

June 23, 2017
NS Project No. 13531.001.015

Bill Cork
Chief Executive Officer
Hancock County Port and Harbor Commission
14054 Fred and Al Key Road
Kiln, Mississippi 39556

Re: ENVIRONMENTAL DUE DILIGENCE
PORT BIENVILLE INDUSTRIAL PARK – SITE 4
HANCOCK COUNTY, MISSISSIPPI

Mr. Cork:

We have completed the Wetlands Delineation Survey for the referenced project located in Pearlinton, Mississippi.

We appreciate the opportunity to provide you with environmental consulting services. Should you have any questions concerning this information, please contact me at (228) 374-1211.

Sincerely,

NEEL-SCHAFFER, INC.



Cori L. Gavin
Environmental Scientist

Enclosures

June 2017

Wetlands Delineation Report

**Hancock County Port and Harbor Commission
Port Bienville Industrial Park – Site 4
Pearlington, Mississippi**



Prepared By
NEEL-SCHAFFER
Solutions you can build upon

WETLANDS DELINEATION
HANCOCK COUNTY PORT AND HARBOR COMMISSION
PORT BIENVILLE INDUSTRIAL PARK – SITE 4
PEARLINGTON, MISSISSIPPI
NS Project # 13531.001.015

Prepared For:

Hancock County Port and Harbor Commission

Prepared By:

Neel-Schaffer, Inc.
772 Howard Avenue
Biloxi, Mississippi 39530
(228) 374-1211

Report Date: June 23, 2017

TABLE OF CONTENTS

1.0	PROJECT LOCATION	1
2.0	WETLAND PROPERTIES	1
	2.1 HYDRIC SOIL	1
	2.2 HYDROPHYTIC VEGETATION	1
	2.3 WETLAND HYDROLOGY	2
3.0	CONCLUSIONS	2
4.0	REFERENCES	4

FIGURES

- Figure 1 – Site Location Map**
- Figure 2 – 2016 Aerial Photograph**
- Figure 3 – 2012 NOAA LiDAR Map**
- Figure 4 – National Wetlands Inventory Map**
- Figure 5 – NRCS Soil Survey Map**
- Figure 6 – Vegetative Communities Observed on Site**
- Figure 7 – Wetland Areas Observed on Site**

APPENDICES

- Appendix A – Wetland Data Sheets**
- Appendix B – Site Photographs**

EXECUTIVE SUMMARY

Hancock County Port and Harbor Commission (HCPHC) is anticipating new development within Port Bienville Industrial Park. Port Bienville Industrial Park is located southwest of Lower Bay Road near Pearlinton, Hancock County, Mississippi. HCPHC is taking environmental due diligence initiative on all properties that exhibit a high development potential for prospective tenants. One of the potential development sites, known as Site 4, is located northwest of Port and Harbor Drive and southwest of Road G within the Industrial Park. The site is mostly cleared and routinely mowed with several gravel access/egress roads. Drainage ditches border both sides along each access road. Several concrete slabs observed on the property indicate previous development. A railroad storing dormant rail cars lies in the middle portion of the property.

At the time of the site visits on April 20, 2017, May 3, 2017, and June 16, 2017, roughly 1.11 acres of the approximate 35-acre property should be considered jurisdictional wetlands. Major wetland vegetation species observed included *Bulbostylis barbata* (watergrass), *Centella erecta* (erect centella), *Cyperus difformis* (variable flatsedge), *Cyperus esculentus* (yellow nutsedge), *Dichanthelium commutatum* (variable panicgrass), *Digitaria ciliaris* (southern crabgrass), *Diodia virginiana* (Virginia buttonweed), *Eleocharis geniculata* (Canada spikesedge), *Fimbristylis autumnalis* (slender fimbry), *Hydrocotyle prolifera* (whorled marshpennywort), *Juncus biflorus* (bog rush), *Paspalum dilatatum* (dallisgrass), *Paspalum notatum* (bahiagrass), *Paspalum urvillei* (Vasey's grass), *Schoenoplectus americanus* (chairmaker's bulrush), and *Sporobolus junceus* (pineywoods dropseed). Soils within wetland areas exhibited hydric features such as stripped sand granules as well as iron and manganese reduction concentrations. Evidence of wetland hydrology, such as drainage patterns and saturation, were observed within sampled wetland areas.

1.0 SITE LOCATION

Site 4 is located northwest of Port and Harbor Drive in Port Bienville Industrial Park, Pearllington, Mississippi, approximately 1.3 miles southeast of U.S. Highway 90. The northeast portion of the site lies within Section 23, Township 9 South, Range 16 West; and the remainder of the property lies within Section 26, Township 9 South, Range 16 West. The approximately 35-acre site is mostly cleared with concrete slabs and unimproved access roads throughout. Port Bienville Industrial Canal, across from which is undeveloped land, is just north of the site, and to the south is Mac, LLC. To the east and west of the site is mostly undeveloped land, with two vacant buildings adjacent to the southeast. A site location map and 2016 aerial photograph are included as Figures 1 and 2.

2.0 WETLAND PROPERTIES

The U.S. Army Corps of Engineers (USACE) has jurisdiction over wetland habitats as authorized in Section 404 of the Clean Water Act (CWA). The USACE defines wetlands based on positive evidence of three parameters: hydric soil, hydrophytic vegetation, and wetland hydrology. This wetland delineation is based on reference materials, including a U.S. Geological Survey (USGS) topographic map (see Figure 1), an aerial photograph (see Figure 2), National Oceanic and Atmospheric Administration (NOAA) LiDar data (see Figure 3), National Wetlands Inventory (NWI) data (see Figure 4), National Resource Conservation Service (NRCS) soil survey data (see Figure 5), as well as data collected during site visits made on April 20, May 3, and June 16, 2017. Wetland data sheets are included in Appendix A, and photographs are included in Appendix B. The investigation recorded the following information and observations.

