

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation     
 **City/County:** Waveland - Hancock     
 **Sampling Date:** 18-Oct-16  
**Applicant/Owner:** NASA     
 **State:** MS     
 **Sampling Point:** Wet - 18  
**Investigator(s):** Lars Larson, Randy Ellis     
 **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):**     
 **Local relief (concave, convex, none):** none     
 **Slope:** 0.0 % / 0.0 °  
**Subregion (LRR or MLRA):** LRR T     
 **Lat.:** 30° 24' 45.183" N     
 **Long.:** 89° 37' 38.549" W     
 **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded     
 **NWI classification:** PFO 1/4 C

**Are climatic/hydrologic conditions on the site typical for this time of year?**    Yes  No     (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**    Are "Normal Circumstances" present?    Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?    Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?    Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Low drainage area approximately 50 feet east of Up - 18.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply) <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"><input type="checkbox"/> Surface Water (A1)</td> <td style="width:50%; border: none;"><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> High Water Table (A2)</td> <td style="border: none;"><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Saturation (A3)</td> <td style="border: none;"><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Water Marks (B1)</td> <td style="border: none;"><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Sediment Deposits (B2)</td> <td style="border: none;"><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td style="border: none;"><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td style="border: none;"><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Iron Deposits (B5)</td> <td style="border: none;"><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of 2 required) <table style="width:100%; border: none;"> <tr><td style="border: none;"><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td style="border: none;"><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td style="border: none;"><input checked="" type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Dry Season Water Table (C2)</td></tr> <tr><td style="border: none;"><input checked="" type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td style="border: none;"><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td style="border: none;"><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input checked="" type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Wet - 18

Tree Stratum	(Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Nyssa biflora</i>	15	<input checked="" type="checkbox"/> 65.2%	OBL
2.	<i>Nyssa sylvatica</i>	5	<input checked="" type="checkbox"/> 21.7%	FAC
3.	<i>Pinus elliotii</i>	2	<input type="checkbox"/> 8.7%	FACW
4.	<i>Cyrilla racemiflora</i>	1	<input type="checkbox"/> 4.3%	FACW
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: <u>11.5</u> 20% of Total Cover: <u>4.6</u>		<u>23</u>	<b>= Total Cover</b>	

Sapling or Sapling/Shrub Stratum	(Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Nyssa biflora</i>	15	<input checked="" type="checkbox"/> 53.6%	OBL
2.	<i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 35.7%	FACW
3.	<i>Pinus elliotii</i>	3	<input type="checkbox"/> 10.7%	FACW
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: <u>14</u> 20% of Total Cover: <u>5.6</u>		<u>28</u>	<b>= Total Cover</b>	

Shrub Stratum	(Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 62.5%	FACW
2.	<i>Persea palustris</i>	3	<input type="checkbox"/> 18.8%	FACW
3.	<i>Ilex glabra</i>	2	<input type="checkbox"/> 12.5%	FACW
4.	<i>Ilex opaca</i>	1	<input type="checkbox"/> 6.3%	FAC
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: <u>8</u> 20% of Total Cover: <u>3.2</u>		<u>16</u>	<b>= Total Cover</b>	

Herb Stratum	(Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Woodwardia areolata</i>	10	<input checked="" type="checkbox"/> 58.8%	OBL
2.	<i>Arundinaria tecta</i>	5	<input checked="" type="checkbox"/> 29.4%	FACW
3.	<i>Sarracenia flava</i>	2	<input type="checkbox"/> 11.8%	OBL
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
9.		0	<input type="checkbox"/> 0.0%	
10.		0	<input type="checkbox"/> 0.0%	
11.		0	<input type="checkbox"/> 0.0%	
12.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: <u>8.5</u> 20% of Total Cover: <u>3.4</u>		<u>17</u>	<b>= Total Cover</b>	

Woody Vine Stratum	(Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Smilax laurifolia</i>	1	<input type="checkbox"/> 100.0%	FACW
2.		0	<input type="checkbox"/> 0.0%	
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: <u>0.5</u> 20% of Total Cover: <u>0.2</u>		<u>1</u>	<b>= Total Cover</b>	

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	42	x 1 = 42
FACW species	37	x 2 = 74
FAC species	6	x 3 = 18
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
<b>Column Totals:</b>	<b>85 (A)</b>	<b>134 (B)</b>

Prevalence Index = B/A = 1.576

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is > 50%
  - 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
  - Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
- <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: **Wet - 18**

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/1	90	10YR	7/2	10	D	M	Loamy Sand	
4-20	10YR	3/2	85	10YR	7/2	20	D	M	Sandy Loam	

<sup>1</sup>Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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     No

**Remarks:**

Depleted - stripped matrix in lower portion of sample. Redox concentrations also encountered.

