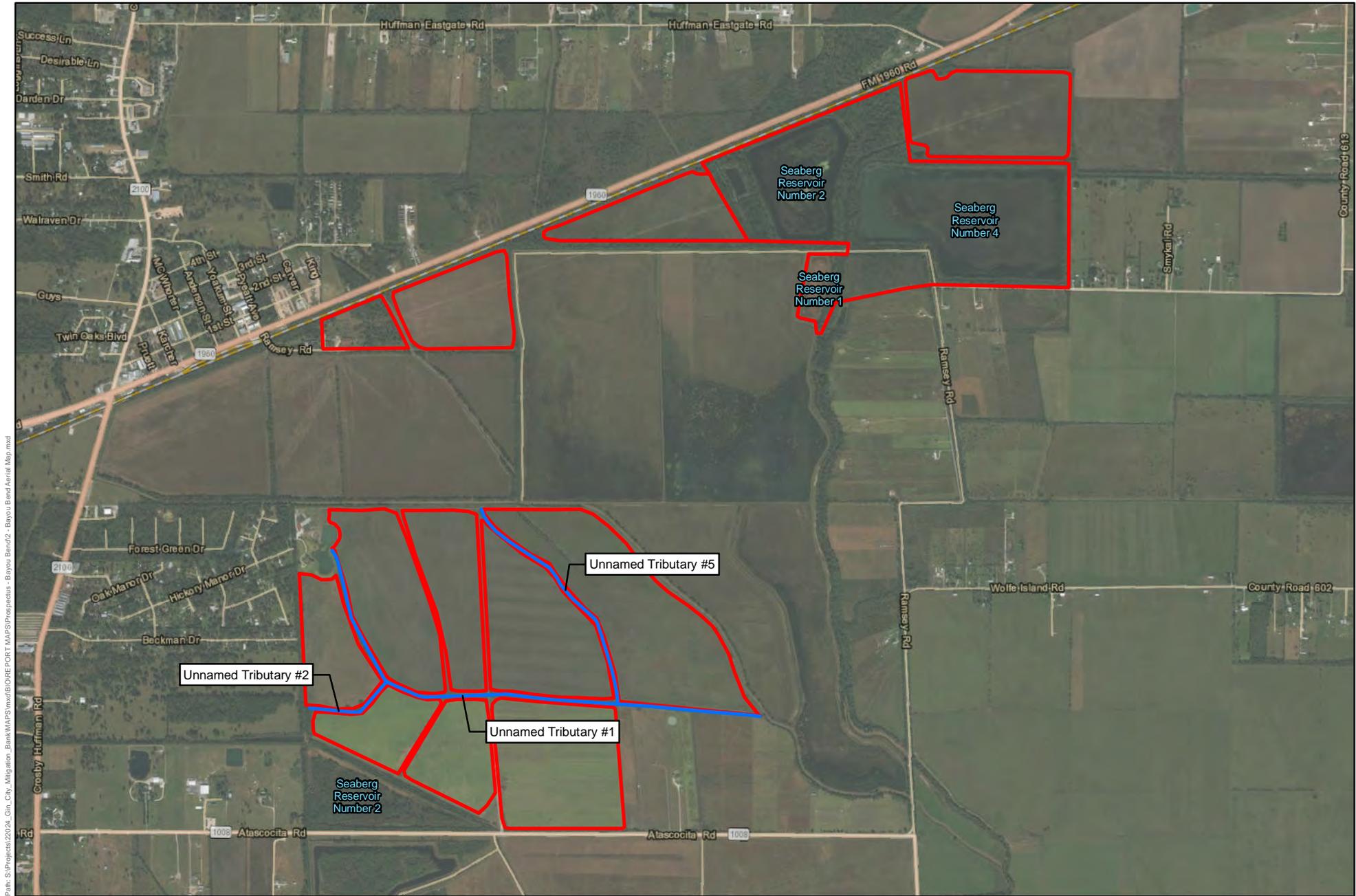


**BAYOU BEND MITIGATION BANK
 VICINITY MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS**

Project Boundary

	Background:	ESRI Aerial Imagery
	Scale:	1:100,000
	Created By:	JS
	Approved By:	NS
	SWCA Project No.:	22024
Date Produced:	March 21, 2018	
NAD 1983 UTM Zone 15N		

10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT\MAPS\Prospectus - Bayou Bend2 - Bayou Bend Aerial Map.mxd

10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

BAYOU BEND MITIGATION BANK
PROJECT AREA AERIAL PHOTOGRAPH
HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 2

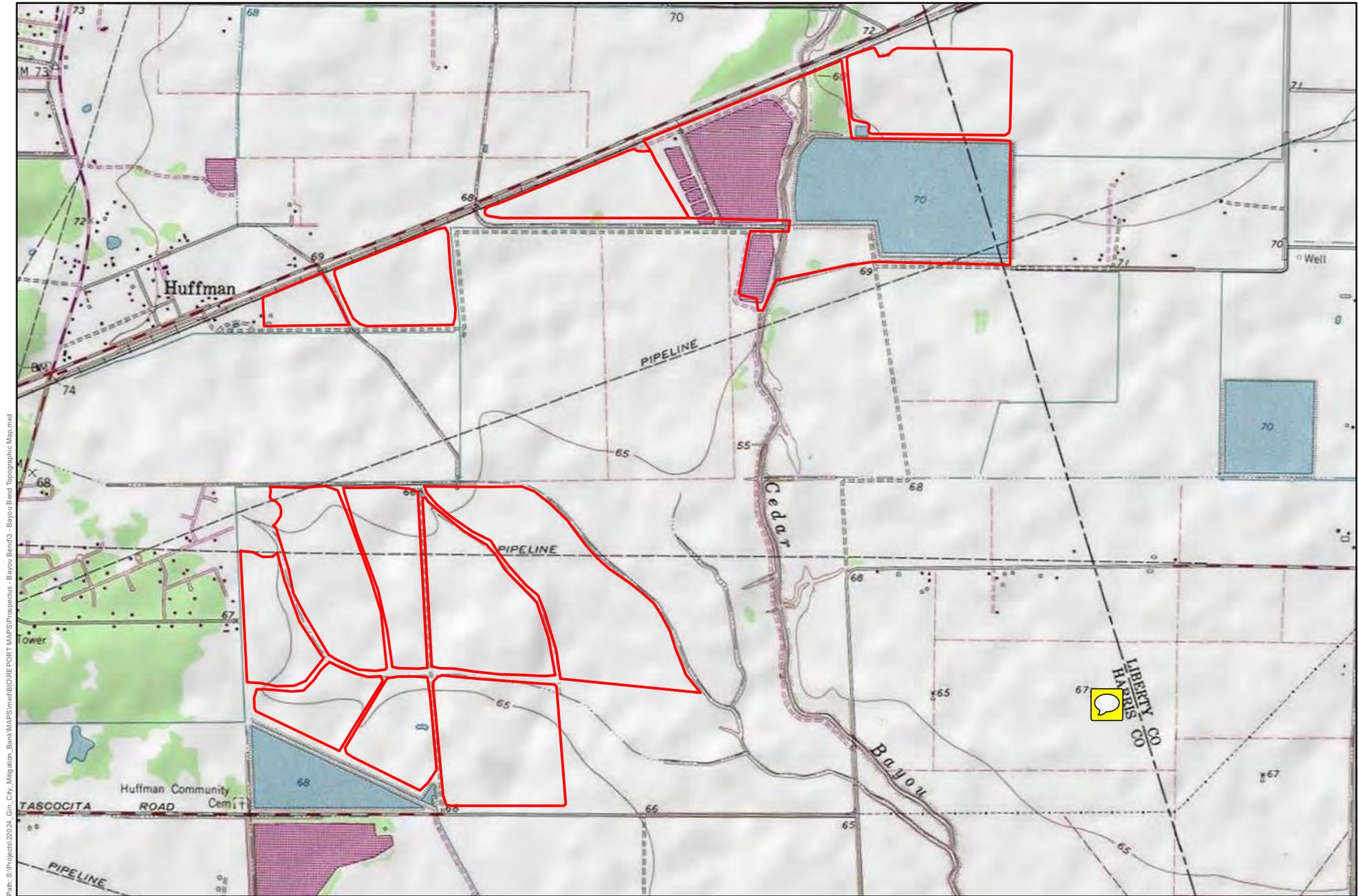
Project Boundary

Stream Centerline

N	Background:	ESRI Aerial Imagery
S	Scale:	1:24,000
	Created By:	JS
	Approved By:	NS
	SWCA Project No.:	22024
	Date Produced:	March 21, 2018
NAD 1983 UTM Zone 15N		

0 1,000 2,000 Feet

0 200 400 600 Meters



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT_MAPS\Prospectus - Bayou Bend3 - Bayou Bend Topographic Map.mxd

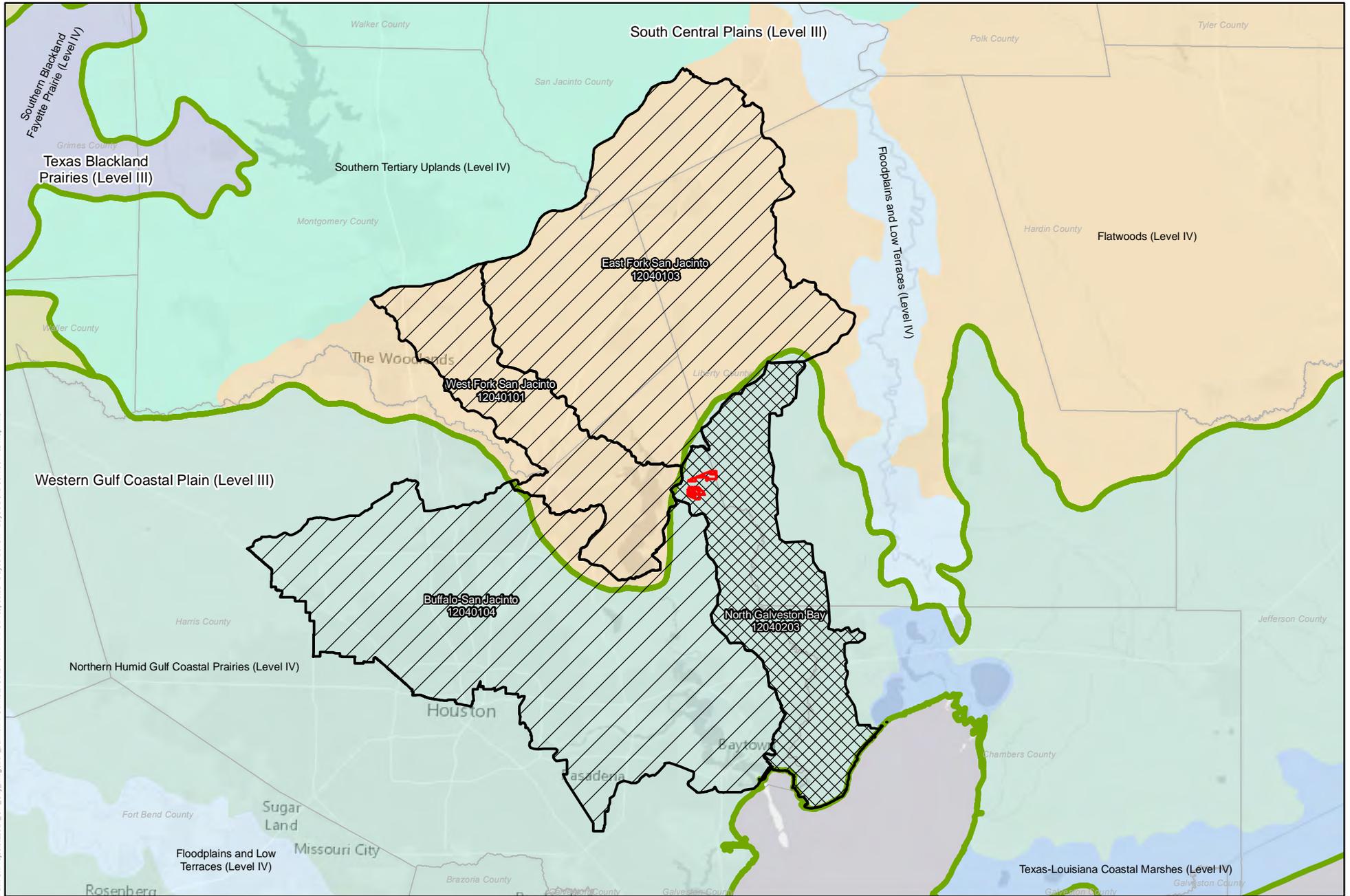
10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

**BAYOU BEND MITIGATION BANK
 TOPOGRAPHIC MAP (HUFFMAN QUADRANGLE)
 HARRIS AND LIBERTY COUNTIES, TEXAS**

EXHIBIT 3

Project Boundary

	Background:	USGS7.5 Topography Map
	Scale:	1:24,000
	Created By:	JS
	Approved By:	NS
	SWCA Project No.:	22024
Date Produced:	March 21, 2018	
NAD 1983 UTM Zone 15N		



Path: S:\Project\2024_Git_City_Mitigation_Bank\MAPS\mxd\REPORT_MAPS\Prospectus - Bayou Bend - Bayou Bend Service Area Map.mxd

10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

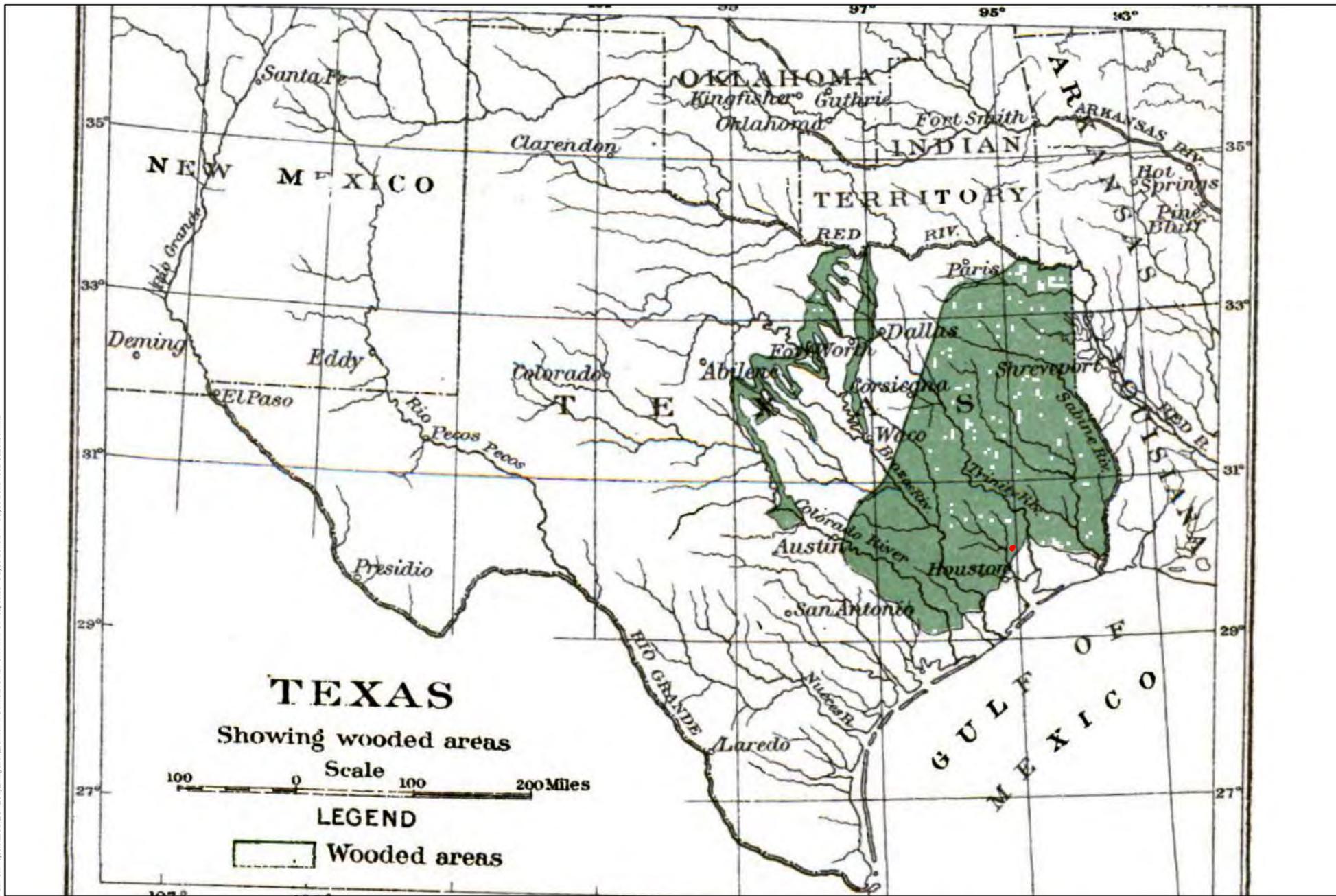
BAYOU BEND MITIGATION BANK
SERVICE AREA MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 4

Project Boundary Primary Service Area Secondary Service Area Ecoregion Level III Boundary County Boundary	Ecoregion Level IV Flatwoods Floodplains and Low Terraces Northern Humid Gulf Coastal Prairies Southern Blackland/Fayette Prairie Southern Post Oak Savanna Southern Tertiary Uplands Texas-Louisiana Coastal Marshes
---	---

	<table border="1"> <tr><td>Background:</td><td>ESRI World Light Gray</td></tr> <tr><td>Scale:</td><td>1:650,000</td></tr> <tr><td>Created By:</td><td>JS</td></tr> <tr><td>Approved By:</td><td>NS</td></tr> <tr><td>SWCA Project No.:</td><td>22024</td></tr> <tr><td>Date Produced:</td><td>March 21, 2018</td></tr> </table>	Background:	ESRI World Light Gray	Scale:	1:650,000	Created By:	JS	Approved By:	NS	SWCA Project No.:	22024	Date Produced:	March 21, 2018
Background:	ESRI World Light Gray												
Scale:	1:650,000												
Created By:	JS												
Approved By:	NS												
SWCA Project No.:	22024												
Date Produced:	March 21, 2018												

Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\1 - Bayou Bend 1902 Gazetteer.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

BAYOU BEND MITIGATION BANK
GAZETTEER OF TEXAS 1902 MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

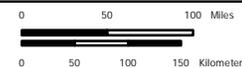
EXHIBIT 5 - SHEET 1

 Project Boundary

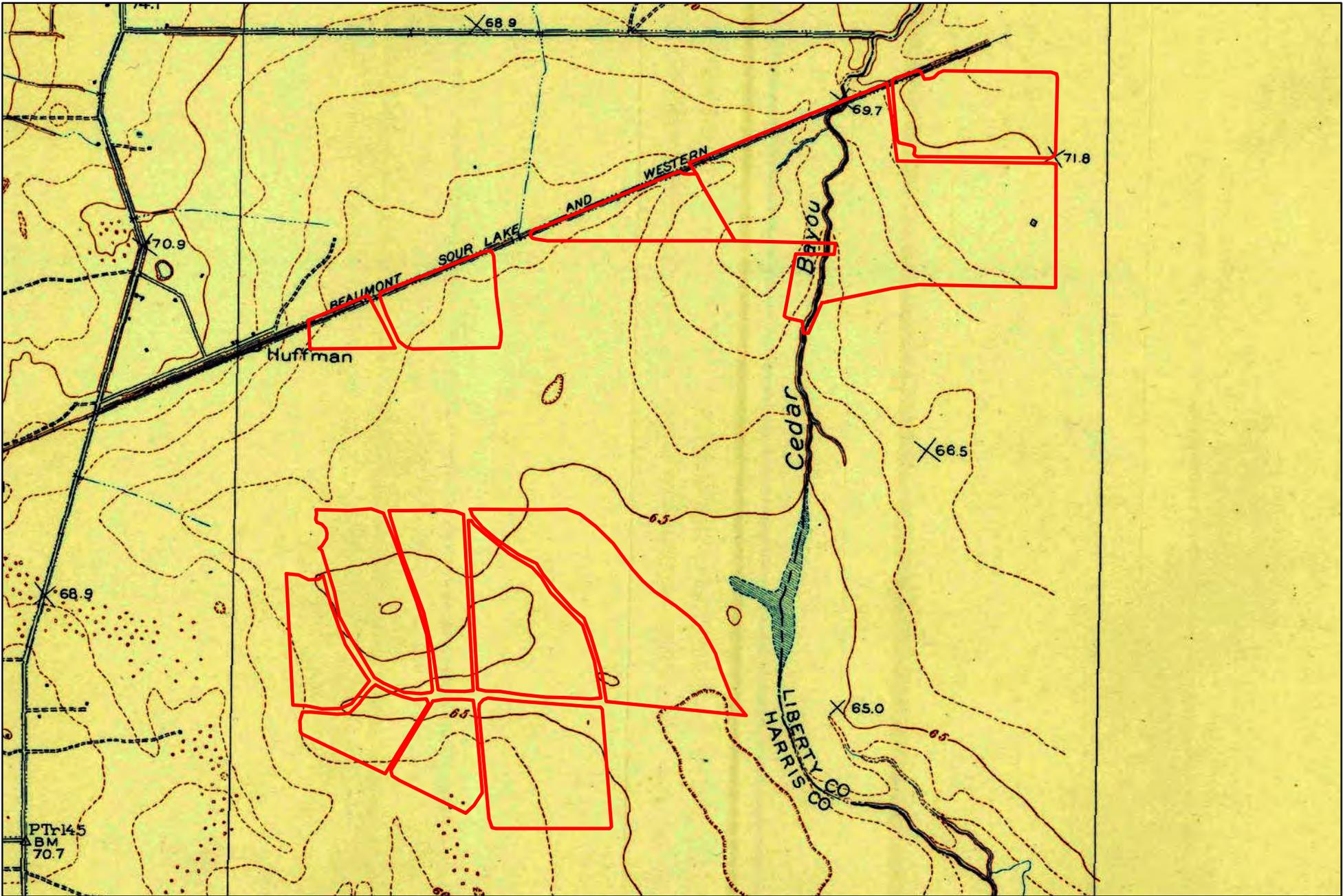


Background:	
Scale:	1:7,066,437
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 21, 2018

NAD 1983 2011 Texas Centric Mapping System Lambert



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Proprietary - Bayou Bend\1916 Topo.mxd



BAYOU BEND MITIGATION BANK
1916 TOPOGRAPHIC MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

 Project Boundary

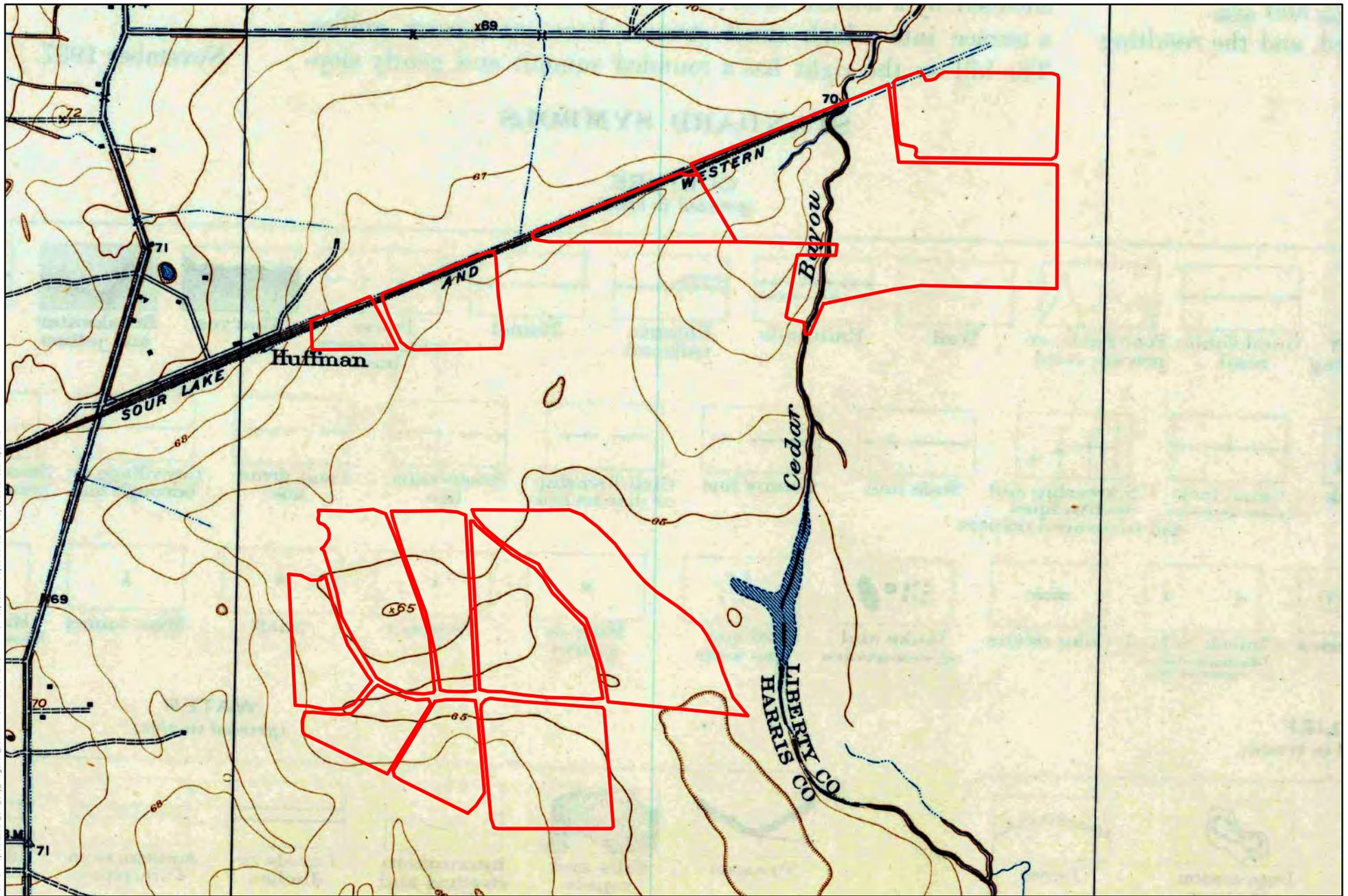
	Background:	
	Scale:	1:24,000
	Created By:	JS
	Approved By:	NS
	SWCA Project No.:	22024
	Date Produced:	March 21, 2018

NAD 1983 UTM Zone 15N

0	1,000	2,000	
			
0	200	400	600
Meters			

10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\5 - Bayou Bend\5 - Bayou Bend.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

BAYOU BEND MITIGATION BANK
1920 TOPOGRAPHIC MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 5 - SHEET 3

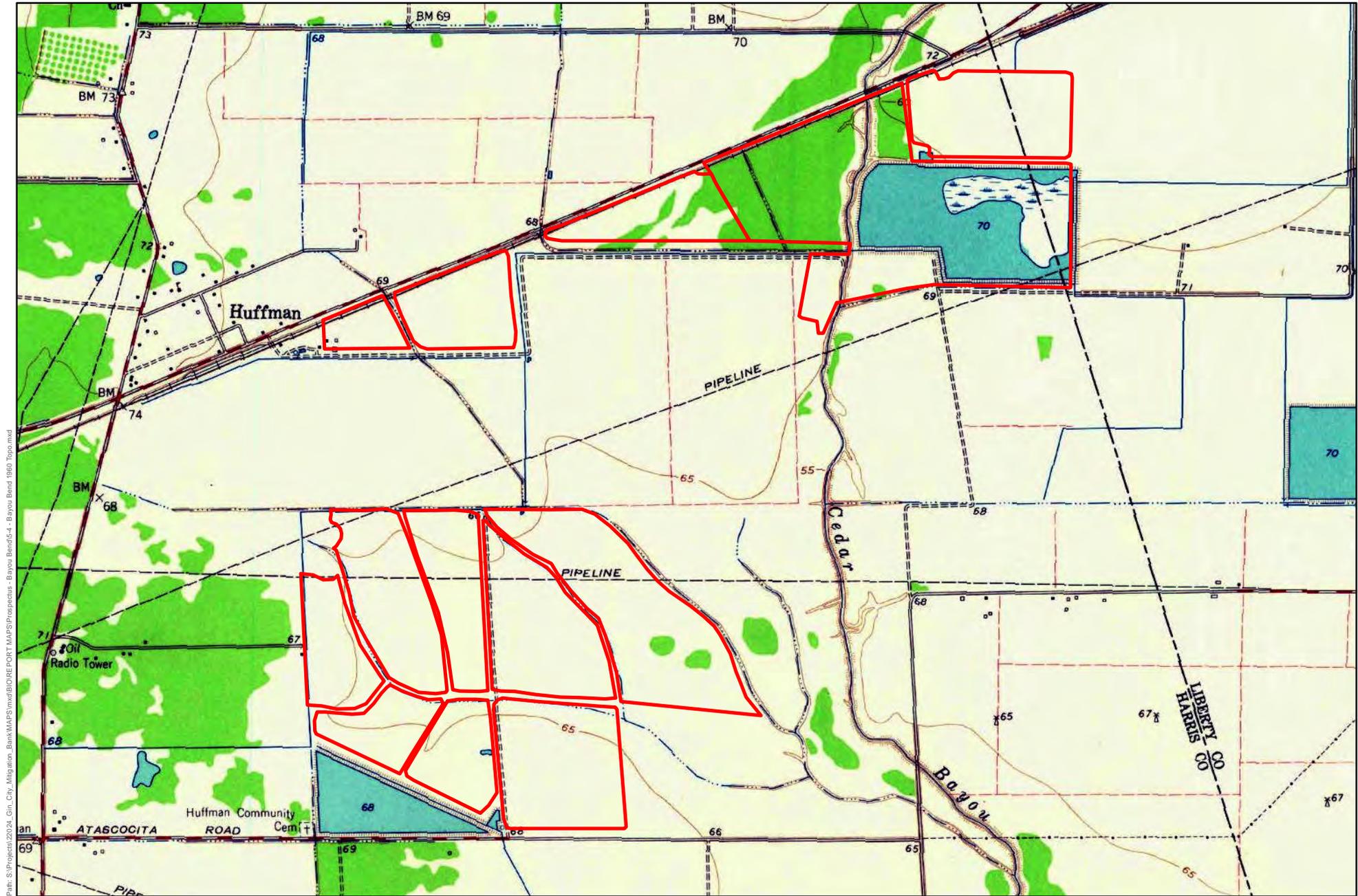
 Project Boundary



Background:	
Scale:	1:24,000
Created By:	JS
Approved By:	MS
SWCA Project No.:	22024
Date Produced:	March 21, 2018

