

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

Sampling Point: Up - 30

Tree Stratum (Plot size: 30 m)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Pinus elliotii	10	<input checked="" type="checkbox"/> 47.6%	FACW
2. Magnolia virginiana	5	<input checked="" type="checkbox"/> 23.8%	FACW
3. Acer rubrum	3	<input type="checkbox"/> 14.3%	FAC
4. Quercus nigra	2	<input type="checkbox"/> 9.5%	FAC
5. Magnolia grandiflora	1	<input type="checkbox"/> 4.8%	FAC
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:	10.5	20% of Total Cover: 4.2	21 = Total Cover
Sapling or Sapling/Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Pinus elliotii	3	<input checked="" type="checkbox"/> 21.4%	FACW
2. Quercus nigra	5	<input checked="" type="checkbox"/> 35.7%	FAC
3. Nyssa sylvatica	3	<input checked="" type="checkbox"/> 21.4%	FAC
4. Acer rubrum	2	<input type="checkbox"/> 14.3%	FAC
5. Ilex opaca	1	<input type="checkbox"/> 7.1%	FAC
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:	7	20% of Total Cover: 2.8	14 = Total Cover
Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Ilex coriacea	15	<input checked="" type="checkbox"/> 60.0%	FACW
2. Ilex opaca	2	<input type="checkbox"/> 8.0%	FAC
3. Ilex vomitoria	5	<input checked="" type="checkbox"/> 20.0%	FAC
4. Cyrilla racemiflora	3	<input type="checkbox"/> 12.0%	FACW
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. Woodwardia areolata	1	<input type="checkbox"/> 33.3%	OBL
2. Ilex coriacea	2	<input type="checkbox"/> 66.7%	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%	
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:	1.5	20% of Total Cover: 0.6	3 = Total Cover
Woody Vine Stratum (Plot size: 30 m)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Vitis rotundifolia	5	<input checked="" type="checkbox"/> 100.0%	FAC
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:	2.5	20% of Total Cover: 1	5 = 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: 1 Multiply by: 1

OBL species 1 x 1 = 1

FACW species 38 x 2 = 76

FAC species 29 x 3 = 87

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 68 (A) 164 (B)

Prevalence Index = B/A = 2.412

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹ 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: Up - 30

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

Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹		
0-6	10YR	3/2	100				Sandy Loam	
6-16	10YR	5/4	100				Loamy Sand	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Soils³:

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

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

Restrictive Layer (if observed):

Type: _____
 Depth (Inches): _____

Hydric Soil Present? Yes No

Remarks:

No hydric indicators.

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:** Up - 31

Investigator(s): Lars Larson, Randy Ellis **Section, Township, Range:** S 31 T 7 s R 16 W

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

Subregion (LRR or MLRA): LRR T **Lat.:** 30° 24' 1.397" N **Long.:** 89° 37' 23.528" W **Datum:** NAD83

Soil Map Unit Name: PoB, Poarch fine sandy loam, 2 to 5% slopes **NWI classification:** N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: 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 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 type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <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 type="radio"/> No <input checked="" type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No strong evidence of hydrology.		