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation     
 **City/County:** Waveland - Hancock     
 **Sampling Date:** 18-Oct-16  
**Applicant/Owner:** NASA     
 **State:** MS     
 **Sampling Point:** Wet -19  
**Investigator(s):** Lars Larson, Randy Ellis     
 **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Swale     
 **Local relief (concave, convex, none):** none     
 **Slope:** 0.0 % / 0.0 °  
**Subregion (LRR or MLRA):** LRR T     
 **Lat.:** 30° 24' 42.655" N     
 **Long.:** 89° 37' 2.924" W     
 **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded     
 **NWI classification:** PFO 1/4 C

Are climatic/hydrologic conditions on the site typical for this time of year?    Yes  No     (If no, explain in Remarks.)  
 Are Vegetation  , Soil  , or Hydrology  significantly disturbed?    Are "Normal Circumstances" present?    Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?    Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?    Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?    Yes <input checked="" type="radio"/> No <input type="radio"/>
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**Remarks:**  
 Bottom area of drainage way between railbeds - this areas had been altered and water connection apparently disrupted, but not enough to keep it from being wet.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of 2 required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present?    Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Wet -19

Tree Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 50.0%	FACW
2. <i>Nyssa biflora</i>	5	<input checked="" type="checkbox"/> 25.0%	OBL
3. <i>Pinus elliotii</i>	3	<input type="checkbox"/> 15.0%	FACW
4. <i>Acer rubrum</i>	2	<input type="checkbox"/> 10.0%	FAC
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	10	20% of Total Cover: 4	20 = Total Cover

Sapling or Sapling/Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 40.0%	FACW
2. <i>Nyssa biflora</i>	10	<input checked="" type="checkbox"/> 40.0%	OBL
3. <i>Cyrilla racemiflora</i>	5	<input checked="" type="checkbox"/> 20.0%	FACW
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	12.5	20% of Total Cover: 5	25 = Total Cover

Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Cyrilla racemiflora</i>	25	<input checked="" type="checkbox"/> 67.6%	FACW
2. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 27.0%	FACW
3. <i>Ilex coriacea</i>	2	<input type="checkbox"/> 5.4%	FACW
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	18.5	20% of Total Cover: 7.4	37 = Total Cover

Herb Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Woodwardia virginica</i>	20	<input checked="" type="checkbox"/> 71.4%	OBL
2. <i>Woodwardia areolata</i>	5	<input type="checkbox"/> 17.9%	OBL
3. <i>Arundinaria tecta</i>	3	<input type="checkbox"/> 10.7%	FACW
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
9.	0	<input type="checkbox"/> 0.0%	
10.	0	<input type="checkbox"/> 0.0%	
11.	0	<input type="checkbox"/> 0.0%	
12.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	14	20% of Total Cover: 5.6	28 = Total Cover

Woody Vine Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Smilax laurifolia</i>	1	<input type="checkbox"/> 100.0%	FACW
2.	0	<input type="checkbox"/> 0.0%	
3.	0	<input type="checkbox"/> 0.0%	
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	0.5	20% of Total Cover: 0.2	1 = Total Cover

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: 111 (A) Multiply by: 184 (B)

OBL species 40 x 1 = 40

FACW species 69 x 2 = 138

FAC species 2 x 3 = 6

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 111 (A) 184 (B)

Prevalence Index = B/A = 1.658

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is > 50%
  - 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
  - Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
- <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: Wet -19

**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 <sup>1</sup>	Loc <sup>2</sup>			
0-6	10YR	3/1	100						Sandy Loam	
6-16	10YR	3/2	90	10YR	6/2	10	D	M	Sandy Loam	

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

**Hydric Soil Indicators:**

- 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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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  No

Remarks:

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation **City/County:** Waveland - Hancock **Sampling Date:** 18-Oct-16

**Applicant/Owner:** NASA **State:** MS **Sampling Point:** Wet - 21

**Investigator(s):** Lars Larson, Randy Ellis **Section, Township, Range:** S 29 T 7 s R 16 W

**Landform (hillslope, terrace, etc.):** Hillside **Local relief (concave, convex, none):** **Slope:** 2.0 % / 1.1 °

**Subregion (LRR or MLRA):** LRR T **Lat.:** 30° 24' 24.006" N **Long.:** 89° 37' 15.980" W **Datum:** NAD83

**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded **NWI classification:** PFO 1/4 C

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

Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks:  
Just downslope from railspur in North/NW part of AOI. Nice transitional area from upland to riparian buffer above TS Creek to the south.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (minimum of 2 required)</b>	
<b>Primary Indicators (minimum of one required; check all that apply)</b>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
		<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)	

<b>Field Observations:</b>		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____	

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

Remarks:

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

Sampling Point: Wet - 21

Tree Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Dominant Species?	Indicator Status
1. <i>Pinus elliotii</i>	5	<input type="checkbox"/> 16.1%		FACW
2. <i>Nyssa sylvatica</i>	10	<input checked="" type="checkbox"/> 32.3%		FAC
3. <i>Magnolia virginiana</i>	15	<input checked="" type="checkbox"/> 48.4%		FACW
4. <i>Taxodium ascendens</i>	1	<input type="checkbox"/> 3.2%		OBL
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
7.	0	<input type="checkbox"/> 0.0%		
8.	0	<input type="checkbox"/> 0.0%		
50% of Total Cover: <u>15.5</u> 20% of Total Cover: <u>6.2</u> 31 = Total Cover				
Sapling or Sapling/Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Dominant Species?	Indicator Status
1. <i>Taxodium ascendens</i>	1	<input type="checkbox"/> 3.8%		OBL
2. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 38.5%		FACW
3. <i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 38.5%		FACW
4. <i>Acer rubrum</i>	5	<input type="checkbox"/> 19.2%		FAC
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
7.	0	<input type="checkbox"/> 0.0%		
8.	0	<input type="checkbox"/> 0.0%		
50% of Total Cover: <u>13</u> 20% of Total Cover: <u>5.2</u> 26 = Total Cover				
Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Dominant Species?	Indicator Status
1. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 33.3%		FACW
2. <i>Acer rubrum</i>	5	<input type="checkbox"/> 16.7%		FAC
3. <i>Cyrilla racemiflora</i>	5	<input type="checkbox"/> 16.7%		FACW
4. <i>Ilex coriacea</i>	10	<input checked="" type="checkbox"/> 33.3%		FACW
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
50% of Total Cover: <u>15</u> 20% of Total Cover: <u>6</u> 30 = Total Cover				
Herb Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Dominant Species?	Indicator Status
1. <i>Woodwardia areolata</i>	5	<input checked="" type="checkbox"/> 21.7%		OBL
2. <i>Woodwardia virginica</i>	15	<input checked="" type="checkbox"/> 65.2%		OBL
3. <i>Osmunda regalis</i>	2	<input type="checkbox"/> 8.7%		OBL
4. <i>Sarracenia alabamensis</i>	1	<input type="checkbox"/> 4.3%		OBL
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
7.	0	<input type="checkbox"/> 0.0%		
8.	0	<input type="checkbox"/> 0.0%		
9.	0	<input type="checkbox"/> 0.0%		
10.	0	<input type="checkbox"/> 0.0%		
11.	0	<input type="checkbox"/> 0.0%		
12.	0	<input type="checkbox"/> 0.0%		
50% of Total Cover: <u>11.5</u> 20% of Total Cover: <u>4.6</u> 23 = Total Cover				
Woody Vine Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Dominant Species?	Indicator Status
1. <i>Vitis rotundifolia</i>	2	<input checked="" type="checkbox"/> 28.6%		FAC
2. <i>Smilax laurifolia</i>	5	<input checked="" type="checkbox"/> 71.4%		FACW
3.	0	<input type="checkbox"/> 0.0%		
4.	0	<input type="checkbox"/> 0.0%		
5.	0	<input type="checkbox"/> 0.0%		
50% of Total Cover: <u>3.5</u> 20% of Total Cover: <u>1.4</u> 7 = Total Cover				

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: 117 Multiply by: (A)

OBL species 25 x 1 = 25

FACW species 70 x 2 = 140

FAC species 22 x 3 = 66

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 117 (A) 231 (B)

Prevalence Index = B/A = 1.974

**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.



**SOIL**

Sampling Point: Wet - 21

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 <sup>1</sup>	Loc <sup>2</sup>			
0-5	10YR	3/1	100						Fine Loamy Sand	
5-16	10YR	3/2	95	10YR	7/2	5	D	M	Loamy Sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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     No

Remarks:

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation      **City/County:** Waveland - Hancock      **Sampling Date:** 18-Oct-16  
**Applicant/Owner:** NASA      **State:** MS      **Sampling Point:** Wet - 22  
**Investigator(s):** Lars Larson, Randy Ellis      **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Terrace      **Local relief (concave, convex, none):** concave      **Slope:** 0.0 % / 0.0 °  
**Subregion (LRR or MLRA):** LRR T      **Lat.:** 30° 24' 28.866" N      **Long.:** 89° 37' 9.203" W      **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded      **NWI classification:** PFO 1/4 C

**Are climatic/hydrologic conditions on the site typical for this time of year?**      Yes  No       (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**      **Are "Normal Circumstances" present?**      Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?      Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Bottom Area within riparian buffer zone approximately 50 feet south of Up-22.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of 2 required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: Wet - 22

