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Exhibit EE.Terre Haute Development Wetlands Delineation Report

LOUISIANA ECONOMIC DEVELOPMENT CERTIFIED SITE

GREATER NEW ORLEANS INC
REGIONAL ECONOMIC DEVELOPMENT

Terre Haute Development Wetland Delineation Report

Terre Haute Development Site St. John the Baptist Parish, Louisiana

Prepared for

GNO, Inc.

November 2020

Prepared by

Chenier Environmental Consulting, LLC

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Contents

SECTION 1

Introduction

1.1 Background

Chenier Environmental Consulting, LLC (Chenier) has been retained by GNO, Inc. to prepare a wetland delineation on an approximately ±192-acre site located off West Airline Highway (US 61) near Reserve, St. John the Baptist Parish, Louisiana (Figure 1).

The purpose of this report is to present field data, habitat descriptions, and other pertinent information on the three diagnostic characteristics of wetlands and non-wetland waters of the United States (WOUS) within the survey boundary (Site).

Chenier conducted the site visit on October 6, 2020 to identify and delineate potential WOUS features, including wetlands, which occur within the proposed project area. The features identified during the site visits are described in this report.

SECTION 2

Methodology

2.1 Desktop Review

Prior to conducting field surveys, a desktop review of potential wetlands and non-wetland WOUS and jurisdictional status of these features was completed using Natural Resources Conservation Service (NRCS) soil data; St. John the Baptist Soil Survey Reports; U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data; United States Geological Survey (USGS) 7.5-minute topographic maps; and color-infrared aerial photography; and the USGS National Hydrographic Dataset (Figure 2). The information gathered during the desktop review is further discussed in Section 3. The presence of wetlands and other WOUS was confirmed by a field visit during which the boundaries of these features were defined.

2.2 WOUS Delineation

Field delineations were conducted following procedures set forth in the Interim Regional Supplement of the USACE Wetlands Delineation Manual: Atlantic and Gulf Coast Region (USACE 2010). Chenier biologist followed USACE standard procedures to evaluate wetlands and other WOUS subject to regulation under the Clean Water Act (jurisdictional waters), as established in the Atlantic and Gulf Coast Supplement (USACE 2010) and the USACE Jurisdictional Determination Form Instructional Guidebook (USACE 2007), respectively. For this report, streams are classified as follows:

- **Perennial stream:** A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
- **Intermittent stream:** An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
- **Ephemeral stream:** An ephemeral stream has flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

The Corps of Engineers Wetlands Delineation Manual (USACE 1987) defines wetlands as areas that have positive indicators for hydrophytic vegetation, wetland hydrology, and hydric soils, or as:

> *"Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

2.3 Definition of Boundaries

The limits of USACE jurisdiction for non-tidal waters (not including wetlands) of the United States (creeks, streams, etc.) are identified by the presence of ordinary high-water marks (OHWMs). The OHWM is defined as

> *"That line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE 2007).*

The wetland/upland boundary is determined when one of the mandatory criteria (soils, vegetation, and hydrology; described later in this section) does not exist.

2.4 Field Documentation

The following text describes the methods used during the WOUS surveys.

2.4.1 WOUS and Wetlands

The Routine Onsite Determination Method involves the following steps:

1. Locate the project area;
2. Identify the community type(s);
3. Select representative observation points;
4. Characterize each plant community type;
5. Record the indicator status of dominant species;
6. Determine whether hydrophytic vegetation is present and dominant;
7. Determine whether wetland hydrology is present;
8. Determine whether hydric soils are present.

Under this method, areas exhibiting a presence of wetland hydrology, hydric soils, and a dominance of hydrophytic vegetation are defined as wetlands. The method requires that additional consideration be given to sites with atypical conditions (evidence of sufficient natural or human-induced alterations that significantly alter the soils, vegetation, or hydrology) and sites where normal environmental conditions are not present during the wetland delineation (i.e., no hydrophytic vegetation due to annual or seasonal fluctuations in precipitation or groundwater levels).

Data was collected at representative observation points within each plant community type. USACE Atlantic and Gulf Coastal Plain wetland data forms were completed for each observation point. The figures included in Appendix A, Figures 3 and 4 depict the potential jurisdictional wetlands/WOUS features and observation points recorded during the survey. The wetland and upland data forms are presented in Appendix B, and photographs of sampling points are in Appendix C.

Each identified wetland was classified based on the U.S. Fish and Wildlife Service classification system (Cowardin, Carter, et al. 1979). Dominant vegetation was noted according to stratum: tree, shrub/sapling, woody vine, or herb. The wetland indicator status (Table 1) for each species was identified using the National Wetlands Inventory List of Plants that Occur in Wetlands (Reed 1988) and subsequent approved modifications to this list. Plants were identified using current taxonomic references, such as Aquatic and Wetland Plants of the Southeastern United States (Godfrey and Wooten 1981, Godfrey and Wooten 1980). Where recent taxonomic changes resulted in plant names that were not included in the National Wetlands Inventory List of Plants that Occur in Wetlands (Reed 1988), appropriate synonymy was used to reference the national list.