NAD 1983 UTM Zone 15N





Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\4 - Bayou Bend 1960 Topo.mxd



10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

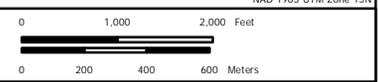
BAYOU BEND MITIGATION BANK
 1960 TOPOGRAPHIC MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 5 - SHEET 4

Project Boundary



Background:	
Scale:	1:24,000
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 21, 2018



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\5 - Bayou Bend\5 - Bayou Bend 1930 Imagery.mxd



BAYOU BEND MITIGATION BANK
1930 IMAGERY MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

 Project Boundary



Background:	
Scale:	1:24,000
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 21, 2018

NAD 1983 UTM Zone 15N



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\6 - Bayou Bend 1969 Imagery.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

BAYOU BEND MITIGATION BANK
1969 IMAGERY MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

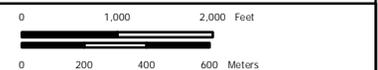
EXHIBIT 5 - SHEET 6

 Project Boundary

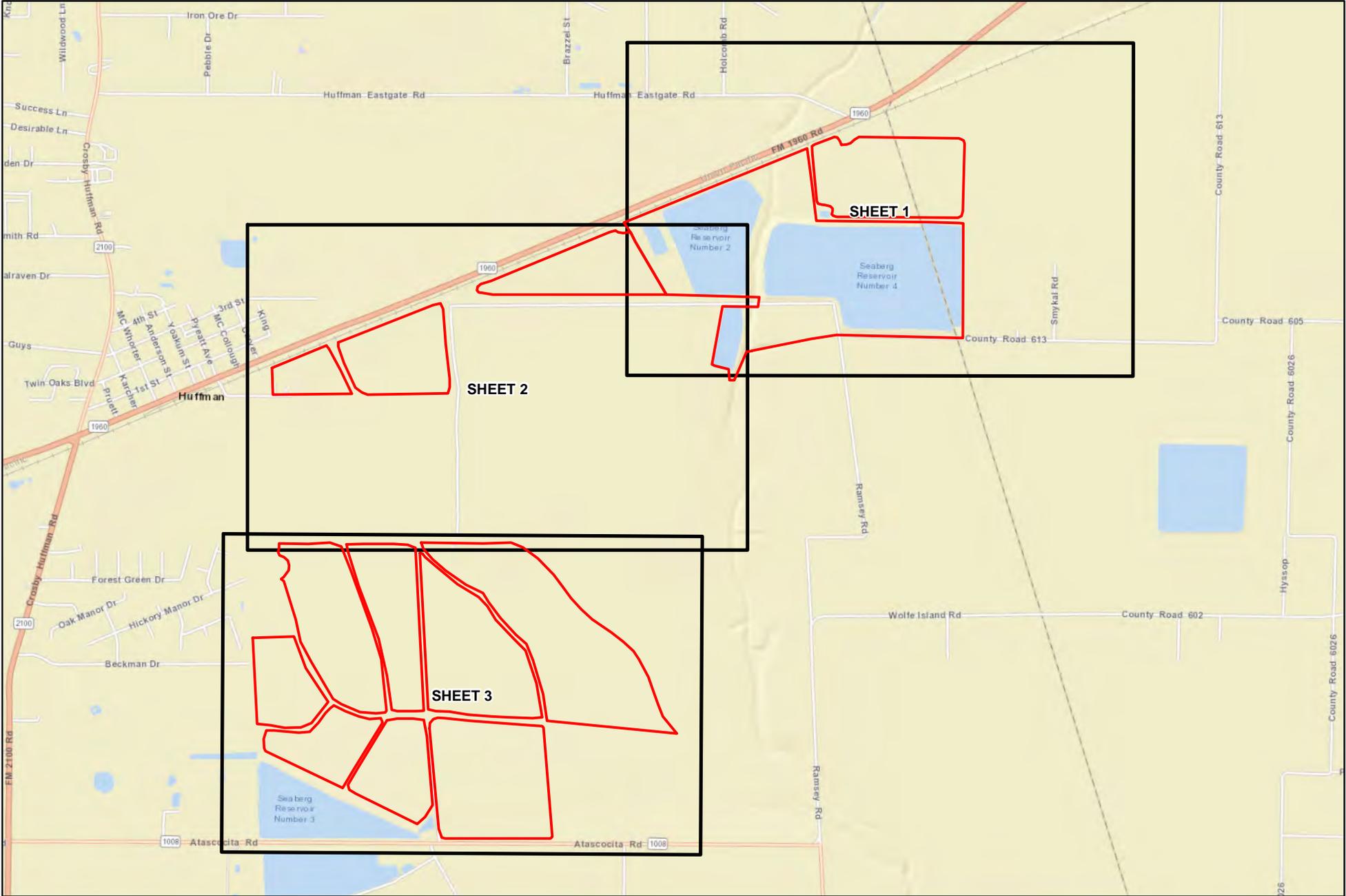


Background:	
Scale:	1:24,000
Created By:	JS
Approved By:	MS
SWCA Project No.:	22024
Date Produced:	March 21, 2018

NAD 1983 UTM Zone 15N



Path: S:\Project\2024_GIS_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend Wetland Delineation Index Map.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

BAYOU BEND MITIGATION BANK
NWI, NRCS SOILS, AND WETLAND DELINEATION MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 6 INDEX

-  Project Boundaries
-  Map Sheet Index

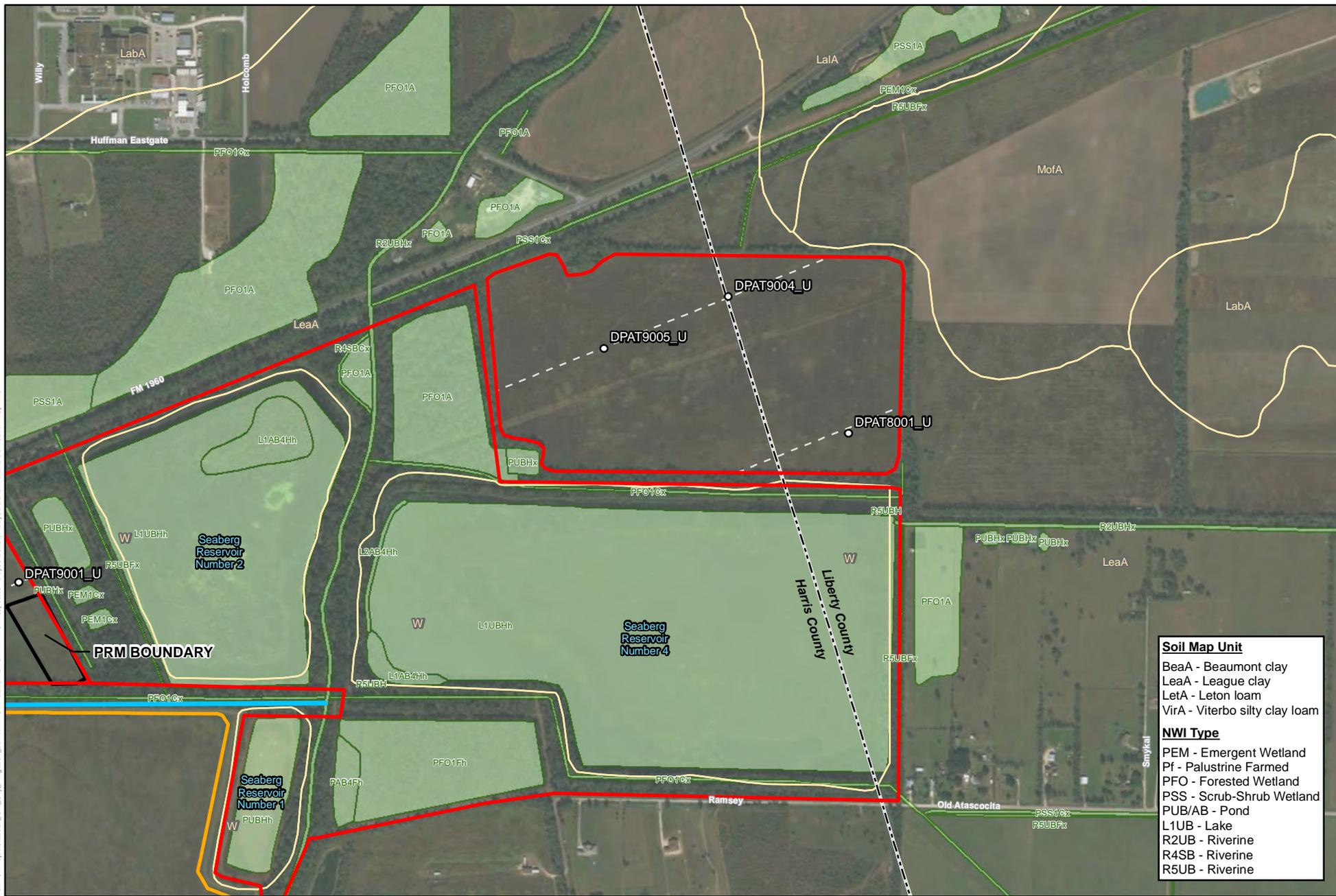


Background:	ESRI Street Map
Scale:	1:26,000
Created By:	JS
Approved By:	FC
SWCA Project No.:	22026
Date Produced:	March 21, 2018

NAD 1983 UTM Zone 15N



Path: S:\Project\2024_Gin_City_Mitigation_Bank\MAPS\BID\REPORT MAPS\Prospectus - Bayou Bend Wetland Delineation Map.mxd



Soil Map Unit	
BeaA	- Beaumont clay
LeaA	- League clay
LetA	- Leton loam
VirA	- Viterbo silty clay loam
NWI Type	
PEM	- Emergent Wetland
Pf	- Palustrine Farmed
PFO	- Forested Wetland
PSS	- Scrub-Shrub Wetland
PUB/AB	- Pond
L1UB	- Lake
R2UB	- Riverine
R4SB	- Riverine
R5UB	- Riverine

SWCA
ENVIRONMENTAL CONSULTANTS

10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

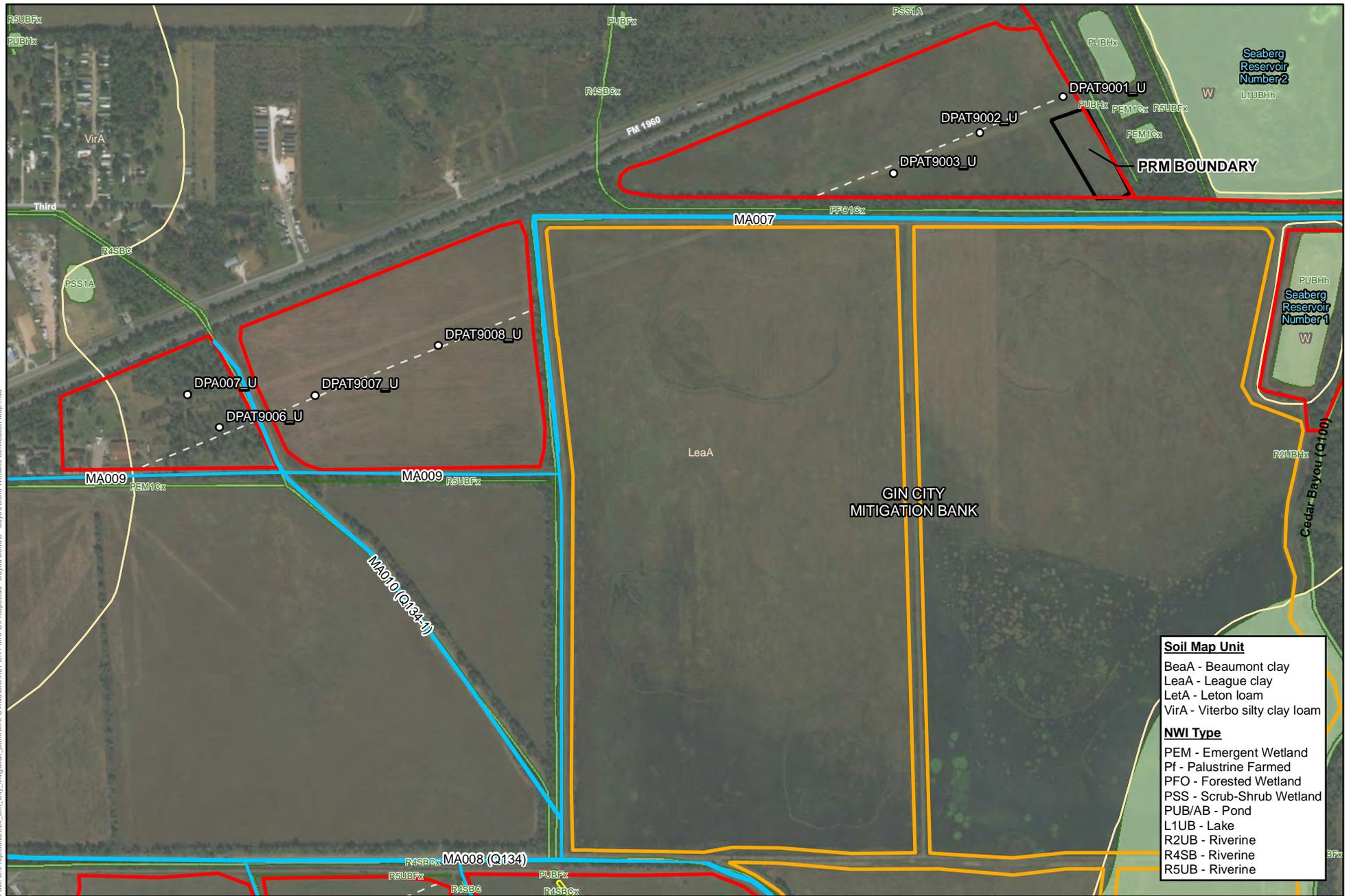
BAYOU BEND MITIGATION BANK
NWI, NRCS SOILS, AND WETLAND DELINEATION MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

SHEET 1 OF 3 EXHIBIT 6

Project Boundary	Data Point
Gin City Mitigation Bank	Intermittent Waterbody
PRM Boundary	Soil Map Unit Boundary
Transect Lines	NWI
PEM Wetland	County Boundary
PFO Wetland	

Background:	ESRI World Imagery
Scale:	1:9,500
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 22, 2018

NAD 1983 UTM Zone 15N



Path: S:\Project\2024_Gin_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend Wetland Delineation Map.mxd

Soil Map Unit	
BeaA	- Beaumont clay
LeaA	- League clay
LetA	- Leton loam
VirA	- Viterbo silty clay loam
NWI Type	
PEM	- Emergent Wetland
Pf	- Palustrine Farmed
PFO	- Forested Wetland
PSS	- Scrub-Shrub Wetland
PUB/AB	- Pond
L1UB	- Lake
R2UB	- Riverine
R4SB	- Riverine
R5UB	- Riverine

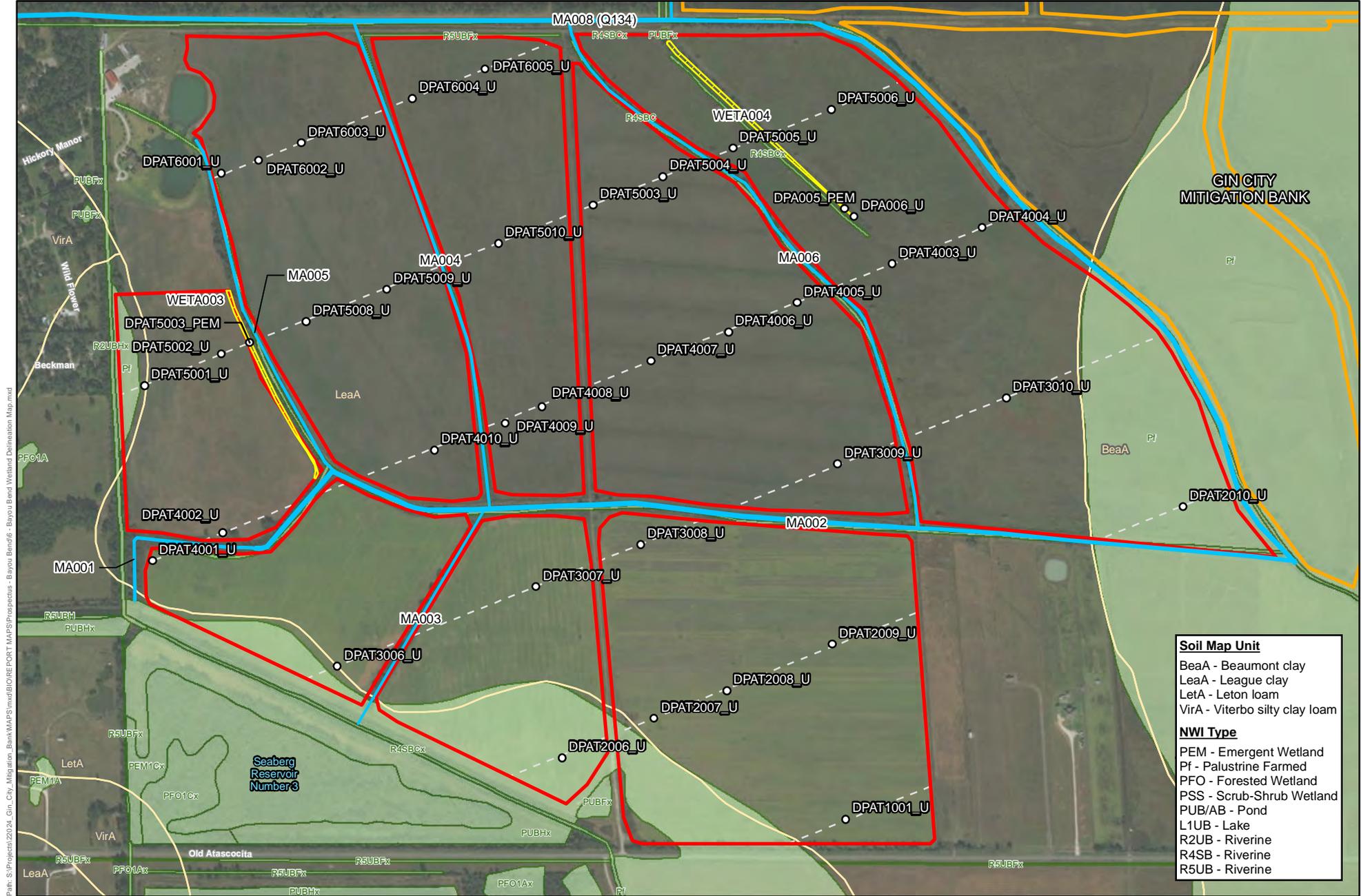
10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

BAYOU BEND MITIGATION BANK
 NWI, NRCS SOILS, AND WETLAND DELINEATION MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS

SHEET 2 OF 3
EXHIBIT 6

Project Boundary	Data Point
Gin City Mitigation Bank	Intermittent Waterbody
PRM Boundary	Soil Map Unit Boundary
Transect Lines	NWI
PEM Wetland	County Boundary
PFO Wetland	

	Background:	ESRI World Imagery
	Scale:	1:9,500
	Created By:	JS
	Approved By:	NS
SWCA Project No.:		22024
Date Produced:		March 22, 2018
NAD 1983 UTM Zone 15N		



Path: S:\Project\2024_Gin_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospective - Bayou Bend Wetland Delineation Map.mxd

Soil Map Unit	
BeaA	- Beaumont clay
LeaA	- League clay
LetA	- Leton loam
VirA	- Viterbo silty clay loam
NWI Type	
PEM	- Emergent Wetland
Pf	- Palustrine Farmed
PFO	- Forested Wetland
PSS	- Scrub-Shrub Wetland
PUB/AB	- Pond
L1UB	- Lake
R2UB	- Riverine
R4SB	- Riverine
R5UB	- Riverine

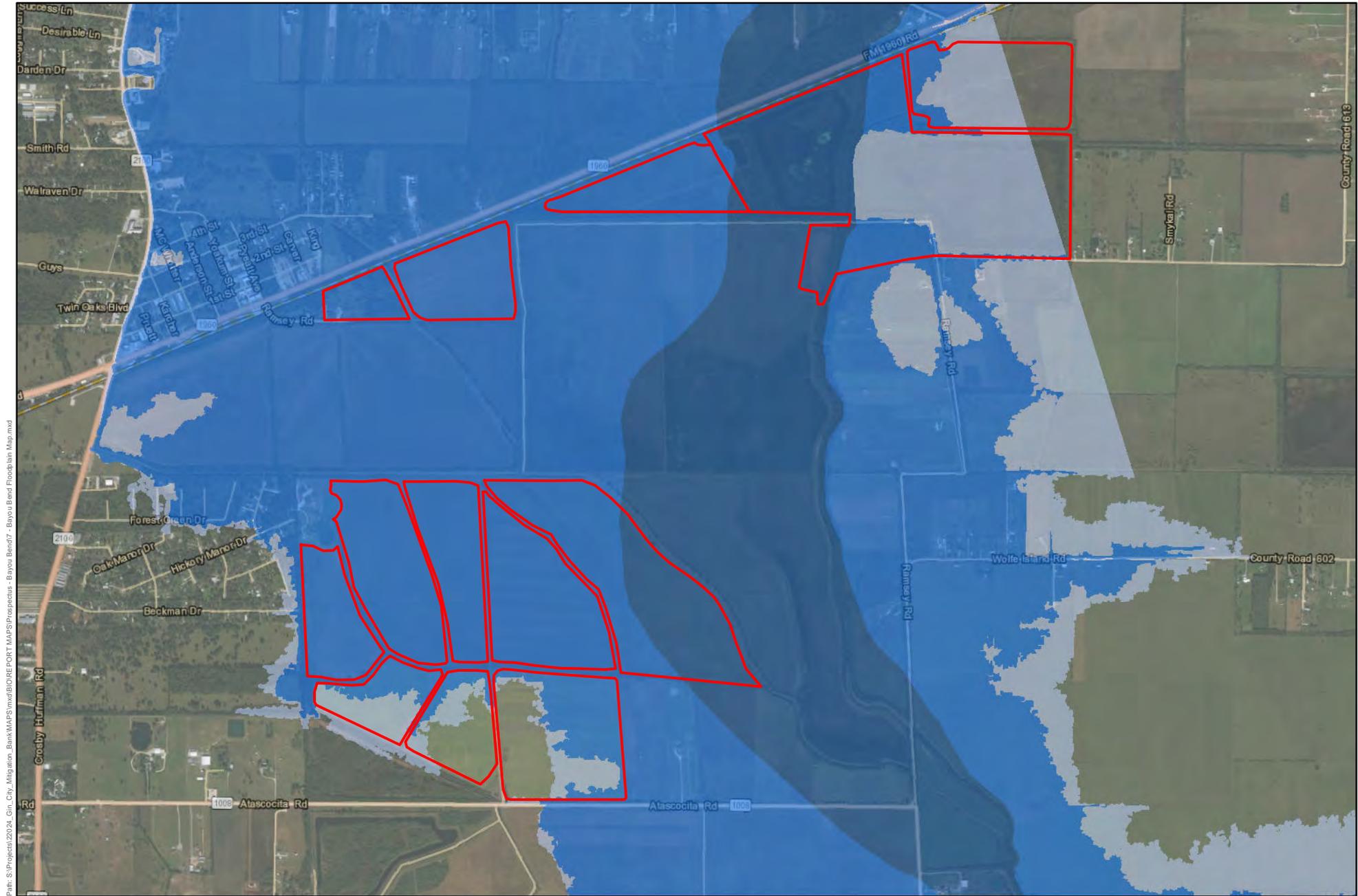
10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

BAYOU BEND MITIGATION BANK
 NWI, NRCS SOILS, AND WETLAND DELINEATION MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS

SHEET 3 OF 3 EXHIBIT 6

Project Boundary	Data Point
Gin City Mitigation Bank	Intermittent Waterbody
PRM Boundary	Soil Map Unit Boundary
Transect Lines	NWI
PEM Wetland	County Boundary
PFO Wetland	

	Background:	ESRI World Imagery
	Scale:	1:9,500
	Created By:	JS
	Approved By:	MS
	SWCA Project No.:	22024
	Date Produced:	March 22, 2018



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\Floodplain Map.mxd



10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

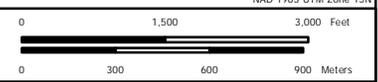
**BAYOU BEND MITIGATION BANK
 FLOODPLAIN MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS**

EXHIBIT 7

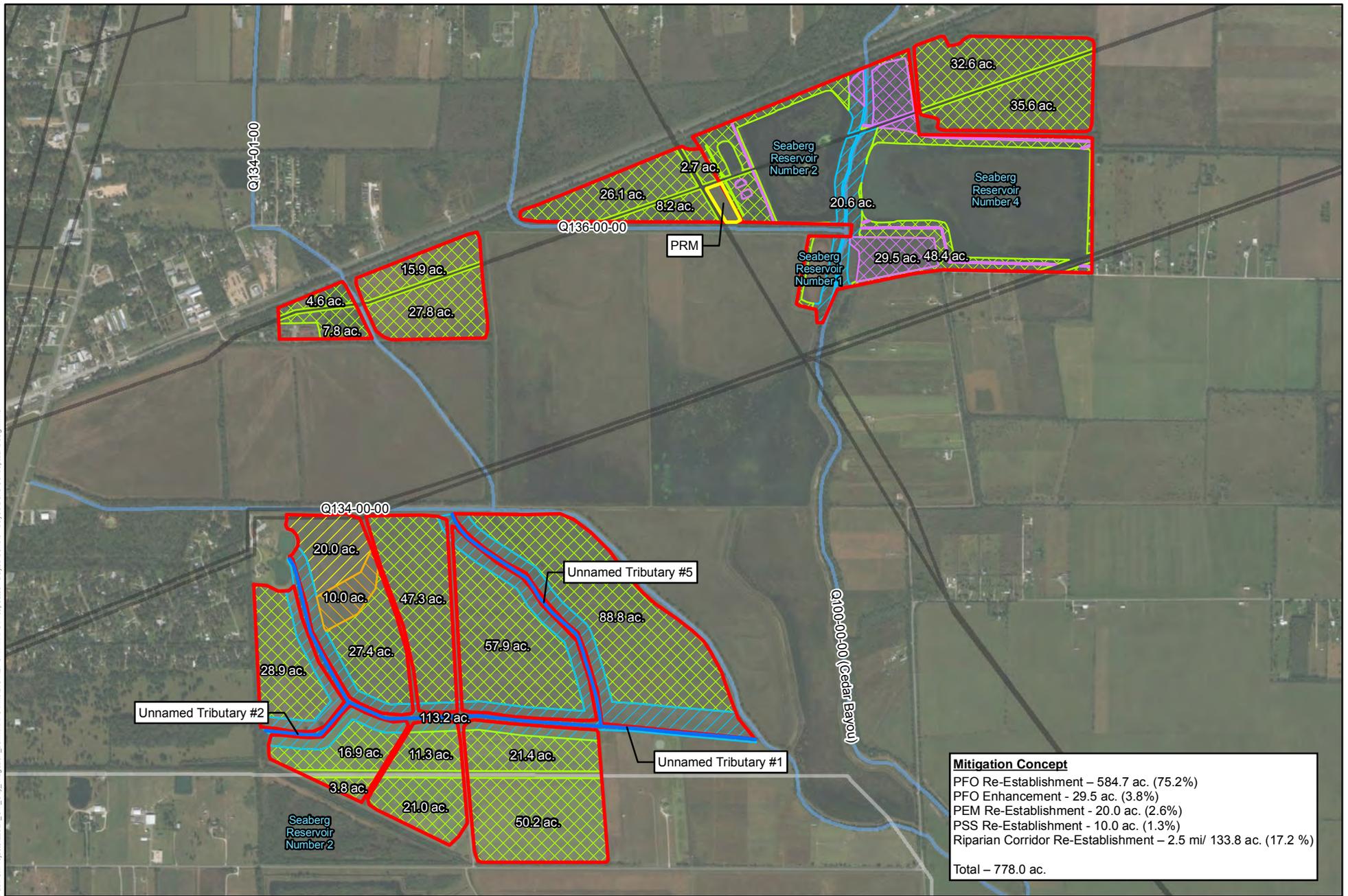
- Project Boundary
- Floodway
- 100-Year Floodplain
- 500-Year Floodplain



Background:	ESRI World Imagery
Scale:	1:24,000
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 21, 2018



Path: S:\Projects\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\Bayou Bend Conceptual Design.mxd



Mitigation Concept	
PFO Re-Establishment	- 584.7 ac. (75.2%)
PFO Enhancement	- 29.5 ac. (3.8%)
PEM Re-Establishment	- 20.0 ac. (2.6%)
PSS Re-Establishment	- 10.0 ac. (1.3%)
Riparian Corridor Re-Establishment	- 2.5 mi/ 133.8 ac. (17.2%)
Total	- 778.0 ac.