2.1 Hydric Soil

The NRCS soil survey depicts three soil series on the site:

- 1) Beauregard silt loam – 0-1% slopes; found along coastal plains; moderately well-drained; considered non-hydric
- 2) Handsboro association – 0-1% slopes; found in tidal flats; very poorly drained; considered hydric
- 3) Poarch fine sandy loam – prime farmland soil; 0-2% and 2-5% slopes; found along ridges; well-drained, considered non-hydric

Of the three soil series mapped within the site, one is considered hydric, and two are considered non-hydric. One soil series are considered prime farmland soil.

2.2 Hydrophytic Vegetation

Vegetation observed on the site is typical of coastal Mississippi. Within the property boundaries, three different plant communities were observed (see Figure 6):

- 1) Forested upland habitat (0.55 acre) – Vegetation observed in the forested uplands included *Andropogon virginicus* (broomsedge bluestem), *Conyza canadensis* (Canadian horseweed), *Ilex vomitoria* (yaupon), *Pinus echinata* (shortleaf pine), *Smilax rotundifolia* (roundleaf greenbrier), and *Triadica sebifera* (Chinese tallow).
- 2) Barren upland habitat (34.34 acres) – Vegetation observed in the barren uplands within the site included *Centella erecta* (erect centella), *Dichanthelium commutatum* (variable panicgrass), *Digitaria ciliaris* (southern crabgrass), *Digitaria sanguinalis* (hairy crabgrass), *Gaillardia aestivalis* (lanceleaf blanketflower), *Juncus marginatus* (grassleaf rush), *Panicum anceps* (beaked panicgrass), *Paspalum dilatatum* (dallisgrass), *Paspalum notatum* (bahiagrass), *Plantago aristata* (largebracted plantain), and *Tephrosia spicata* (spiked hoarypea).
- 3) Scrub/shrub wetland (1.11 acres) – Vegetation observed in scrub/shrub wetlands within the site included *Bulbostylis barbata* (watergrass), *Centella erecta* (erect centella), *Cyperus difformis* (variable flatsedge), *Cyperus esculentus* (yellow nutsedge), *Dichanthelium commutatum* (variable panicgrass), *Digitaria ciliaris* (southern crabgrass), *Diodia virginiana* (Virginia buttonweed), *Eleocharis geniculata* (Canada spikesedge), *Fimbristylis autumnalis* (slender fimbry), *Hydrocotyle prolifera* (whorled marshpennywort), *Juncus biflorus* (bog rush), *Paspalum dilatatum* (dallisgrass), *Paspalum notatum* (bahiagrass), *Paspalum urvillei* (Vasey's grass), *Schoenoplectus americanus* (chairmaker's bulrush), and *Sporobolus junceus* (pineywoods dropseed). This site has been historically developed for industrial use, and these wetland areas should be considered low quality.

2.3 Wetland Hydrology

The third feature in determining the presence or absence of wetland habitats is “evidence of hydrology.” The most subjective of the three wetland parameters, hydrology, can be difficult to identify and prove in relatively flat areas. There is sufficient evidence of wetland hydrology from saturation, the presence of reduced iron in the soils, and drainage patterns that dominate the wetland areas within site boundaries.

3.0 CONCLUSIONS

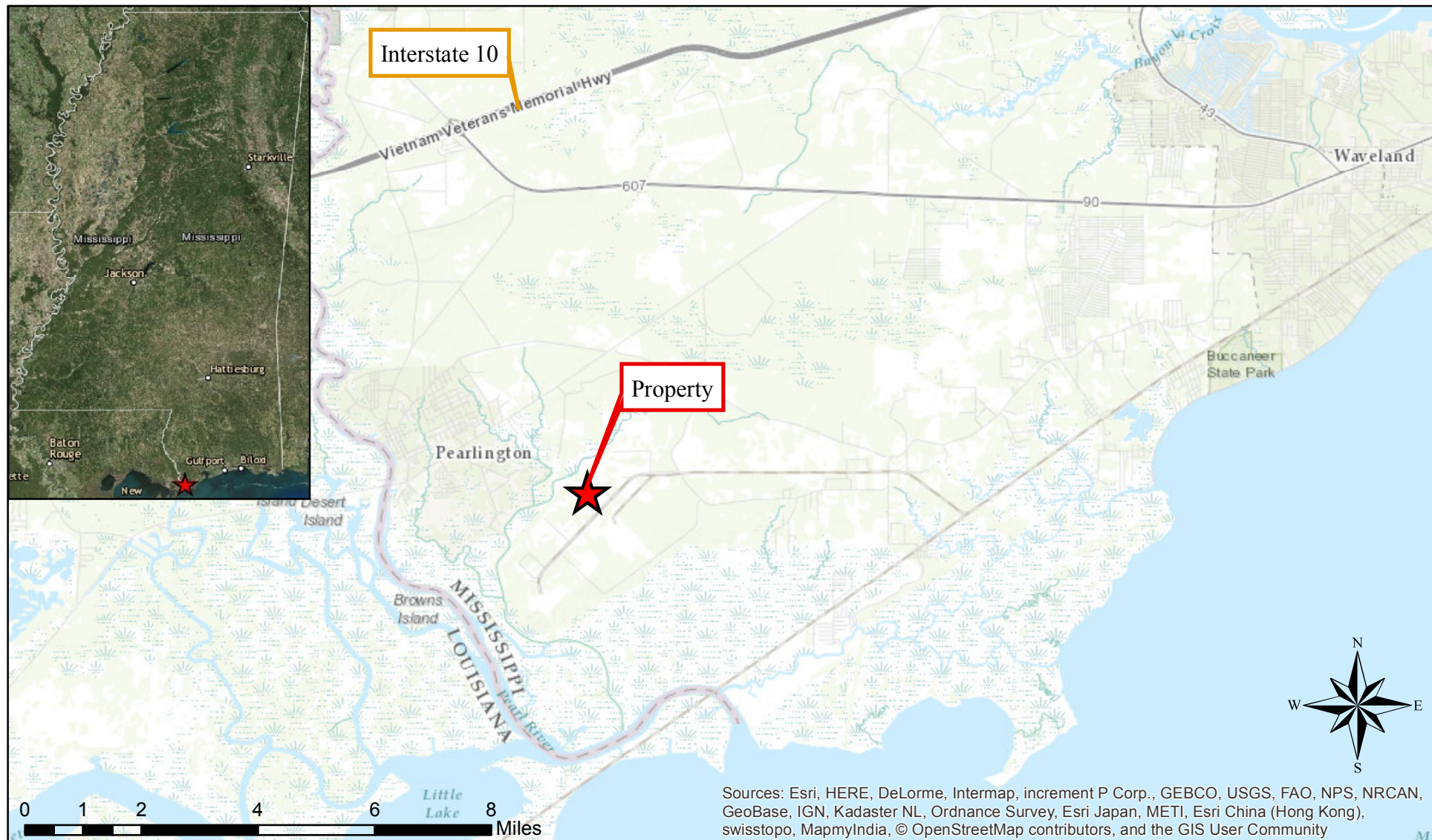
Five sampling points were taken within the property boundaries to determine the extent of any wetlands or other waters of the United States. Based on data collected at each sampling point, as well as the above information, it is our opinion that the USACE and other agencies would consider approximately 1.11 acres of the 35-acre property as low quality jurisdictional wetlands, as shown in Figure 7. Wetland determination data forms for each sampling point are included in Appendix A. Site photographs taken on April 20, May 3, and June 16, 2017 are included in Appendix B.