TABLE 1
Definitions for Wetland Indicator Status

Code	Term	Definition
OBL	Obligate	Species occurs in wetlands greater than 99% of the time.
FACW	Facultative Wetland	Species occurs in wetlands 67% to 99% of the time.
FAC	Facultative	Species occurs in wetlands 34% to 66% of the time.
FACU	Facultative Upland	Species occurs in wetlands 1% to 33% of the time.
UPL	Upland	Species occurs in wetlands less than 1% of the time.

Soil information was obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey for St. John the Baptist Parish, Louisiana (NRCS 2019). Within each area investigated, soil samples were inspected for hydric soil indicators, as provided for on the wetland data forms. Using the Munsell Soil Color Charts (Munsell 1994), the value and chroma of soil samples were recorded. Soil texture and any observations of redoximorphic features were recorded. Wetland hydrology observations included soil saturation, evidence of any standing or ponded water, the presence of drainage patterns, and/or drift lines, and any additional primary or secondary hydrology indicator as defined by the Interim Regional Supplement of the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Region (USACE 2010).

SECTION 3

Desktop Review

3.1 Location

The Site is located near Reserve, St. John the Baptist Parish, Louisiana (Figure 1). The Site is irregularly shaped and is approximately 192 acres (Figure 3). It is bordered by farmland to the north; Reserve Truck Stop and Casino, West Airline Highway (US 61), farmland and the Marathon Garyville Refinery to the south; Port of Louisiana Executive Regional Airport to the east; and farmland and forested land to the west. The Site can be accessed off US 61.

St. John the Baptist Parish is in the southeast part of Louisiana and is in the Mississippi Alluvial Plain Ecoregion of Louisiana (Figure 1) and falls within the *Southern Mississippi Valley Alluvium Major Land Resource Area* (MLRA 131A) (NRCS 2006).

3.2 Geology

The Site is located within the Mississippi River Delta region of the Mississippi Alluvial Plain. Soils include sandy to clayey fluvial deposits of Quaternary age and are many meters thick. The specific soil types that underly the Site are discussed below.

3.3 Hydrology

The Site is in the Mississippi River Basin. The Hydrologic Unit Code (HUC) for this area is 08070204. The USFWS National Wetland Inventory (NWI) Map depicts no wetlands on the Site. There is a series of agricultural drainage ditches depicted throughout the Site as well as a freshwater pond along the eastern boundary. According to the FEMA National Flood Insurance Hazard website, the Site is located within Zone X and ground elevation ranges from 2 to 10 feet above mean sea level (FEMA https://hazards-fema.maps.arcgis.com).

The Site slopes gradually away from the center of the property out to both the eastern and western boundaries. The eastern part of the Site flows into a drainage ditch that runs along the eastern boundary and the western part of the Site flows west into an offsite drainage ditch that eventually flows towards the Maurepas Swamp Wildlife Management Area.

3.4 Soils

The soil series located within St. John the Baptist Parish are described by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service on the Web Soil Survey (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). According to the Web Soil Survey, the Site is underlain primarily by Cancienne silt loam. .

Figures 2 and 3 shows the distribution of the soil series across the Site and surrounding area.

3.4.1 Cancienne silt loam

The Cancienne series consists of very deep, level to gently undulating, somewhat poorly drained mineral soils that are moderately slowly permeable. These soils formed in loamy and clayey alluvium. They are on high and intermediate positions on natural levees and deltaic fans of the Mississippi River and its distributaries. Slopes range from 0 to 3 percent. The upper three horizons of a representative profile of a Cancienne Silt Loam soil consist of:

- 0 to 6 inches; dark grayish brown (2.5Y 4/2) silt loam with a weak fine granular structure.
- 6 to 10 inches; dark grayish brown (2.5Y 4/2) silt loam with a weak medium granular structure.
- 10 to 16 inches, dark grayish brown (2.5Y 4/2) silt loam with a weak medium subangular blocky structure; 2 percent prominent irregular strong brown (7.5YR 4/6) masses of oxidized iron throughout; 2 percent distinct irregular gray (2.5Y 6/1) iron depletions throughout; 2 percent fine faint very dark grayish brown (10YR 3/2) iron-manganese masses on surfaces along root channels; 8 percent medium distinct irregular dark yellowish brown (10YR 4/6) masses of oxidized iron throughout; slightly acid; gradual wavy boundary.

3.5 Vegetation and Land Use

The Site is primarily agricultural land (sugar cane). A residential/office building and barns are located in the southeast corner. Land use in the general area is primarily agricultural and heavy industrial with petrochemical plants and refineries along the Mississippi River.