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

**BAYOU BEND MITIGATION BANK
CONCEPTUAL DESIGN
HARRIS AND LIBERTY COUNTIES, TEXAS**

EXHIBIT 8

- ▭ Project Boundary
- PRM Boundary
- Stream Centerline
- Pipeline Easement
- HCFCF Easement
- Powerline Easement

Conceptual Design

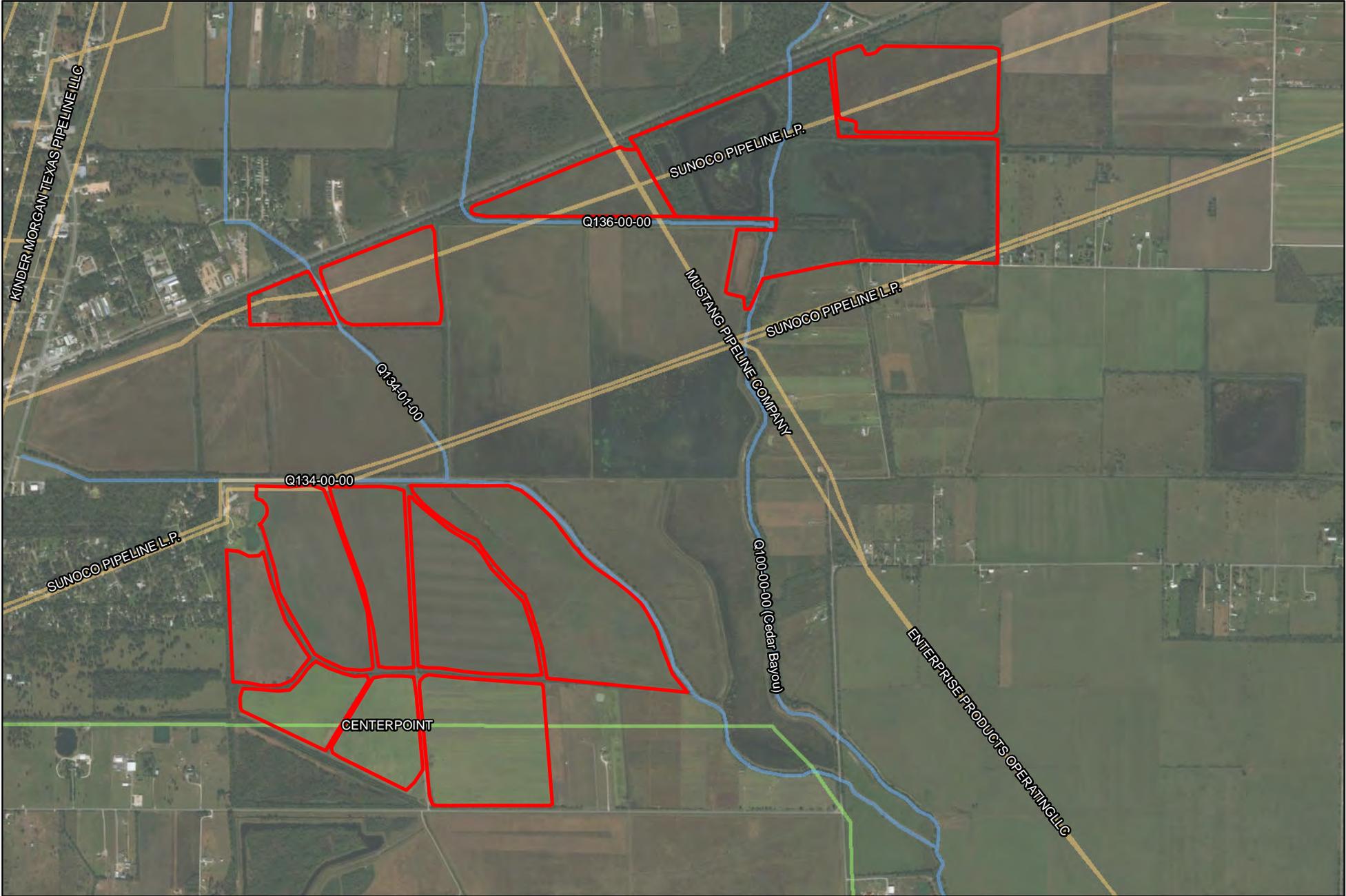
- Proposed Emergent Wetland (PEM)
- Proposed Scrub-Shrub Wetland (PSS)
- Proposed Forested Wetland (PFO)
- Enhanced Forested Wetland (PFO)
- Proposed Riparian Corridor



Background:	ESRI World Imagery
Scale:	1:22,000
Created By:	JS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 22, 2018



Path: S:\Project\2024_Gis_City_Mitigation_Bank\MAPS\mxd\REPORT MAPS\Prospectus - Bayou Bend\Bayou Bend Easement Map.mxd



10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

BAYOU BEND MITIGATION BANK
 EASEMENT MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS

EXHIBIT 9

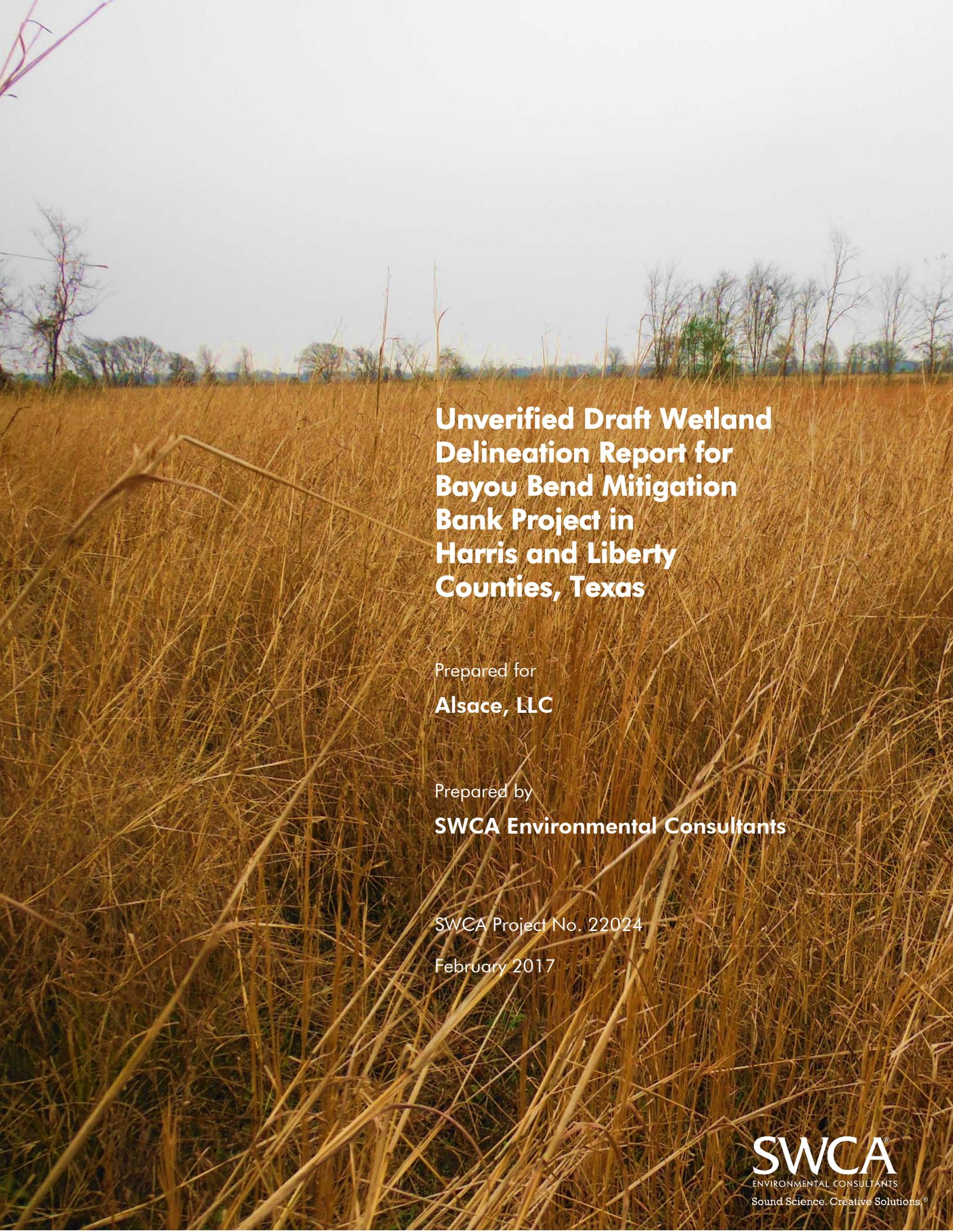
- Project Boundary
- Pipeline Easement
- HCFCD Easement
- Powerline Easement



Background:	USGS7.5 Topography Map
Scale:	1:24,000
Created By:	KS
Approved By:	NS
SWCA Project No.:	22024
Date Produced:	March 21, 2018



Appendix A
Wetland Delineation Report



**Unverified Draft Wetland
Delineation Report for
Bayou Bend Mitigation
Bank Project in
Harris and Liberty
Counties, Texas**

Prepared for
Alsace, LLC

Prepared by
SWCA Environmental Consultants

SWCA Project No. 22024

February 2017

**UNVERIFIED DRAFT WETLAND DELINEATION REPORT FOR
BAYOU BEND MITIGATION BANK PROJECT IN
HARRIS AND LIBERTY COUNTIES, TEXAS**

Prepared for

Alsace, LLC
12417 FM 1960
Huffman, Texas 77336

Prepared by

SWCA Environmental Consultants
10245 W. Little York Road, Suite 600
Houston, Texas 77040
www.swca.com

SWCA Project No. 22024

February 2017

CONTENTS

Contents	i
Appendices.....	i
Tables	i
1. Introduction.....	1
2. Methods	1
2.1. Resource Review	1
2.2. Wetlands	1
2.2.1. Vegetation Community Types and Hydrophytic Vegetation.....	2
2.2.2. Hydric Soils	2
2.2.3. Wetland Hydrology.....	2
2.3. Waterbodies	3
2.4. Mapping	3
3. Results.....	4
3.1. Current Site Condition Considerations	4
3.2. Wetlands	4
3.2.1. Vegetation Communities.....	4
3.2.2. Soils.....	5
3.2.3. Hydrology	6
3.3. Waterbodies	7
4. Summary and Conclusions	7
5. References.....	8

APPENDICES

A.	Vicinity, Historic, Index, and Site Layout Maps
B.	Wetland Delineation Data Sheets
C.	Photographic Log
D.	NRCS Soil Map Unit Description
E.	NRCS Wetland Determination

TABLES

Table 1. Wetland characteristics.	4
Table 2. NRCS-mapped soils and their hydric characteristics.....	6
Table 3. Project area DAREM wetland hydrologic condition during January 2017.	6
Table 4. Man-made channels.	7

1. INTRODUCTION

Alsace, LLC (Alsace) retained SWCA Environmental Consultants (SWCA) to conduct a delineation of potential waters of the United States, commonly referred to as a wetland delineation, for the proposed Bayou Bend Mitigation Bank Project in Harris and Liberty Counties, Texas (project area). The project area consists of approximately 1,300 acres of established agricultural fields and former woodlands located approximately 1.25 miles southeast of the intersection of Farm to Market Road 1960 and Farm to Market Road 2100 within the city of Huffman, Harris County, Texas (Appendix A). The purpose of the wetland delineation was to determine the presence, location, and extent of potential waters of the United States within the project area and assist in determining the environmental permitting requirements and/or feasibility of using the project area for wetland mitigation banking purposes.

According to the U.S. Army Corps of Engineers (USACE), waters of the United States include territorial seas, tidal waters, traditional navigable waters, interstate waters, and the adjacent, contributing, or impoundments of these waters (e.g., rivers, creeks, streams, lakes, reservoirs). Special aquatic resources associated with these waters are also considered waters of the United States and include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes.

Wetlands are typically the most common special aquatic resources present and are defined by the USACE as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 Code of Federal Regulations [CFR] 230.3(t)). Based on this definition, for an area to be considered a wetland it must possess the following parameters under normal circumstances: 1) a predominance plants adapted to live in water or saturated soils (i.e., hydrophytic vegetation), 2) soil characteristics of frequent saturation (i.e., hydric soils), and 3) the presence of hydrology showing evidence of regular flooding or ponding (i.e., wetland hydrology).

2. METHODS

2.1. Resource Review

Prior to performing the delineation, SWCA conducted a resource review of available background information to help identify the portions of the project area most likely to contain wetlands and/or waterbodies. Resources reviewed included historic aerial photography, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) data, historic USGS topographic quadrangles, and available Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) data.

2.2. Wetlands

SWCA conducted field surveys of the project area from January 3 through 9, 2017, following the wetland delineation guidelines provided in both the 1987 *Corps of Engineers Wetlands Delineation Manual* (Manual) and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* (Regional Supplement). As part of SWCA’s delineation efforts, nine transects running relatively perpendicular to the Harris County Flood Control District (HCFCD) named creek, Q134-01-00, were traversed to assess the presence or absence of the three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) within the project area.

Data sheets, which represent areas of uniformity (i.e., similar vegetation, soils, and hydrology), were completed at select transect locations (i.e., data points) and other portions of the project area to differentiate wetland and non-wetland areas by documenting the presence or absence of the wetland parameters (Appendix B). Data point locations included wetland/non-wetland boundaries, NWI feature locations and areas suggestive of inundation or saturation in aerial imagery evaluated during the resource review, and the various non-wetland vegetation community types encountered within the project area. At each data point, SWCA took photographs to support the information recorded on the data sheets and document the general conditions observed in the field. A subset of the photographs are provided in the photographic log in Appendix C.

2.2.1. Vegetation Community Types and Hydrophytic Vegetation

Vegetation community types within the project area were categorized based on the uppermost layer of vegetation into one of three categories: emergent/herbaceous, scrub-shrub, or forested. Wetland communities were further described using the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Wetland and non-wetland vegetation communities were differentiated by the presence or absence of hydrophytic vegetation, respectively.

Hydrophytic vegetation refers to plant species adapted to survive in saturated or inundated soils for at least five percent of the growing season. A given area is said to have hydrophytic vegetation when the prevalence of hydrophytes (water-adapted plants) exceeds that of non-hydrophytes based on species wetland indicator status ratings assigned by the USACE. To assess this parameter consistently with the Regional Supplement, SWCA personnel listed all plants by strata within circular sample plots centered at each data point as well as each plant species' absolute areal cover to derive dominance and prevalence values. Then, based on the USACE National Wetland Plant List: 2016 Wetland Ratings, SWCA personnel assigned the appropriate wetland indicator status rating to each species and compared the relative proportions of hydrophytes to non-hydrophytes to determine if the assessed plant community met the hydrophytic vegetation parameter (Lichvar et al. 2016).

2.2.2. Hydric Soils

Hydric soils typically have characteristics indicating that they formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper strata (Soil Conservation Service [SCS] 1994). Characteristic indicators of hydric soils are described in the 2010 Natural Resources Conservation Service (NRCS) *Field Indicators of Hydric Soils in the United States, Version 7.0*. Soils that do not match any of the accepted hydric soil indicators are considered non-hydric. To assess this parameter consistent with the Regional Supplement, SWCA personnel extracted soil pedons to a depth of no more than 20 inches at the data points and recorded soil characteristics (e.g., color, texture, redoximorphic features) necessary for comparison to known indicators. The hydric soil parameter was met when the soil profile matched the description of a regionally-accepted hydric soil indicator.

2.2.3. Wetland Hydrology

Wetland hydrology refers to observable characteristics that confirm recent or continuing inundation and/or soil saturation within an assessed area during the growing season. Direct observation of continuous saturation or inundation within 12 inches of the soil surface for a duration of no less than 14 consecutive days will meet the standard for hydrology specified in the 2005 USACE *Technical Standard for Water Table Measurements of Potential Wetlands* (USACE 2005a). Because on-site investigations to accurately determine the presence or absence of this standard are often impractical, the Regional Supplement describes a variety of readily observable primary (more reliable) and secondary (less reliable) hydrologic indicators that serve as sufficient evidence of wetland hydrology when present. In accordance with the Regional

Supplement, all indications of periodic inundation and/or soil saturation within an assessed area were recorded and compared to known wetland hydrology indicators. If the area displayed at least one primary indicator or two secondary indicators, the wetland hydrology parameter was met.

Of the three wetland assessment parameters, wetland hydrology is perhaps the most difficult to accurately assess because it is both transitory and influenced by physical and climatic factors (e.g., precipitation, soil permeability, stratigraphy, topography). In this region, the normality of precipitation (primarily as rainfall) has a substantial temporal influence on wetland hydrology. This is particularly true for the summer months when evapotranspiration rates are highest and typically result in receding water tables. Therefore, it is essential to assess wetland hydrology with respect to rainfall normality within the project area. This was done by employing the direct antecedent rainfall evaluation method (DAREM; Sprecher and Warne 2000). This method assesses an area's wetland hydrologic condition by comparing prior 3-month precipitation values to 30-year norms available from the NRCS in tabular form as Wetlands Evaluation Tables (WETS) (NRCS 1997). Evaluation using DAREM classifies the wetland hydrologic condition of an area into one of three categories – drier than normal, normal, or wetter than normal. This assessment along with rainfall events during or shortly before the delineation were considered to determine if identified wetland hydrology indicators should be considered normal or resultant of wetter than normal hydrologic conditions, or if hydrology indicators were lacking to abnormal or problematic conditions.

2.3. Waterbodies

SWCA delineated all waterbodies within the project area that possess an ordinary high water mark (OHWM). For each waterbody, SWCA took photographs and documented its general characteristics (e.g., tidal indicators, OHWM dimensions, flow, substrate).

Non-tidal waterbodies were delineated at the OHWM using the recommendations of the 2005 USACE Regulatory Guidance Letter (RGL) 05-05: Ordinary High Water Mark Identification (USACE 2005b). An OHWM is a line on the shore established by the fluctuations of water during ordinary high water flows and indicated by physical characteristics such as “a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328.3(e)).

2.4. Mapping

SWCA used a Trimble Geo-Explorer 7X series global positioning system (GPS) unit to geographically reference features, such as data point locations and wetland/waterbody boundaries, identified during the delineation. Geographic information system (GIS) software was used to differentially correct (i.e., post-process) collected features, calculate areas, and generate the attached wetland delineation map (see Appendix A). The point, line, and polygon data displayed on the attached maps, though collected with a GPS unit capable of submeter accuracy, is for review purposes only, and does not represent a professional civil survey. Data points and delineated features are identified by a unique identifier. Wetlands, waterbodies, and man-made channels, if present, are identified by “WET”, “S”, and “M” as the first character, respectively, and followed by a team designation “A” or “B” and a unique sequential number beginning with 001. For example, WETA001 is the first wetland that was delineated by team A. Data points are identified by “DP” followed by the team letter designation, the transect number, a unique sequential number beginning with 001, an underscore, and the type of vegetation community in which the data point is located (e.g. “PEM” for palustrine emergent wetland). For example, DPAT3003_PEM represents the third data point taken on transect number 3 by team A within a palustrine emergent wetland. If a data point was not taken on transect, the transect number is excluded from the name.

3. RESULTS

3.1. Current Site Condition Considerations

According to the resource review, the project area consists primarily of historically farmed rice (*Oryza sativa*) fields that have been converted to agricultural fields for growing millet (*Sorghum bicolor*). In some areas actively being farmed for millet, all three wetland parameters were observed. SWCA did not consider these areas as waters of the United States because the NRCS identified these areas as prior converted croplands during a wetland conservation determination performed in 2010. A copy of the NRCS determination is provided in Appendix E.

3.2. Wetlands

SWCA delineated four distinct wetland areas totaling 67.815 acres within the project area. These wetlands include three palustrine emergent (PEM) wetlands, and one mixed PEM/palustrine forested (PFO) wetland (Table 1). See Appendix A for the location of each wetland and data points within the project area. Photographs of select wetlands are provided in Appendix C.

Table 1. Wetland characteristics.

Wetland ID	Vegetation Community Type	Acreage within Project Area*
WETA001	PEM	41.539
WETA001	PFO	24.963
WETA002	PFO	0.159
WETA003	PEM	0.500
WETA004	PEM	0.654
<i>PEM Wetlands Subtotal</i>		42.693
<i>PFO Wetlands Subtotal</i>		25.122
Total		67.815

* Acreages were rounded to the nearest 0.001 acre.

3.2.1. Vegetation Communities

SWCA observed five vegetation community types within the project area including two wetland vegetation communities (i.e., PEM and PFO) and three non-wetland/upland vegetation communities (i.e., herbaceous, scrub/shrub, and forested). The species identified at each data point along with their areal coverage are recorded on the data sheets in Appendix B. A photographic log, which includes a representative subset of all of the vegetation communities observed within the project area as viewed from select data points, is provided in Appendix C. The dominant species identified within each vegetation community type are listed in the following paragraphs.

PEM Wetland. The PEM wetland communities consist of a prevalence of hydrophytic non-woody vegetation less than 3 feet in height, and are located along drainages or depressional areas within the project area. Dominant herbaceous species include woodrush flat sedge (*Cyperus entrerianus*), sand spike-rush (*Eleocharis montevidensis*), dog-fennel (*Eupatorium capillifolium*), torpedo grass (*Panicum repens*), swamp smartweed (*Persicaria hydropiperoides*), and short-bristle horned beak sedge (*Rhynchospora corniculata*). Scattered shrub species, where present, include eastern baccharis (*Baccharis halimifolia*).

Scattered tree species, where present, include red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), black willow (*Salix nigra*), and Chinese tallowtree (*Triadica sebifera*).

PFO Wetland. The PFO wetland communities consist of a prevalence of hydrophytic woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. The PFO wetlands are located in a depressional area and are dominated by sweet-gum (*Liquidambar styraciflua*), Chinese tallowtree, black willow, and American elm (*Ulmus americana*). Dominant sapling and shrub species include eastern baccharis, sugar-berry (*Celtis laevigata*), yaupon, Chinese privet (*Ligustrum sinense*), sweet-gum, black willow, and American elm. Greater bladder sedge (*Carex intumescens*), lamp rush (*Juncus effusus*), swamp smartweed, and saw-tooth blackberry (*Rubus argutus*) are the dominant herbaceous species. Japanese honeysuckle (*Lonicera japonica*), Japanese climbing fern (*Lygodium japonicum*), and climbing hemp-vine (*Mikania scandens*) are the dominant woody vines.

Herbaceous Upland. The herbaceous upland communities consist of non-wetland areas dominated by non-woody vegetation and are located throughout the project area. Dominant herbaceous species include peppervine (*Ampelopsis arborea*), perennial ragweed (*Ambrosia psilostachya*), broom-sedge (*Andropogon virginicus*), sacatrapo (*Caperonia palustris*), Bermuda grass (*Cynodon dactylon*), woodrush flat sedge (*Cyperus entrerianus*), southern crab grass (*Digitaria ciliaris*), sand spike-rush, round-head rush (*Juncus validus*), chocolate-weed (*Melochia corchorifolia*), Vasey's grass (*Paspalum urvillei*), southern dewberry (*Rubus trivialis*), curly dock (*Rumex crispus*), peatree (*Sesbania herbacea*), tall goldenrod (*Solidago altissima*), broom-corn (*Sorghum bicolor*), St. Augustine grass (*Stenotaphrum secundatum*), farewell-summer (*Symphotrichum lateriflorum*), and Brazilian vervain (*Verbena incompta*). Scattered eastern baccharis saplings and shrubs are also present.

Scrub/Shrub upland. The scrub/shrub communities consist of a prevalence of woody species 3–20 feet in height and less than 3 inches in diameter at breast height and are located along the berms of the project area. The dominant shrubs are yaupon (*Ilex vomitoria*) and Chinese tallowtree. Dominant herbaceous species include yellow bluestem (*Bothriochloa ischaemum*), brown-seed crown grass (*Paspalum plicatulum*), and St. Augustine grass. Scattered yaupon and Chinese tallowtree saplings and trees are also present.

Forested Upland. The forested upland communities consist of non-wetland areas dominated by woody species 20 feet or greater in height and 3 inches or greater in diameter at breast height. The forested uplands are dominated by sweet-gum, water oak (*Quercus nigra*), loblolly pine (*Pinus taeda*), and cedar elm (*Ulmus crassifolia*). Dominant sapling and shrub species include yaupon, Chinese privet, and sweet-gum. Perennial ragweed, woodrush flat sedge, flat-top goldentop (*Euthamia gymnospermoides*), saw-tooth blackberry, and Brazilian vervain are the dominant herbaceous species. Japanese honey-suckle and fringed greenbriar (*Smilax bona-nox*) are the dominant woody vines.

3.2.2. Soils

According to the NRCS Soil Survey for Harris County, Texas (U.S. Department of Agriculture [USDA] 2016a), four soil map units cover the project area – Beaumont clay, 0 to 1 percent slopes (BeaA); League clay, 0 to 1 percent slopes (LeaA); Leton loam, 0 to 1 percent slopes, ponded (LetA); and Viterbo silty clay loam, 0 to 1 percent slopes (VirA). All four soil map units meet hydric soil criteria or include minor hydric components (Table 2) (USDA 2016a). See Appendix D for brief descriptions of the NRCS soil map units present within the project area.

Although a NRCS hydric listing alone is generally insufficient to determine if soils for a site are hydric, it does indicate that suitable soil properties or conditions exist that promote the formation of hydric soil conditions. As a result, the project area was subjected to greater scrutiny with respect to the presence of hydric soil indicators. The NRCS mapped soil units are shown in Appendix A.

Direct observations of soil epipedons found that soil matrix and redox components ranged from 7.5YR to 10YR in hue and sandy loam to clay in texture. Wetland areas observed within the survey area displayed at least one of the two following hydric soil indicators: depleted matrix or redox dark surface. Non-wetland (i.e., upland) areas either failed to display hydric soil indicators, or they displayed hydric soils but failed to meet vegetation and/or hydrology parameters. Refer to Appendix B for data point specific soil observations.

Table 2. NRCS-mapped soils and their hydric characteristics.

Map Unit Name (Unit Code)	Hydric Map Unit (Yes/No)	Hydric Component Characteristics			Acreage within the project area
		Name (Unit Percent)	Landform	Hydric Criteria*	
Beaumont clay, 0 to 1 percent slopes (BeaA)	Yes	Beaumont (85%)	Depressions	2	195.4
League clay, 0 to 1 percent slopes (LeaA)	Yes	Beaumont (10%)	Depressions	2	1,016.4
Leton loam, 0 to 1 percent slopes, ponded (LetA)	Yes	Leton (100%)	Meandering Channels	2, 3	69.9
Viterbo silty clay loam, 0 to 1 percent slopes (VirA)	Yes	Viterbo (90%)	Flats	2	5.3

* 2 = somewhat poorly to very poorly drained soils that have a shallow water table (i.e., at a depth of less than 1 foot) during the growing season; 3 = soils that are frequently ponded (i.e., greater than 50 percent of years) for greater than 7 days duration during the growing season.

3.2.3. Hydrology

The DAREM wetland hydrologic condition for January 2017 was calculated using WETS and precipitation data from the Houston Intercontinental Airport weather station (Global Historical Climatology Network [GHCN]: USW00012960) located approximately 15 miles west of the project area (Sprecher and Warne 2000; USDA 2016b). The precipitation and 30-year normal range values used to calculate the wetland hydrologic condition at the time of survey are provided in Table 3. According to the DAREM, the project area was experiencing drier than normal hydrologic conditions at the time of the delineation (Table 3).

Table 3. Project area DAREM wetland hydrologic condition during January 2017.

Prior Month	WETS Percentile (in)		Measured Rainfall	Rainfall Condition ^a	Month Weight ^b	Score ^c
	30 th	70 th				
1 st December 2016	2.55	4.39	3.56	2	3	6
2 nd November 2016	2.57	5.07	1.99	1	2	2
3 rd October 2016	1.92	5.48	0.14	1	1	1
DAREM Score (i.e., Scores Total)						9

DAREM Score	6	7	8	9	10	11	12	13	14	15	16	17	18
DAREM Wetland Hydrologic Condition	Drier than normal				Normal					Wetter than normal			

Data source: Houston Intercontinental Airport weather station (Global Historical Climatology Network [GHCND]: USW00012960).

^a Month Conditions are 1 for Prior Month Rainfall that were less than the 30th WETS percentile, 2 for Prior Month Rainfall that were between the 30th and 70th WETS percentiles, and 3 for Prior Month Rainfall that were greater than the 70th WETS percentile.

^b Month Weights are 3 for the month just prior, 2 for the second prior month, and 1 for the third prior month.

^c Month Scores are the product of the Month Condition and Month Weight.

Wetland hydrology indicators observed in the field included both primary wetland hydrology indicators (i.e., inundation, high water table, saturation, water marks, water-stained leaves, and oxidized rhizospheres on living roots) and secondary wetland hydrology indicators (i.e., crayfish burrows and a positive FAC-neutral test). Refer to the data sheets in Appendix B for the wetland hydrology indicators observed at a specific data point.

3.3. Waterbodies

SWCA identified 10 man-made/altered channels within the project area, and included two HCFCFCD named channels, Q134-01 and Q134. The length, OHWM width and acreage within the project area of each channel are provided in Table 4. Refer to the delineation map in Appendix A for the location of each channel within the project area. Figure 3 in Appendix A shows the project area as it appears on Harris County’s 1920-era topographic map.

Table 4. Man-made channels.

Channel ID	Length (feet)	OHWM Width (feet)*	Acreage within Project Area**
MA001	3,589.3	15	1.167
MA002	7,244.1	20	2.893
MA003	1,488.3	6	0.205
MA004	2,168.7	8	0.559
MA005	3,050.2	8	0.398
MA006	3,874.1	8	0.710
MA007	8,927.7	18	3.129
MA008 (Q134)	11,870.2	18	4.053
MA009	3,805.4	7	0.608
MA010 (Q134-01)	3,587.1	15	1.239
Total	49605.1		14.961

* Represents average OHWM width of channel within the project area.

** Acreages were rounded to the nearest 0.001 acre.

4. SUMMARY AND CONCLUSIONS

SWCA performed a wetland delineation of the proposed Bayou Bend Mitigation Bank Project from January 3 through 9, 2017. The delineation identified 4 wetland areas totaling 67.815 acres within the project area. Additionally, SWCA delineated 10 man-made/altered channels totaling 14.961 acres within the project area.