Tree Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	5	<input type="checkbox"/> 17.9%	FACW
2.	<i>Nyssa biflora</i>	10	<input checked="" type="checkbox"/> 35.7%	OBL
3.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 35.7%	FACW
4.	<i>Acer campestre</i>	2	<input type="checkbox"/> 7.1%	UPL
5.	<i>Taxodium ascendens</i>	1	<input type="checkbox"/> 3.6%	OBL
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 14		20% of Total Cover: 5.6	28	= Total Cover
Sapling or Sapling/Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	1	<input type="checkbox"/> 5.3%	FACW
2.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 52.6%	FACW
3.	<i>Nyssa biflora</i>	7	<input checked="" type="checkbox"/> 36.8%	OBL
4.	<i>Taxodium ascendens</i>	1	<input type="checkbox"/> 5.3%	OBL
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 9.5		20% of Total Cover: 3.8	19	= Total Cover
Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Ilex coriacea</i>	15	<input checked="" type="checkbox"/> 57.7%	FACW
2.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 38.5%	FACW
3.	<i>Persea palustris</i>	1	<input type="checkbox"/> 3.8%	FACW
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 13		20% of Total Cover: 5.2	26	= Total Cover
Herb Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Sarracenia alabamensis</i>	7	<input checked="" type="checkbox"/> 31.8%	OBL
2.	<i>Woodwardia areolata</i>	10	<input checked="" type="checkbox"/> 45.5%	OBL
3.	<i>Woodwardia virginica</i>	5	<input checked="" type="checkbox"/> 22.7%	OBL
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
9.		0	<input type="checkbox"/> 0.0%	
10.		0	<input type="checkbox"/> 0.0%	
11.		0	<input type="checkbox"/> 0.0%	
12.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 11		20% of Total Cover: 4.4	22	= Total Cover
Woody Vine Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Smilax laurifolia</i>	2	<input type="checkbox"/> 100.0%	FACW
2.		0	<input type="checkbox"/> 0.0%	
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 1		20% of Total Cover: 0.4	2	= Total Cover

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: 97 (A) Multiply by:

OBL species	<u>41</u>	x 1 =	<u>41</u>
FACW species	<u>54</u>	x 2 =	<u>108</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>2</u>	x 5 =	<u>10</u>
Column Totals:	<u>97</u>	(A)	<u>159</u> (B)

Prevalence Index = B/A = 1.639

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is > 50%
  - 3 - Prevalence Index is ≤ 3.0<sup>1</sup>
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: **Wet - 22**

**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 <sup>1</sup>	Loc <sup>2</sup>			
0-4	10YR	3/1	100						Loamy Sand	
4-16	10YR	3/2	90	10YR	7/2	10	D	M	Loamy Sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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     No

**Remarks:**

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation **City/County:** Waveland - Hancock **Sampling Date:** 19-Oct-16

**Applicant/Owner:** NASA **State:** MS **Sampling Point:** Wet - 23

**Investigator(s):** Lars Larson, Randy Ellis **Section, Township, Range:** S 29 T 7 S R 16 W

**Landform (hillslope, terrace, etc.):** Terrace **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 %

**Subregion (LRR or MLRA):** LRR T **Lat.:** 30° 24' 25.915" N **Long.:** 89° 37' 21.222" W **Datum:** NAD83

**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded **NWI classification:** PFO 1/4 C

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

Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Lower drain area approximately 50-50-feet east of Up-23	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of 2 required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 Depletions observed in 4-16 inch interval. Some (very little) oxidized root channels.

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

Sampling Point: Wet - 23

Tree Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Nyssa sylvatica</i>	10	<input checked="" type="checkbox"/> 37.0%	FAC
2. <i>Magnolia virginiana</i>	15	<input checked="" type="checkbox"/> 55.6%	FACW
3. <i>Liquidambar styraciflua</i>	2	<input type="checkbox"/> 7.4%	FAC
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	13.5	20% of Total Cover: 5.4	27 = Total Cover

Sapling or Sapling/Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Magnolia virginiana</i>	15	<input checked="" type="checkbox"/> 41.7%	FACW
2. <i>Nyssa sylvatica</i>	10	<input checked="" type="checkbox"/> 27.8%	FAC
3. <i>Pinus elliotii</i>	1	<input type="checkbox"/> 2.8%	FACW
4. <i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 27.8%	FACW
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	18	20% of Total Cover: 7.2	36 = Total Cover

Shrub Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Cyrilla racemiflora</i>	15	<input checked="" type="checkbox"/> 50.0%	FACW
2. <i>Morella cerifera</i>	10	<input checked="" type="checkbox"/> 33.3%	FAC
3. <i>Ilex coriacea</i>	5	<input type="checkbox"/> 16.7%	FACW
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	15	20% of Total Cover: 6	30 = Total Cover

Herb Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Helianthus angustifolius</i>	3	<input checked="" type="checkbox"/> 37.5%	FACW
2. <i>Eriocaulon decangulare</i>	1	<input type="checkbox"/> 12.5%	OBL
3. <i>Hypericum cistifolium</i>	2	<input checked="" type="checkbox"/> 25.0%	FACW
4. <i>Woodwardia areolata</i>	2	<input checked="" type="checkbox"/> 25.0%	OBL
5.	0	<input type="checkbox"/> 0.0%	
6.	0	<input type="checkbox"/> 0.0%	
7.	0	<input type="checkbox"/> 0.0%	
8.	0	<input type="checkbox"/> 0.0%	
9.	0	<input type="checkbox"/> 0.0%	
10.	0	<input type="checkbox"/> 0.0%	
11.	0	<input type="checkbox"/> 0.0%	
12.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	4	20% of Total Cover: 1.6	8 = Total Cover

Woody Vine Stratum (Plot size: 30 m )	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Smilax laurifolia</i>	1	<input type="checkbox"/> 100.0%	FACW
2.	0	<input type="checkbox"/> 0.0%	
3.	0	<input type="checkbox"/> 0.0%	
4.	0	<input type="checkbox"/> 0.0%	
5.	0	<input type="checkbox"/> 0.0%	
50% of Total Cover:	0.5	20% of Total Cover: 0.2	1 = Total Cover

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: 3 Multiply by: 1

OBL species 3 x 1 = 3

FACW species 67 x 2 = 134

FAC species 32 x 3 = 96

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 102 (A) 233 (B)

Prevalence Index = B/A = 2.284

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test is > 50%
  - 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
  - Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
- <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.