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

Sampling Point: Up - 31

		Dominant Species?		Indicator Status		Dominance Test worksheet:	
Tree Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover				
1.	<i>Pinus elliotii</i>	20	<input checked="" type="checkbox"/> 66.7%	FACW		Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)	
2.	<i>Pinus taeda</i>	5	<input type="checkbox"/> 16.7%	FAC		Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3.	<i>Magnolia grandiflora</i>	2	<input type="checkbox"/> 6.7%	FAC		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)	
4.	<i>Acer rubrum</i>	3	<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: <u>15</u> 20% of Total Cover: <u>6</u>		<u>30</u>	= Total Cover				
Sapling or Sapling/Shrub Stratum (Plot size: 30 m)						Prevalence Index worksheet:	
1.	<i>Pinus elliotii</i>	15	<input checked="" type="checkbox"/> 65.2%	FACW		Total % Cover of: <u>0</u> Multiply by: <u>1</u> = <u>0</u>	
2.	<i>Morella cerifera</i>	5	<input checked="" type="checkbox"/> 21.7%	FAC		OBL species <u>0</u> x <u>1</u> = <u>0</u>	
3.	<i>Acer rubrum</i>	3	<input type="checkbox"/> 13.0%	FAC		FACW species <u>40</u> x <u>2</u> = <u>80</u>	
4.		0	<input type="checkbox"/> 0.0%			FAC species <u>35</u> x <u>3</u> = <u>105</u>	
5.		0	<input type="checkbox"/> 0.0%			FACU species <u>0</u> x <u>4</u> = <u>0</u>	
6.		0	<input type="checkbox"/> 0.0%			UPL species <u>0</u> x <u>5</u> = <u>0</u>	
7.		0	<input type="checkbox"/> 0.0%			Column Totals: <u>75</u> (A) <u>185</u> (B)	
8.		0	<input type="checkbox"/> 0.0%			Prevalence Index = B/A = <u>2.467</u>	
50% of Total Cover: <u>11.5</u> 20% of Total Cover: <u>4.6</u>		<u>23</u>	= Total Cover				
Shrub Stratum (Plot size: 30 m)						Hydrophytic Vegetation Indicators:	
1.	<i>Morella cerifera</i>	15	<input checked="" type="checkbox"/> 75.0%	FAC		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
2.	<i>Ilex coriacea</i>	5	<input checked="" type="checkbox"/> 25.0%	FACW		<input checked="" type="checkbox"/> 2 - Dominance Test is > 50%	
3.		0	<input type="checkbox"/> 0.0%			<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹	
4.		0	<input type="checkbox"/> 0.0%			<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5.		0	<input type="checkbox"/> 0.0%			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6.		0	<input type="checkbox"/> 0.0%				
50% of Total Cover: <u>10</u> 20% of Total Cover: <u>4</u>		<u>20</u>	= Total Cover				
Herb Stratum (Plot size: 30 m)						Definition of Vegetation Strata:	
1.		0	<input type="checkbox"/> 0.0%			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).	
2.		0	<input type="checkbox"/> 0.0%			Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	
3.		0	<input type="checkbox"/> 0.0%			Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.	
4.		0	<input type="checkbox"/> 0.0%			Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.	
5.		0	<input type="checkbox"/> 0.0%			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.	
6.		0	<input type="checkbox"/> 0.0%			Woody vine - All woody vines, regardless of height.	
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>0</u> 20% of Total Cover: <u>0</u>		<u>0</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 rotundifolia</i>	2	<input type="checkbox"/> 100.0%	FAC			
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>	= Total Cover				

Remarks: (If observed, list morphological adaptations below).
Heavy pine layer on ground. Not much of a herbaceous layer.

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

SOIL

Sampling Point: Up - 31

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

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR	4/2	100					Loamy Sand	
5-16	10YR	6/3	100					Loamy Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Soils³:

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

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

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:** Up - 32

Investigator(s): Lars Larson, Randy Ellis **Section, Township, Range:** S 31 T 7 s R 16 W

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

Subregion (LRR or MLRA): LRR T **Lat.:** 30° 23' 56.796" N **Long.:** 89° 37' 24.843" W **Datum:** NAD83

Soil Map Unit Name: HIB, Harleston fine sandy loam, 2 to 5 percent slopes **NWI classification:** N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 This location is approximately 600 feet south of the logging road through center of AOI. This is part of a N-S transect to identify wet-up boundary in this area.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <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)	Secondary Indicators (minimum of 2 required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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Field Observations: 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): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" 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: Up - 32

Tree Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus ellottii</i>	15	<input checked="" type="checkbox"/> 62.5%	FACW
2.	<i>Pinus taeda</i>	2	<input type="checkbox"/> 8.3%	FAC
3.	<i>Magnolia grandiflora</i>	5	<input checked="" type="checkbox"/> 20.8%	FAC
4.	<i>Liquidambar styraciflua</i>	2	<input type="checkbox"/> 8.3%	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: 12 20% of Total Cover: 4.8 24 = Total Cover