Based on a review of historical topographic maps, the Site appears to have been agricultural land since at least the late 1800s.

SECTION 4

Site Visit Results

4.1 Wetlands and WOUS

No jurisdictional wetlands or WOUS were identified on the Site. The Preliminary Jurisdictional Wetland Map (Appendix A, Figures 3 and 4) shows the non-jurisdictional waters (drainage ditches) identified during this investigation.

4.1.1 Wetland Habitat Descriptions

No wetlands were identified on the Site.

4.1.2 Non-wetland Waters of the U.S. Descriptions

No non-wetland Waters of the U.S. were identified on the Site.

4.2 Upland Feature Descriptions

The majority of the Site was planted in sugarcane (*Saccharum officinarum*) that was being harvested during the Site visit. Other upland areas included roads, turnrows, and a strip of land occupied by the residence/office building and barns along the eastern edge. The upland data points include DP1, DP2, DP3, DP4, and DP5. Dominant vegetation consists of mostly FACU and FAC species. Typical weedy grasses and sedges found throughout the unplanted parts of the Site included: Bermuda grass (*Cynodon dactylon*), Indian goosegrass (*Eleusine indica*), *Phyllanthus sp.*, hyssopleaf sandmat (*Euphorbia hyssopifolia*), little hogweed (*Portulaca oleracea*), climbing dayflower (*Commelina diffusa*), Virginia buttonweed (*Dioda virginiana*), forked fibry (*Fimbristylis dichotoma*), and southern annual aster (*Symphyotrichum divaricatum*) (see Appendix A, Figures 3 and 4; see Photographs 1 through 18).

SECTION 5

Conclusion

This report summarizes the results of the wetland delineation conducted in October 2020 on an approximately 192-acre site near Reserve, St. John the Baptist Parish, Louisiana. This report identifies no jurisdictional wetlands or non-wetland WOUS on the Site.

This wetland delineation was conducted in accordance with the USACE Wetland Delineation Manual (USACE Environmental Laboratory 1987) and Interim Regional Supplement of the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coast Region (USACE 2010). These features were described based on field assessments and reviews of readily available data, including NWI maps, NRCS soil surveys, 7.5-minute USGS topographic quadrangles maps, and USGS NHD data.

The USACE, under the authority of Section 404 of the Clean Water Act and of Section 10 of the Rivers and Harbor Act, has the authority to make the final determination of the location and extent of jurisdictional wetlands and navigable waters for this project area, respectively. This report represents the opinion of the Chenier investigators and should be considered preliminary until final concurrence is obtained from the USACE New Orleans District.

Responses to Specific Questions Provided in Solicitation

1. Identify any bodies of water on or abutting the Site and identify the authority with jurisdiction over them.

Response: Unnamed non-jurisdictional drainage ditches.

2. Do wetlands and/or other waterways exist on or near the Site?

Response: No. See Figure 3 and 4.

3. If wetlands are present, has a Section 404 Permit Application been submitted to USACE? a. If yes, please provide a copy of the Permit application

Response: Not applicable

4. If wetlands are present, has the Section 404 Permit been received from USACE? a. If yes, please provide a copy of the approved Permit.

Response: see #3

5. If wetlands are present, have all wetlands on the Site been mitigated? a. If yes, provide document showing signed agreement with wetlands bank.