The delineation findings contained within this report represent the professional opinion of SWCA and are not a verification or jurisdictional determination of waters of the United States. Only the USACE is authorized to verify the boundaries and jurisdictional limits of waters of the United States.

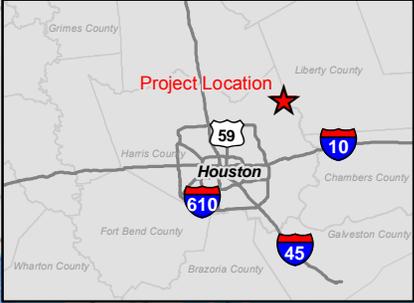
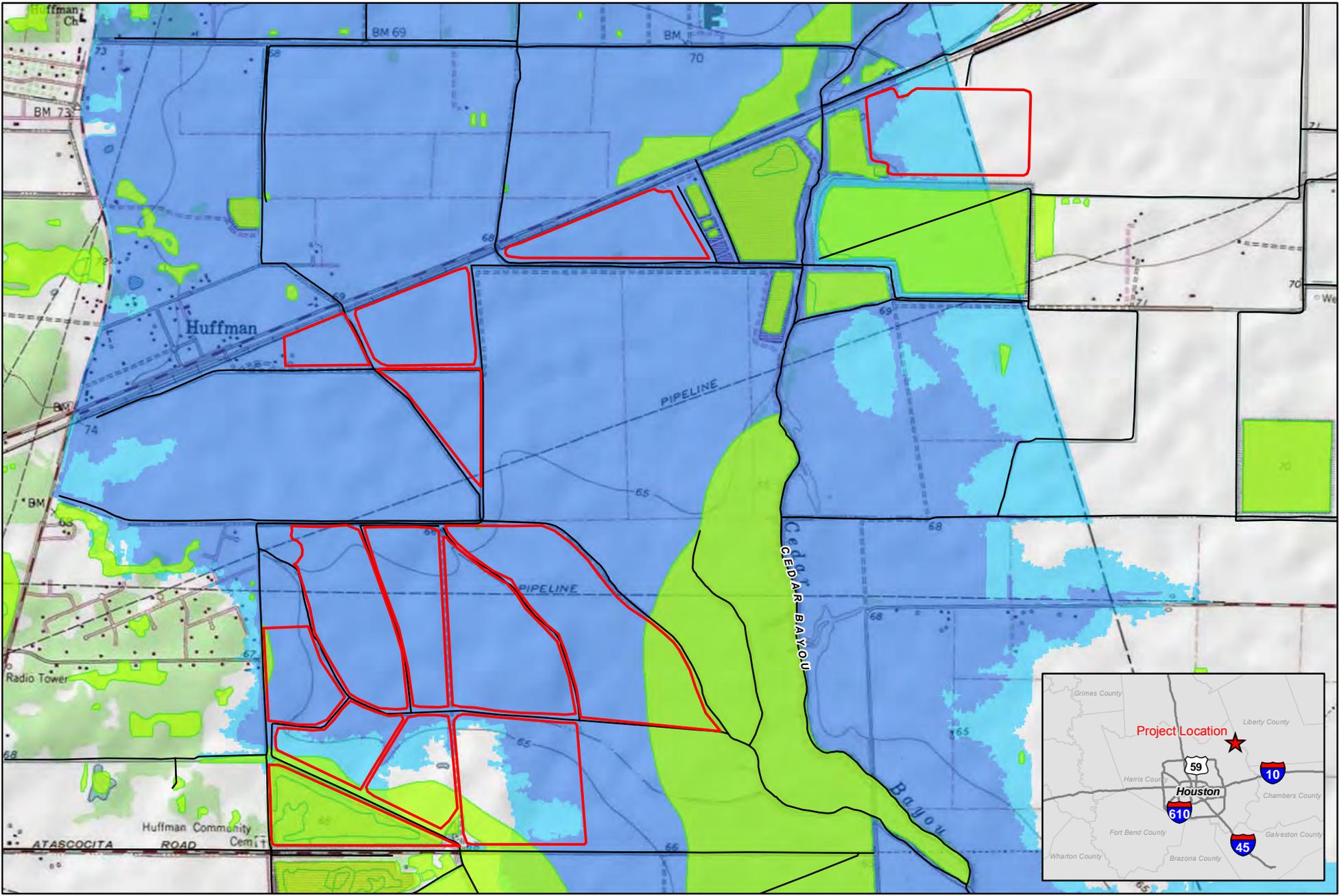
5. REFERENCES

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. Washington, D.C.: U.S. Fish and Wildlife Service.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.
- Natural Resources Conservation Service (NRCS). 1997. National Water and Climate Center: WETS Table Documentation website. Available at: http://www.wcc.nrcs.usda.gov/climate/wets_doc.html. Accessed January 2017.
- . 2010. *Field Indicators of Hydric Soils in the United States, Version 7.0.*, edited by L.M. Vasilas, G.W. Hurt, and C.V. Noble. USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- Soil Conservation Service (SCS). 1994. Changes in hydric soils of the United States. *Federal Register* 59(133):35680-35681, July 13, 1994.
- Sprecher, S.W., and Warne, A.G. 2000. *Assessing and using meteorological data to evaluate wetland hydrology*. Technical Report TR-WRAP-00-1. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers (USACE). 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.
- . 2005a. Technical Standard for Water-Table Monitoring of Potential Wetland Sites. WARP Technical Notes Collection (ERDC TN-WRAP-05-2) Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.
- . 2005b. Ordinary High Water Mark Identification. Regulatory Guidance Letter 05-05. Dated 7 December 2005.
- . 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. ERDC/EL TR-10-20. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.
- U.S. Department of Agriculture (USDA). 2016a. Web Soil Survey. U.S. Department of Agriculture, Natural Resources Conservation Service. Available at: <http://websoilsurvey.nrcs.usda.gov>. Accessed January 2017.
- . 2016b. Climate Data for Harris County, Texas WETS Station: USDA, Natural Resources Conservation Service. Available at: <http://agacis.rcc-acis.org/>. Accessed January 2017.

APPENDIX A

Vicinity, Historic, Index, and Site Layout Maps

Path: S:\Projects\2024_GIN_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\WR\REPORT MAPS1 - GIN_City_2017_Vicinity_Map.mxd



10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

GIN CITY MITIGATION BANK PHASE 2
 VICINITY AND RESOURCE REVIEW MAP
 HARRIS AND LIBERTY COUNTIES, TEXAS

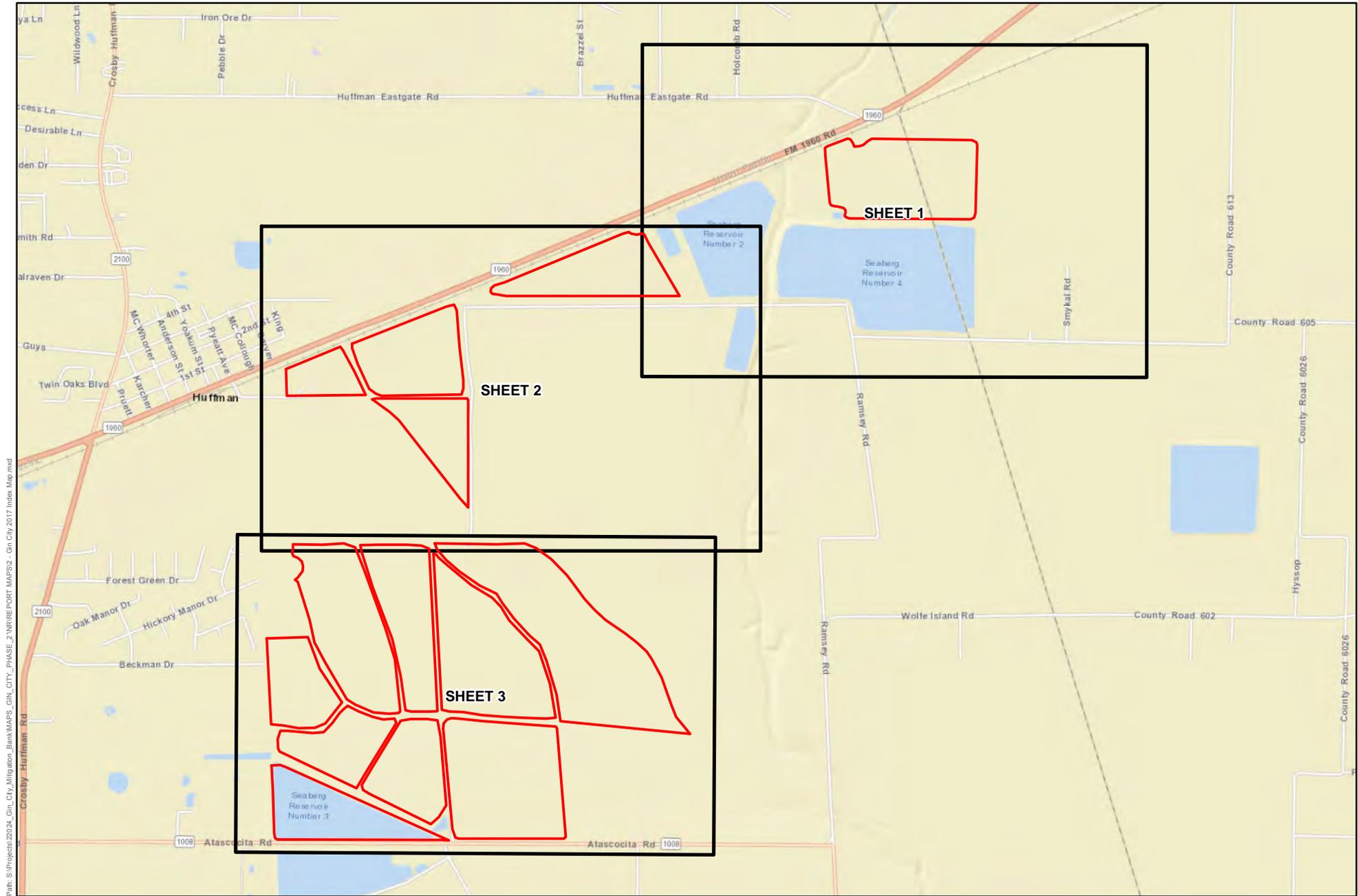
FIGURE 1

- Project Boundaries
- NHD Feature
- NWI Feature
- 100-Year Floodplain
- 500-Year Floodplain



Background:	USGS 7.5' Topographic Map
Scale:	1:24,000
Created By:	LG
Approved By:	FC
SWCA Project No.:	22026
Date Produced:	August 21, 2017
NAD 1983 UTM Zone 15N	





Path: S:\Projects\2024_GIN_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\INDEXREPORT MAPS2 - GIN_CITY_2017_Index_Map.mxd



10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

GIN CITY MITIGATION BANK PHASE 2
INDEX MAP MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

FIGURE 2 INDEX

- Project Boundaries
- Map Sheet Index



Background:	ESRI Street Map
Scale:	1:26,000
Created By:	JS
Approved By:	FC
SWCA Project No.:	22026
Date Produced:	August 21, 2017
NAD 1983 UTM Zone 15N	



Path: S:\Projects\2024_GIN_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\NR\REPORT MAPS2 - GIN_City_2017 Wetland Delineation Map.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

GIN CITY MITIGATION BANK PHASE 2
WETLAND DELINEATION MAP
HARRIS AND LIBERTY COUNTIES, TEXAS

SHEET 1 OF 3

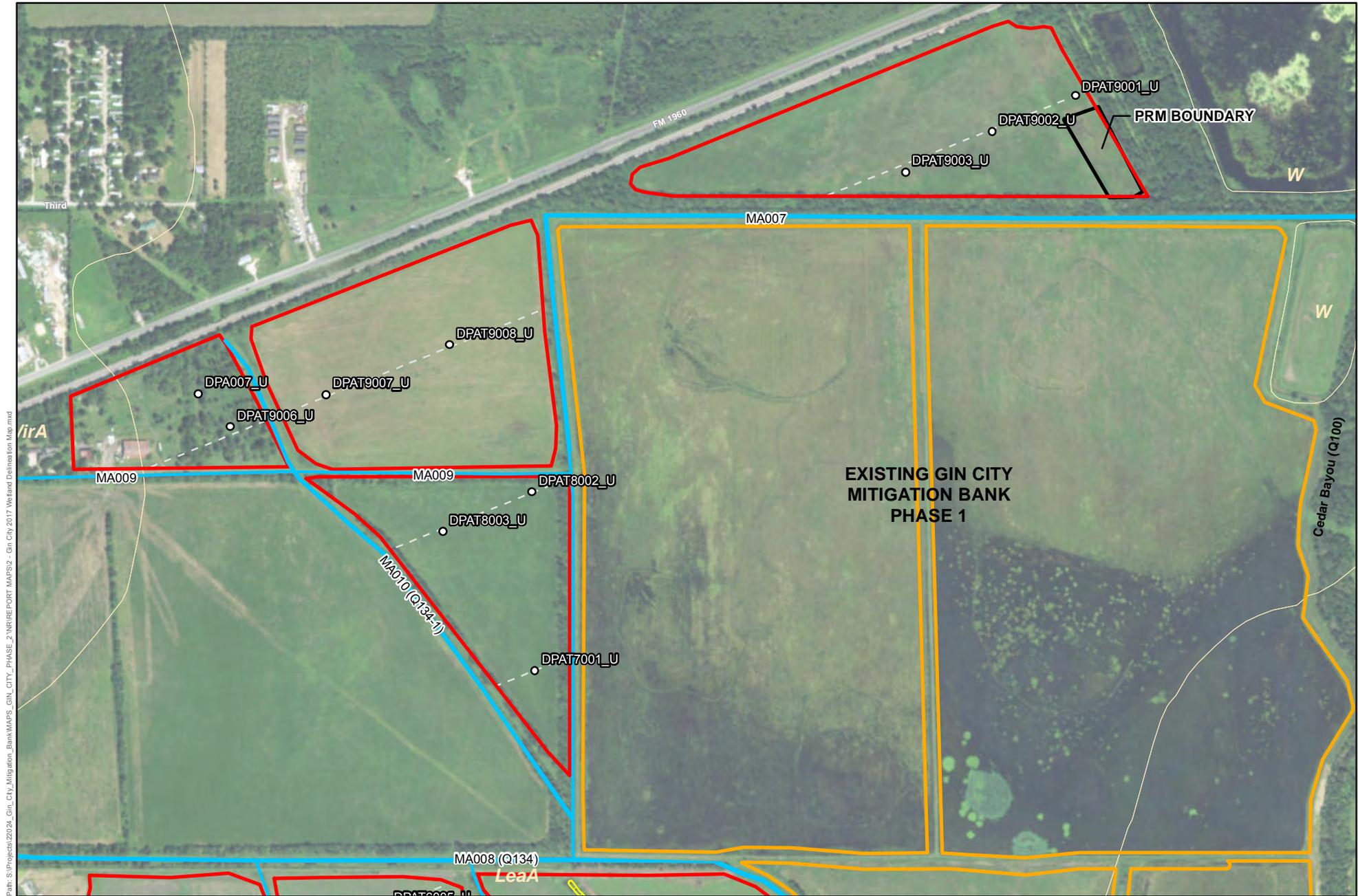
FIGURE 2

- Project Boundary
- GCMB Phase 1 Boundary
- PRM Boundary
- Transect Lines
- NRCS Mapped Soil Unit
- Data Point
- PEM Wetland
- PFO Wetland
- Intermittent Waterbody
- County Boundary



Background:	ESRI World Imagery
Scale:	1:9,500
Created By:	JS
Approved By:	FC
SWCA Project No.:	31824
Date Produced:	August 21, 2017
NAD 1983 UTM Zone 15N	





Path: S:\Projects\2024_Gin_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\WR\REPORT MAPS2 - Gin_City_2017_Wetland_Delineation_Map.mxd

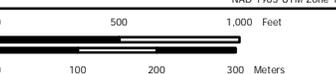

SWCA
 ENVIRONMENTAL CONSULTANTS
 10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

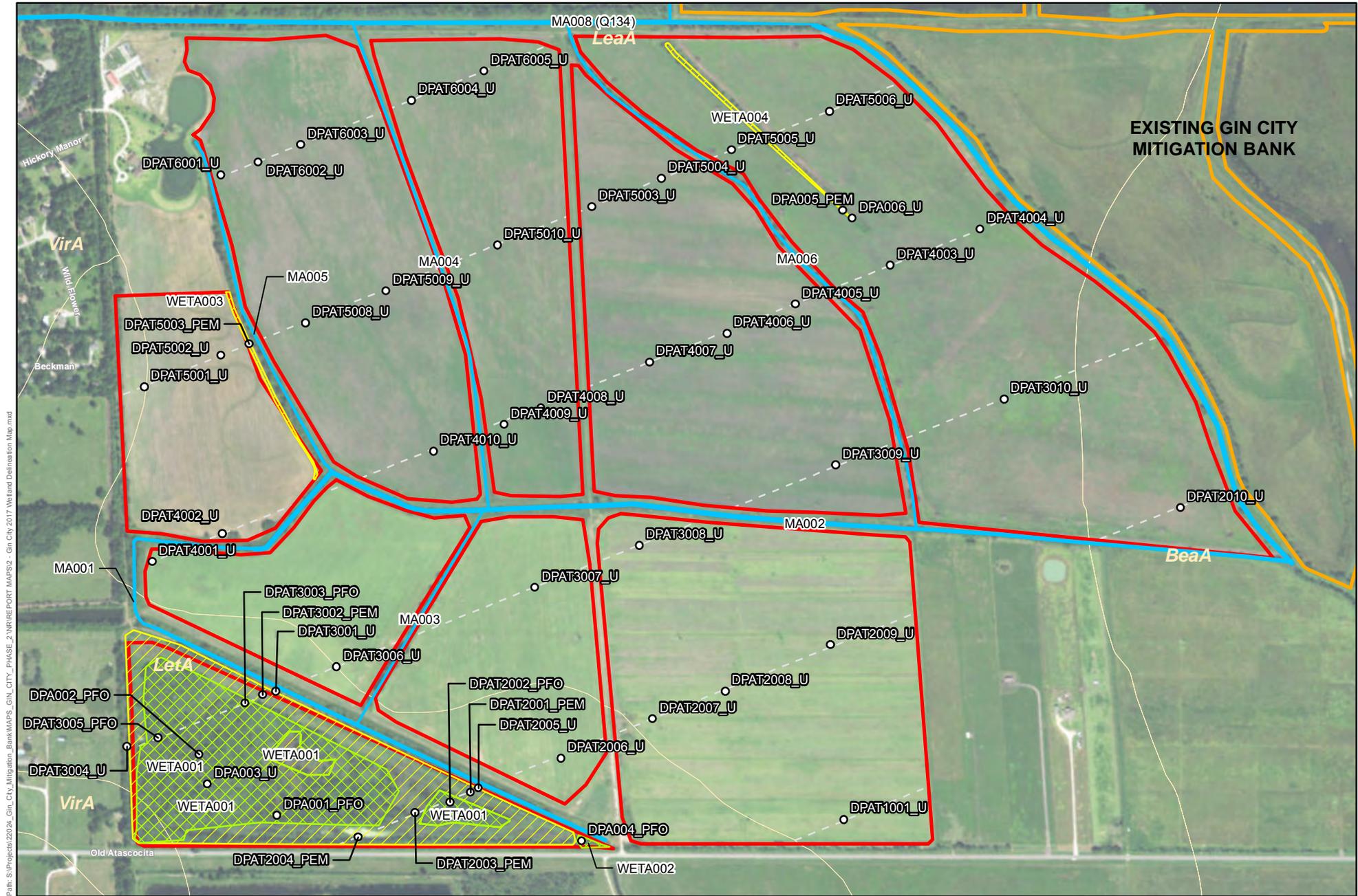
GIN CITY MITIGATION BANK PHASE 2
WETLAND DELINEATION MAP
HARRIS COUNTY, TEXAS

SHEET 2 OF 3 FIGURE 2

Project Boundary	Data Point
GCMB Phase 1 Boundary	PEM Wetland
PRM Boundary	PFO Wetland
Transect Lines	Intermittent Waterbody
NRCS Mapped Soil Unit	County Boundary

Background:	ESRI World Imagery
Scale:	1:9,500
Created By:	JS
Approved By:	FC
SWCA Project No.:	31824
Date Produced:	August 21, 2017
NAD 1983 UTM Zone 15N	



Path: S:\Projects\2024_Gin_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\WETREPORT\MAPS2 - Gin_City_2017_Wetland_Delineation_Map.mxd


SWCA
 ENVIRONMENTAL CONSULTANTS
 10245 West Little York, Suite 600
 Houston, Texas 77040
 (281) 617-3217 phone
 (281) 617-3227 fax
 www.swca.com

GIN CITY MITIGATION BANK PHASE 2
WETLAND DELINEATION MAP
HARRIS COUNTY, TEXAS

SHEET 3 OF 3 FIGURE 2

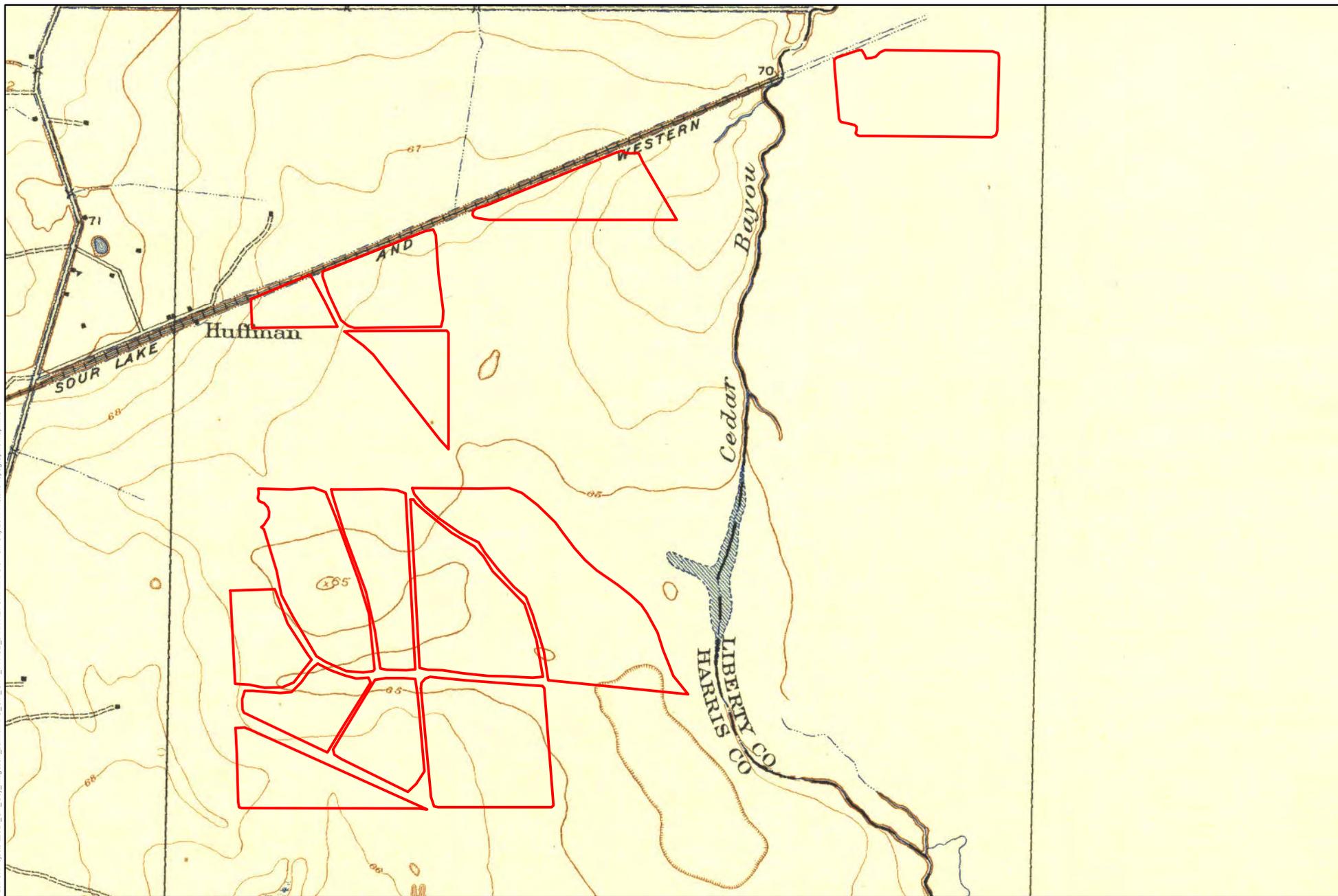
 Project Boundary	 Data Point
 GCMB Phase 1 Boundary	 PEM Wetland
 PRM Boundary	 PFO Wetland
 Transect Lines	 Intermittent Waterbody
 NRCS Mapped Soil Unit	 County Boundary

Background:	ESRI World Imagery
Scale:	1:9,500
Created By:	JS
Approved By:	FC
SWCA Project No.:	31824
Date Produced:	August 21, 2017
NAD 1983 UTM Zone 15N	





Path: S:\Projects\2024_Gin_City_Mitigation_Bank\MAPS_GIN_CITY_PHASE_2\WR\REPORT_MAPS3 - Gin_City_2017_Historic_Topographic_Map.mxd



10245 West Little York, Suite 600
Houston, Texas 77040
(281) 617-3217 phone
(281) 617-3227 fax
www.swca.com

GIN CITY MITIGATION BANK
HISTORIC TOPOGRAPHIC MAP (ca. 1920)
HARRIS COUNTY, TEXAS

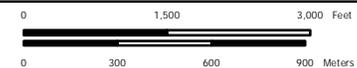
FIGURE 3

 Phase II Project Boundary



Background:	USGS7.5 Topography Map
Scale:	1:24,000
Created By:	CK
Approved By:	AR
SWCA Project No.:	22024
Date Produced:	August 21, 2017

NAD 1983 UTM Zone 15N



APPENDIX B

Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2001_PEM
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00576 Long: -95.07375 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2001_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Baccharis halimifolia</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Juncus effusus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>
2. <u>Eupatorium capillifolium</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
3. <u>Persicaria hydropiperoides</u>	<u>65</u>	<u>Yes</u>	<u>OBL</u>
4. <u>Cyperus enterianus</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
5. <u>Cyperus esculentus</u>	<u>15</u>	<u>No</u>	<u>FAC</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>75</u>	x 1 = <u>75</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110</u> (A)	<u>180</u> (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2001_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/2	90	7.5YR 4/6	10	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2002_PFO
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00560 Long: -95.07414 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| <u> </u> Surface Water (A1) | <u> </u> Aquatic Fauna (B13) |
| <u> </u> High Water Table (A2) | <u> </u> Marl Deposits (B15) (LRR U) |
| <u>X</u> Saturation (A3) | <u> </u> Hydrogen Sulfide Odor (C1) |
| <u>X</u> Water Marks (B1) | <u> </u> Oxidized Rhizospheres on Living Roots (C3) |
| <u> </u> Sediment Deposits (B2) | <u> </u> Presence of Reduced Iron (C4) |
| <u> </u> Drift Deposits (B3) | <u> </u> Recent Iron Reduction in Tilled Soils (C6) |
| <u> </u> Algal Mat or Crust (B4) | <u> </u> Thin Muck Surface (C7) |
| <u> </u> Iron Deposits (B5) | <u> </u> Other (Explain in Remarks) |
| <u> </u> Inundation Visible on Aerial Imagery (B7) | |
| <u> </u> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|---|
| <u> </u> Surface Soil Cracks (B6) |
| <u> </u> Sparsely Vegetated Concave Surface (B8) |
| <u> </u> Drainage Patterns (B10) |
| <u> </u> Moss Trim Lines (B16) |
| <u> </u> Dry-Season Water Table (C2) |
| <u>X</u> Crayfish Burrows (C8) |
| <u> </u> Saturation Visible on Aerial Imagery (C9) |
| <u> </u> Geomorphic Position (D2) |
| <u> </u> Shallow Aquitard (D3) |
| <u>X</u> FAC-Neutral Test (D5) |
| <u> </u> Sphagnum moss (D8) (LRR T, U) |

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes X No Depth (inches): 12
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2002_PFO

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>60</u> = Total Cover		
	50% of total cover: <u>30</u>	20% of total cover: <u>12</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Celtis laevigata</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Juncus effusus</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Rubus argutus</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Persicaria hydropiperoides</u>	<u>15</u>	<u>Yes</u>	<u>OBL</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>75</u> = Total Cover		
	50% of total cover: <u>37.5</u>	20% of total cover: <u>15</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Mikania scandens</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>80</u>	x 1 = <u>80</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>90</u>	x 3 = <u>270</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180</u> (A)	<u>370</u> (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2002_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 5/2	98	7.5YR 5/6	2	C	M	Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2003 PEM
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00541 Long: -95.07480 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This point was determined to be within a wetland due to the presence of all 3 wetland criteria.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| <u> </u> Surface Water (A1) | <u> </u> Aquatic Fauna (B13) |
| <u> </u> High Water Table (A2) | <u> </u> Marl Deposits (B15) (LRR U) |
| <u> </u> Saturation (A3) | <u> </u> Hydrogen Sulfide Odor (C1) |
| <u> </u> Water Marks (B1) | <u> </u> Oxidized Rhizospheres on Living Roots (C3) |
| <u> </u> Sediment Deposits (B2) | <u> </u> Presence of Reduced Iron (C4) |
| <u> </u> Drift Deposits (B3) | <u> </u> Recent Iron Reduction in Tilled Soils (C6) |
| <u> </u> Algal Mat or Crust (B4) | <u> </u> Thin Muck Surface (C7) |
| <u> </u> Iron Deposits (B5) | <u> </u> Other (Explain in Remarks) |
| <u> </u> Inundation Visible on Aerial Imagery (B7) | |
| <u>X</u> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|---|
| <u> </u> Surface Soil Cracks (B6) |
| <u> </u> Sparsely Vegetated Concave Surface (B8) |
| <u> </u> Drainage Patterns (B10) |
| <u> </u> Moss Trim Lines (B16) |
| <u> </u> Dry-Season Water Table (C2) |
| <u> </u> Crayfish Burrows (C8) |
| <u> </u> Saturation Visible on Aerial Imagery (C9) |
| <u> </u> Geomorphic Position (D2) |
| <u> </u> Shallow Aquitard (D3) |
| <u>X</u> FAC-Neutral Test (D5) |
| <u> </u> Sphagnum moss (D8) (LRR T, U) |