Sapling or Sapling/Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Pinus ellottii</i>	15	<input checked="" type="checkbox"/> 45.5%	FACW
2.	<i>Quercus nigra</i>	1	<input type="checkbox"/> 3.0%	FAC
3.	<i>Nyssa sylvatica</i>	2	<input type="checkbox"/> 6.1%	FAC
4.	<i>Magnolia virginiana</i>	10	<input checked="" type="checkbox"/> 30.3%	FACW
5.	<i>Liquidambar styraciflua</i>	5	<input type="checkbox"/> 15.2%	FAC
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: 16.5 20% of Total Cover: 6.6 33 = Total Cover

Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Vaccinium ellottii</i>	5	<input type="checkbox"/> 10.0%	FACW
2.	<i>Ilex coriacea</i>	40	<input checked="" type="checkbox"/> 80.0%	FACW
3.	<i>Ilex glabra</i>	5	<input type="checkbox"/> 10.0%	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: 25 20% of Total Cover: 10 50 = Total Cover

Herb Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Lycopodiella alopecuroides</i>	1	<input type="checkbox"/> 50.0%	OBL
2.	<i>Pteridium aquilinum</i>	1	<input type="checkbox"/> 50.0%	FACU
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: 1 20% of Total Cover: 0.4 2 = Total Cover

Woody Vine Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Vitis rotundifolia</i>	2	<input type="checkbox"/> 100.0%	FAC
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%	

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

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: 111 (A) Multiply by: 242 (B)

OBL species 1 x 1 = 1

FACW species 90 x 2 = 180

FAC species 19 x 3 = 57

FACU species 1 x 4 = 4

UPL species 0 x 5 = 0

Column Totals: 111 (A) 242 (B)

Prevalence Index = B/A = 2.180

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

SOIL

Sampling Point: Up - 32

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

Depth (Inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR	3/2	100					Loamy Sand	
5-12	10YR	4/3	100					Loamy Sand	
12-22	10YR	5/3	100					Loamy Sand	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Soils³:

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

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Bulk of the soil profile has a chroma > 2. Not by much.

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:** Up - 33
Investigator(s): Lars Larson, Randy Ellis **Section, Township, Range:** S 32 T 7 S R 16 W
Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** undulating **Slope:** 2.0 % / 1.1 °
Subregion (LRR or MLRA): LRR T **Lat.:** 30° 23' 58.665" N **Long.:** 89° 37' 9.508" W **Datum:** NAD83
Soil Map Unit Name: HIB, Harleston fine sandy loam, 2 to 5 percent slopes **NWI classification:** N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Approximately 80-feet north of Wet 33.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <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)	Secondary Indicators (minimum of 2 required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <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 type="radio"/> No <input checked="" 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.

Dominant Species?

Sampling Point: Up - 33

Tree Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	20	<input checked="" type="checkbox"/> 54.1%	FACW
2.	<i>Quercus nigra</i>	10	<input checked="" type="checkbox"/> 27.0%	FAC
3.	<i>Nyssa sylvatica</i>	5	<input type="checkbox"/> 13.5%	FAC
4.	<i>Magnolia virginiana</i>	2	<input type="checkbox"/> 5.4%	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: 18.5 20% of Total Cover: 7.4 37 = Total Cover

Sapling or Sapling/Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	10	<input checked="" type="checkbox"/> 58.8%	FACW
2.	<i>Nyssa sylvatica</i>	5	<input checked="" type="checkbox"/> 29.4%	FAC
3.	<i>Magnolia virginiana</i>	2	<input type="checkbox"/> 11.8%	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: 8.5 20% of Total Cover: 3.4 17 = Total Cover

Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover	Indicator Status
1.	<i>Ilex coriacea</i>	40	<input checked="" type="checkbox"/> 75.5%	FACW
2.	<i>Ilex glabra</i>	10	<input type="checkbox"/> 18.9%	FACW
3.	<i>Vaccinium elliotii</i>	3	<input type="checkbox"/> 5.7%	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: 26.5 20% of Total Cover: 10.6 53 = Total Cover