**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation      **City/County:** Waveland - Hancock      **Sampling Date:** 19-Oct-16  
**Applicant/Owner:** NASA      **State:** MS      **Sampling Point:** Wet - 25  
**Investigator(s):** Lars Larson, Randy Ellis      **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Hillside      **Local relief (concave, convex, none):** none      **Slope:** 2.0 % / 1.1 °  
**Subregion (LRR or MLRA):** LRR T      **Lat.:** 30° 24' 38.761" N      **Long.:** 89° 37' 32.356" W      **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded      **NWI classification:** PFO 1/4 C

**Are climatic/hydrologic conditions on the site typical for this time of year?**      Yes  No       (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**      **Are "Normal Circumstances" present?**      Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?      Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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**Remarks:**  
 drainage slough approximately 250 feet south of Turtleskin Creek access road. This is a south to north drainage feature feeding TS creek.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction In Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of 2 required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**



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

Sampling Point: **Wet - 25**

Tree Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	5	<input checked="" type="checkbox"/> 83.3%	FACW
2.	<i>Magnolia virginiana</i>	1	<input type="checkbox"/> 16.7%	FACW
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 3		20% of Total Cover: 1.2	6	= Total Cover
Sapling or Sapling/Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	15	<input checked="" type="checkbox"/> 60.0%	FACW
2.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 40.0%	FACW
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 12.5		20% of Total Cover: 5	25	= Total Cover
Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Magnolia virginiana</i>	30	<input checked="" type="checkbox"/> 69.8%	FACW
2.	<i>Ilex coriacea</i>	10	<input checked="" type="checkbox"/> 23.3%	FACW
3.	<i>Liquidambar styraciflua</i>	2	<input type="checkbox"/> 4.7%	FAC
4.	<i>Acer rubrum</i>	1	<input type="checkbox"/> 2.3%	FAC
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 21.5		20% of Total Cover: 8.6	43	= Total Cover
Herb Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Arundinaria tecta</i>	15	<input checked="" type="checkbox"/> 60.0%	FACW
2.	<i>Scirpus atrocinctus</i>	2	<input type="checkbox"/> 8.0%	FACW
3.	<i>Woodwardia areolata</i>	5	<input checked="" type="checkbox"/> 20.0%	OBL
4.	<i>Osmunda regalis</i>	1	<input type="checkbox"/> 4.0%	OBL
5.	<i>Juncus polycephalos</i>	2	<input type="checkbox"/> 8.0%	OBL
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
9.		0	<input type="checkbox"/> 0.0%	
10.		0	<input type="checkbox"/> 0.0%	
11.		0	<input type="checkbox"/> 0.0%	
12.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 12.5		20% of Total Cover: 5	25	= Total Cover
Woody Vine Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Smilax laurifolia</i>	2	<input type="checkbox"/> 100.0%	FACW
2.		0	<input type="checkbox"/> 0.0%	
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 1		20% of Total Cover: 0.4	2	= Total Cover

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: 101 (A) Multiply by:

OBL species 8 x 1 = 8

FACW species 90 x 2 = 180

FAC species 3 x 3 = 9

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 101 (A) 197 (B)

Prevalence Index = B/A = 1.950

**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: Wet - 25

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/2	97	10YR	7/2	3	D	M	Loamy Sand
4-16	10YR	4/2	95	10YR	7/2	5	D	M	Loamy Sand

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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     No

Remarks:

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation      **City/County:** Waveland - Hancock      **Sampling Date:** 19-Oct-16  
**Applicant/Owner:** NASA      **State:** MS      **Sampling Point:** Wet - 26  
**Investigator(s):** Lars Larson, Randy Ellis      **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Terrace      **Local relief (concave, convex, none):** flat      **Slope:** 0.0 % / 0.0 °  
**Subregion (LRR or MLRA):** LRR T      **Lat.:** 30° 24' 34.974" N      **Long.:** 89° 37' 44.173" W      **Datum:** NAD83  
**Soil Map Unit Name:** At, Atmore silt loam, 0 to 2 percent slopes      **NWI classification:** PFO 1/4 C

**Are climatic/hydrologic conditions on the site typical for this time of year?**      Yes  No       (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**      **Are "Normal Circumstances" present?**      Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?      Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Lower end of drain approximately 300 to 400 feet East of Railspur in Northern part of AOI.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input checked="" type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?      Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>11</u> (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