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2003_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Juncus effusus</u>	<u>30</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Eupatorium capillifolium</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Saccharum brevibarbe</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
4. <u>Persicaria hydropiperoides</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>
5. <u>Typha latifolia</u>	<u>5</u>	<u>No</u>	<u>OBL</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Mikania scandens</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>75</u>	x 1 = <u>75</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125</u> (A)	<u>215</u> (B)

Prevalence Index = B/A = 1.72

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2003_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/2	93	10YR 4/6	7	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2004 PEM
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00498 Long: -95.07588 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) <u>X</u> Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>9</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2004_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Triadica sebifera</i>	5	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	5 = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Fraxinus pennsylvanica</i>	5	Yes	FACW
2. <i>Acer rubrum</i>	5	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	10 = Total Cover		
	50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Persicaria hydropiperoides</i>	75	Yes	OBL
2. <i>Juncus effusus</i>	5	No	OBL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	80 = Total Cover		
	50% of total cover: <u>40</u>	20% of total cover: <u>16</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>80</u>	x 1 = <u>80</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>120</u> (B)

Prevalence Index = B/A = 1.26

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2004_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100	None	—	—	—	Sandy Loam	
6-20	10YR 5/2	93	10YR 4/6	7	C	PL	Sandy Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00737 Long: -95.07749 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Scrub-Shrub Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Ilex vomitoria</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Triadica sebifera</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>25</u> = Total Cover		
	50% of total cover: <u>12.5</u>	20% of total cover: <u>5</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Bothriochloa ischaemum</u>	<u>60</u>	<u>Yes</u>	<u>UPL</u>
2. <u>Paspalum plicatulum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Vicia sativa</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
4. <u>Rubus trivialis</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>100</u> = Total Cover		
	50% of total cover: <u>50</u>	20% of total cover: <u>20</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Smilax bona-nox</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>90</u>	x 3 = <u>270</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>60</u>	x 5 = <u>300</u>
Column Totals: <u>165</u> (A)	<u>630</u> (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT3001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/2	99	10YR 5/8	1	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA001 PFO
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00532 Long: -95.07743 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) <u>X</u> Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA001_PFO

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	30	Yes	OBL
2. <u>Triadica sebifera</u>	10	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	40 = Total Cover		
50% of total cover:	20	20% of total cover:	8
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Salix nigra</u>	30	Yes	OBL
2. <u>Triadica sebifera</u>	5	No	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	35 = Total Cover		
50% of total cover:	17.5	20% of total cover:	7
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Salix nigra</u>	18	Yes	OBL
2. <u>Triadica sebifera</u>	5	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	23 = Total Cover		
50% of total cover:	11.5	20% of total cover:	4.6
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Juncus effusus</u>	70	Yes	OBL
2. <u>Cyperus enterianus</u>	5	No	FACW
3. <u>Persicaria hydropiperoides</u>	7	No	OBL
4. <u>Saccharum brevibarbe</u>	8	No	FACW
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	90 = Total Cover		
50% of total cover:	45	20% of total cover:	18
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
50% of total cover:	0	20% of total cover:	0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>155</u>	x 1 = <u>155</u>
FACW species <u>13</u>	x 2 = <u>26</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>188</u> (A)	<u>241</u> (B)

Prevalence Index = B/A = 1.28

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPA001_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/2	15	10YR 5/6	5	C	M & PL	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3002_PEM
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00732 Long: -95.07774 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) <u>X</u> Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>2</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3002_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	

Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Baccharis halimifolia</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	

Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Persicaria hydropiperoides</u>	<u>35</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Cyperus esculentus</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Cyperus enterianus</u>	<u>10</u>	<u>No</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>95</u> = Total Cover		
	50% of total cover: <u>47.5</u>	20% of total cover: <u>19</u>	

Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>35</u>	x 1 = <u>35</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>60</u>	x 3 = <u>180</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105</u> (A)	<u>235</u> (B)

Prevalence Index = B/A = 2.24

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤ 3.0¹
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic

Vegetation

Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3002_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100	None	—	—	—	Sandy Loam	
6-20	10YR 5/2	90	10YR 5/6	10	C	M & PL	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3003 PFO
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00717 Long: -95.07807 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
--	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3003_PFO

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	40	Yes	FAC
2. <u>Salix nigra</u>	30	Yes	OBL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	70 = Total Cover		
	50% of total cover: <u>35</u>	20% of total cover: <u>14</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	10	Yes	FAC
2. <u>Salix nigra</u>	20	Yes	OBL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	30 = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	10	Yes	FAC
2. <u>Salix nigra</u>	10	Yes	OBL
3. <u>Baccharis halimifolia</u>	10	Yes	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	30 = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Rubus argutus</u>	35	Yes	FAC
2. <u>Juncus effusus</u>	20	Yes	OBL
3. <u>Solidago altissima</u>	10	No	FACU
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	65 = Total Cover		
	50% of total cover: <u>32.5</u>	20% of total cover: <u>13</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>80</u>	x 1 = <u>80</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>105</u>	x 3 = <u>315</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195</u> (A)	<u>435</u> (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3003_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100	None	—	—	—	Sandy Clay Loam	
6-20	10YR 5/2	98	10YR 5/6	2	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3004 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00642 Long: -95.08031 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Scrub-Shrub Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u> X </u> Wetland Hydrology Present? Yes <u> </u> No <u> X </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> X </u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> N/A </u> Water Table Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> >20 </u> Saturation Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> >20 </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u> X </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3004_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u><i>Ilex vomitoria</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. <u><i>Triadica sebifera</i></u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u><i>None Observed</i></u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u><i>Ilex vomitoria</i></u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2. <u><i>Triadica sebifera</i></u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>35</u> = Total Cover		
	50% of total cover: <u>17.5</u>	20% of total cover: <u>7</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u><i>Stenotaphrum secundatum</i></u>	<u>80</u>	<u>Yes</u>	<u>FAC</u>
2. <u><i>Rubus trivialis</i></u>	<u>10</u>	<u>No</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>90</u> = Total Cover		
	50% of total cover: <u>45</u>	20% of total cover: <u>18</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u><i>Smilax bona-nox</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>15</u> = Total Cover		
	50% of total cover: <u>7.5</u>	20% of total cover: <u>3</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>150</u>	x 3 = <u>450</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>160</u> (A)	<u>490</u> (B)

Prevalence Index = B/A = 3.06

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).
 A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT3004_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/3	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 3, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3005_PFO
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00657 Long: -95.07972 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) <u>X</u> Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>2</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3005_PFO

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>15</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
			<u>45</u> = Total Cover
50% of total cover:		<u>22.5</u>	20% of total cover: <u>9</u>
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>10</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
			<u>30</u> = Total Cover
50% of total cover:		<u>15</u>	20% of total cover: <u>6</u>
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
2. <u>Salix nigra</u>	<u>10</u>	<u>Yes</u>	<u>OBL</u>
3. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Baccharis halimifolia</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
			<u>30</u> = Total Cover
50% of total cover:		<u>15</u>	20% of total cover: <u>6</u>
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Juncus effusus</u>	<u>10</u>	<u>Yes</u>	<u>OBL</u>
2. <u>Carex intumescens</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
			<u>15</u> = Total Cover
50% of total cover:		<u>7.5</u>	20% of total cover: <u>3</u>
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
			<u>0</u> = Total Cover
50% of total cover:		<u>0</u>	20% of total cover: <u>0</u>

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>45</u>	x 1 = <u>45</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>70</u>	x 3 = <u>210</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120</u> (A)	<u>265</u> (B)

Prevalence Index = B/A = 2.21

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3005_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/2	98	10YR 5/6	2	C	M	Sandy Clay Loam	
6-20	10YR 5/2	95	10YR 5/6	5	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA002 PFO
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Convex Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00631 Long: -95.07893 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
--	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA002_PFO

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	40	Yes	FAC
2. <u>Triadica sebifera</u>	10	No	FAC
3. <u>Quercus nigra</u>	5	No	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	55 = Total Cover		
	50% of total cover: <u>27.5</u>	20% of total cover: <u>11</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	10	Yes	FAC
2. <u>Triadica sebifera</u>	10	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	20 = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	5	No	FAC
2. <u>Triadica sebifera</u>	5	No	FAC
3. <u>Quercus nigra</u>	5	No	FAC
4. <u>Ilex vomitoria</u>	20	Yes	FAC
5. <u>Ligustrum sinense</u>	20	Yes	FAC
6. _____	_____	_____	_____
	55 = Total Cover		
	50% of total cover: <u>27.5</u>	20% of total cover: <u>11</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Ligustrum sinense</u>	5	Yes	FAC
2. <u>Rubus argutus</u>	20	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	25 = Total Cover		
	50% of total cover: <u>12.5</u>	20% of total cover: <u>5</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Lonicera japonica</u>	5	Yes	FACU
2. <u>Lygodium japonicum</u>	15	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	20 = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>170</u>	x 3 = <u>510</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175</u> (A)	<u>530</u> (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPA002_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 2/1	96	7.5YR 4/6	4	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Convex Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00582 Long: -95.07876 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Forested Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>50</u> = Total Cover		
	50% of total cover: <u>25</u>	20% of total cover: <u>10</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Ligustrum sinense</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>20</u> = Total Cover		
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
2. <u>Ilex vomitoria</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Ligustrum sinense</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>65</u> = Total Cover		
	50% of total cover: <u>32.5</u>	20% of total cover: <u>13</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Rubus argutus</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>30</u> = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Lonicera japonica</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Smilax bona-nox</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>15</u> = Total Cover		
	50% of total cover: <u>7.5</u>	20% of total cover: <u>3</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>175</u>	x 3 = <u>525</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180</u> (A)	<u>545</u> (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).
 A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPA003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3006 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00780 Long: -95.07634 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3006_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Stenotaphrum secundatum</i>	95	Yes	FAC
2. <i>Trifolium repens</i>	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>95</u>	x 3 = <u>285</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>305</u> (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).
 A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT3006_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 2/1	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA004 PFO
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00499 Long: -95.07162 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) <u>X</u> High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) <u>X</u> Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>8</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

 A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA004_PFO

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Triadica sebifera</i>	35	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	35 = Total Cover		
	50% of total cover: <u>17.5</u>	20% of total cover: <u>7</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Triadica sebifera</i>	50	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	50 = Total Cover		
	50% of total cover: <u>25</u>	20% of total cover: <u>10</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Ilex vomitoria</i>	10	Yes	FAC
2. <i>Triadica sebifera</i>	20	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	30 = Total Cover		
	50% of total cover: <u>15</u>	20% of total cover: <u>6</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>115</u>	x 3 = <u>345</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115</u> (A)	<u>345</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPA004_PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100	None	—	—	—	Sandy Clay Loam	
6-20	10YR 5/2	80	10YR 5/8	20	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2006 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Convex Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00635 Long: -95.07204 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2006_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	100	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>100</u>	x 3 = <u>300</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>300</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2006_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0								Shovel Rejection

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compact Soil
 Depth (inches): 0

Hydric Soil Present? Yes No

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2007 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Convex Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00703 Long: -95.07031 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:

This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2008 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00751 Long: -95.06894 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2008_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2009 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00831 Long: -95.06695 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2009_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2009_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT1001 U
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00542 Long: -95.06663 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT1001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT1001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3007 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00917 Long: -95.07259 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3008 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00990 Long: -95.07062 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3008_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Stenotaphrum secundatum</i>	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>75</u>	x 3 = <u>225</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>225</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3009 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01129 Long: -95.06691 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3009_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Eleocharis montevidensis</i>	5	No	FACW
2. <i>Cyperus entrerianus</i>	5	No	FACW
3. <i>Andropogon virginicus</i>	15	Yes	FAC
4. <i>Caperonia palustris</i>	5	No	FACW
5. <i>Rumex crispus</i>	5	No	FAC
6. <i>Sorghum bicolor</i>	10	Yes	FACU
7.			
8.			
9.			
10.			
11.			
45 = Total Cover			
50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>45</u> (A)	<u>130</u> (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 X 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT3009_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	90	10YR 6/8	10	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2010 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01069 Long: -95.06033 Datum: North American Datum 1983
 Soil Map Unit Name: Beaumont clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2010_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Verbena incompta</i>	5	No	FACW
2. <i>Andropogon virginicus</i>	15	Yes	FAC
3. <i>Rumex crispus</i>	5	No	FAC
4. <i>Caperonia palustris</i>	5	No	FACW
5. <i>Melochia corchorifolia</i>	5	No	FAC
6. <i>Sorghum bicolor</i>	10	Yes	FACU
7.			
8.			
9.			
10.			
11.			
45 = Total Cover			
50% of total cover: 22.5 20% of total cover: 9			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>45</u> (A)	<u>135</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 X 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT2010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 6/8	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT3010 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01243 Long: -95.06373 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT3010_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Andropogon virginicus</i>	40	Yes	FAC
2. <i>Cynodon dactylon</i>	30	Yes	FACU
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Sorghum bicolor</i>	10	No	FACU
5. <i>Paspalum urvillei</i>	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
95 = Total Cover			
50% of total cover: 47.5 20% of total cover: 19			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>50</u>	x 3 = <u>150</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>320</u> (B)

Prevalence Index = B/A = 3.37

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT3010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 6/8	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 4, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT2005 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): Convex Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00584 Long: -95.07360 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Scrub-Shrub Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT2005_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Triadica sebifera</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>5</u> = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>0</u> = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Ilex vomitoria</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Baccharis halimifolia</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Triadica sebifera</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	<u>40</u> = Total Cover		
	50% of total cover: <u>20</u>	20% of total cover: <u>8</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Bothriochloa ischaemum</u>	<u>80</u>	<u>Yes</u>	<u>UPL</u>
2. <u>Rubus trivialis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
3. <u>Vicia sativa</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	<u>95</u> = Total Cover		
	50% of total cover: <u>47.5</u>	20% of total cover: <u>19</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Smilax rotundifolia</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	<u>10</u> = Total Cover		
	50% of total cover: <u>5</u>	20% of total cover: <u>2</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>55</u>	x 3 = <u>165</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>80</u>	x 5 = <u>400</u>
Column Totals: <u>150</u> (A)	<u>625</u> (B)

Prevalence Index = B/A = 4.17

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).
 A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT2005_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	100	None	—	—	—	Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00948 Long: -95.07989 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Stenotaphrum secundatum</u>	<u>95</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Trifolium repens</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>95</u>	x 3 = <u>285</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>305</u> (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT4001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 2/2	100	None	—	—	—	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4002 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.00997 Long: -95.07857 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4002_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Paspalum urvillei</i>	15	Yes	FAC
2. <i>Cynodon dactylon</i>	35	Yes	FACU
3. <i>Eleocharis montevidensis</i>	8	No	FACW
4. <i>Verbena incompta</i>	5	No	FACW
5. <i>Iva annua</i>	5	No	FAC
6. <i>Andropogon virginicus</i>	5	No	FAC
7.			
8.			
9.			
10.			
11.			
73 = Total Cover			
50% of total cover: 36.5 20% of total cover: 14.6			

Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>13</u>	x 2 = <u>26</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>35</u>	x 4 = <u>140</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>73</u> (A)	<u>241</u> (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT4002_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 4/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01238 Long: -95.08010 Datum: North American Datum 1983
 Soil Map Unit Name: Leton loam, 0 to 1 percent slopes, ponded NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Cynodon dactylon</i>	60	Yes	FACU
2. <i>Paspalum urvillei</i>	15	No	FAC
3. <i>Eleocharis montevidensis</i>	8	No	FACW
4. <i>Rumex crispus</i>	5	No	FAC
5. <i>Andropogon virginicus</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
93 = Total Cover			
50% of total cover: 46.5 20% of total cover: 18.6			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>8</u>	x 2 = <u>16</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>60</u>	x 4 = <u>240</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>93</u> (A)	<u>331</u> (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).
 No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT5001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 4/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5002 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01293 Long: -95.07865 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5002_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Cynodon dactylon</i>	40	Yes	FACU
2. <i>Eleocharis montevidensis</i>	20	Yes	FACW
3. <i>Cyperus esculentus</i>	15	No	FAC
4. <i>Iva annua</i>	5	No	FAC
5. <i>Andropogon virginicus</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
85 = Total Cover			
50% of total cover: 42.5 20% of total cover: 17			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85</u> (A)	<u>275</u> (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT5002_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 4/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5003 PEM
 Investigator(s): C. Vicens and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01312 Long: -95.07813 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
--	---

Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>2</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 A positive indication of wetland hydrology was observed (at least one primary indicator).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5003_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Eleocharis montevidensis</i>	15	Yes	FACW
2. <i>Panicum repens</i>	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
20 = Total Cover			
50% of total cover: 10 20% of total cover: 4			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>20</u> (A)	<u>40</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT5003_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/1	85	10YR 5/8	15	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT6001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01592 Long: -95.07872 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| <u> </u> Surface Water (A1) | <u> </u> Aquatic Fauna (B13) |
| <u> </u> High Water Table (A2) | <u> </u> Marl Deposits (B15) (LRR U) |
| <u> </u> Saturation (A3) | <u> </u> Hydrogen Sulfide Odor (C1) |
| <u> </u> Water Marks (B1) | <u> </u> Oxidized Rhizospheres on Living Roots(C3) |
| <u> </u> Sediment Deposits (B2) | <u> </u> Presence of Reduced Iron (C4) |
| <u> </u> Drift Deposits (B3) | <u> </u> Recent Iron Reduction in Tilled Soils (C6) |
| <u> </u> Algal Mat or Crust (B4) | <u> </u> Thin Muck Surface (C7) |
| <u> </u> Iron Deposits (B5) | <u> </u> Other (Explain in Remarks) |
| <u> </u> Inundation Visible on Aerial Imagery (B7) | |
| <u> </u> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|---|
| <u> </u> Surface Soil Cracks (B6) |
| <u> </u> Sparsely Vegetated Concave Surface (B8) |
| <u> </u> Drainage Patterns (B10) |
| <u> </u> Moss Trim Lines (B16) |
| <u> </u> Dry-Season Water Table (C2) |
| <u>X</u> Crayfish Burrows (C8) |
| <u> </u> Saturation Visible on Aerial Imagery (C9) |
| <u> </u> Geomorphic Position (D2) |
| <u> </u> Shallow Aquitard (D3) |
| <u>X</u> FAC-Neutral Test (D5) |
| <u> </u> Sphagnum moss (D8) (LRR T, U) |

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT6001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Caperonia palustris</i>	20	Yes	FACW
2. <i>Sorghum bicolor</i>	15	Yes	FACU
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Rumex crispus</i>	5	No	FAC
5. <i>Andropogon virginicus</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50 = Total Cover			
50% of total cover: 25 20% of total cover: 10			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>25</u>	x 2 = <u>50</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>50</u> (A)	<u>140</u> (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 X 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT6001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT6002 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01613 Long: -95.07801 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u>X</u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u>X</u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT6002_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover:		0	20% of total cover: 0
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover:		0	20% of total cover: 0
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover:		0	20% of total cover: 0
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Caperonia palustris</i>	20	Yes	FACW
2. <i>Juncus validus</i>	5	Yes	FACW
3. <i>Rumex crispus</i>	5	Yes	FAC
4. <i>Verbena incompta</i>	5	Yes	FACW
5. <i>Andropogon virginicus</i>	5	Yes	FAC
6. <i>Sorghum bicolor</i>	5	Yes	FACU
7.			
8.			
9.			
10.			
11.			
45 = Total Cover			
50% of total cover:		22.5	20% of total cover: 9
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover:		0	20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>45</u> (A)	<u>110</u> (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT6002_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/1	99	10YR 5/8	1	C	M	Clay	
9-20	10YR 3/1	97	10YR 5/6	3	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT6003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01644 Long: -95.07720 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT6003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Paspalum urvillei</i>	20	Yes	FAC
2. <i>Caperonia palustris</i>	12	Yes	FACW
3. <i>Rumex crispus</i>	5	No	FAC
4. <i>Sorghum bicolor</i>	8	No	FACU
5. <i>Cardiospermum halicacabum</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50 = Total Cover			
50% of total cover: 25 20% of total cover: 10			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>12</u>	x 2 = <u>24</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>8</u>	x 4 = <u>32</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>50</u> (A)	<u>146</u> (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT6003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT6004 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01721 Long: -95.07511 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| <u> </u> Surface Water (A1) | <u> </u> Aquatic Fauna (B13) |
| <u> </u> High Water Table (A2) | <u> </u> Marl Deposits (B15) (LRR U) |
| <u> </u> Saturation (A3) | <u> </u> Hydrogen Sulfide Odor (C1) |
| <u> </u> Water Marks (B1) | <u> </u> Oxidized Rhizospheres on Living Roots(C3) |
| <u> </u> Sediment Deposits (B2) | <u> </u> Presence of Reduced Iron (C4) |
| <u> </u> Drift Deposits (B3) | <u> </u> Recent Iron Reduction in Tilled Soils (C6) |
| <u> </u> Algal Mat or Crust (B4) | <u> </u> Thin Muck Surface (C7) |
| <u> </u> Iron Deposits (B5) | <u> </u> Other (Explain in Remarks) |
| <u> </u> Inundation Visible on Aerial Imagery (B7) | |
| <u> </u> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|---|
| <u> </u> Surface Soil Cracks (B6) |
| <u> </u> Sparsely Vegetated Concave Surface (B8) |
| <u> </u> Drainage Patterns (B10) |
| <u> </u> Moss Trim Lines (B16) |
| <u> </u> Dry-Season Water Table (C2) |
| <u>X</u> Crayfish Burrows (C8) |
| <u> </u> Saturation Visible on Aerial Imagery (C9) |
| <u> </u> Geomorphic Position (D2) |
| <u> </u> Shallow Aquitard (D3) |
| <u>X</u> FAC-Neutral Test (D5) |
| <u> </u> Sphagnum moss (D8) (LRR T, U) |

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT6004_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Sesbania herbacea</i>	8	No	FACW
2. <i>Caperonia palustris</i>	10	Yes	FACW
3. <i>Eleocharis montevidensis</i>	15	Yes	FACW
4. <i>Juncus validus</i>	10	Yes	FACW
5. <i>Rumex crispus</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
48 = Total Cover			
50% of total cover: 24 20% of total cover: 9.6			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>43</u>	x 2 = <u>86</u>
FAC species <u>5</u>	x 3 = <u>15</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>48</u> (A)	<u>101</u> (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT6004_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT6005 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01771 Long: -95.07374 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> <p>This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.</p> <p>The survey area was determined to be drier than normal at the time of survey.</p>	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT6005_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Sorghum bicolor</i>	10	Yes	FACU
2. <i>Cynodon dactylon</i>	15	Yes	FACU
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Caperonia palustris</i>	10	Yes	FACW
5. <i>Ambrosia psilostachya</i>	5	No	FAC
6. <i>Paspalum urvillei</i>	10	Yes	FAC
7. <i>Eleocharis montevidensis</i>	10	Yes	FACW
8.			
9.			
10.			
11.			
65 = Total Cover			
50% of total cover: 32.5 20% of total cover: 13			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>25</u>	x 2 = <u>50</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>65</u> (A)	<u>195</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT6005_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01550 Long: -95.07164 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> <p>This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.</p> <p>The survey area was determined to be drier than normal at the time of survey.</p>	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Andropogon virginicus</i>	10	Yes	FAC
2. <i>Verbena incompta</i>	5	No	FACW
3. <i>Caperonia palustris</i>	8	Yes	FACW
4. <i>Rumex crispus</i>	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
28 = Total Cover			
50% of total cover: 14 20% of total cover: 5.6			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>13</u>	x 2 = <u>26</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>28</u> (A)	<u>71</u> (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT5003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5004 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01599 Long: -95.07033 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u>X</u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u>X</u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5004_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Sorghum bicolor</i>	10	Yes	FACU
2. <i>Andropogon virginicus</i>	15	Yes	FAC
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Eleocharis montevidensis</i>	5	No	FACW
5. <i>Caperonia palustris</i>	10	Yes	FACW
6.			
7.			
8.			
9.			
10.			
11.			
45 = Total Cover			
50% of total cover: 22.5 20% of total cover: 9			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>45</u> (A)	<u>125</u> (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT5004_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5005 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01648 Long: -95.06901 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u>X</u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5005_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Andropogon virginicus</i>	25	Yes	FAC
2. <i>Caperonia palustris</i>	10	No	FACW
3. <i>Cynodon dactylon</i>	25	Yes	FACU
4. <i>Eleocharis montevidensis</i>	5	No	FACW
5. <i>Rubus trivialis</i>	5	No	FACU
6. <i>Sorghum bicolor</i>	10	No	FACU
7. <i>Verbena incompta</i>	5	No	FACW
8.			
9.			
10.			
11.			
= Total Cover			
50% of total cover: 25 20% of total cover: 10			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85</u> (A)	<u>275</u> (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT5005_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5007 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01715 Long: -95.06715 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Cynodon dactylon</i>	50	Yes	FACU
2. <i>Paspalum urvillei</i>	8	No	FAC
3. <i>Andropogon virginicus</i>	15	No	FAC
4. <i>Verbena incompta</i>	5	No	FACW
5. <i>Caperonia palustris</i>	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
83 = Total Cover			
50% of total cover: 41.5 20% of total cover: 16.6			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>23</u>	x 3 = <u>69</u>
FACU species <u>50</u>	x 4 = <u>200</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>88</u> (A)	<u>299</u> (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT5007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA005 PEM
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01551 Long: -95.06686 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: This point was determined to be within a wetland due to the presence of all 3 wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA005_PEM

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Persicaria hydropiperoides</i>	15	No	OBL
2. <i>Rhynchospora corniculata</i>	85	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>100</u>	x 1 = <u>100</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>100</u> (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPA005_PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/1	95	10YR 5/6	5	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA006 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01538 Long: -95.06668 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
---	--

Remarks:
 This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.
 The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u> </u> No <u>X</u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA006_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Baccharis halimifolia</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
2.			
3.			
4.			
5.			
6.			
15 = Total Cover			
50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Rubus trivialis</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Verbena incompta</u>	<u>7</u>	<u>No</u>	<u>FACW</u>
3. <u>Solidago altissima</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Sorghum bicolor</u>	<u>8</u>	<u>No</u>	<u>FACU</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50 = Total Cover			
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>7</u>	x 2 = <u>14</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>43</u>	x 4 = <u>172</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>65</u> (A)	<u>231</u> (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPA006_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01462 Long: -95.06594 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Sorghum bicolor</i>	55	Yes	FACU
2. <i>Andropogon virginicus</i>	8	No	FAC
3. <i>Cynodon dactylon</i>	15	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
78 = Total Cover			
50% of total cover: 39 20% of total cover: 15.6			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>8</u>	x 3 = <u>24</u>
FACU species <u>70</u>	x 4 = <u>280</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>78</u> (A)	<u>304</u> (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).
 No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT4003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4004 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01524 Long: -95.06424 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4004_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Andropogon virginicus</i>	30	Yes	FAC
2. <i>Sorghum bicolor</i>	50	Yes	FACU
3. <i>Cynodon dactylon</i>	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
90 = Total Cover			
50% of total cover: 45 20% of total cover: 18			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>60</u>	x 4 = <u>240</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90</u> (A)	<u>330</u> (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT4004_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4005 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01394 Long: -95.06773 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u> X </u>
<p>Remarks:</p> <p>This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.</p> <p>The survey area was determined to be drier than normal at the time of survey.</p>	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators</u> (minimum of one is required; check all that apply)</p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) <u> X </u> High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u> X </u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators</u> (minimum of two required)</p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <u> X </u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u> X </u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> N/A </u> Water Table Present? Yes <u> X </u> No <u> </u> Depth (inches): <u> 6 </u> Saturation Present? Yes <u> X </u> No <u> </u> Depth (inches): <u> 0 </u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u> X </u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4005_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Eleocharis montevidensis</i>	50	Yes	FACW
2. <i>Caperonia palustris</i>	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
65 = Total Cover			
50% of total cover: 32.5 20% of total cover: 13			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>65</u>	x 2 = <u>130</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>65</u> (A)	<u>130</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT4005_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4006 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01344 Long: -95.06903 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> <p>This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.</p> <p>The survey area was determined to be drier than normal at the time of survey.</p>	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators</u> (minimum of one is required; check all that apply)</p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) <u>X</u> Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators</u> (minimum of two required)</p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4006_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Caperonia palustris</i>	10	Yes	FACW
2. <i>Andropogon virginicus</i>	5	Yes	FAC
3. <i>Melochia corchorifolia</i>	5	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
20 = Total Cover			
50% of total cover: 10 20% of total cover: 4			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>20</u> (A)	<u>50</u> (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT4006_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 5, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4007 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01294 Long: -95.07049 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Sorghum bicolor</i>	15	Yes	FACU
2. <i>Solidago altissima</i>	5	No	FACU
3. <i>Rumex crispus</i>	5	No	FAC
4. <i>Paspalum urvillei</i>	10	Yes	FAC
5. <i>Andropogon virginicus</i>	5	No	FAC
6. <i>Caperonia palustris</i>	5	No	FACW
7.			
8.			
9.			
10.			
11.			
45 = Total Cover			
50% of total cover: 22.5 20% of total cover: 9			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>45</u> (A)	<u>150</u> (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT4007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 6, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03106 Long: -95.06062 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| <u> </u> Surface Water (A1) | <u> </u> Aquatic Fauna (B13) |
| <u> </u> High Water Table (A2) | <u> </u> Marl Deposits (B15) (LRR U) |
| <u> </u> Saturation (A3) | <u> </u> Hydrogen Sulfide Odor (C1) |
| <u> </u> Water Marks (B1) | <u> </u> Oxidized Rhizospheres on Living Roots(C3) |
| <u> </u> Sediment Deposits (B2) | <u> </u> Presence of Reduced Iron (C4) |
| <u> </u> Drift Deposits (B3) | <u> </u> Recent Iron Reduction in Tilled Soils (C6) |
| <u> </u> Algal Mat or Crust (B4) | <u> </u> Thin Muck Surface (C7) |
| <u> </u> Iron Deposits (B5) | <u> </u> Other (Explain in Remarks) |
| <u> </u> Inundation Visible on Aerial Imagery (B7) | |
| <u> </u> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|---|
| <u> </u> Surface Soil Cracks (B6) |
| <u> </u> Sparsely Vegetated Concave Surface (B8) |
| <u> </u> Drainage Patterns (B10) |
| <u> </u> Moss Trim Lines (B16) |
| <u> </u> Dry-Season Water Table (C2) |
| <u>X</u> Crayfish Burrows (C8) |
| <u> </u> Saturation Visible on Aerial Imagery (C9) |
| <u> </u> Geomorphic Position (D2) |
| <u> </u> Shallow Aquitard (D3) |
| <u>X</u> FAC-Neutral Test (D5) |
| <u> </u> Sphagnum moss (D8) (LRR T, U) |