Herb Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover	Indicator Status
1.	<i>Ilex coriacea</i>	5	<input checked="" type="checkbox"/> 71.4%	FACW
2.	<i>Lycopodiella alopecuroides</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: 3.5 20% of Total Cover: 1.4 7 = Total Cover

Woody Vine Stratum (Plot size: 30 m)		Absolute % Cover	Rel.Strat. Cover	Indicator Status
1.		0	<input type="checkbox"/> 0.0%	
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 20% of Total Cover: 0 0 = 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: Multiply by:

OBL species 2 x 1 = 2

FACW species 92 x 2 = 184

FAC species 20 x 3 = 60

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 114 (A) 246 (B)

Prevalence Index = B/A = 2.158

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤ 3.0 ¹
- Problematic Hydrophytic Vegetation ¹ (Explain)

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

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:** 24-Oct-16
Applicant/Owner: NASA **State:** MS **Sampling Point:** Up - 34
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' 3.767" N **Long.:** 89° 37' 1.217" W **Datum:** NAD83
Soil Map Unit Name: EsB, Escambia loam, 2 to 5 percent slopes **NWI classification:** N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Transitional area back to an Upland. 100-feet (+/-) from Wet-34.	

HYDROLOGY

Wetland Hydrology Indicators: 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 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 type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <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): _____		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" 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: Up - 34

		Dominant Species?			
Tree Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. <i>Pinus elliotii</i>	20	<input checked="" type="checkbox"/> 54.1%	FACW	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)	
2. <i>Pinus taeda</i>	10	<input checked="" type="checkbox"/> 27.0%	FAC	Total Number of Dominant Species Across All Strata: <u>6</u> (B)	
3. <i>Magnolia virginiana</i>	5	<input type="checkbox"/> 13.5%	FACW	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)	
4. <i>Liquidambar styraciflua</i>	2	<input type="checkbox"/> 5.4%	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>18.5</u> 20% of Total Cover: <u>7.4</u>		<u>37</u>	= Total Cover		
Sapling or Sapling/Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Prevalence Index worksheet:	
1. <i>Pinus elliotii</i>	15	<input checked="" type="checkbox"/> 68.2%	FACW	Total % Cover of: <u>0</u> Multiply by: <u>1</u> = <u>0</u>	
2. <i>Pinus taeda</i>	5	<input checked="" type="checkbox"/> 22.7%	FAC	OBL species <u>0</u> x <u>1</u> = <u>0</u>	
3. <i>Magnolia virginiana</i>	2	<input type="checkbox"/> 9.1%	FACW	FACW species <u>74</u> x <u>2</u> = <u>148</u>	
4.	0	<input type="checkbox"/> 0.0%		FAC species <u>36</u> x <u>3</u> = <u>108</u>	
5.	0	<input type="checkbox"/> 0.0%		FACU species <u>0</u> x <u>4</u> = <u>0</u>	
6.	0	<input type="checkbox"/> 0.0%		UPL species <u>0</u> x <u>5</u> = <u>0</u>	
7.	0	<input type="checkbox"/> 0.0%		Column Totals: <u>110</u> (A) <u>256</u> (B)	
8.	0	<input type="checkbox"/> 0.0%		Prevalence Index = B/A = <u>2.327</u>	
50% of Total Cover: <u>11</u> 20% of Total Cover: <u>4.4</u>		<u>22</u>	= Total Cover		
Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <i>Ilex coriacea</i>	30	<input checked="" type="checkbox"/> 71.4%	FACW	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
2. <i>Ilex opaca</i>	5	<input type="checkbox"/> 11.9%	FAC	<input checked="" type="checkbox"/> 2 - Dominance Test Is > 50%	
3. <i>Vaccinium elliotii</i>	2	<input type="checkbox"/> 4.8%	FACW	<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹	
4. <i>Morella cerifera</i>	5	<input type="checkbox"/> 11.9%	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5.	0	<input type="checkbox"/> 0.0%		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or protracted.	
6.	0	<input type="checkbox"/> 0.0%			
50% of Total Cover: <u>21</u> 20% of Total Cover: <u>8.4</u>		<u>42</u>	= Total Cover		
Herb Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Definition of Vegetation Strata:	
1. <i>Lygodium japonicum</i>	5	<input checked="" type="checkbox"/> 100.0%	FAC	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).	
2.	0	<input type="checkbox"/> 0.0%		Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	
3.	0	<input type="checkbox"/> 0.0%		Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1m) tall.	
4.	0	<input type="checkbox"/> 0.0%		Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.	
5.	0	<input type="checkbox"/> 0.0%		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.	
6.	0	<input type="checkbox"/> 0.0%		Woody vine - All woody vines, regardless of height.	
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>2.5</u> 20% of Total Cover: <u>1</u>		<u>5</u>	= Total Cover		
Woody Vine Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
1. <i>Vitis rotundifolia</i>	3	<input type="checkbox"/> 75.0%	FAC		
2. <i>Smilax rotundifolia</i>	1	<input type="checkbox"/> 25.0%	FAC		
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>2</u> 20% of Total Cover: <u>0.8</u>		<u>4</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: Up - 34