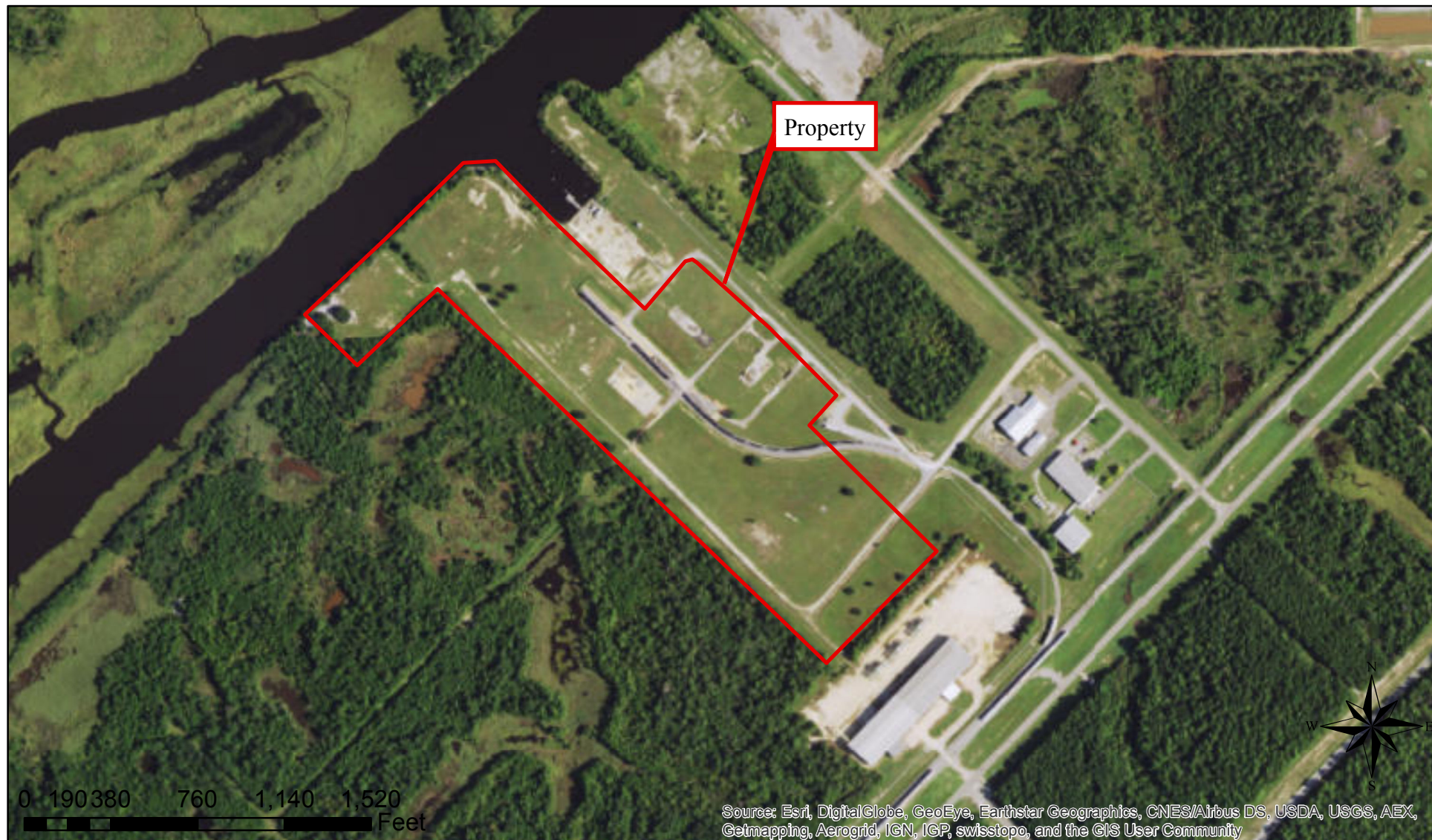
For wetlands that are proposed to be impacted, coordination will be required from the USACE, Mississippi Department of Marine Resources, and the Mississippi Department of Environmental Quality. During construction, appropriate erosion control fencing should be placed around the perimeter of the construction zone to prevent any off-site release of materials which could work their way into other wetland areas. The USACE application and permitting process allows for fill of wetland habitat for specific, justified projects, as long as appropriate compensatory mitigation is made. Other factors considered during the application process include wastewater treatment, alternatives analysis, and floodplain impacts.