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Ampelopsis arborea</i>	45	Yes	FAC
2. <i>Cyperus entrerianus</i>	5	No	FACW
3. <i>Eleocharis montevidensis</i>	30	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
80 = Total Cover			
50% of total cover: 40 20% of total cover: 16			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>35</u>	x 2 = <u>70</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80</u> (A)	<u>205</u> (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT9001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	90	10YR 5/6	10	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 6, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9002 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03077 Long: -95.06249 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9002_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Paspalum urvillei</i>	60	Yes	FAC
2. <i>Verbena incompta</i>	15	No	FACW
3. <i>Caperonia palustris</i>	10	No	FACW
4. <i>Rubus trivialis</i>	15	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>25</u>	x 2 = <u>50</u>
FAC species <u>60</u>	x 3 = <u>180</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>290</u> (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT9002_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M & PL	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 6, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03007 Long: -95.06412 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:

This point was determined not to be within a wetland due to the lack of wetland hydrology.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Paspalum urvillei</i>	20	Yes	FAC
2. <i>Verbena incompta</i>	15	No	FACW
3. <i>Andropogon virginicus</i>	25	Yes	FAC
4. <i>Rubus trivialis</i>	10	No	FACU
5. <i>Ampelopsis arborea</i>	22	Yes	FAC
6. <i>Solidago altissima</i>	8	No	FACU
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>67</u>	x 3 = <u>201</u>
FACU species <u>18</u>	x 4 = <u>72</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>303</u> (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT9003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5008 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01404 Long: -95.07553 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5008_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Paspalum urvillei</i>	15	Yes	FAC
2. <i>Verbena incompta</i>	5	No	FACW
3. <i>Sorghum bicolor</i>	15	Yes	FACU
4. <i>Melochia corchorifolia</i>	20	Yes	FAC
5. <i>Caperonia palustris</i>	15	Yes	FACW
6. <i>Rumex crispus</i>	5	No	FAC
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>40</u>	x 3 = <u>120</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>220</u> (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT5008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5009 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01348 Long: -95.07705 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5009_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Sorghum bicolor</i>	20	Yes	FACU
2. <i>Paspalum urvillei</i>	10	Yes	FAC
3. <i>Melochia corchorifolia</i>	10	Yes	FAC
4. <i>Caperonia palustris</i>	10	Yes	FACW
5. <i>Verbena incompta</i>	5	No	FACW
6. <i>Rumex crispus</i>	5	No	FAC
7.			
8.			
9.			
10.			
11.			
60 = Total Cover			
50% of total cover: 30 20% of total cover: 12			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>60</u> (A)	<u>185</u> (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT5009_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT5010 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01483 Long: -95.07343 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT5010_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Digitaria ciliaris</i>	30	Yes	FACU
2. <i>Sorghum bicolor</i>	15	Yes	FACU
3. <i>Paspalum urvillei</i>	10	No	FAC
4. <i>Sesbania herbacea</i>	5	No	FACW
5. <i>Caperonia palustris</i>	10	No	FACW
6. <i>Rumex crispus</i>	5	No	FAC
7.			
8.			
9.			
10.			
11.			
75 = Total Cover			
50% of total cover: 37.5 20% of total cover: 15			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>45</u>	x 4 = <u>180</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75</u> (A)	<u>255</u> (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT5010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4008 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01215 Long: -95.07254 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u>X</u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u>X</u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4008_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Sesbania herbacea</i>	10	Yes	FACW
2. <i>Caperonia palustris</i>	10	Yes	FACW
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Sorghum bicolor</i>	15	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
40 = Total Cover			
50% of total cover: 20 20% of total cover: 8			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>25</u>	x 2 = <u>50</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>40</u> (A)	<u>110</u> (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT4008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4009 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01186 Long: -95.07324 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u>X</u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u>X</u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4009_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Eleocharis montevidensis</i>	15	Yes	FACW
2. <i>Sorghum bicolor</i>	15	Yes	FACU
3. <i>Sesbania herbacea</i>	5	No	FACW
4. <i>Caperonia palustris</i>	10	Yes	FACW
5. <i>Verbena incompta</i>	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
50 = Total Cover			
50% of total cover: 25 20% of total cover: 10			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>35</u>	x 2 = <u>70</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>50</u> (A)	<u>130</u> (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT4009_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT4010 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.01140 Long: -95.07457 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	<p align="center">Is the Sampled Area within a Wetland?</p> Yes <u> </u> No <u>X</u>
<p>Remarks:</p> <p>This area is actively farmed and is considered a prior converted cropland by the NRCS. SWCA determines this area not to be a jurisdictional water of the U.S. therefore a non-wetland.</p> <p>The survey area was determined to be drier than normal at the time of survey.</p>	

HYDROLOGY

<p>Wetland hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ Aquatic Fauna (B13) ___ High Water Table (A2) ___ Marl Deposits (B15) (LRR U) ___ Saturation (A3) ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1) ___ Oxidized Rhizospheres on Living Roots(C3) ___ Sediment Deposits (B2) ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4) ___ Thin Muck Surface (C7) ___ Iron Deposits (B5) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ <u>X</u> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum moss (D8) (LRR T, U)
--	---

<p>Field Observations:</p> Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	<p>Wetland Hydrology Present? Yes <u>X</u> No <u> </u></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT4010_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Sorghum bicolor</i>	25	Yes	FACU
2. <i>Sesbania herbacea</i>	10	Yes	FACW
3. <i>Caperonia palustris</i>	10	Yes	FACW
4. <i>Paspalum urvillei</i>	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50 = Total Cover			
50% of total cover: 25 20% of total cover: 10			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>5</u>	x 3 = <u>15</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>50</u> (A)	<u>155</u> (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).
 A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: DPAT4010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	95	10YR 5/6	5	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Liberty Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT8001 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03411 Long: -95.04512 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of all three wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT8001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Symphotrichum lateriflorum</i>	40	Yes	FAC
2. <i>Solidago altissima</i>	30	Yes	FACU
3. <i>Andropogon virginicus</i>	12	No	FAC
4. <i>Cyperus enterianus</i>	8	No	FACW
5. <i>Ambrosia trifida</i>	10	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>8</u>	x 2 = <u>16</u>
FAC species <u>62</u>	x 3 = <u>186</u>
FACU species <u>30</u>	x 4 = <u>120</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>322</u> (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT8001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	99	10YR 5/8	1	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Liberty Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9004 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03634 Long: -95.04746 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of all three wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9004_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Solidago altissima</i>	25	Yes	FACU
2. <i>Symphotrichum lateriflorum</i>	35	Yes	FAC
3. <i>Andropogon virginicus</i>	10	No	FAC
4. <i>Ambrosia trifida</i>	15	No	FAC
5. <i>Paspalum urvillei</i>	10	No	FAC
6. <i>Cyperus enterianus</i>	5	No	FACW
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>70</u>	x 3 = <u>210</u>
FACU species <u>25</u>	x 4 = <u>100</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>320</u> (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT9004_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	99	10YR 5/8	1	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9005 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.03544 Long: -95.04982 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of all three wetland criteria. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	--

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9005_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Ambrosia psilostachya</i>	40	Yes	FAC
2. <i>Solidago altissima</i>	20	Yes	FACU
3. <i>Andropogon virginicus</i>	5	No	FAC
4. <i>Cyperus enterianus</i>	10	No	FACW
5. <i>Paspalum urvillei</i>	10	No	FAC
6. <i>Symphotrichum lateriflorum</i>	15	No	FAC
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>70</u>	x 3 = <u>210</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>310</u> (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT9005_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	99	10YR 5/8	1	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT7001 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02170 Long: -95.07101 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT7001_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Symphotrichum lateriflorum</i>	65	Yes	FAC
2. <i>Paspalum urvillei</i>	10	No	FAC
3. <i>Verbena incompta</i>	5	No	FACW
4. <i>Cyperus enterianus</i>	15	No	FACW
5. <i>Ambrosia psilostachya</i>	5	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>80</u>	x 3 = <u>240</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>280</u> (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT7001_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	88	2.5Y 6/2	10	D	M	Clay	
			10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT8002 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02466 Long: -95.07112 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT8002_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Symphotrichum lateriflorum</i>	75	Yes	FAC
2. <i>Cyperus entrerianus</i>	15	No	FACW
3. <i>Ambrosia psilostachya</i>	5	No	FAC
4. <i>Paspalum urvillei</i>	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>85</u>	x 3 = <u>255</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>285</u> (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT8002_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	96	10YR 5/6	4	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT8003 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02398 Long: -95.07281 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> </u> No <u> X </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> X </u>
Remarks: This point was determined not to be within a wetland due to the lack of wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> N/A </u> Water Table Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> >20 </u> Saturation Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> >20 </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u> X </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT8003_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Symphotrichum lateriflorum</i>	75	Yes	FAC
2. <i>Paspalum urvillei</i>	5	No	FAC
3. <i>Cyperus enterianus</i>	15	No	FACW
4. <i>Ambrosia psilostachya</i>	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
100 = Total Cover			
50% of total cover: 50 20% of total cover: 20			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>85</u>	x 3 = <u>255</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>285</u> (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT8003_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/2	96	10YR 5/6	4	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9006 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02565 Long: -95.07689 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Forested Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9006_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	10	Yes	FAC
2. <u>Triadica sebifera</u>	15	Yes	FAC
3. <u>Ulmus americana</u>	10	Yes	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	35 = Total Cover		
	50% of total cover: <u>17.5</u>	20% of total cover: <u>7</u>	
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Ligustrum sinense</u>	5	Yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
	5 = Total Cover		
	50% of total cover: <u>2.5</u>	20% of total cover: <u>1</u>	
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <u>Sorghum bicolor</u>	10	No	FACU
2. <u>Verbena incompta</u>	25	Yes	FACW
3. <u>Solidago altissima</u>	15	Yes	FACU
4. <u>Rubus trivialis</u>	10	No	FACU
5. <u>Cyperus enterianus</u>	15	Yes	FACW
6. <u>Symphotrichum lateriflorum</u>	15	Yes	FAC
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
	90 = Total Cover		
	50% of total cover: <u>45</u>	20% of total cover: <u>18</u>	
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
	0 = Total Cover		
	50% of total cover: <u>0</u>	20% of total cover: <u>0</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>40</u>	x 2 = <u>80</u>
FAC species <u>55</u>	x 3 = <u>165</u>
FACU species <u>35</u>	x 4 = <u>140</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130</u> (A)	<u>385</u> (B)

Prevalence Index = B/A = 2.96

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPAT9006_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	99	10YR 5/8	1	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPA007 U
 Investigator(s): C. Vicensik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02618 Long: -95.07751 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Forested Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology. The survey area was determined to be drier than normal at the time of survey.	

HYDROLOGY

Wetland hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots(C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
---	---

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>N/A</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u>>20</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPA007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Quercus nigra</u>	<u>12</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Pinus taeda</u>	<u>13</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Ulmus crassifolia</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>35</u> = Total Cover			
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Ilex vomitoria</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Ilex vomitoria</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Ligustrum sinense</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>20</u> = Total Cover			
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>Ambrosia psilostachya</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Cyperus entrerianus</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Verbena incompta</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
4. <u>Euthamia gymnospermoides</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
5. <u>Solidago altissima</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
6. <u>Rubus trivialis</u>	<u>10</u>	<u>No</u>	<u>FACU</u>
7. <u>Rubus argutus</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>95</u> = Total Cover			
50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <u>None Observed</u>	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
<u>0</u> = Total Cover			
50% of total cover: <u>0</u> 20% of total cover: <u>0</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>105</u>	x 3 = <u>315</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155</u> (A)	<u>455</u> (B)

Prevalence Index = B/A = 2.94

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (if observed, list morphological adaptations below).

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

A positive indication of hydrophytic vegetation was observed (Prevalence Index is ≤ 3.00).

SOIL

Sampling Point: DPA007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	99	10YR 5/8	1	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No positive indication of hydric soils was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9007 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02621 Long: -95.07508 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9007_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)			
1. <i>Sorghum bicolor</i>	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
10 = Total Cover			
50% of total cover: 5 20% of total cover: 2			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)			
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>10</u> (A)	<u>40</u> (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT9007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Gin City Mitigation Bank - Phase 2 County: Harris Sampling Date: January 9, 2017
 Applicant/Owner: Gin City Land Company State: Texas Sample Point: DPAT9008 U
 Investigator(s): C. Vicenik and R. Patterson Section, Township, Range: N/A
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 00-05
 Subregion (LRR or MLRA): T Lat: 30.02707 Long: -95.07274 Datum: North American Datum 1983
 Soil Map Unit Name: League clay, 0 to 1 percent slopes NWI Classification: Herbaceous Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? (Yes / No) No (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:

This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

The survey area was determined to be drier than normal at the time of survey.

HYDROLOGY

Wetland hydrology Indicators:		<u> </u> Secondary Indicators (minimum of two required)
<u> </u> Primary Indicators (minimum of one is required; check all that apply)		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Aquatic Fauna (B13)	<u> </u> Sparsely Vegetated Concave Surface (B8)
<u> </u> High Water Table (A2)	<u> </u> Marl Deposits (B15) (LRR U)	<u> </u> Drainage Patterns (B10)
<u> </u> Saturation (A3)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Moss Trim Lines (B16)
<u> </u> Water Marks (B1)	<u> </u> Oxidized Rhizospheres on Living Roots(C3)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Sediment Deposits (B2)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Crayfish Burrows (C8)
<u> </u> Drift Deposits (B3)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Thin Muck Surface (C7)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Other (Explain in Remarks)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)		<u> </u> FAC-Neutral Test (D5)
<u> </u> Water-Stained Leaves (B9)		<u> </u> Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No X Depth (inches): N/A
 Water Table Present? Yes No X Depth (inches): >20
 Saturation Present? Yes No X Depth (inches): >20
 (includes capillary fringe)

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: DPAT9008_U

Tree Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Sapling Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Shrub Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
6.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>Sorghum bicolor</i>	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
10 = Total Cover			
50% of total cover: 5 20% of total cover: 2			
Woody Vine Stratum (Plot size: <u>30 ft.</u>)	Absolute % cover	Dominant Species?	Indicator Status
1. <i>None Observed</i>			
2.			
3.			
4.			
5.			
0 = Total Cover			
50% of total cover: 0 20% of total cover: 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>10</u> (A)	<u>40</u> (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤ 3.0¹

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FAC- or drier).

SOIL

Sampling Point: DPAT9008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 3/1	98	10YR 5/6	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Muck Presence (A8) (LRR U) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR P, T) | <input type="checkbox"/> Marl (F10) (LRR U) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Ochric (F11) (MLRA 151) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T) |
| <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A) | <input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Delta Ochric (F17) (MLRA 151) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B) |
| <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A) |
| <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) |
| <input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

A positive indication of hydric soil was observed.

APPENDIX C
Photographic Log



Figure 1. Herbaceous uplands as viewed from DPAT3006_U; view facing north.



Figure 2. Herbaceous uplands as viewed from DPAT3010_U; view facing east.



Figure 3. Herbaceous uplands as viewed from DPAT6005_U; view facing south.



Figure 4. Herbaceous uplands as viewed from DPAT4010_U; view facing west.



Figure 5. Forested uplands as viewed from DPAT9006_U; view facing east.



Figure 6. Forested uplands as viewed from DPA007_U; view facing south.



Figure 7. Palustrine emergent (PEM) wetland WETA001 as viewed from DPAT2001_PEM; view facing west.



Figure 8. PEM wetland WETA001 as viewed from DPAT2003_PEM; view facing south.



Figure 9. Palustrine forested (PFO) wetland WETA001 as viewed from DPA001_PFO; view facing west.



Figure 10. PFO wetland WETA001 as viewed from DPAT3005_PFO; view facing east.



Figure 11. PFO wetland WETA001 as seen from DPA002_PFO; view facing south.



Figure 12. PFO wetland WETA002 as seen from DPA004_PFO; view facing east.



Figure 13. PEM wetland WETA003 as viewed from DPAT5003_PEM; view facing north.



Figure 14. PEM wetland WETA003 as viewed from DPAT5003_PEM; view facing south.



Figure 15. PEM wetland WETA004 as viewed from DPA005_PEM; view facing north.



Figure 16. PEM wetland WETA004 as viewed from DPA005_PEM; view facing east.

APPENDIX D

NRCS Soil Map Unit Descriptions

HARRIS COUNTY

BeaA – Beaumont clay, 0 to 1 percent slopes: This component is on gilgai on depressions on coastal plains. The parent material consists of clayey fluviomarine deposits of Late Pleistocene age. The natural drainage class is poorly drained. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 5 inches during January, February, March, November, and December. Organic matter content in the surface horizon is about 4 percent. This soil meets hydric criteria.

LeaA – League clay, 0 to 1 percent slopes: This component is on interfluves on gilgai on flats on flat coastal plains. The parent material consists of clayey fluviomarine deposits derived from igneous, metamorphic and sedimentary rock. The natural drainage class is somewhat poorly drained. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 36 inches during January, February, and March. Organic matter content in the surface horizon is about 2 percent. This soil does not meet hydric criteria.

LetA – Leton loam, 0 to 1 percent slopes, occasionally flooded, frequently ponded: This component is on relict meandering channels on flat coastal plains. The parent material consists of loamy fluviomarine deposits derived from igneous, metamorphic and sedimentary rock. The natural drainage class is poorly drained. Shrink-swell potential is moderate. This soil is occasionally flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, October, November, and December. Organic matter content in the surface horizon is about 1 percent. This soil meets hydric criteria.

VirA – Viterbo silty clay loam, 0 to 1 percent slopes: This component is on flats on flat coastal plains. The parent material consists of loamy fluviomarine deposits derived from igneous, metamorphic and sedimentary rock. The natural drainage class is somewhat poorly drained. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, and March. Organic matter content in the surface horizon is about 2 percent. This soil meets hydric criteria.

LIBERTY COUNTY

LeaA – League clay, 0 to 1 percent slopes: This component is on interfluves on gilgai on flats on flat coastal plains. The parent material consists of clayey fluviomarine deposits derived from igneous, metamorphic and sedimentary rock. The natural drainage class is somewhat poorly drained. Shrink-swell potential is very high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 36 inches during January, February, and March. Organic matter content in the surface horizon is about 2 percent. This soil does not meet hydric criteria.

APPENDIX E

NRCS Wetland Determination



HIGHLY ERODIBLE LAND AND WETLAND CONSERVATION DETERMINATION

Name Address: Gin City Land Company, P.O. Box 1167, Huffinan, TX 77336. Request Date: 7/19/10. County: Liberty. Agency or Person Requesting Determination: Suzanne Jamison. Tract No: 1490. FSA Farm No.: 2374.

Section I - Highly Erodible Land

Is a soil survey now available for making a highly erodible land determination? Yes. Are there highly erodible soil map units on this farm? No.

Fields in this section have undergone a determination of whether they are highly erodible land (HEL) or not; fields for which an HEL Determination has not been completed are not listed. In order to be eligible for USDA benefits, a person must be using an approved conservation system on all HEL.

Table with 5 columns: Field(s), HEL(Y/N), Sodbust(Y/N), Acres, Determination Date. All rows show dashes for HEL and Sodbust.

The Highly Erodible Land determination was completed in the -

Section II - Wetlands

Are there hydric soils on this farm? Yes

Fields in this section have had wetland determinations completed. See the Definition of Wetland Label Codes for additional information regarding allowable activities under the wetland conservation provisions of the Food Security Act and/or when wetland determinations are necessary to determine USDA program eligibility.

Table with 6 columns: Field(s), Wetland Label*, Occurrence Year (CW)**, Acres, Determination Date, Certification Date. Row 1: 1,2,4-9,22-24,29,30,33-35, PC, 1324.33, 09/09/2010, 11/10/10.

The wetland determination was completed in the -Office It was -mailed to the person on 09/09/2010.

Remarks: Wetland Determination completed on Field 32 on 6-3-2010. Artificial Wetlands (AW) = 230.6 Ac. Not Inventoried (NI) = 296.35 Ac.

I certify that the above determinations are correct and were conducted in accordance with policies and procedures contained in the National Food Security Act Manual.

Signature Designated Conservationist: [Signature]. Date: 9/9/10.

*DEFINITIONS OF WETLAND LABEL CODES

AW	Artificial Wetland. An area that is artificial or irrigation induced wetland. These wetlands are not subject to the wetland conservation provision.
AW/FW	An area that contains both AW and FW.
AW/W	An area that contains both AW and W.
CC	Commenced Conversion exemption.
CPD	Corps Permit Decision. Corps of Engineers permit decisions regarding section 404 of the Clean Water Act will be relied upon to satisfy the wetland conservation provisions of the Food Security Act of 1985, as amended.
CMW	An area that receives a Categorical Minimal Effect determination.
CW	Converted Wetlands. An area converted between December 23, 1985 and November 28, 1990. IN any year that an agricultural commodity is planted on these converted wetlands, you will ineligible for USDA benefits.
**CW+year	An area converted after November 28, 1990. You will be ineligible for USDA program benefits until this wetland is restored.
CWNA	Converted Wetland Non-Agricultural use. A wetland area converted to other than agricultural commodity production.
CWTE	Converted Wetland Technical Error. An area converted or commenced based on an incorrect NRCS determination or misinformation from a NRCS or FSA employee.
FW	Farmed Wetland. An area that is farmed wetland; was manipulated and planted before December 23, 1985, but still meets wetland criteria. These may be farmed and maintained in the same manner as long as they are not abandoned.
FWP	Farmed Wetlands Pasture. An area that is pasture or hayland, manipulated before December 23, 1985 but still meets wetland criteria. These may be farmed and maintained in the same manner as long as they are not abandoned.
MIW	Mitigation Wetlands. Wetlands on which a person is actively mitigating a frequently cropped area or a wetland converted between December 23, 1985 and November 28, 1990. A converted wetland, farmed wetland, or farmed wetland pasture on which functions and values were lost are compensated for through wetland restoration, enhancement or creation.
MW	Minimal effect Wetland. An area determined to be minimal effect. These wetlands are to be farmed according to the minimal-effect agreement signed at the time the minimal-effect determination was made,
MWM	An area determined to be minimal effect with mitigation.
NI	Not Inventoried -- No wetland determination has been completed.
NW	Non-Wetland. An area that does not contain a wetland.
NW/NAD	An area determined to be a non-wetland resulting from a decision from the National Appeals Division.
OW	Other Waters of the U.S. Area that fall under the jurisdiction of the Clean Water Act.
PC	Prior Converted cropland, which was drained filled, or manipulated before December 23, 1985; was cropped prior to December 23, 1985; was not abandoned; and does not meet FW criteria. These are not subject to the wetland conservation provision unless the area reverts to wetland as a result of abandonment.
PC/NW	An area that contains both PC and NW.
TP	Third Party Exemption.
W	Wetlands. An area meeting wetland criteria, including wetland farmed under natural conditions. If you plan to clear, drain, fill, level or manipulate these areas, contact NRCS and the Army Corp of Engineers prior to any such activity.
WX	A wetland area that has been manipulated after December 23, 1985, but was not, for the purpose of making production possible and production was not made possible. These include wetlands manipulated by drainage maintenance agreements.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

Certified Wetland Map

Date: 9/9/2010

Customer(s): GIN CITY LAND CO INC
District: LOWER TRINITY SOIL & WATER CONSERVATION DISTRICT
Approximate Acres: 1324.33
Legal Description: FSN 2374 T-1490

Field Office: LIBERTY SERVICE CENTER
Agency: USDA-NRCS
Assisted By: BROOKE TURNER



Legend

Consplan

 Prior Converted (PC)

road_tanw_l_tx291



C-8

1/1995



B-8
2/1983

1972

187L



Sewer

1972

186R



~~197~~ 1972

187R

5/10/72



b1
D-B



D-14 10/19/64

10-13-64





HIGHLY ERODIBLE LAND AND WETLAND CONSERVATION DETERMINATION

Form with fields: Name Address, Request Date, County, Agency or Person Requesting Determination, Tract No, FSA Farm No.

Section I - Highly Erodible Land

Is a soil survey now available for making a highly erodible land determination? Yes
Are there highly erodible soil map units on this farm? No

Fields in this section have undergone a determination of whether they are highly erodible land (HEL) or not; fields for which an HEL Determination has not been completed are not listed. In order to be eligible for USDA benefits, a person must be using an approved conservation system on all HEL.

Table with columns: Field(s), HEL(Y/N), Sodbust(Y/N), Acres, Determination Date

The Highly Erodible Land determination was completed in the-

Section II - Wetlands

Are there hydric soils on this farm? Yes

Fields in this section have had wetland determinations completed. See the Definition of Wetland Label Codes for additional information regarding allowable activities under the wetland conservation provisions of the Food Security Act and/or when wetland determinations are necessary to determine USDA program eligibility.

Table with columns: Field(s), Wetland Label*, Occurrence Year (CW)**, Acres, Determination Date, Certification Date

The wetland determination was completed in the -Office It was -mailed to the person on 06/03/2010.

Remarks:

I certify that the above determinations are correct and were conducted in accordance with policies and procedures contained in the National Food Security Act Manual.

Signature Designated Conservationist, Date

*DEFINITIONS OF WETLAND LABEL CODES

AW	Artificial Wetland. An area that is artificial or irrigation induced wetland. These wetlands are not subject to the wetland conservation provision.
AW/FW	An area that contains both AW and FW.
AW/W	An area that contains both AW and W.
CC	Commenced Conversion exemption.
CPD	Corps Permit Decision. Corps of Engineers permit decisions regarding section 404 of the Clean Water Act will be relied upon to satisfy the wetland conservation provisions of the Food Security Act of 1985, as amended.
CMW	An area that receives a Categorical Minimal Effect determination.
CW	Converted Wetlands. An area converted between December 23, 1985 and November 28, 1990. IN any year that an agricultural commodity is planted on these converted wetlands, you will ineligible for USDA benefits.
**CW+year	An area converted after November 28, 1990. You will be ineligible for USDA program benefits until this wetland is restored.
CWNA	Converted Wetland Non-Agricultural use. A wetland area converted to other than agricultural commodity production.
CWTE	Converted Wetland Technical Error. An area converted or commenced based on an incorrect NRCS determination or misinformation from a NRCS or FSA employee.
FW	Farmed Wetland. An area that is farmed wetland; was manipulated and planted before December 23, 1985, but still meets wetland criteria. These may be farmed and maintained in the same manner as long as they are not abandoned.
FWP	Farmed Wetlands Pasture. An area that is pasture or hayland, manipulated before December 23, 1985 but still meets wetland criteria. These may be farmed and maintained in the same manner as long as they are not abandoned.
MIW	Mitigation Wetlands. Wetlands on which a person is actively mitigating a frequently cropped area or a wetland converted between December 23, 1985 and November 28, 1990. A converted wetland, farmed wetland, or farmed wetland pasture on which functions and values were lost are compensated for through wetland restoration, enhancement or creation.
MW	Minimal effect Wetland. An area determined to be minimal effect. These wetlands are to be farmed according to the minimal-effect agreement signed at the time the minimal-effect determination was made,
MWM	An area determined to be minimal effect with mitigation.
NI	Not Inventoried -- No wetland determination has been completed.
NW	Non-Wetland. An area that does not contain a wetland.
NW/NAD	An area determined to be a non-wetland resulting from a decision from the National Appeals Division.
OW	Other Waters of the U.S. Area that fall under the jurisdiction of the Clean Water Act.
PC	Prior Converted cropland, which was drained filled, or manipulated before December 23, 1985; was cropped prior to December 23, 1985; was not abandoned; and does not meet FW criteria. These are not subject to the wetland conservation provision unless the area reverts to wetland as a result of abandonment.
PC/NW	An area that contains both PC and NW.
TP	Third Party Exemption.
W	Wetlands. An area meeting wetland criteria, including wetland farmed under natural conditions. If you plan to clear, drain, fill, level or manipulate these areas, contact NRCS and the Army Corp of Engineers prior to any such activity.
WX	A wetland area that has been manipulated after December 23, 1985, but was not, for the purpose of making production possible and production was not made possible. These include wetlands manipulated by drainage maintenance agreements.