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

Sampling Point: Wet - 26

		Absolute % Cover	Dominant Species? <input type="checkbox"/>	Rel.Strat. Cover	Indicator Status
<b>Tree Stratum</b> (Plot size: <u>30 m</u> )					
1.	<i>Pinus elliotii</i>	5	<input checked="" type="checkbox"/>	22.7%	FACW
2.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/>	45.5%	FACW
3.	<i>Liriodendron tulipifera</i>	2	<input type="checkbox"/>	9.1%	FACU
4.	<i>Nyssa sylvatica</i>	5	<input checked="" type="checkbox"/>	22.7%	FAC
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
8.		0	<input type="checkbox"/>	0.0%	
50% of Total Cover: <u>11</u>		20% of Total Cover: <u>4.4</u>	<u>22</u>	<b>= Total Cover</b>	
<b>Sapling or Sapling/Shrub Stratum</b> (Plot size: <u>30 m</u> )					
1.	<i>Nyssa sylvatica</i>	10	<input checked="" type="checkbox"/>	50.0%	FAC
2.	<i>Magnolia virginiana</i>	5	<input checked="" type="checkbox"/>	25.0%	FACW
3.	<i>Pinus elliotii</i>	2	<input type="checkbox"/>	10.0%	FACW
4.		3	<input type="checkbox"/>	15.0%	
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
8.		0	<input type="checkbox"/>	0.0%	
50% of Total Cover: <u>10</u>		20% of Total Cover: <u>4</u>	<u>20</u>	<b>= Total Cover</b>	
<b>Shrub Stratum</b> (Plot size: <u>30 m</u> )					
1.	<i>Ilex coriacea</i>	20	<input checked="" type="checkbox"/>	55.6%	FACW
2.	<i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/>	27.8%	FACW
3.	<i>Ilex vomitoria</i>	1	<input type="checkbox"/>	2.8%	FAC
4.	<i>Ilex opaca</i>	5	<input type="checkbox"/>	13.9%	FAC
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
50% of Total Cover: <u>18</u>		20% of Total Cover: <u>7.2</u>	<u>36</u>	<b>= Total Cover</b>	
<b>Herb Stratum</b> (Plot size: <u>30 m</u> )					
1.	<i>Arundinaria tecta</i>	10	<input checked="" type="checkbox"/>	71.4%	FACW
2.	<i>Sarracenia alabamensis</i>	2	<input type="checkbox"/>	14.3%	OBL
3.	<i>Scirpus atrocinctus</i>	1	<input type="checkbox"/>	7.1%	FACW
4.	<i>Woodwardia virginica</i>	1	<input type="checkbox"/>	7.1%	OBL
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
8.		0	<input type="checkbox"/>	0.0%	
9.		0	<input type="checkbox"/>	0.0%	
10.		0	<input type="checkbox"/>	0.0%	
11.		0	<input type="checkbox"/>	0.0%	
12.		0	<input type="checkbox"/>	0.0%	
50% of Total Cover: <u>7</u>		20% of Total Cover: <u>2.8</u>	<u>14</u>	<b>= Total Cover</b>	
<b>Woody Vine Stratum</b> (Plot size: <u>30 m</u> )					
1.	<i>Smilax laurifolia</i>	2	<input type="checkbox"/>	100.0%	FACW
2.		0	<input type="checkbox"/>	0.0%	
3.		0	<input type="checkbox"/>	0.0%	
4.		0	<input type="checkbox"/>	0.0%	
5.		0	<input type="checkbox"/>	0.0%	
50% of Total Cover: <u>1</u>		20% of Total Cover: <u>0.4</u>	<u>2</u>	<b>= Total Cover</b>	

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>3</u>	x 1 = <u>3</u>
FACW species <u>65</u>	x 2 = <u>130</u>
FAC species <u>21</u>	x 3 = <u>63</u>
FACU species <u>2</u>	x 4 = <u>8</u>
UPL species <u>0</u>	x 5 = <u>0</u>
<b>Column Totals:</b>	<u>91</u> (A) <u>204</u> (B)
Prevalence Index = B/A = <u>2.242</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
  - 2 - Dominance Test Is > 50%
  - 3 - Prevalence Index is ≤ 3.0<sup>1</sup>
  - Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)
- <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definition 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.

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

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

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

**Woody vine** - All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: Wet - 26

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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	5/2	100					Loamy Sand	
5-16	10YR	6/2	95	10YR	7/2	5	D	M	Loamy Sand

<sup>1</sup>Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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  No

Remarks:

**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation      **City/County:** Waveland - Hancock      **Sampling Date:** 19-Oct-16  
**Applicant/Owner:** NASA      **State:** MS      **Sampling Point:** Wet - 27  
**Investigator(s):** Lars Larson, Randy Ellis      **Section, Township, Range:** S 29      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Terrace      **Local relief (concave, convex, none):** none      **Slope:** 1.0 % / 0.6 °  
**Subregion (LRR or MLRA):** LRR T      **Lat:** 30° 24' 26.188" N      **Long.:** 89° 37' 37.076" W      **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded      **NWI classification:** PFO 1/4 C

**Are climatic/hydrologic conditions on the site typical for this time of year?**      Yes  No       (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**      **Are "Normal Circumstances" present?**      Yes  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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?      Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	

**Remarks:**  
 Head of drainage feature about 50 feet west - northwest of Up-27.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain In Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of 2 required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (Includes capillary fringe)      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**  
 Fairly dry soil conditions given time of year. No strong redoximorphic features noted in soil profile, but surface hydrological indicators are present.