4.0 REFERENCES

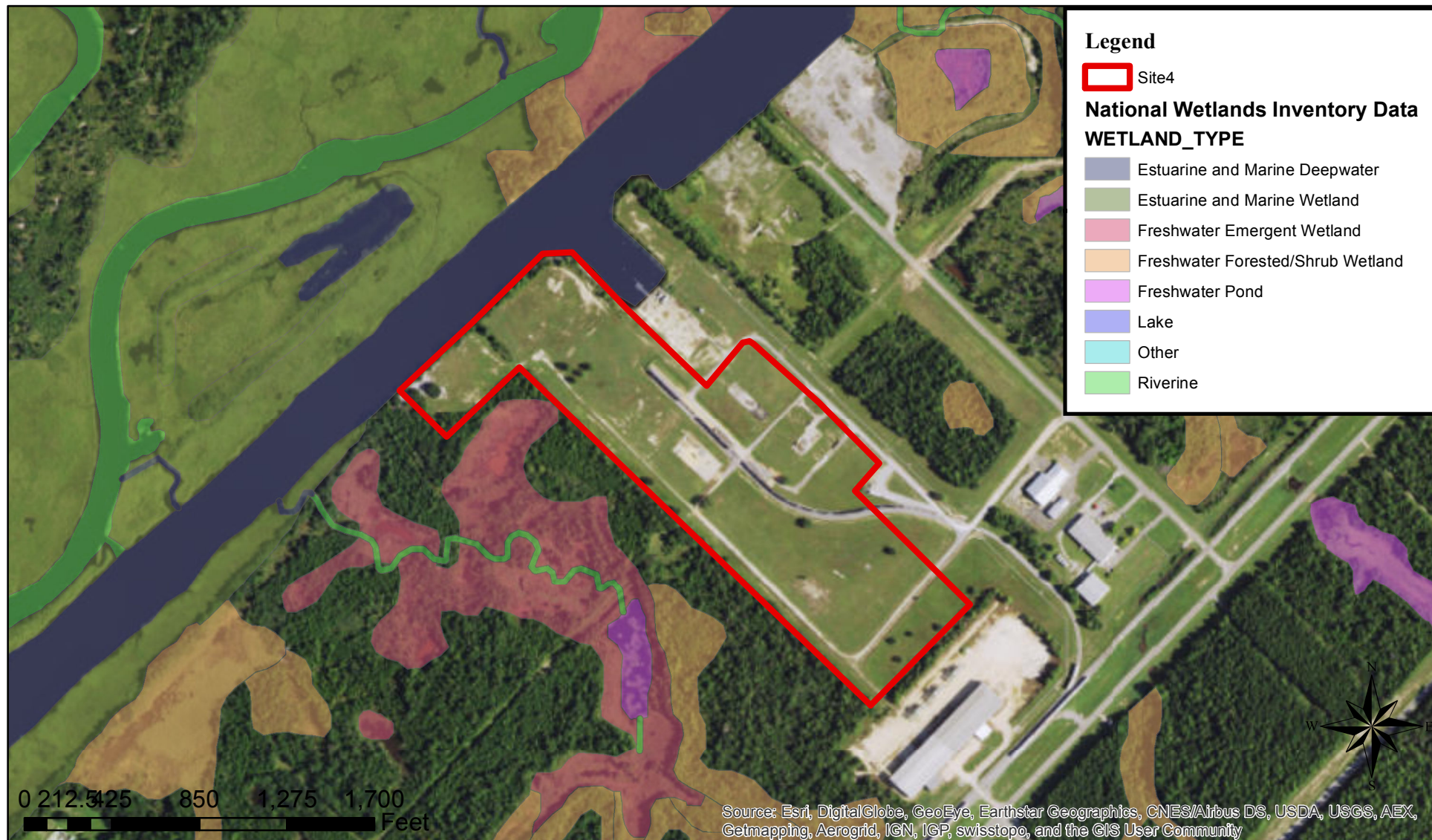
- U.S. Army Corps of Engineers. *Wetlands Delineation Manual*, Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Corps of Engineers, Waterways Experiment Station, January 1987.
- U.S. Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. Vicksburg, Mississippi: U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, November 2010.
- U.S. Department of Agriculture, Natural Resources Conservation Service. *Published Soil Surveys for Mississippi*. (Website accessed April 30, 2017). <http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=MS>
- U.S. Fish and Wildlife Service. *National Wetland Inventory – V2: Surface Waters and Wetlands*. (Website accessed April 30, 2017). <https://www.fws.gov/wetlands/data/mapper.html>