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

Depth (Inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR	6/2	100					Loamy Sand	
5-15	10YR	5/6	100					Loamy Sand	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Soils³:

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

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

Restrictive Layer (if observed):

Type: _____
 Depth (Inches): _____

Hydric Soil Present? Yes No

Remarks:

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: 24-Oct-16
Applicant/Owner: NASA
 State: MS
 Sampling Point: Up - 35
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' 3.834" N
 Long.: 89° 36' 56.966" W
 Datum: NAD83
Soil Map Unit Name: At, Atmore silt loam, 0 to 2 percent slopes
 NWI classification: N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Transitional area back into an Upland - approximately 100 feet north of Wet-35.	

HYDROLOGY

Wetland Hydrology Indicators: 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 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 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 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)		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 type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td style="border: none;"><input 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 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 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 type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<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)																																
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																
<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)																																
Field Observations: 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): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" 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: Up - 35

Tree Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? <input checked="" type="checkbox"/>	Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	10	<input checked="" type="checkbox"/>	62.5%	FACW
2.	<i>Magnolia virginiana</i>	5	<input checked="" type="checkbox"/>	31.3%	FACW
3.	<i>Liquidambar styraciflua</i>	1	<input type="checkbox"/>	6.3%	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: <u>8</u> 20% of Total Cover: <u>3.2</u>		<u>16</u>	= Total Cover		
Sapling or Sapling/Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? <input checked="" type="checkbox"/>	Rel.Strat. Cover	Indicator Status
1.	<i>Pinus elliotii</i>	25	<input checked="" type="checkbox"/>	78.1%	FACW
2.	<i>Magnolia virginiana</i>	5	<input type="checkbox"/>	15.6%	FACW
3.	<i>Liquidambar styraciflua</i>	2	<input type="checkbox"/>	6.3%	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: <u>16</u> 20% of Total Cover: <u>6.4</u>		<u>32</u>	= Total Cover		
Shrub Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? <input checked="" type="checkbox"/>	Rel.Strat. Cover	Indicator Status
1.	<i>Ilex coriacea</i>	40	<input checked="" type="checkbox"/>	80.0%	FACW
2.	<i>Ilex glabra</i>	10	<input checked="" type="checkbox"/>	20.0%	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%	
50% of Total Cover: <u>25</u> 20% of Total Cover: <u>10</u>		<u>50</u>	= Total Cover		
Herb Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? <input type="checkbox"/>	Rel.Strat. Cover	Indicator Status
1.	<i>Lycopodiella alopecuroides</i>	1	<input type="checkbox"/>	100.0%	OBL
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%	
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>0.5</u> 20% of Total Cover: <u>0.2</u>		<u>1</u>	= Total Cover		
Woody Vine Stratum (Plot size: 30 m)		Absolute % Cover	Dominant Species? <input type="checkbox"/>	Rel.Strat. Cover	Indicator Status
1.	<i>Smilax rotundifolia</i>	1	<input type="checkbox"/>	100.0%	FAC
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		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>1</u>	x 1 = <u>1</u>
FACW species <u>95</u>	x 2 = <u>190</u>
FAC species <u>4</u>	x 3 = <u>12</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>203</u> (B)
Prevalence Index = B/A = <u>2.030</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0¹
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹ 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: Up - 35