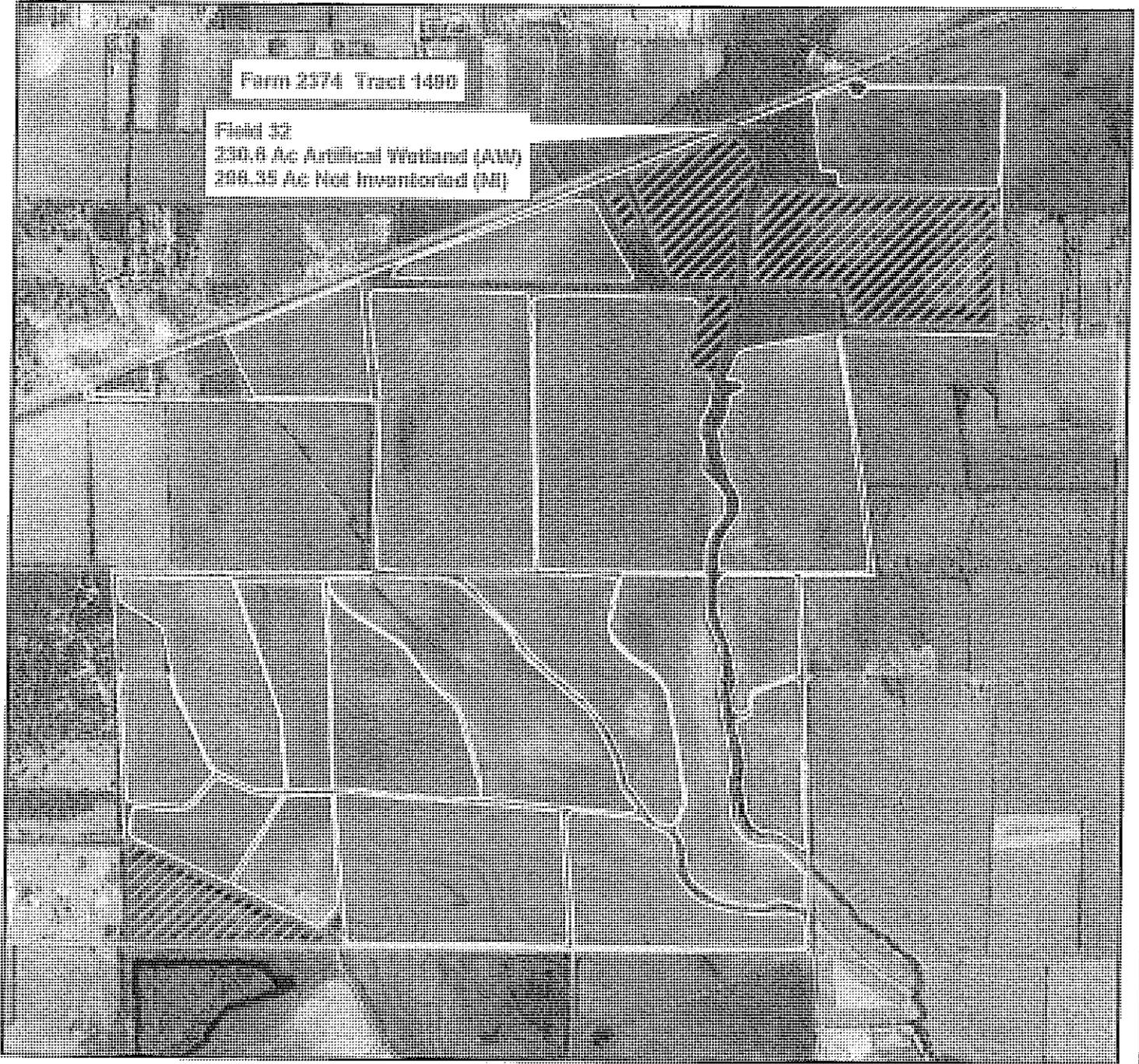
The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

Certified Wetland Map

Date: 6/3/2010

Customer(s): GIN CITY LAND CO INC
District: LOWER TRINITY SOIL & WATER CONSERVATION DISTRICT

Field Office: LIBERTY SERVICE CENTER
Agency: USDA-NRCS
Assisted By: BROOKE TURNER



Legend



- Consplan
-  Artificial Wetland (AW)



OK-2

1a, 7

2a, 2

1a, 7

1a, 7

2a, 44

2a, 44

RESERVOIR

1a, 1

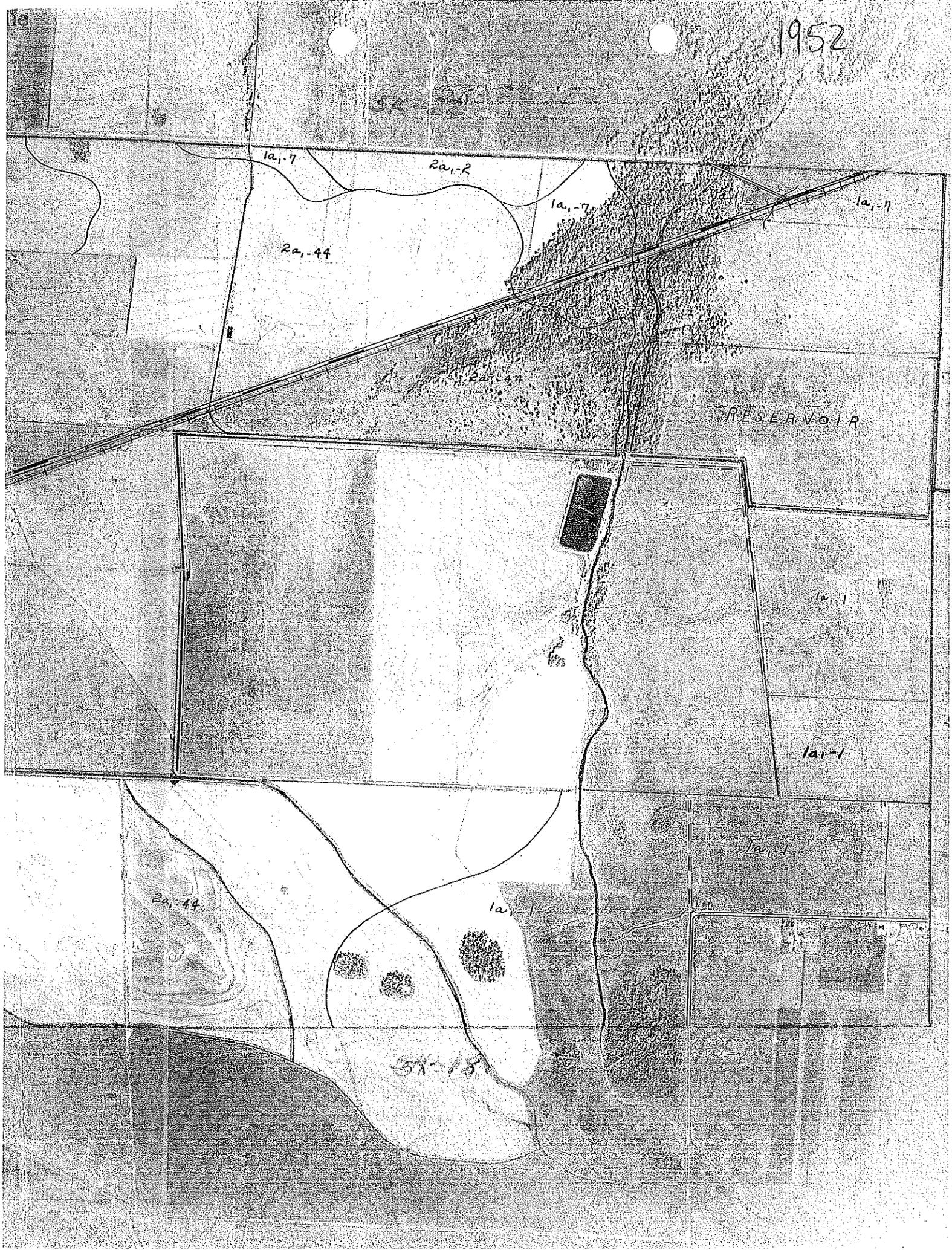
1a, 1

1a, 1

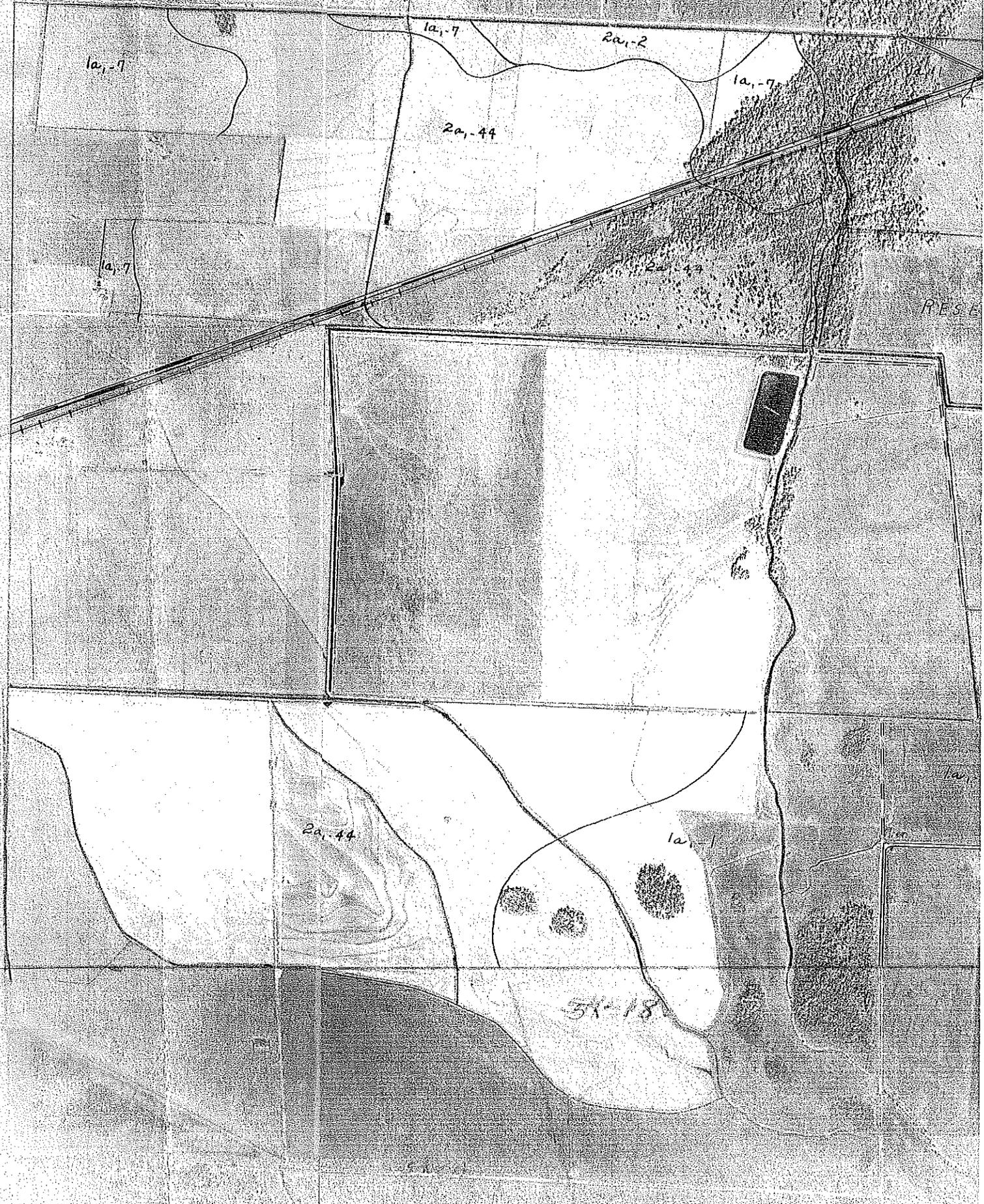
2a, 44

1a, 1

51-18



Scale: 4" = 1 mile



1a, 7

1a, 7

2a, 2

1a, 7

2a, 44

1a, 7

R.E.S.E

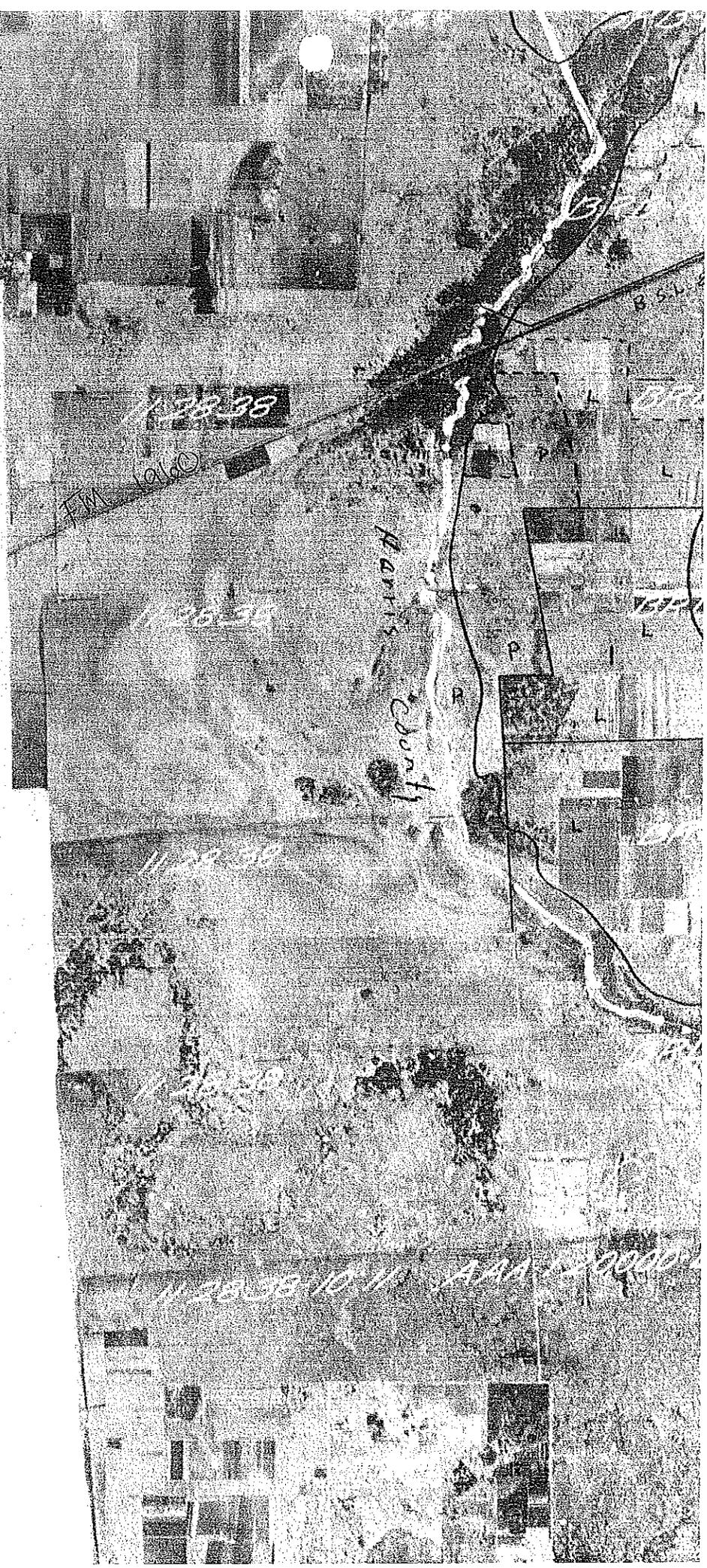
2a, 44

1a, 1

31-18

11-28-1938

No Reservoirs on Farm
in 1938.



Appendix B

Preliminary Stream Assessment Report



BAYOU BEND MITIGATION BANK
PRELIMINARY STREAM ASSESSMENT
REPORT

FEBRUARY 2018

PREPARED FOR

Alsace, Inc

PREPARED BY

SWCA Environmental Consultants

**BAYOU BEND MITIGATION BANK
PRELIMINARY STREAM ASSESSMENT
REPORT**

Prepared for

Alsace, LLC
PO Box 1174
Huffman, Texas 77336

Prepared by

SWCA Environmental Consultants
10245 West Little York Road, Suite 600
Houston, Texas 77040
(281) 617-3217
www.swca.com

SWCA Project No. 22024.02

February 2018

ABSTRACT

This report presents the findings of a preliminary level stream assessment for reaches of five unnamed tributaries to Cedar Bayou located in Harris County, Texas. Chapter 1 gives introduction of the streams and describes the fluvial geomorphic stream assessment method. Stream stability parameters of the fluvial geomorphic assessment method are provided and described in Section 1.1. Reference reach information of typical stable streams in the region was also developed for the stream assessment. The existing conditions of the streams are documented and described in Chapter 2. The streams were assessed based on land use, channel dimension, pattern and profile, and overall ecological conditions. The results of this preliminary stream assessment found the streams assessed are impaired mainly due to changes in watershed land use and anthropological hydromodification and have potential to be restored to a better functioning system. Specific recommendations and design for the restoration of the streams should be developed in the future.

This page intentionally left blank.

CONTENTS

Abstract..... i

Chapter 1 Introduction..... 1

 1.1 Fluvial Geomorphological assessment..... 1

 1.1.1 Reference Reaches..... 5

Chapter 2 Existing Conditions..... 9

 2.1 Unnamed tributary 1 (UT 1)..... 9

 2.2 Unnamed Tributary 2 (UT 2)..... 13

 2.3 Unnamed Tributary 3 (UT 3)..... 15

 2.4 Unnamed Tributary 4 (UT 4)..... 17

 2.5 Unnamed Tributary 5 (UT 5)..... 19

References Cited..... 22

Tables

Table 1. Study Reference Reach Geomorphic Data..... 6

Figures

Figure 1. Site location and project area map..... 3

Figure 2. Watershed delineation map. 4

Figure 3. UT 1 – aerial view east and downstream..... 10

Figure 4. UT 1 – representative photograph of upstream section 11

Figure 5. UT 1 – typical cross section (upstream section)..... 11

Figure 6. UT 1 – representative photograph of downstream section. 12

Figure 7. UT 1 – typical cross section (downstream section)..... 13

Figure 8. UT 2 – view upstream and west. 14

Figure 9. UT 2 – typical cross section. 15

Figure 10. UT 3 – view upstream and north. 16

Figure 11. UT 3 – typical cross section. 17

Figure 12. UT 4 – view downstream and northeast. 18

Figure 13. UT 4 – typical cross section. 19

Figure 14. UT 5 – view upstream to culvert crossing of County Road 686..... 20

Figure 15. UT 5 – typical cross section. 21

Chapter 1 Introduction

Alsace, LLC (Alsace) retained SWCA Environmental Consultants (SWCA) to perform a preliminary geomorphic stream assessment of several stream reaches that are being considered for the development of a new mitigation bank on lands owned or optioned by Alsace or their partners. The proposed Bayou Bend Mitigation Bank (BBMB) is located approximately 0.78 mile southeast of the city of Huffman in Harris County, Texas, as shown in Figure 1. The coordinates of the site center are approximately 30°00'36.81"N, 95°04'10.26"W, based on the North American Datum (NAD) 1983 geographic coordinate system. Figure 1 shows the geomorphic stream assessment study area and stream reaches on a U.S. Geological Survey (USGS) topographic quadrangle map. The studied streams are shown on a recent aerial photograph in Figure 2 and include five unnamed tributaries (UT-1, UT-2, UT-3, UT-4, and UT-5) to Cedar Bayou. This preliminary fluvial morphology characterization is based upon visual observations and measurements taken along the existing study reaches of the five streams on October 5, 9, and 10, 2017, a desktop analysis of the stream plan forms and drainage areas, and hydraulic geometry relationships developed for streams in the project's physiographic province (AMEC 2011), often referred to as Regional Curves. The intent of this preliminary assessment was not to implement a full fluvial geomorphological assessment of the streams for the purposes of establishing the baseline conditions required for restoration design. Rather, the intent was to confirm and substantiate visual observations of numerous indicators that the two streams are impaired in their dimension, pattern, and profile within the project area and that they, as such, should qualify for re-establishment and/or enhancement/rehabilitation in accordance with the U.S. Army Corps of Engineers (USACE) Galveston District (SWG) Stream Mitigation Standard Operating Procedure (SOP) (USACE-SWG 2014).

1.1 FLUVIAL GEOMORPHOLOGICAL ASSESSMENT

Rosgen methodologies for geomorphological assessment (1996 and 2006) were carried out on a preliminary level to qualify and quantify the functional impairment of the streams. This included visual identification, documentation/measurement, and analysis of bankfull indicators, locations of bank erosion, or other indicators of instability and/or impairment. The team noted the general quality of habitat features (e.g., pool depth, cover availability, hydraulic heterogeneity, etc.), substrate composition, riparian vegetation structure, floodplain connectivity, and the existence of restoration constraints.

All of the streams are situated in an Unconfined Alluvial valley type (U-AL-FD), characterized by fluvial deposition, river terraces, and floodplain (Rosgen 2014). Impairment and instability of the streams were assessed from visual indicators and channel geometry and pattern data collected during the stream assessment. Several key stream stability parameters defined by Rosgen (2006) were used to determine stability of the streams: Entrenchment Ratio (ER), sinuosity (k), Width to Depth Ratio (WDR), and Bank Height Ratio (BHR). The definition of the parameters are as follows:

1. Entrenchment Ratio (ER) = flood-prone area width (W_{fpa})/bankfull width (W_{bkf}) (1)
Where: W_{fpa} = width @ 2 x maximum bankfull depth (d_{mbkf})
2. Sinuosity (k) = stream length (SL)/valley length (VL) (2)
3. Width/Depth Ratio (WDR) = bankfull width (W_{bkf})/mean bankfull depth (d_{bkf}) (3)
4. Bank Height Ratio (BHR) = low bank height (d_{bk})/max bankfull depth (d_{mbkf}) (4)

Entrenchment Ratio—ER is the measure of the vertical containment of a channel. For Rosgen stream types that are only slightly entrenched (e.g. “C,” “DA,” and “E”) (Rosgen 1996), flows overtop the

bankfull channel banks and overflow to a substantially wide “flood prone” area/floodplain at discharges at or slightly above the bankfull discharge. In entrenched channels, the “flood-prone” area increases only marginally in width with an increasing flow-stage above bankfull elevations and the higher flows are generally contained within the channel with minimal to no access to an adequately wide floodplain. The higher shear stresses and velocities imparted on the stream channel bed and banks often result in erosion and instability in alluvial and/or erodible soils. ERs of 1–1.4 represent entrenched streams, which have negligible access to a well-developed floodplain above bankfull flows often resulting in erosion and instability in alluvial and/or erodible soils. ERs of 1.4–2.2 represent moderately entrenched streams, which have moderate access to a well-developed floodplain above bankfull flows. Moderate entrenchment is typically associated with stable B channels in confined valleys. ERs of 2.2 and greater represent streams that are only slightly entrenched and have good access to a well-developed floodplain above bankfull flows. Slightly entrenched streams typically do not experience erosion or instability in alluvial and/or erodible soils as a result of lack of good floodplain access.

Sinuosity— k , calculated by the ratio of the channel to the valley length, describes the stream slope adjustment to the valley slope in the form of meander planform to efficiently accomplish both energy dissipation and water and sediment transport in alluvial streams. Sinuosity is used to characterize channel planform and as a parameter in Level I Rosgen stream type classification.

Width/Depth Ratio—WDR is a key variable to assess departure from a stable reference condition. An increase in WDR from a reference WDR is generally associated with accelerated bank erosion rates, excess deposition or aggradation processes, and over-widening due to mechanical impacts. Increases of 0.9–1.2 are considered stable, increases of 1.2–1.4 are considered moderately unstable, and increases of more than 1.4 are considered unstable.

Bank Height Ratio—BHR is the measure of the degree of channel incision. Channel incision is a process of vertical (bed) erosion that leads to a deepened bank and subsequently the abandonment of an active floodplain. Streams with high BHR values generally contribute disproportionate amounts of sediment from streambanks and channel beds due to high shear stress, BHR values are used to assess vertical stability for channel incision and degradation. Streams with a BHR of 1.0 are considered stable, 1.1–1.3 slightly incised, 1.3–1.5 moderately incised, and ratios of more than 1.5 are considered deeply incised.

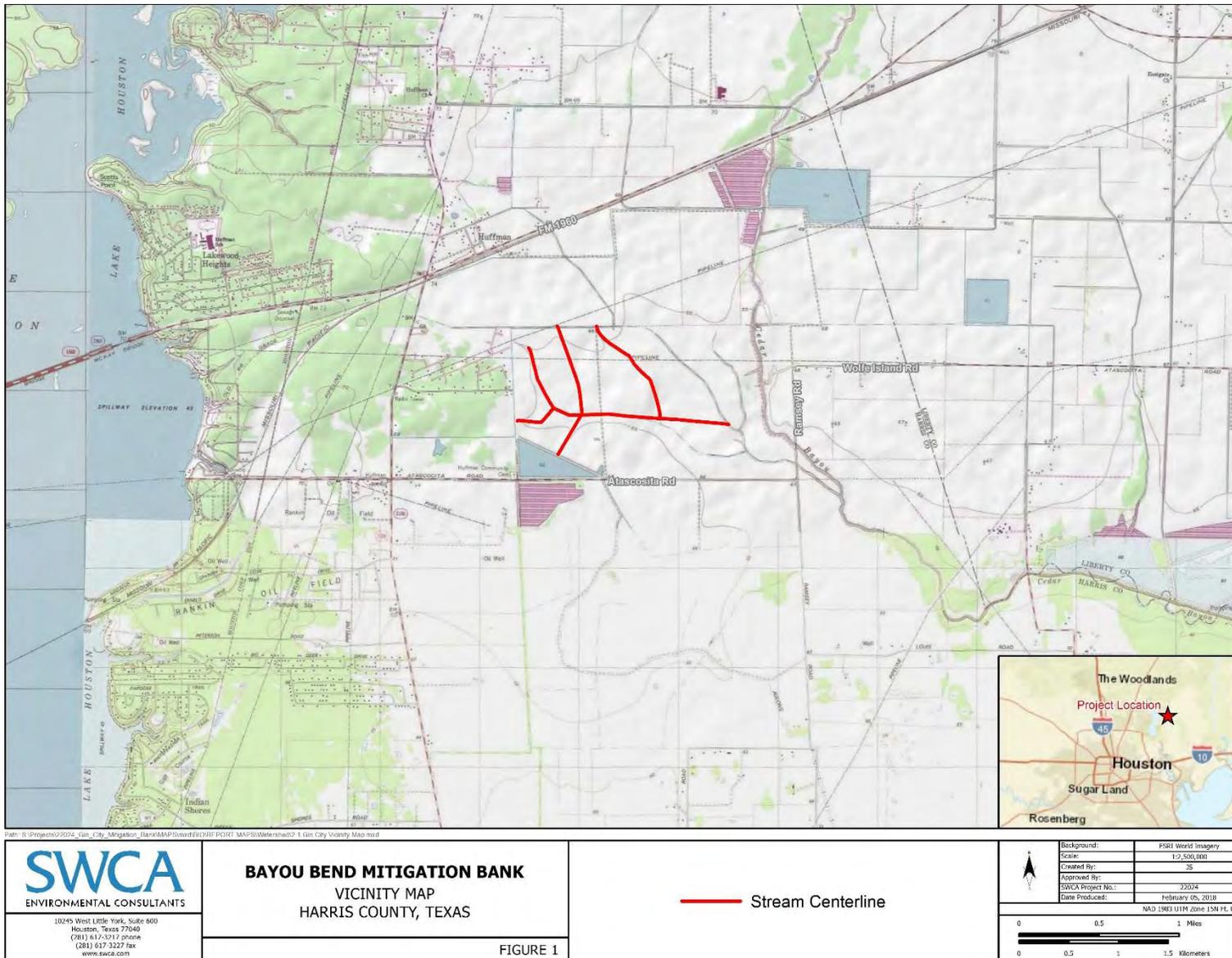


Figure 1. Site location and project area map.

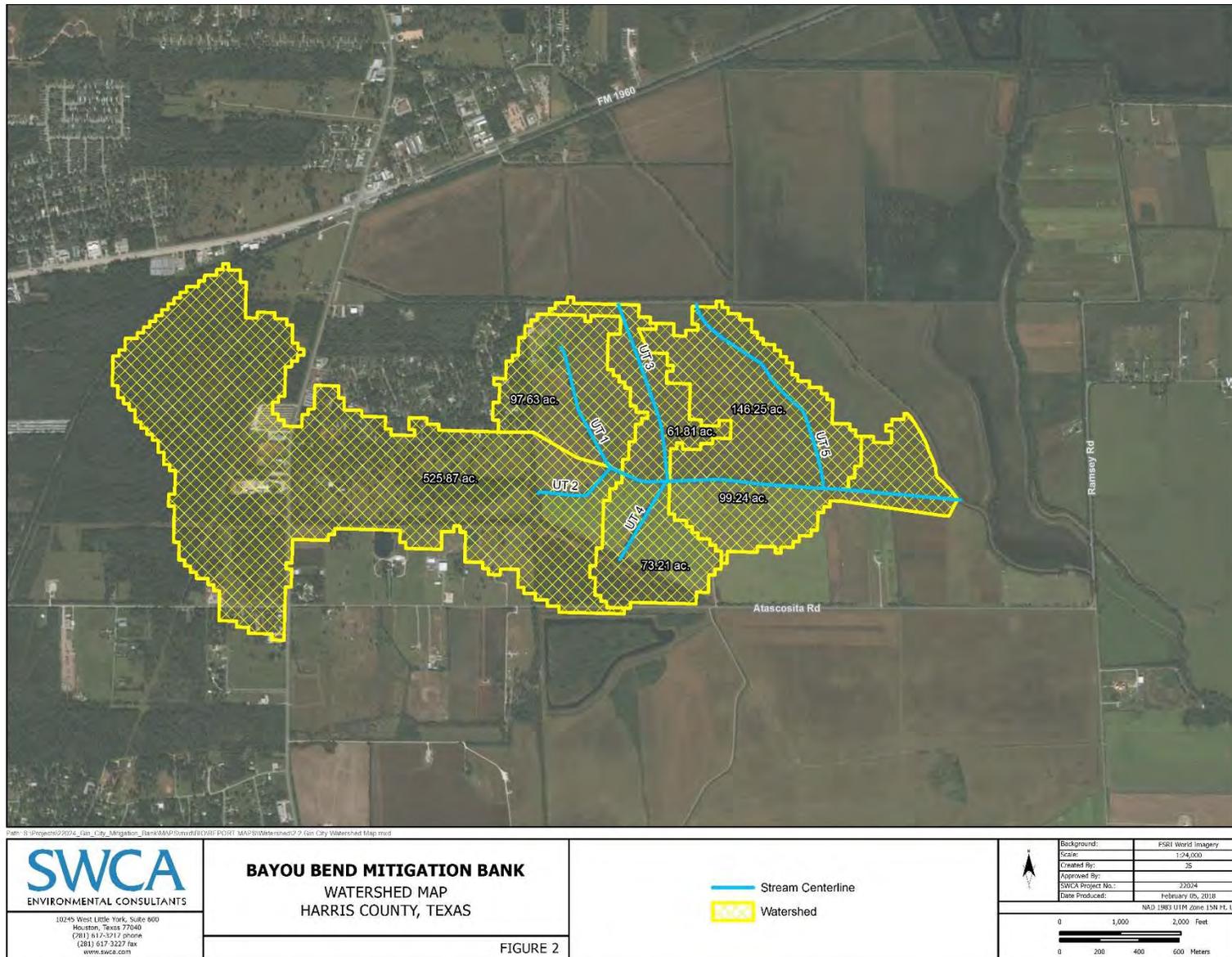


Figure 2. Watershed delineation map.