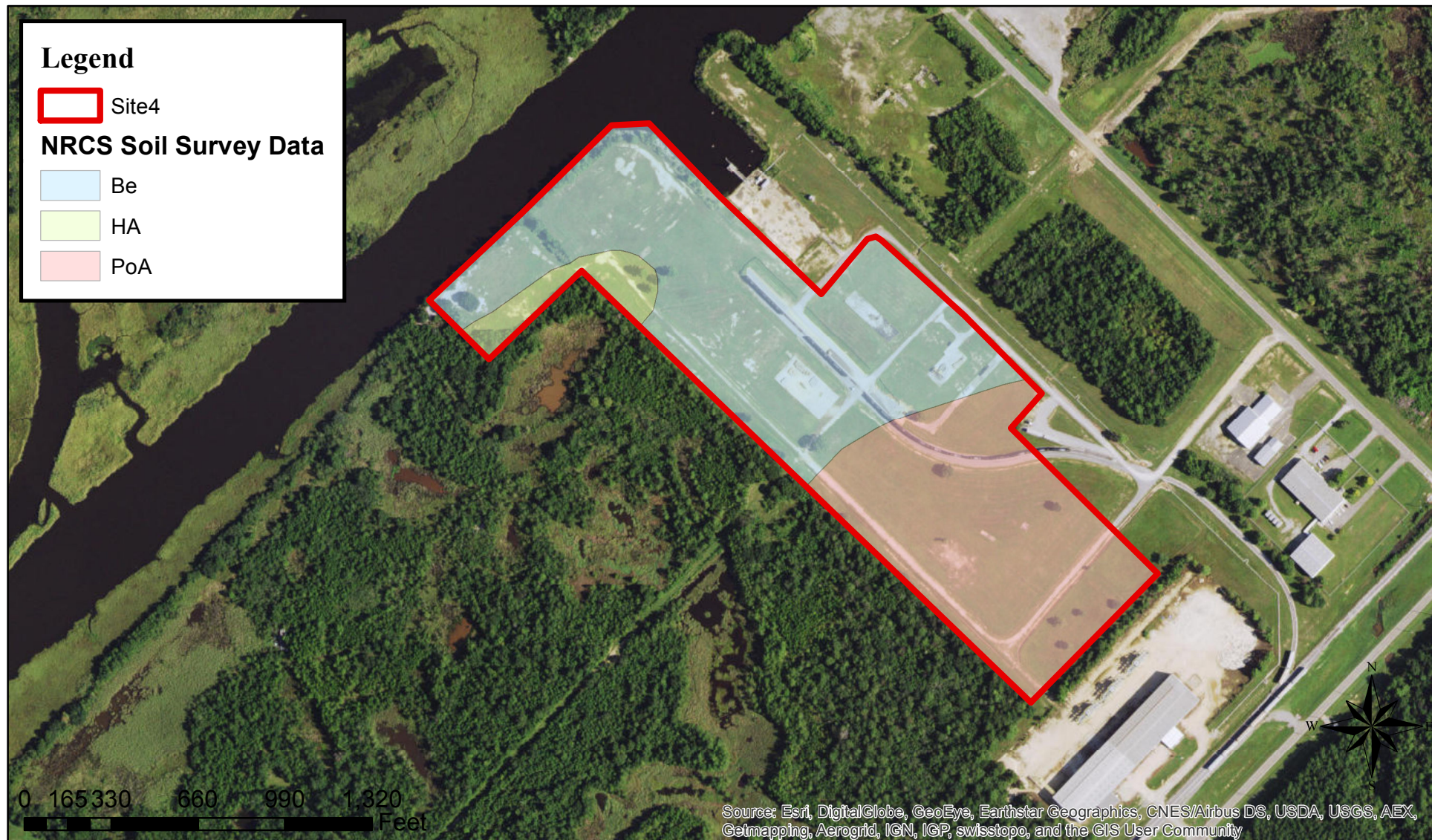
FIGURES

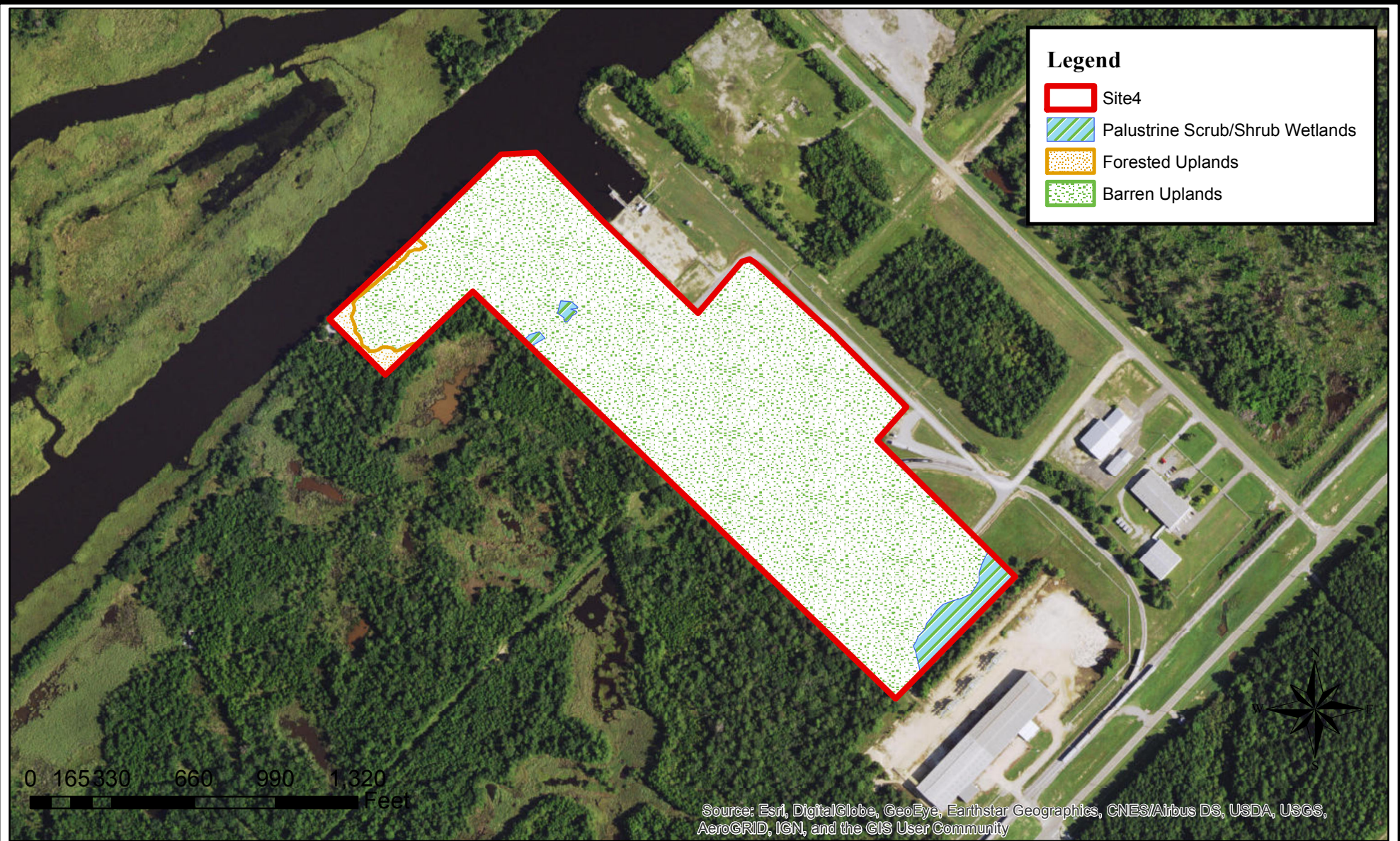


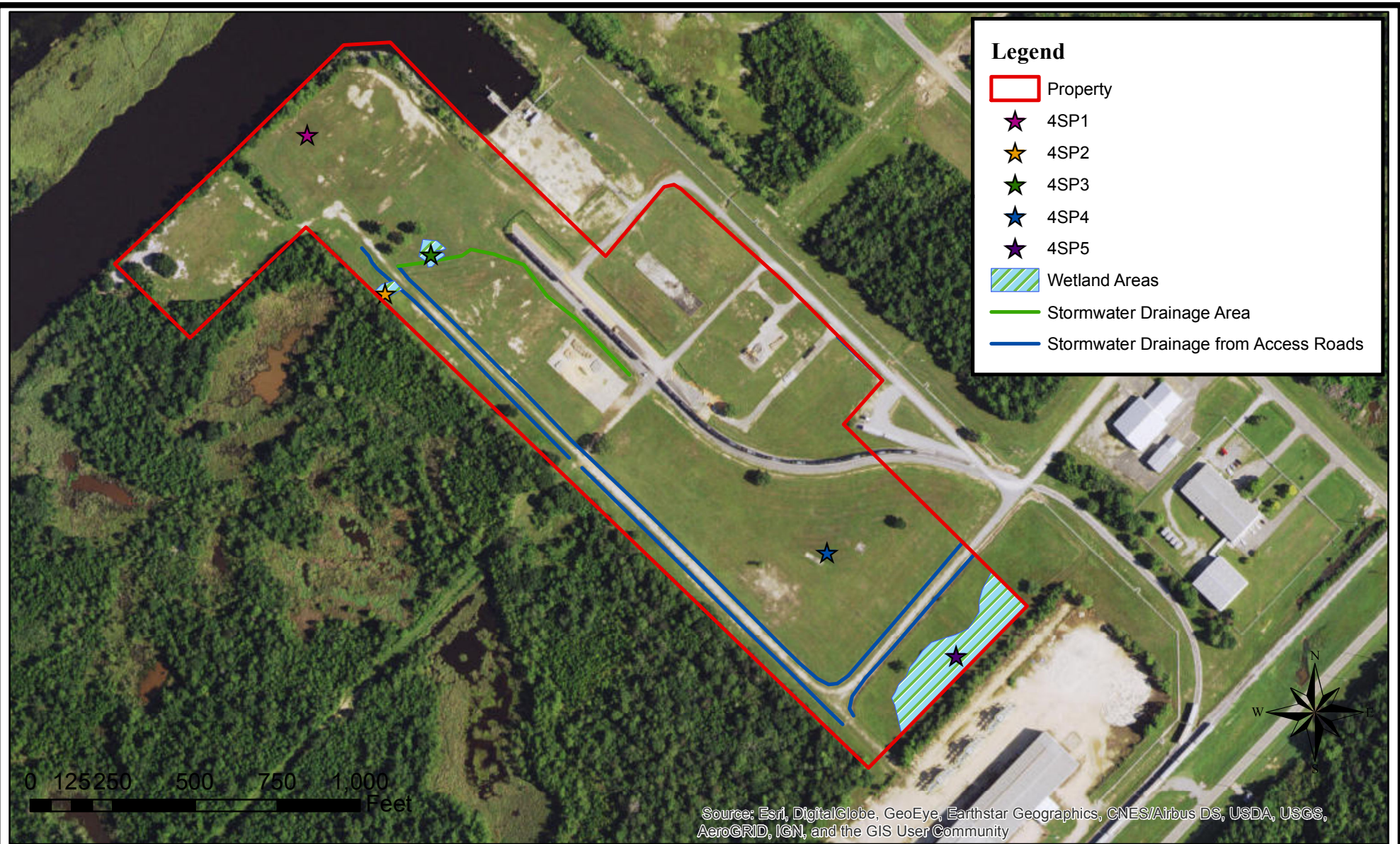












APPENDIX A
WETLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port Bienville Site 4 City/County: Pearlington/Hancock Sampling Date: 4/20
 Applicant/Owner: Hancock County Port and Harbor Commission State: MS Sampling Point: 4SP1
 Investigator(s): Cori L. Gavin Section, Township, Range: Section 23, Township 9S, Range 16W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 0-1
 Subregion (LRR or MLRA): LRR T 152A Lat: 30.23919 Long: -89.56841 Datum: WGS1984
 Soil Map Unit Name: Beauregard silt loam NWI classification: Upland