Response: see #3

SECTION 6

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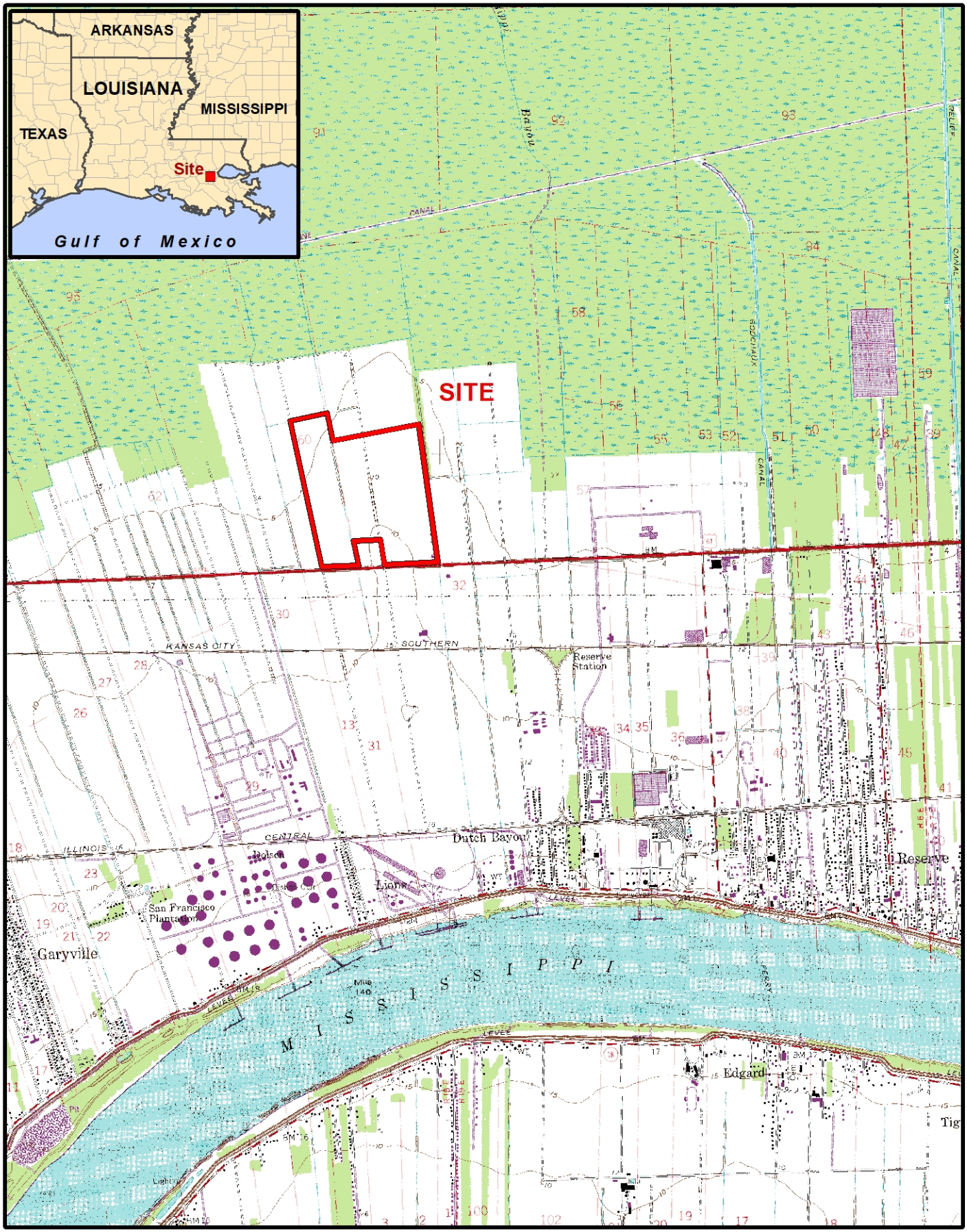
Appendix A
Figures