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

Sampling Point: **Wet - 27**

		Dominant Species?			
Tree Stratum (Plot size: 30 m )	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. <i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 40.0%	FACW	Number of Dominant Species That are OBL, FACW, or FAC: <u>9</u> (A)	
2. <i>Nyssa sylvatica</i>	10	<input checked="" type="checkbox"/> 40.0%	FAC	Total Number of Dominant Species Across All Strata: <u>9</u> (B)	
3. <i>Pinus elliotii</i>	5	<input checked="" type="checkbox"/> 20.0%	FACW	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)	
4.	0	<input type="checkbox"/> 0.0%			
5.	0	<input type="checkbox"/> 0.0%			
6.	0	<input type="checkbox"/> 0.0%			
7.	0	<input type="checkbox"/> 0.0%			
8.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>12.5</u> 20% of Total Cover: <u>5</u> <u>25</u> = Total Cover				Prevalence Index worksheet:	
Sapling or Sapling/Shrub Stratum (Plot size: 30 m )				Total % Cover of: _____ Multiply by: _____	
1. <i>Magnolia virginiana</i>	15	<input checked="" type="checkbox"/> 46.9%	FACW	OBL species <u>2</u> x <u>1</u> = <u>2</u>	
2. <i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 31.3%	FACW	FACW species <u>101</u> x <u>2</u> = <u>202</u>	
3. <i>Nyssa sylvatica</i>	5	<input type="checkbox"/> 15.6%	FAC	FAC species <u>19</u> x <u>3</u> = <u>57</u>	
4. <i>Acer rubrum</i>	2	<input type="checkbox"/> 6.3%	FAC	FACU species <u>0</u> x <u>4</u> = <u>0</u>	
5.	0	<input type="checkbox"/> 0.0%		UPL species <u>0</u> x <u>5</u> = <u>0</u>	
6.	0	<input type="checkbox"/> 0.0%		Column Totals: <u>122</u> (A) <u>261</u> (B)	
7.	0	<input type="checkbox"/> 0.0%		Prevalence Index = B/A = <u>2.139</u>	
8.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>16</u> 20% of Total Cover: <u>6.4</u> <u>32</u> = Total Cover				Hydrophytic Vegetation Indicators:	
Shrub Stratum (Plot size: 30 m )				<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1. <i>Ilex coriacea</i>	30	<input checked="" type="checkbox"/> 52.6%	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definition of Vegetation Strata:</b> 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. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.	
2. <i>Cyrilla racemiflora</i>	15	<input checked="" type="checkbox"/> 26.3%	FACW		
3. <i>Magnolia virginiana</i>	10	<input type="checkbox"/> 17.5%	FACW		
4. <i>Ilex opaca</i>	2	<input type="checkbox"/> 3.5%	FAC		
5.	0	<input type="checkbox"/> 0.0%			
6.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>28.5</u> 20% of Total Cover: <u>11.4</u> <u>57</u> = Total Cover					
Herb Stratum (Plot size: 30 m )					
1. <i>Arundinaria tecta</i>	5	<input checked="" type="checkbox"/> 71.4%	FACW		
2. <i>Woodwardia areolata</i>	2	<input checked="" type="checkbox"/> 28.6%	OBL		
3.	0	<input type="checkbox"/> 0.0%			
4.	0	<input type="checkbox"/> 0.0%			
5.	0	<input type="checkbox"/> 0.0%			
6.	0	<input type="checkbox"/> 0.0%			
7.	0	<input type="checkbox"/> 0.0%			
8.	0	<input type="checkbox"/> 0.0%			
9.	0	<input type="checkbox"/> 0.0%			
10.	0	<input type="checkbox"/> 0.0%			
11.	0	<input type="checkbox"/> 0.0%			
12.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>3.5</u> 20% of Total Cover: <u>1.4</u> <u>7</u> = Total Cover					
Woody Vine Stratum (Plot size: 30 m )				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
1. <i>Smilax laurifolia</i>	1	<input type="checkbox"/> 100.0%	FACW		
2.	0	<input type="checkbox"/> 0.0%			
3.	0	<input type="checkbox"/> 0.0%			
4.	0	<input type="checkbox"/> 0.0%			
5.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>0.5</u> 20% of Total Cover: <u>0.2</u> <u>1</u> = Total Cover					

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: Wet - 27

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 <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR	5/1	100					Loamy Sand	
5-16	10YR	5/2	95	10YR	7/2	5	C M	Loamy Sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>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 Muck 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>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     No