1.1.1 Reference Reaches

A reference reach is a stable stream that maintains dimension, pattern, and profile over time without aggrading or degrading (Rosgen 1996). The reference reach concept is discussed at length by Rosgen in several publications (Rosgen 1996, 2006, 2007). By comparing key components related to the dimension, pattern, and profile of a project reach to a stable reference reach of the same stream type and boundary conditions, it is possible to identify and document the relative departure from reference conditions, or impairment, of the project stream reach. SWCA used three reference reaches for this project. These reference reaches were surveyed by SWCA staff and others during previous studies in the region. Table 1 contains select key reference reach geomorphic parameters and ratios for the three reference reaches and a composite reference condition used in the study analysis. These reference reaches were chosen because they are located in the same hydrophysiographic province and their boundary conditions were adequately similar to the project reaches to be used as design analogs.

Table 1. Study Reference Reach Geomorphic Data

Variables	Panther Branch - E Reference Reach			Trib to Spring @ Cardinal - C Reference Reach			Iron Creek - E Reference Reach			Composite Reference Reach Conditions		
	min	mean	max	min	mean	max	min	mean	max	min	mean	max
Stream type	---	E5	---	---	C5	---	---	E5	---	---	E5	---
Total Drainage area (sq. mi.)	---	25.9	---	---	0.4	---	---	1.8	---	---	---	---
Effective Drainage Area (sq. mi.)	---	---	---	---	---	---	---	0.51	---	---	---	---
Bankfull width (Wbkf)	---	22.8	---	---	12.76	---	---	9.46	---	---	---	---
Bankfull mean depth (Dbkf)	---	3.9	---	---	0.82	---	---	1.15	---	---	---	---
Max Depth/Mean Depth	---	1.4	---	---	1.9	---	---	1.6	---	---	---	---
Width/depth ratio (Wbkf/Dbkf)	---	5.8	---	---	15.6	---	---	8.24	---	---	12.0	---
Bankfull cross-sectional area (Abkf)	---	88.2	---	---	10.5	---	---	10.9	---	---	---	---
Wetted Perimeter (WP)	---	33.8	---	---	15.9	---	---	10.4	---	---	---	---
Hydraulic Radius R	---	2.61	---	---	0.66	---	---	1.05	---	---	---	---
Manning's N (n)	---	0.040	---	---	0.040	---	---	0.054	---	---	0.040	---
Bankfull mean velocity (Vbkf)	---	2.07	---	---	2.38	---	---	1.58	---	---	---	---
Bankfull discharge, cfs (Qbkf)	---	182	---	---	25	---	---	17.1	---	---	---	---
Bankfull max depth (dmax)	---	5.52	---	---	1.59	---	---	1.82	---	---	---	---
Low Flow Cross Sectional Area	---	38	---	---	1.54	---	---	2.94	---	---	---	---
Low bank height to max Dbkf ratio	1.11	1.16	1.22	1.3	1.59	1.69	---	1.05	---	1.0	1.0	1.1
Width of flood prone area (Wfpa)	---	200	---	---	32.68	---	---	650	---	---	---	---
Entrenchment ratio (Wfpa/Wbkf)	---	8.77	---	---	2.56	---	---	68.7	---	---	>3	---
Meander Length (Lm)	110	164.5	210	57	65	75	---	---	---	---	---	---
Ratio of meander length to bankfull width (Lm/Wbkf)	4.9	7.3	9.3	4.5	5.1	5.9	---	---	---	7.0	9.0	14.0

Variables	Panther Branch - E Reference Reach			Trib to Spring @ Cardinal - C Reference Reach			Iron Creek - E Reference Reach			Composite Reference Reach Conditions		
	min	mean	max	min	mean	max	min	mean	max	min	mean	max
Radius of curvature (Rc)	44.0	61.2	89.0	16.5	18.1	21.4	14	23	39	---	---	---
Ratio of the radius of curvature to bankfull width (Rc/Wbkf)	1.9	2.7	3.9	1.3	1.4	1.7	1.5	2.4	4.1	2.3	2.5	5.0
Belt Width (Wbkf)	70	105	125	33	43	49	15	31.5	56	---	---	---
Meander width ratio (Wbit/Wbkf)	3.1	4.7	5.5	2.6	3.4	3.8	1.6	3.3	5.9	2.5	4.0	7.0
Riffle Length (Lr)	16.1	34.9	43.2	13.7	19.8	30.4	2.01	7.59	12.5	---	---	---
Riffle Length (Lr)/BKF	0.7	1.5	1.9	1.1	1.6	2.4	0.2	0.8	1.3	0.7	1.5	2.4
Sinuosity (stream length/valley distance) (K)	---	1.28	---	---	2.19	---	---	1.41	---	1.2	1.3	1.6
Valley slope (ft/ft)	---	0.0011	---	---	0.0156	---	---	0.00432	---	---	---	---
Average slope (Savg) = (Svalley/K)	---	0.00086	---	---	0.00712	---	---	0.00308	---	---	---	---
Riffle slope (Srif)	0.0024	0.0037	0.0051	0.0086	0.0133	0.0290	0.00255	0.0087	0.0153	---	---	---
Ratio of riffle slope to bankfull slope (Srif/Sbkf)	3.5	5.3	7.2	1.7	2.6	5.6	0.8	2.8	5.0	1.7	2.5	4.5
Pool slope (Spool)	0.0000	0.0001	0.0003	0.0000	0.0005	0.0012	0.0000	0.0000	0.0000	---	---	---
Ratio of pool slope to bankfull slope (Spool/Sbkf)	0.0000	0.1143	0.3571	0.0000	0.1019	0.2346	0.0	0.0	0.0	0.0000	0.1000	0.2000
Maximum pool depth (Dpool)	6.2	7.1	7.6	1.9	2.2	2.4	2.07	2.49	3.00	---	---	---
Ratio of pool depth to average bankfull depth (Dpool/Dbkf)	1.6	1.8	2.0	2.3	2.6	2.9	1.8	2.2	2.6	1.5	2.0	2.5
Pool width (Wpool)	---	29.93	---	10.1	11.3	12.55	8.35	8.83	9.31	---	---	---
Ratio of pool width to bankfull width (Wpool/Wbkf)	---	1.3	---	0.8	0.9	1.0	0.9	0.9	1.0	1.0	1.0	1.1
Pool Area (Apool)	---	128.6	---	10.6	11.4	12.1	12.6	13.2	13.8	---	---	---
Ratio of pool area to bankfull area	---	1.5	---	1.0	1.1	1.2	1.2	1.2	1.3	1.0	1.5	2.0
Pool to pool spacing (p-p)	96	127	175	40	61	87	17.6	34.2	53.2	---	---	---

Variables	Panther Branch - E Reference Reach			Trib to Spring @ Cardinal - C Reference Reach			Iron Creek - E Reference Reach			Composite Reference Reach Conditions		
	min	mean	max	min	mean	max	min	mean	max	min	mean	max
Ratio of p-p spacing to bankfull width (p-p/Wbkf)	4.21	5.64	7.73	3.12	4.74	6.80	1.9	3.6	5.6	4.3	5.0	6.0

Chapter 2 Existing Conditions

As designated by the USGS (Fenneman and Johnson 1946), BBMB lies within the Western Gulf Coastal Plain Physiographic Section of the Coastal Plain Physiographic Region. Furthermore, it is within the North Galveston Bay 8-digit USGS hydrologic unit code (HUC 12040203). The physiography in the vicinity of the site has been described by Griffith et al. (2007) as dominated by gently sloping, mostly flat, coastal plains with low relief and clayey subsoils which causes generally poor drainage and soils remain wet for parts of the year. The region around BBMB typically receives between 37 and 58 inches of precipitation annually with an average of 47.5 inches (U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) 2015).

The topography of the site (Figure 1) is described by the USGS 2013 7.5-minute topographical quadrangle maps (i.e., Huffman, Texas). The site fits well within Griffith et al.'s (2007) physiographic description of the area. The maximum elevation on the property is approximately 67 feet above mean sea level (ft amsl). The floodplain gradually dips from approximately 67 ft amsl to 63 ft amsl from the western edge of the site to Cedar Bayou.

As defined by the EPA (Griffith et al. 2004), the site is situated in the Western Gulf Coastal Plains Level III Ecoregion (designated as Level III Ecoregion 34 by the USGS) and, more specifically, the Northern Humid Gulf Coastal Prairies Level IV Ecoregion (34a). According to Griffith et al. (2004), historical vegetation in the Northern Humid Gulf Coastal Prairies ecoregion was mostly grasslands with a few clusters of oaks, known as oak mottes or maritime woodlands. Little bluestem, yellow Indiangrass, brownseed paspalum, gulf muhly, and switchgrass were the dominant grassland species, with some similarities to the grasslands of the Texas Blackland Prairies (32). Almost all of the remnant coastal prairies have been converted to cropland, rangeland, pasture, or urban land uses. The exotic Chinese tallowtree and Chinese privet have invaded large areas in this region. Some loblolly pine occurs in the northern part of the region in the transition to the South Central Plains (35).

The majority of the BBMB site has been managed for agriculture, specifically rice, soybean, and sod production. The remainder of the site consists of forested riparian zones and an agricultural reservoir in the northeast corner. However, some palustrine scrub/shrub (PSS) wetlands and palustrine emergent (PEM) wetlands are present.

2.1 UNNAMED TRIBUTARY 1 (UT 1)

UT 1 is a channelized drainage canal which begins at the northwestern portion of the project area and flows eastward for approximately 1.5 miles into another unnamed tributary to Cedar Bayou. The watershed for UT 1 is approximately 1004.01 acres (Figure 2). As seen in Figure 3, the land use of the area is primarily agriculture lands used for sod production and rice fields. The stream banks are lined with trees and shrubs with an access road levee on the left bank (view downstream).



Figure 3. UT 1 – aerial view east and downstream.

Typical of drainage canals in the region, this channel was straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the stream and led to sedimentation problems. The beginning of UT 1 has a long pool feature due to its low slope. At certain areas the stream has a nearly level bed with a low slope of 0.006. This is characterized by stagnant water and low sediment carrying competency. Figure 4 provides a representative photograph of the upstream portion of UT 1. Downstream of the long pool feature, the channel continues as a straightened G type stream with very low sinuosity.



Figure 4. UT 1 – representative photograph of upstream section

Figure 5 shows a surveyed cross section at the upstream portion of UT 1. Based on the cross section surveyed, the stream is entrenched with an ER of 1.2, and a WDR of 7.67. Bankfull indicators were difficult to be identified in the field due to the presence of a pool. The WDR is a departure from reference conditions and is considered to be impaired due to the ER, as the stream has limited access to its floodplain.

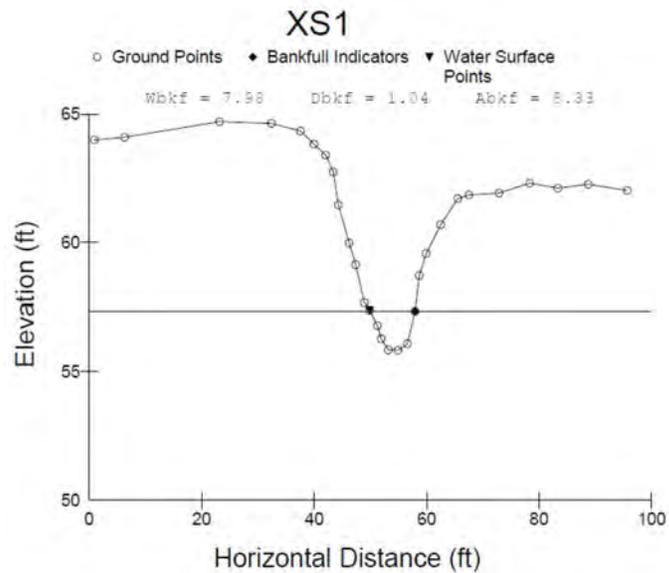


Figure 5. UT 1 – typical cross section (upstream section).

Moving downstream from cross section 1, the stream continues as a straightened channelized drainage canal with G-stream type characteristics. A levee exists along the left bank of the stream, separating the

stream. Riparian vegetation is denser on the slope and there is undercutting of roots. The slope of the stream at this section remains low at 0.006. Figure 6 shows a representative photograph of the downstream portion of UT 1. Figure 7 shows a typical cross section with high banks on both the left and right sides of the stream. Based on the findings, UT 1 is a good candidate for restoration and SWCA recommends the full re-establishment of the dimension, pattern, and profile of the stream to reference conditions. The location of UT 1 in the headwaters of Cedar Bayou highlights the importance of restoring the stream to healthier reference conditions as the benefits such as flood abatement, improved sediment flow regime, and improved stream and riparian habitat will propagate downstream as well.



Figure 6. UT 1 – representative photograph of downstream section.

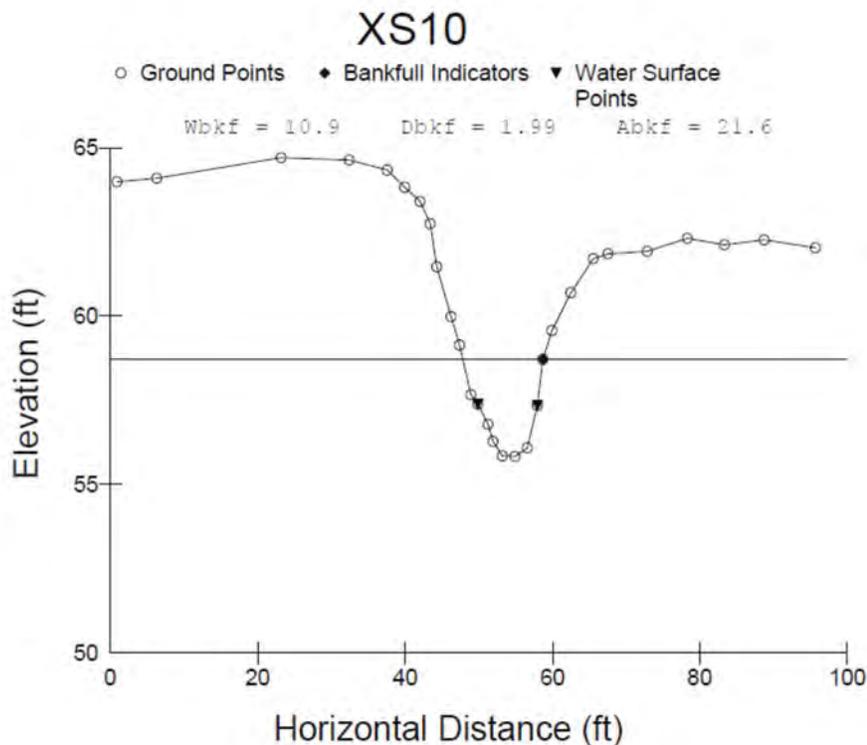


Figure 7. UT 1 – typical cross section (downstream section).

2.2 UNNAMED TRIBUTARY 2 (UT 2)

UT 2 is a channelized drainage canal which begins at the western boundary of the project area and flows east and northeast for 1,416 feet and into UT 1. The watershed for UT 2 is approximately 525.87 acres (Figure 2).

Typical of drainage canals in the region, this channel was straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the stream and led to sedimentation problems. At certain areas the stream has a nearly level bed with the slope at a very low 0.0002. This is characterized by stagnant water and low sediment carrying competency. Figure 8 shows vegetation growing in the channel which indicates high sediment deposition.



Figure 8. UT 2 – view upstream and west.

Figure 9 shows a typical cross section of UT 2. Based on the cross section surveyed, the stream is moderately entrenched with an ER of 1.5, and a WDR of 7.88. Bankfull indicators were difficult to identify in the field due to the incision of the stream with no access to a bankfull floodplain. The stream is considered impaired due to its WDR departure from reference conditions, low sinuosity, erosion, sedimentation problems, and lack of connection to the floodplain. Based on the findings, UT 2 is a good candidate for restoration and SWCA recommends the full re-establishment of the dimension, pattern, and profile of the stream to reference conditions.

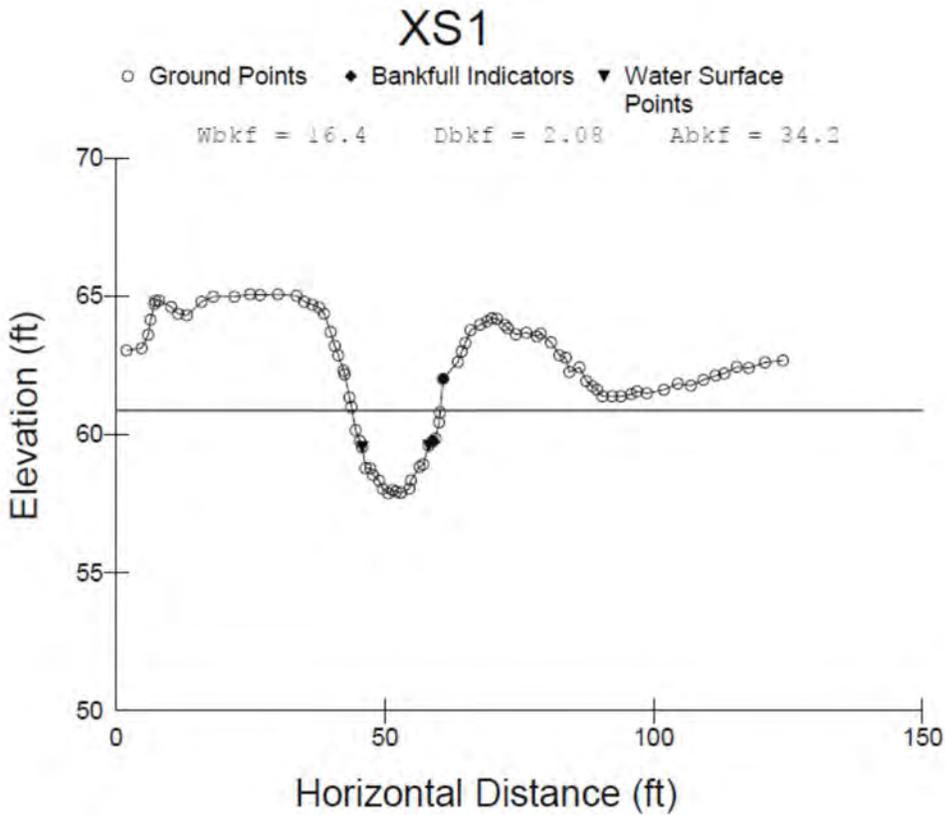


Figure 9. UT 2 – typical cross section.

2.3 UNNAMED TRIBUTARY 3 (UT 3)

UT 3 is a channelized drainage ditch which begins at the northern boundary of the project area and flows south for 2,947 feet and into UT 1. The watershed for UT 3 is approximately 61.81 acres (Figure 2).

UT 3 was straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the stream and led to sedimentation problems. At certain areas the stream has a nearly level bed with the slope at 0.006. This is characterized by stagnant water and low sediment carrying competency. Figure 10 shows vegetation growing in the channel which indicates high sediment deposition.



Figure 10. UT 3 – view upstream and north.

Figure 11 shows a typical cross section of UT 3. Based on the cross section surveyed, the stream is moderately entrenched with an ER of 1.5, and a WDR of 14. Bankfull indicators were difficult to identify in the field due to the incision of the stream with no access to a bankfull floodplain. The stream is considered impaired due to its WDR departure from reference conditions, low sinuosity, erosion, sedimentation problems, and lack of connection to the floodplain. Based on the findings, UT 3 is a good candidate for restoration and SWCA recommends the full re-establishment of the dimension, pattern, and profile of the stream to reference conditions.

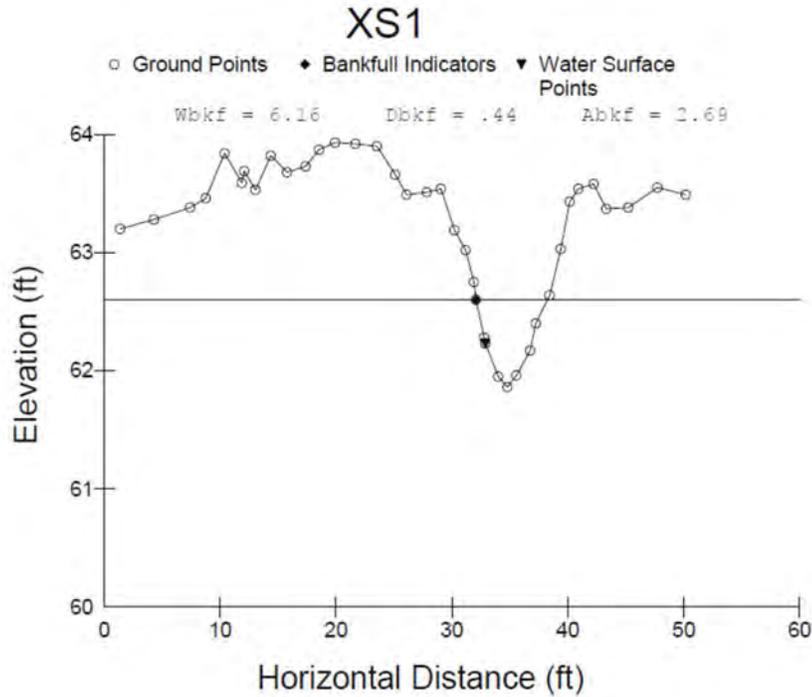


Figure 11. UT 3 – typical cross section.

2.4 UNNAMED TRIBUTARY 4 (UT 4)

UT 4 is a channelized drainage ditch which begins at the southwestern boundary of the project area and flows northeast for 1,381 feet and into UT 1. The watershed for UT 4 is approximately 73.21 acres (Figure 2).

UT 4 was straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the stream and led to sedimentation problems. At certain areas the stream has a nearly level bed with the slope at 0.017. This is characterized by stagnant water and low sediment carrying competency. Figure 12 shows vegetation growing in the channel which indicates high sediment deposition.



Figure 12. UT 4 – view downstream and northeast.

Figure 13 shows a typical cross section of UT 4. Based on the cross section surveyed, the stream is moderately entrenched with an ER of 1.7, and a WDR of 2. Bankfull indicators were difficult to identify in the field due to the incision of the stream with no access to a bankfull floodplain. The stream is considered impaired due to its WDR departure from reference conditions, low sinuosity, erosion, and sedimentation problems, and lack of connection to the floodplain. Based on the findings, UT 4 is a good candidate for restoration and SWCA recommends the full re-establishment of the dimension, pattern, and profile of the stream to reference conditions.

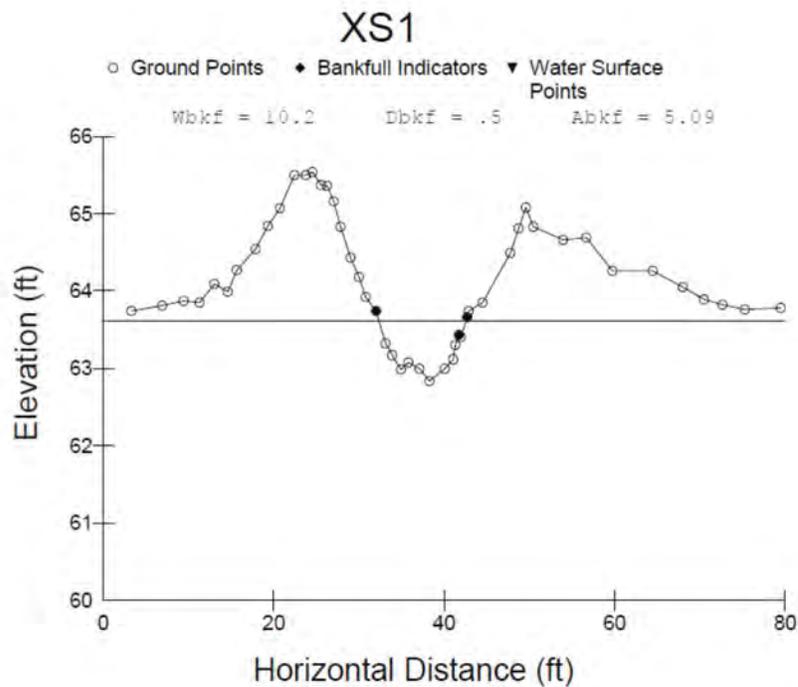


Figure 13. UT 4 – typical cross section.

2.5 UNNAMED TRIBUTARY 5 (UT 5)

UT 5 is a channelized drainage ditch which begins at the northern boundary of the project area and flows southeast for 3,576 feet and into UT 1. The watershed for UT 5 is approximately 146.25 acres (Figure 2).

UT 5 was straightened and channelized to drain quickly downstream to prevent localized flooding. The stream banks were widened, deepened, and have no meander features. This negatively impacted the hydraulics of the stream and led to sedimentation problems. At certain areas the stream has a nearly level bed with the slope at 0.006. This is characterized by stagnant water and low sediment carrying competency. Figure 14 shows vegetation growing in the channel which indicates high sediment deposition.



Figure 14. UT 5 – view upstream to culvert crossing of County Road 686.

Figure 15 shows a typical cross section of UT 5. Based on the cross section surveyed, the stream is slightly entrenched with an ER of 2.3, and a WDR of 13.5. Bankfull indicators were difficult to identify in the field due to the incision of the stream with no access to a bankfull floodplain. The stream is considered impaired due to its WDR departure from reference conditions, low sinuosity, erosion, sedimentation problems, and lack of connection to the floodplain. Based on the findings, UT 5 is a good candidate for restoration and SWCA recommends the full re-establishment of the dimension, pattern, and profile of the stream to reference conditions.

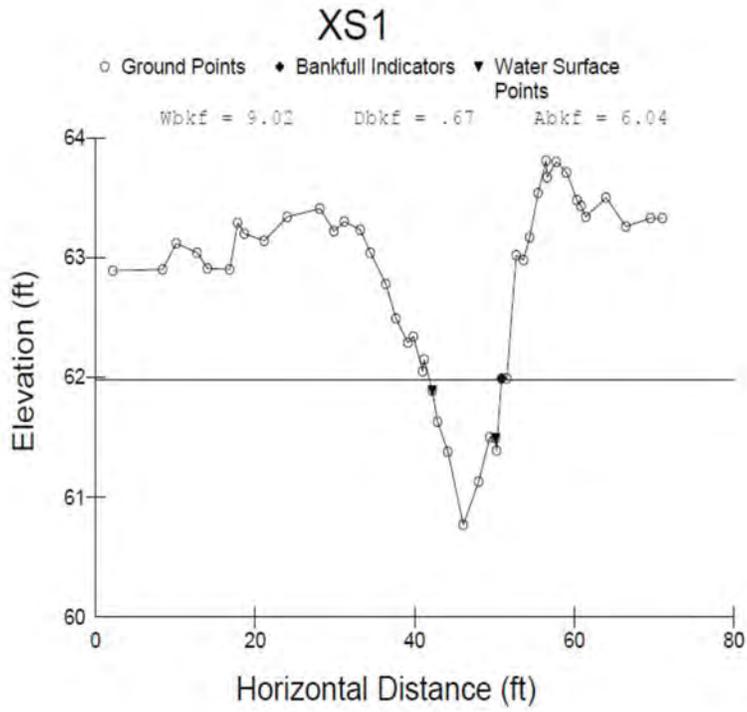


Figure 15. UT 5 – typical cross section.

References Cited

- AMEC. 2011. *FINAL REPORT - Fluvial Geomorphological Conditions of Harris County, Texas*. Prepared for Harris County Flood Control District, Maintenance Engineering Department.
- Fenneman, N.M. and Johnson, D.W. 1946. Physiographic divisions of the conterminous U. S. Map published by the U.S. Geological Survey, Reston, VA.
- Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Hatch, S.L., and Bezanson, D. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs). Corvallis, Oregon: U.S. Environmental Protection Agency.
- Griffith, G., Bryce, S., Omernik, J., and Rogers, A. 2007. *Ecoregions of Texas, Project Report to Texas Commission on Environmental Quality*, AS-199 (12/07). Austin, Texas: Texas Commission on Environmental Quality.
- Rosgen, D.L. 1996. *Applied River Morphology*. 2nd ed. Pagosa Springs, Colorado: Wildland Hydrology.
- Rosgen, D.L. 2006. *Watershed Assessment of River Stability and Sediment Supply*. 2nd ed. Pagosa Springs, Colorado: Wildland Hydrology.
- Rosgen, D.L. 2007. Rosgen Geomorphic Channel Design. Chapter 11, Part 654 Stream Restoration Design. National Engineering Handbook. NRCS.
- Rosgen, D.L. 2014. *River Stability Field Guide*. 2nd ed. Pagosa Springs, Colorado: Wildland Hydrology.
- U.S. Army Corps of Engineers Galveston District. 2014. Stream Mitigation Standard Operating Procedure.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2015. WETS table rainfall data. Available at: <http://agacis.rcc-acis.org/48339/wets/results>. Accessed January 2018.