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 _____ 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Obvious fill material on site from previous developments. Area routinely mowed.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) ☐ 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 along 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)		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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: most recent rain event was April 5, 2017		

Sampling Point: 4SP1

Tree Stratum (Plot size: _____)				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: _____)						
1.	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____	_____
_____ = Total Cover						
50% of total cover: _____				20% of total cover: _____		
Herb Stratum (Plot size: 1M _____)						
1.	Centella erecta	30	Y	FACW		
2.	Gaillardia aestivalis	15	N	FAC		
3.	Tephrosia spicata	15	N	FAC		
4.	Digitaria sanguinalis	25	Y	FACU		
5.	Dichanthelium commutatum	20	Y	FAC		
6.	Plantago aristata	10	N	FAC		
7.	_____	_____	_____	_____		
8.	_____	_____	_____	_____		
9.	_____	_____	_____	_____		
10.	_____	_____	_____	_____		
11.	_____	_____	_____	_____		
12.	_____	_____	_____	_____		
115 = Total Cover						
50% of total cover: 57.5				20% of total cover: 23		
Woody Vine Stratum (Plot size: _____)						
1.	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____
_____ = Total Cover						
50% of total cover: _____				20% of total cover: _____		

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

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 _____	x 1 = _____
FACW species 30	x 2 = 60
FAC species 60	x 3 = 180
FACU species 25	x 4 = 100
UPL species _____	x 5 = _____
Column Totals: 115	(A) 340 (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 ≤3.0 ¹	
___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Definitions of Four Vegetation Strata:	
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
Woody vine – All woody vines greater than 3.28 ft in height.	
Hydrophytic Vegetation Present?	
Yes <u>X</u>	No _____

SOIL

Sampling Point: 4SP1

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		
0-2	7.5YR 5/3	100					SL	
2-4	7.5YR 6/4	100					SL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

- | | | |
|---|---|---|
| ☐ 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) | ☐ 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:

Soils too dry and compact to dig beyond 4"

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port Bienville Site 4 City/County: Pearlington/Hancock Sampling Date: 4/20
 Applicant/Owner: Hancock County Port and Harbor Commission State: MS Sampling Point: 4SP2
 Investigator(s): Cori L. Gavin Section, Township, Range: Section 26, Township 9S, Range 16W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1-2
 Subregion (LRR or MLRA): LRR T 152A Lat: 30.23805 Long: -89.56776 Datum: WGS1984
 Soil Map Unit Name: Handsboro association NWI classification: Upland

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 _____ 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Obvious fill material on site from previous developments. Area routinely mowed.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) ☐ 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 along 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)		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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>12</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: most recent rain event was April 5, 2017		

Sampling Point: 4SP2

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Sapling/Shrub Stratum</u> (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Herb Stratum</u> (Plot size: <u>1M</u>)			
1. Centella erecta	10	N	FACW
2. Diodia virginiana	25	Y	FACW
3. Eleocharis geniculata	40	Y	FACW
4. Paspalum urvillei	20	Y	FAC
5. Dichanthelium commutatum	5	N	FAC
6. Fimbristylis autumnalis	5	N	OBL
7. Schoenoplectus americanus	15	N	OBL
8. Hydrocotyle prolifera	5	N	OBL
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
125 = Total Cover			
50% of total cover: <u>62.5</u> 20% of total cover: <u>25</u>			
<u>Woody Vine Stratum</u> (Plot size: _____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

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

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)
Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>25</u>	x 1 = <u>25</u>
FACW species <u>75</u>	x 2 = <u>150</u>
FAC species <u>25</u>	x 3 = <u>75</u>
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: <u>125</u> (A)	<u>250</u> (B)
Prevalence Index = B/A = <u>2</u>	
Hydrophytic Vegetation Indicators:	
☐ 1 - Rapid Test for Hydrophytic Vegetation ☐ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index 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 Four Vegetation Strata:	
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
Woody vine – All woody vines greater than 3.28 ft in height.	
Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

SOIL

Sampling Point: 4SP2

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		
0-2	10YR 4/2	100					L	moist
2-3	10YR 6/6	97		2	C	M	SL	Fe/Mg masses
2-3			7.5YR 4/6	1	C	PL	SL	oxidation concentrations
3-12	2.5Y 6/4	98		2	C	M	LS	Fe/Mg masses

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

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port Bienville Site 4 City/County: Pearlington/Hancock Sampling Date: 4/20
 Applicant/Owner: Hancock County Port and Harbor Commission State: MS Sampling Point: 4SP3
 Investigator(s): Cori L. Gavin Section, Township, Range: Section 26, Township 9S, Range 16W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1-2
 Subregion (LRR or MLRA): LRR T 152A Lat: 30.23833 Long: -89.56738 Datum: WGS1984
 Soil Map Unit Name: Beauregard silt loam NWI classification: Upland