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

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	10YR	3/2	100				Loamy Sand	
4-15	10YR	5/4	100				Loamy Sand	

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:
<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)
<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"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Muck Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
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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: 24-Oct-16
Applicant/Owner: NASA
 State: MS
 Sampling Point: Up - 36
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: 0.0 % / 0.0 °
Subregion (LRR or MLRA): LRR T
 Lat.: 30° 24' 4.173" N
 Long.: 89° 36' 44.961" W
 Datum: NAD83
Soil Map Unit Name: EsB, Escambia loam, 2 to 5 percent slopes
 NWI classification: N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 Upland Area approximately 100 feet west of access road along eastern side of AOI.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <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)	Secondary Indicators (minimum of 2 required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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Field Observations: 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 type="radio"/> No <input checked="" 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: Up - 36

		Dominant Species?		Indicator Status
Tree Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover		
1. <i>Pinus elliotii</i>	20	<input checked="" type="checkbox"/> 69.0%	FACW	
2. <i>Magnolia virginiana</i>	5	<input type="checkbox"/> 17.2%	FACW	
3. <i>Liquidambar styraciflua</i>	3	<input type="checkbox"/> 10.3%	FAC	
4. <i>Nyssa sylvatica</i>	1	<input type="checkbox"/> 3.4%	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>14.5</u> 20% of Total Cover: <u>5.8</u>		29	= Total Cover	
Sapling or Sapling/Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover		
1. <i>Pinus elliotii</i>	10	<input checked="" type="checkbox"/> 58.8%	FACW	
2. <i>Magnolia virginiana</i>	5	<input checked="" type="checkbox"/> 29.4%	FACW	
3. <i>Liquidambar styraciflua</i>	2	<input type="checkbox"/> 11.8%	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: <u>8.5</u> 20% of Total Cover: <u>3.4</u>		17	= Total Cover	
Shrub Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover		
1. <i>Ilex coriacea</i>	15	<input checked="" type="checkbox"/> 41.7%	FACW	
2. <i>Ilex glabra</i>	15	<input checked="" type="checkbox"/> 41.7%	FACW	
3. <i>Ilex vomitoria</i>	5	<input type="checkbox"/> 13.9%	FAC	
4. <i>Cyrilla racemiflora</i>	1	<input type="checkbox"/> 2.8%	FACW	
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>		36	= Total Cover	
Herb Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover		
1. <i>Ilex coriacea</i>	10	<input checked="" type="checkbox"/> 50.0%	FACW	
2. <i>Ilex glabra</i>	10	<input checked="" type="checkbox"/> 50.0%	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%		
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>10</u> 20% of Total Cover: <u>4</u>		20	= Total Cover	
Woody Vine Stratum (Plot size: 30 m)	Absolute % Cover	Rel.Strat. Cover		
1. <i>Smilax rotundifolia</i>	2	<input type="checkbox"/> 100.0%	FAC	
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>		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: 104 (A) Multiply by: 2.125 (B)

OBL species 0 x 1 = 0

FACW species 91 x 2 = 182

FAC species 13 x 3 = 39

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 104 (A) 221 (B)

Prevalence Index = B/A = 2.125

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0 ¹

Problematic Hydrophytic Vegetation ¹ (Explain)

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

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: Up - 36

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

Depth (Inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	4/2	100						
4-15	10YR	5/6	100						

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:
<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)
<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"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)	
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)	
<input type="checkbox"/> Sandy Muck Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)		

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

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

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:** 24-Oct-16
Applicant/Owner: NASA **State:** MS **Sampling Point:** Up - 37
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' 0.295" N **Long.:** 89° 36' 55.827" W **Datum:** NAD83
Soil Map Unit Name: EsB, Escambia loam, 2 to 5 percent slopes **NWI classification:** N/A

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 type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: 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 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 type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes <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): _____		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		