Remarks:



**WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region**

**Project/Site:** NASA - Stennis; 1,100 Acre Wetland Delineation      **City/County:** Waveland - Hancock      **Sampling Date:** 21-Oct-16  
**Applicant/Owner:** NASA      **State:** MS      **Sampling Point:** Wet - 29  
**Investigator(s):** Lars Larson, Randy Ellis      **Section, Township, Range:** S 31      T 7 s      R 16 W  
**Landform (hillslope, terrace, etc.):** Floodplain      **Local relief (concave, convex, none):** none      **Slope:** 0.0 % / 0.0 °  
**Subregion (LRR or MLRA):** LRR T      **Lat.:** 30° 24' 23.925" N      **Long.:** 89° 37' 49.957" W      **Datum:** NAD83  
**Soil Map Unit Name:** Su, Smithton fine sandy loam, frequently flooded      **NWI classification:** PFO 1/4 C  
**Are climatic/hydrologic conditions on the site typical for this time of year?**      Yes  No       (If no, explain in Remarks.)  
**Are Vegetation**  , **Soil**  , **or Hydrology**  **significantly disturbed?**      **Are "Normal Circumstances" present?**      Yes  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 <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present?      Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present?      Yes <input checked="" type="radio"/> No <input type="radio"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Lower bottom area just up from UP - 20 approximately 50 feet.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?      Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (Includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Lower area within a drain with plenty of secondary hydrological indicators.		

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

Sampling Point: Wet - 29

Tree Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	2	<input type="checkbox"/> 11.1%	FACW
2.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 55.6%	FACW
3.	<i>Acer rubrum</i>	5	<input checked="" type="checkbox"/> 27.8%	FAC
4.	<i>Nyssa biflora</i>	1	<input type="checkbox"/> 5.6%	OBL
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 9		20% of Total Cover: 3.6	18	= Total Cover
Sapling or Sapling/Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Magnolia virginiana</i>	5	<input type="checkbox"/> 18.5%	FACW
2.	<i>Acer rubrum</i>	10	<input checked="" type="checkbox"/> 37.0%	FAC
3.	<i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 37.0%	FACW
4.	<i>Nyssa biflora</i>	2	<input type="checkbox"/> 7.4%	OBL
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 13.5		20% of Total Cover: 5.4	27	= Total Cover
Shrub Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Magnolia virginiana</i>	5	<input checked="" type="checkbox"/> 20.0%	FACW
2.	<i>Cyrilla racemiflora</i>	10	<input checked="" type="checkbox"/> 40.0%	FACW
3.	<i>Ilex coriacea</i>	10	<input checked="" type="checkbox"/> 40.0%	FACW
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 12.5		20% of Total Cover: 5	25	= Total Cover
Herb Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Woodwardia areolata</i>	5	<input checked="" type="checkbox"/> 41.7%	OBL
2.	<i>Osmunda regalis</i>	3	<input checked="" type="checkbox"/> 25.0%	OBL
3.	<i>Arundinaria tecta</i>	2	<input type="checkbox"/> 16.7%	FACW
4.	<i>Dichanthelium scabriusculum</i>	2	<input type="checkbox"/> 16.7%	OBL
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
9.		0	<input type="checkbox"/> 0.0%	
10.		0	<input type="checkbox"/> 0.0%	
11.		0	<input type="checkbox"/> 0.0%	
12.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 6		20% of Total Cover: 2.4	12	= Total Cover
Woody Vine Stratum (Plot size: 30 m )		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Smilax laurifolia</i>	1	<input type="checkbox"/> 100.0%	FACW
2.		0	<input type="checkbox"/> 0.0%	
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
50% of Total Cover: 0.5		20% of Total Cover: 0.2	1	= Total Cover

**Dominance Test worksheet:**

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

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**Prevalence Index worksheet:**

Total % Cover of: 13 Multiply by: 13

OBL species 13 x 1 = 13

FACW species 55 x 2 = 110

FAC species 15 x 3 = 45

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 83 (A) 168 (B)

Prevalence Index = B/A = 2.024

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**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

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**Definition 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.

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

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

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

Woody vine - All woody vines, regardless of height.

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**Hydrophytic Vegetation Present?** Yes  No

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

\*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**SOIL**

Sampling Point: Wet - 29

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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/2	95	10YR	7/2	5	D	M	Loamy Sand
4-16	10YR	4/2	90	10YR	7/2	10	D	M	Loamy Sand

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

<b>Hydric Soil Indicators:</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)	<input type="checkbox"/> 1 cm Muck (A9) (LRR O)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)	<input type="checkbox"/> 2 cm Muck (A10) (LRR S)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)	<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 153B)	
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Marl (F10) (LRR U)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)		
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)		
<input type="checkbox"/> Sandy Muck Mineral (S1) (LRR O, S)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)		
<input checked="" type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)		
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)		

**Restrictive Layer (if observed):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**    Yes     No

Remarks:  
 depletions throughout soil profile.