Map Scale: 1:36,000
1 Inch = 3,000 Feet

0 1,000 2,000 4,000 Feet

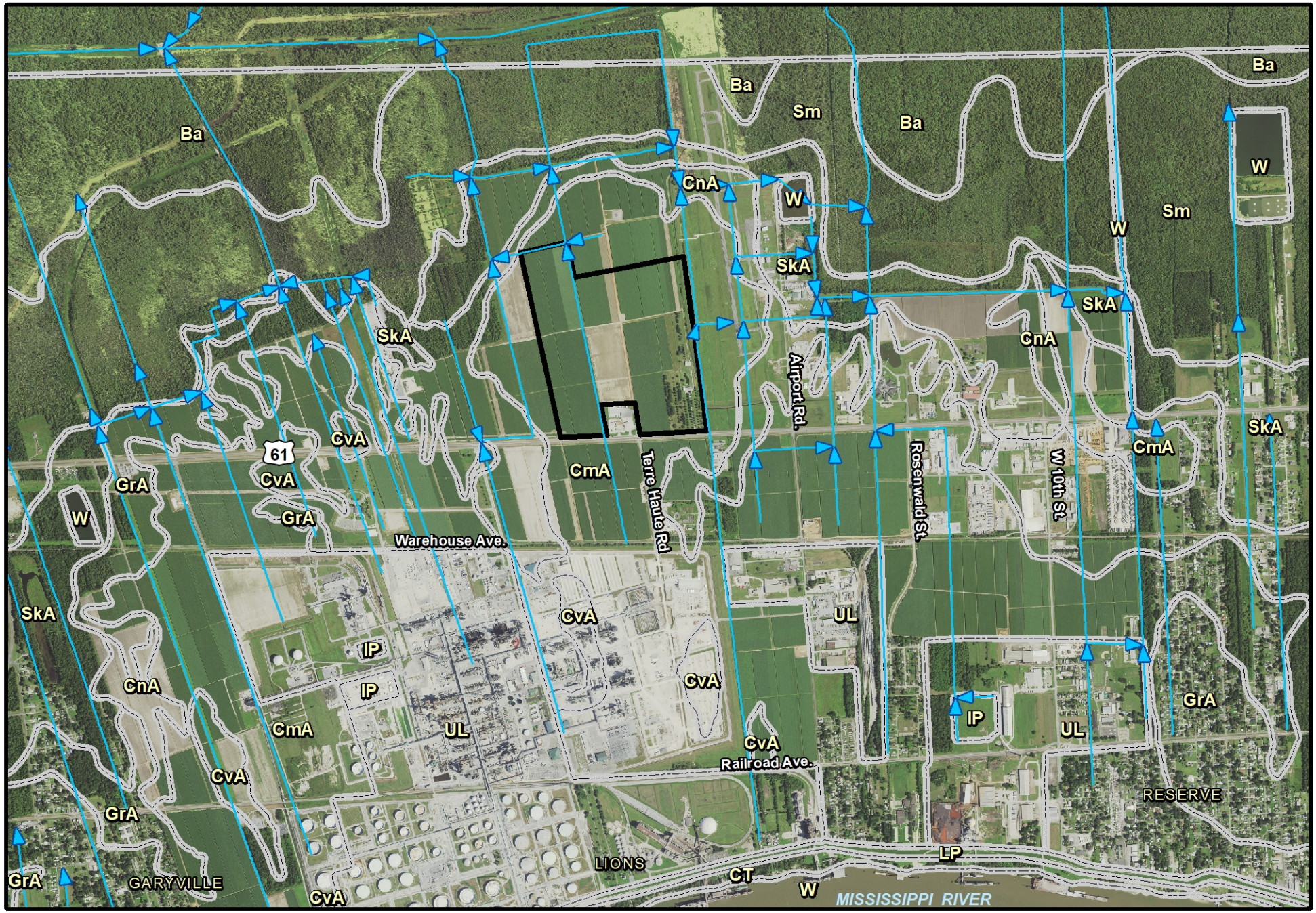
N

FIGURE 1
Vicinity Map
Wetland Delineation
Terre Haute Development Site
St. John the Baptist Parish, Louisiana

Date: 11/23/2020
Map ID: CMS2020-045

Source: State of Louisiana; Projection: UTM Z15N, NAD 83; 1:24,000 USGS Quadrangle Map

Chenier Environmental Consulting, LLC



LEGEND

- Project Area
- USGS NHD Stream
- NRCS Soils (SSURGO)

FIGURE 2
Existing Conditions Map
Wetland Delineation
Terre Haute Development Site
St. John the Baptist Parish, Louisiana

Map Scale: 1:24,000
1 Inch = 2,000 Feet

0 500 1,000 2,000 Feet

N

Date: 11/23/2020
Map ID: CMS2020-045

Chenier Environmental Consulting, LLC

Source: State of Louisiana; Projection: UTM Z15N, NAD 83; 2019 NAIP Imagery

LEGEND

- Project Area
- Data Point
- Wetlands (0.0 ac.)
- Non-Jurisdictional Wetlands (0.0 ac.)
- Non-Jurisdictional Waters (8,218 linear ft.)
- Non-Wetland Waters (0.0 linear ft.)

FIGURE 3
Wetland Delineation Map
Wetland Delineation
Terre Haute Development Site
St. John the Baptist Parish, Louisiana