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 _____ 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Obvious fill material on site from previous developments. Area routinely mowed.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) ☐ 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 along 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)		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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>4</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: most recent rain event was April 5, 2017		

Sampling Point: 4SP3

Tree Stratum (Plot size: _____)	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: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____
Herb Stratum (Plot size: 1M _____)				
1. Centella erecta	5	N	FACW	
2. Cyperus esculentus	15	N	FAC	
3. Eleocharis geniculata	35	Y	FACW	
4. Juncus biflorus	35	Y	FACW	
5. Cyperus difformis	5	N	OBL	
6. Bulbostylis barbata	10	N	FAC	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
				105 = Total Cover
50% of total cover: 52.5				20% of total cover: 21
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
50% of total cover: _____				20% of total cover: _____

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

SOIL

Sampling Point: 4SP3

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		
0-2	7.5YR 4/2	95	5YR 4/6	5	C	PL	L/Clay	oxidation at roots
2-4	10YR 3/1	90	7.5YR 4/6	10	C	PL	L/Clay	oxidation concentrations
4-6	10YR 3/1	94	10YR 4/6	5	C	PL	L/Clay	oxidation concentrations
4-6				1	C	M		Fe/Mg concentrations
6-10	10YR 6/1	95	10YR 5/8	5	C	M	SL	Fe concentrations

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

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port Bienville Site 4 City/County: Pearlington/Hancock Sampling Date: 4/20
 Applicant/Owner: Hancock County Port and Harbor Commission State: MS Sampling Point: 4SP4
 Investigator(s): Cori L. Gavin Section, Township, Range: Section 26, Township 9S, Range 16W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-1
 Subregion (LRR or MLRA): LRR T 152A Lat: 30.23619 Long: -89.56409 Datum: WGS1984
 Soil Map Unit Name: Poarch fine sandy loam NWI classification: Upland

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 _____ 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Obvious fill material on site from previous developments. Area routinely mowed.	

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 along 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) ☐ FAC-Neutral Test (D5) ☐ Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: most recent rain event was April 5, 2017		

Sampling Point: 4SP4

Tree Stratum (Plot size: _____)				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: _____)						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
				_____ = Total Cover		
50% of total cover: _____				20% of total cover: _____		
Herb Stratum (Plot size: 1M _____)						
1.	Centella erecta	5	N	FACW		
2.	Juncus marginatus	25	Y	FACW		
3.	Paspalum dilatatum	30	Y	FAC		
4.	Digitaria sanguinalis	25	Y	FACU		
5.	Dichanthelium commutatum	20	N	FAC		
6.	Panicum anceps	15	N	FAC		
7.						
8.						
9.						
10.						
11.						
12.						
				120 = Total Cover		
50% of total cover: 60				20% of total cover: 24		
Woody Vine Stratum (Plot size: _____)						
1.						
2.						
3.						
4.						
5.						
				_____ = Total Cover		
50% of total cover: _____				20% of total cover: _____		

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

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 _____	x 1 = _____
FACW species 30	x 2 = 60
FAC species 65	x 3 = 195
FACU species 25	x 4 = 100
UPL species _____	x 5 = _____
Column Totals: 120 (A)	355 (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 ≤3.0 ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Definitions of Four Vegetation Strata:	
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
Woody vine – All woody vines greater than 3.28 ft in height.	
Hydrophytic Vegetation Present?	
	Yes <u>X</u> No _____

SOIL

Sampling Point: 4SP4

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		
0-10	10YR 4/2	100					S	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

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

dry, compact and uniform. obvious fill soil

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Port Bienville Site 4 City/County: Pearlington/Hancock Sampling Date: 5/3
 Applicant/Owner: Hancock County Port and Harbor Commission State: MS Sampling Point: 4SP5
 Investigator(s): Cori L. Gavin Section, Township, Range: Section 26, Township 9S, Range 16W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR or MLRA): LRR T 152A Lat: 30.23545 Long: -89.56302 Datum: WGS1984
 Soil Map Unit Name: Poarch fine sandy loam NWI classification: Upland

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 _____ 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: Obvious fill material on site from previous developments. Area routinely mowed.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) ☐ 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 along 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)		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 <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: most recent rain event April 30, 2017		

Sampling Point: 4SP5

Tree Stratum (Plot size: _____)	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: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: 1M _____)				
1. Paspalum dilatatum	10	N	FAC	
2. Paspalum notatum	5	N	FACU	
3. Sporobolus junceus	10	N	FAC	
4. Digitaria ciliaris	40	Y	FACU	
5. Cyperus difformis	35	Y	OBL	
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: _____)				
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: 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>35</u>	x 1 = <u>35</u>
FACW species _____	x 2 = _____
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>45</u>	x 4 = <u>180</u>
UPL species _____	x 5 = _____
Column Totals: <u>100</u> (A)	<u>275</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 Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: 4SP5

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		
0-2	10YR 3/2	95	10YR 2/1	2	C	M	SL	Mg masses, 3% stripped sand
2-6	10YR 3/1	98	7.5YR 4/6	2	C	PL	SL	Fe concentrations
6-10	10YR 5/3	98	7.5YR 4/6	2	C	M	SL	Fe concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|---|
| ☐ 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) | ☐ 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:

APPENDIX B

SITE PHOTOGRAPHS



Photograph of property facing southeast



Vegetation at 4SP1



Soils at 4SP1



Vegetation at 4SP2



Iron/Manganese masses in soils at 4SP2



Soils at 4SP2



Vegetation at 4SP3



Oxidation around roots and iron concentrations in soils at 4SP3



Soils at 4SP3



Vegetation at 4SP4



Soils at 4SP4



Vegetation at 4SP5



Iron concentrations in soils at 4SP5



Soils at 4SP5