Map Scale: 1:8,400
1 Inch = 700 Feet

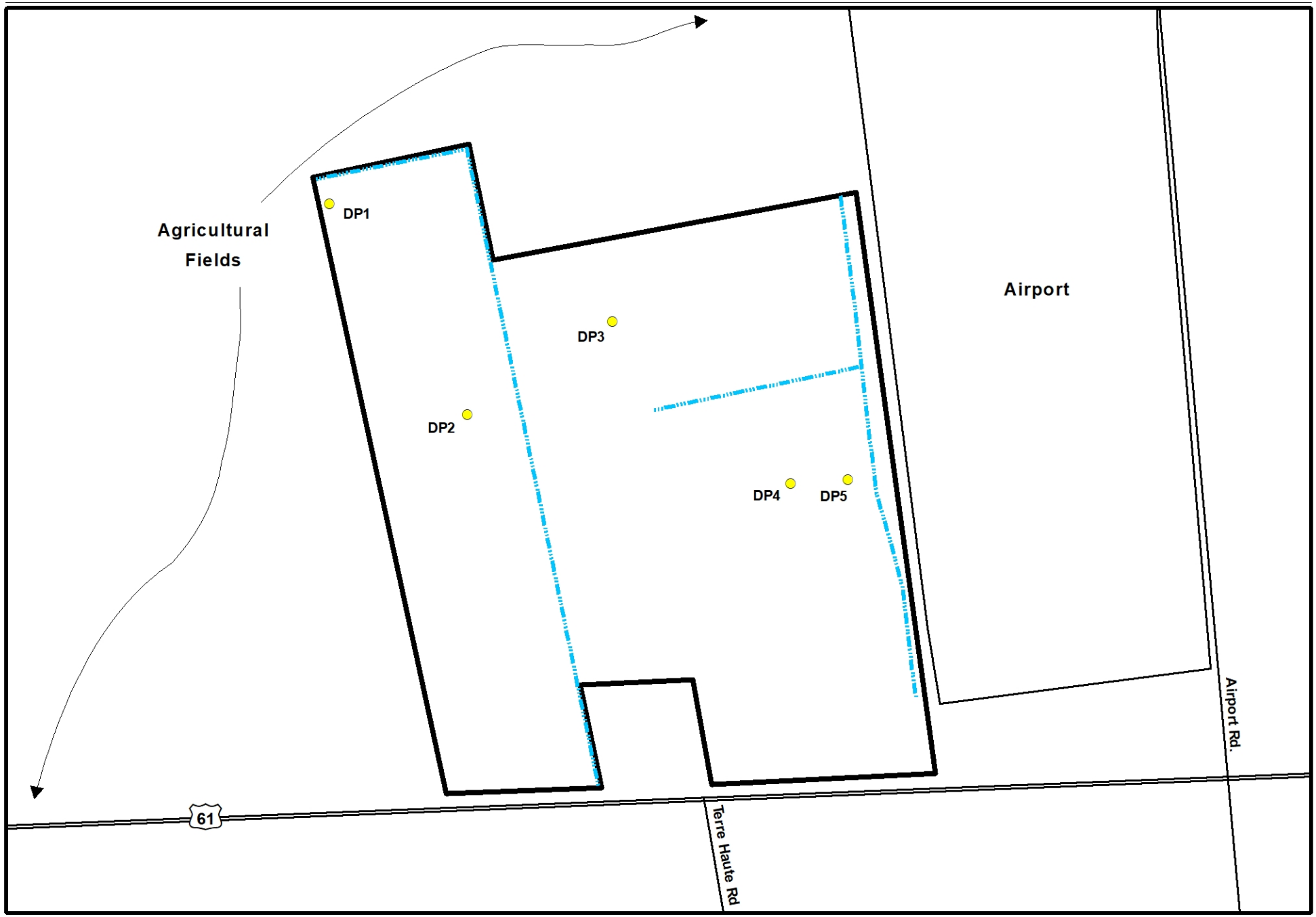
0 175 350 700 Feet

N

Date: 11/23/2020
Map ID: CMS2020-047

Chenier Environmental Consulting, LLC

Source: State of Louisiana; Projection: UTM Z15N, NAD 83; 2019 NAIP Imagery



LEGEND

- Project Area
- Data Point
- Wetlands (0.0 ac.)
- Non-Jurisdictional Wetlands (0.0 ac.)
- Non-Jurisdictional Waters (8,218 linear ft.)
- Non-Wetland Waters (0.0 linear ft.)

FIGURE 4
Wetland Delineation Map
Wetland Delineation
Terre Haute Development Site
St. John the Baptist Parish, Louisiana

Map Scale: 1:8,400
1 Inch = 700 Feet

0 175 350 700 Feet

N

Date: 11/23/2020
Map ID: CMS2020-048

Chenier Environmental Consulting, LLC

Source: State of Louisiana; Projection: UTM Z15N, NAD 83

Appendix B
U.S. Army Corps of Engineers Wetland Field Data Sheets

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Terre Haute Development City/County: Reserve/ St. John the Baptist Sampling Date: 10/06/2020

Applicant/Owner: GNO, Inc. State: Louisiana Sampling Point: DP-1

Investigator(s): Aaron Bass, Ryan Klutts Section, Township, Range: Section 60, Township 11 South, Range 6 East

Landform (hillslope, terrace, etc.) Agricultural field/natural levee Local relief (concave, convex, none): flat Slope (%): 0-1

Subregion (LRR or MLRA): LRR-O; MLRA 131A Lat: 30°05.130"N Long: 90°35.631"W Datum: WGS84

Soil Map Unit Name: Cancienne silty loam, 0 to 1 percent slopes (CmA) NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ 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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is in a recently harvested sugar cane field.
Natural vegetation, soils, and hydrology have been significantly disturbed by current and historical agricultural practices.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ 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 ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USGS 7.5-minute topographic map, aerial photographs

Remarks:
Adjacent ditches flow northwest into a larger drainage ditch.

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-1

Tree Stratum (Plot size: 20 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

Sapling/Shrub Stratum (Plot size: 20 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover 20 % of total cover:

Herb Stratum (Plot size: 20 ft radius)			
1. *Saccharum officinarum*	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50 % of total cover: 15 20 % of total cover: 6

Woody Vine Stratum (Plot size: 20 ft radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

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	0	1	0
FACW species	0	2	0
FAC species	0	3	0
FACU species	30	4	120
UPL species	0	5	0
Column Totals:	30		120 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation

___ 2 – Dominance Test is > 50%

___ 3 – Prevalence Test is ≤ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) 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. Includes 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: (Include photo numbers here or on a separate sheet.)
Photographs 1 & 2

SOIL

Sampling Point: DP-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Silty-clay	Soil has been disturbed by plowing

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___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 Suface (S9) **(LRR S, T, U)**
___Loamy Gleyed Matrix (F1) **(LRR O)**
___Loamy Gleyed Matrix (F2)
X 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 Soils[3]:

___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)

[3]Indicators 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:

The soil is mapped Cancienne silt loam which is listed as a hydric soil.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Terre Haute Development City/County: Reserve/ St. John the Baptist Sampling Date: 10/06/2020

Applicant/Owner: GNO, Inc. State: Louisiana Sampling Point: DP-2

Investigator(s): Aaron Bass, Section, Township, Range: Section 60, Township 11 South, Range 6 East

Landform (hillslope, terrace, etc.) Agricultural Field/Natural Levee Local relief (concave, convex, none): flat Slope (%): 0-1

Subregion (LRR or MLRA): LRR-O; MLRA 131A Lat: 30°04'.914"N Long: 90° 35.541"W Datum:

Soil Map Unit Name: Cancienne silt loam, 0 to 1 percent slopes (CmA) NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ 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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Located in the middle of the site between harvested and unharvested sugar cane fields and adjacent to a field drain.
Natural vegetation, soils, and hydrology have been significantly disturbed by current and historical agricultural practices.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ____ 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 ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USGS 7.5-minute topographic map, aerial photographs

Remarks:
Sugar cane field appears to be well-drained by network of drainage ditches.

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-2

Tree Stratum (Plot size: 20 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Not applicable			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
50 % of total cover:		20 % of total cover:	

Sapling/Shrub Stratum (Plot size: 20 ft radius)			
1. *Saccharum officinarum*	25	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	25	= Total Cover	
50% of total cover	12.5	20 % of total cover:	5

Herb Stratum (Plot size: 20 ft radius)			
1. *Eleusine indica*	10	N	FACU
2. *Phyllanthus amarus*	5	N	FAC
3. *Euphorbia hyssopifolia*	5	N	FAC
4. *Portulaca oleracea*	5	N	FACU
5. *Commelina diffusa*	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	
50 % of total cover:	15	20 % of total cover:	6

Woody Vine Stratum (Plot size: 20 ft radius)			
1. Not applicable			
2.			
3.			
4.			
5.			
		= Total Cover	
50 % of total cover:		20 % of total cover:	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	1	0
FACW species	5	2	10
FAC species	10	3	30
FACU species	40	4	160
UPL species	0	5	0
Column Totals:	55		200 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation

___ 2 – Dominance Test is > 50%

___ 3 – Prevalence Test is ≤ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) 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. Includes 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: (Include photo numbers here or on a separate sheet.)

Photographs 3 & 4

SOIL

Sampling Point: DP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Silty-Clay	Mostly Clay
18-21	10YR 3/2	95	7.5YR 5/8	5	C	M	Silty-Clay	Mostly Clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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 Suface (S9) **(LRR S, T, U)**
- ___ Loamy Gleyed Matrix (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X 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 Soils[3]:

- ___ 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)

[3]Indicators 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:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Terre Haute Development City/County: Reserve/ St. John the Baptist Sampling Date: 10/06/2020

Applicant/Owner: GNO, Inc. State: Louisiana Sampling Point: DP-3

Investigator(s): Aaron Bass, Ryan Klutts Section, Township, Range: Section 60, Township 11 South, Range 6 East

Landform (hillslope, terrace, etc.) Agricultural Field/Natural Levee Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): LRR-O; MLRA 131A Lat: 30°05.090"N Long: 90°35.350 "W Datum: WGS84

Soil Map Unit Name: Cancienne silt loam, 0 to 1 percent slopes (CmA) NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ 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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is in a recently harvested sugar cane field.
Natural vegetation, soils, and hydrology have been significantly disturbed by current and historical agricultural practices.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ 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 ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USGS 7.5-minute topographic map, aerial photographs

Remarks:
No hydrology indicators observed. Area appears to be a well-drained.

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-3

Tree Stratum (Plot size: 20 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Not applicable			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

Sapling/Shrub Stratum (Plot size: 20 ft radius)			
1. Not applicable			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover 20 % of total cover:

Herb Stratum (Plot size: 20 ft radius)			
1. *Saccharum officinarum*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
		= Total Cover	

50 % of total cover: 2.5 20 % of total cover: 1

Woody Vine Stratum (Plot size: 20 ft radius)			
1. Not applicable			
2.			
3.			
4.			
5.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

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	0	1	0
FACW species	0	2	0
FAC species	0	3	0
FACU species	5	4	20
UPL species	0	5	0
Column Totals:	5		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation

___ 2 – Dominance Test is > 50%

___ 3 – Prevalence Test is ≤ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) 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. Includes 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: (Include photo numbers here or on a separate sheet.)

Photographs 5 & 6

SOIL

Sampling Point: DP-3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Silt loam	
10-16	10YR 5/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ 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 Suface (S9) **(LRR S, T, U)**
- ___ Loamy Gleyed Matrix (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X 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 Soils[3]:

- ___ 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)

[3]Indicators 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:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Terre Haute Development City/County: Reserve-St. John the Baptist Sampling Date: 10/06/2020

Applicant/Owner: GNO Inc. State: Louisiana Sampling Point: DP-4

Investigator(s): Aaron Bass, Ryan Klutts Section, Township, Range: Section 60, Township 11 South, Range 6 East

Landform (hillslope, terrace, etc.) Agricultural Field/Natural Levee Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): LRR-O; MLRA 131A Lat: 30°04.952"N Long: 92°35.141"W Datum: WGS84

Soil Map Unit Name: Cancienne silt loam, 0 to 1 percent slopes (CmA) NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X , Soil X , or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ 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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is in a recently harvested sugar cane field.
Natural vegetation, soils, and hydrology have been significantly disturbed by current and historical agricultural practices.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ 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____	No X	Depth (inches): ____
Water Table Present?	Yes____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USGS 7.5-minute topographic map, aerial photographs

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-4

Tree Stratum (Plot size: 20 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Not applicable			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

Sapling/Shrub Stratum (Plot size: 20 ft radius)			
1. Not applicable			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover 20 % of total cover:

Herb Stratum (Plot size: 20 ft radius)			
1. *Cyperus rotundus*	10	N	FAC
2. *Saccharum officinarum*	25	Y	FACU
3. *Parthenium hysterophorus*	5	N	FAC
4. *Phyllanthus amarus*	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	

50 % of total cover: 22.5 20 % of total cover: 9

Woody Vine Stratum (Plot size: 20 ft radius)			
1. Not applicable			
2.			
3.			
4.			
5.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

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	0	1	0
FACW species	0	2	0
FAC species	20	3	60
FACU species	25	4	100
UPL species	0	5	0
Column Totals:	45		160 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation

___ 2 – Dominance Test is > 50%

___ 3 – Prevalence Test is ≤ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) 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. Includes 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: (Include photo numbers here or on a separate sheet.)

Photographs 7 & 8

SOIL

Sampling Point: DP-4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Silty-Clay	No Redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___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 Suface (S9) **(LRR S, T, U)**
___Loamy Gleyed Matrix (F1) **(LRR O)**
___Loamy Gleyed Matrix (F2)
X 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 Soils[3]:

___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)

[3]Indicators 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:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Terre Haute Development City/County: Reserve-St. John the Baptist Sampling Date: 10/06/2020

Applicant/Owner: GNO, Inc. State: Louisiana Sampling Point: DP-5

Investigator(s): Aaron Bass, Ryan Klutts Section, Township, Range: Section 60, Township 11 South, Range 6 East

Landform (hillslope, terrace, etc.) Agricultural Field/Natural Levee Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): LRR-O; MLRA 131A Lat: 30°04'.892"N Long: 90° 35'.108"W Datum: WGS84

Soil Map Unit Name: Cancienne silt loam, 0 to 1 percent slopes (CmA) NWI Classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ 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 ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ 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 ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USGS 7.5-minute topographic map, aerial photographs

Remarks:

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-5

Tree Stratum (Plot size: 20 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

Sapling/Shrub Stratum (Plot size: 20 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	

50% of total cover 20 % of total cover:

Herb Stratum (Plot size: 20 ft radius)			
1. *Fambristylis dichotoma*	5	N	OBL
2. *Symphyotrichum divaricatum*	5	N	OBL
3. *Dioda virginiana*	5	N	FACW
4. *Cynodon dactylon*	85	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	= Total Cover	

50 % of total cover: 50 20 % of total cover: 20

Woody Vine Stratum (Plot size: 20 ft radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

50 % of total cover: 20 % of total cover:

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	10	1	10
FACW species	5	2	10
FAC species	0	3	0
FACU species	85	4	340
UPL species	0	5	0
Column Totals:	100		360 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation

___ 2 – Dominance Test is > 50%

___ 3 – Prevalence Test is ≤ 3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks:
Photographs 9 & 10

SOIL

Sampling Point: DP-5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/2	95	10YR 4/6	5			Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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- ___ 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 Suface (S9) **(LRR S, T, U)**
- ___ Loamy Gleyed Matrix (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
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- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
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- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators 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:

Appendix C
Photographic Documentation

1. DP1 overview

2. DP1 soils

3. DP2 overview

4. DP2 soils

5. DP3 overview

6. DP3 soils

APPENDIX A: SITE PHOTOGRAPHS

Project No. 152

7. DP4 overview

8. DP4 soils

9. DP5 overview

10. DP5 soils

11. DP5 soil closeup

12. Drainage ditches in the northwest corner of the property

13. Dirt road along the east edge of the property

14. Drainage ditch along east edge of property (facing north)

15. Drainage ditch along east edge of the property (facing south)

16. Typical agricultural ditch

17. View of harvested sugarcane field in southern part of property

18. Typical view in the southern part of the property