

SOIL

Sampling Point: **Wet - 35**

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 | 3/2 | | | | | | | Silt Loam | |
| 4-16 | 10YR | 4/2 | 98 | 10YR | 6/2 | 20 | D | M | Silt Loam | |
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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: Wet - 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): flat
 Slope: 0.0 % / 0.0 °
Subregion (LRR or MLRA): LRR T
 Lat.: 30° 24' 5.679" N
 Long.: 89° 36' 45.177" W
 Datum: NAD83
Soil Map Unit Name: HIB, Harleston fine sandy loam, 2 to 5 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"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> |
|--|--|

Remarks:
 Plot is 15 feet (+/-) northeast of Up - 36... slight transition into lower 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 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 (C5) <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 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) |
|--|---|

| | |
|---|---|
| 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 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 - 36**

| | | Dominant Species? | | | |
|--|------------------|---|------------------|--|--|
| Tree Stratum (Plot size: 30 m) | Absolute % Cover | Rel. Strat. Cover | Indicator Status | Dominance Test worksheet: | |
| 1. <i>Pinus elliotii</i> | 10 | <input checked="" type="checkbox"/> 40.0% | FACW | Number of Dominant Species That are OBL, FACW, or FAC: <u>7</u> (A) | |
| 2. <i>Nyssa biflora</i> | 10 | <input checked="" type="checkbox"/> 40.0% | OBL | Total Number of Dominant Species Across All Strata: <u>7</u> (B) | |
| 3. <i>Magnolia virginiana</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: Total % Cover of: _____ Multiply by: _____ OBL species <u>28</u> x 1 = <u>28</u> FACW species <u>57</u> x 2 = <u>114</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>85</u> (A) <u>142</u> (B) Prevalence Index = B/A = <u>1.671</u> | |
| 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"/> 35.7% | FACW | Hydrophytic Vegetation Indicators: <input checked="" 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 ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 2. <i>Nyssa biflora</i> | 15 | <input checked="" type="checkbox"/> 53.6% | OBL | | |
| 3. <i>Magnolia virginiana</i> | 2 | <input type="checkbox"/> 7.1% | FACW | | |
| 4. <i>Cyrilla racemiflora</i> | 1 | <input type="checkbox"/> 3.6% | 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>14</u> 20% of Total Cover: <u>5.6</u> <u>28</u> = Total Cover | | | | | |
| Shrub Stratum (Plot size: 30 m) | Absolute % Cover | Rel. Strat. Cover | Indicator Status | | |
| 1. <i>Ilex coriacea</i> | 15 | <input checked="" type="checkbox"/> 55.6% | FACW | 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. | |
| 2. <i>Magnolia virginiana</i> | 10 | <input checked="" type="checkbox"/> 37.0% | FACW | | |
| 3. <i>Cyrilla racemiflora</i> | 2 | <input type="checkbox"/> 7.4% | 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>13.5</u> 20% of Total Cover: <u>5.4</u> <u>27</u> = Total Cover | | | | | |
| Herb Stratum (Plot size: 30 m) | Absolute % Cover | Rel. Strat. Cover | Indicator Status | | |
| 1. <i>Sarracenia alabamensis</i> | 2 | <input type="checkbox"/> 66.7% | OBL | Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> | |
| 2. <i>Lycopodiella alopecuroides</i> | 1 | <input type="checkbox"/> 33.3% | 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>1.5</u> 20% of Total Cover: <u>0.6</u> <u>3</u> = Total Cover | | | | | |
| Woody Vine Stratum (Plot size: 30 m) | Absolute % Cover | Rel. Strat. Cover | Indicator Status | | |
| 1. <i>Smlax 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> = 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 - 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 | | |
| 0-3 | 10YR | 3/2 | 100 | | | | | Silt Loam | |
| 3-16 | 10YR | 4/2 | 95 | 10YR | 6/6 | 5 | C | M | Silt Loam |
| | | | | | | | | | |
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| | | | | | | | | | |

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: Wet - 37
Investigator(s): Lars Larson, Randy Ellis
 Section, Township, Range: S 29 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' 1.648" N
 Long.: 89° 36' 55.679" 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"/> |
|--|--|

Remarks:
 Low drainage area - part of the overall main NE-SW trending drainage way conveying surface water through the central to southern part 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 checked="" 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) | Secondary Indicators (minimum of 2 required) <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 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) |
|--|--|

| | |
|--|---|
| 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 checked="" type="radio"/> No <input type="radio"/> Depth (inches): 12 (includes capillary fringe) | Wetland Hydrology Present? 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 - 37

| Tree Stratum (Plot size: 30 m) | | Absolute % Cover | Dominant Species? Rel.Strat. Cover | Indicator Status |
|---|------------------------------------|-------------------------|---|------------------|
| 1. | <i>Pinus elliotii</i> | 10 | <input checked="" type="checkbox"/> 34.5% | FACW |
| 2. | <i>Nyssa biflora</i> | 15 | <input checked="" type="checkbox"/> 51.7% | OBL |
| 3. | <i>Taxodium ascendens</i> | 3 | <input type="checkbox"/> 10.3% | OBL |
| 4. | <i>Magnolia virginiana</i> | 1 | <input type="checkbox"/> 3.4% | 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: 14.5 | | 20% of Total Cover: 5.8 | 29 = 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> | 3 | <input type="checkbox"/> 14.3% | FACW |
| 2. | <i>Nyssa biflora</i> | 10 | <input checked="" type="checkbox"/> 47.6% | OBL |
| 3. | <i>Magnolia virginiana</i> | 7 | <input checked="" type="checkbox"/> 33.3% | FACW |
| 4. | <i>Taxodium ascendens</i> | 1 | <input type="checkbox"/> 4.8% | 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: 10.5 | | 20% of Total Cover: 4.2 | 21 = Total Cover | |
| Shrub Stratum (Plot size: 30 m) | | Absolute % Cover | Dominant Species? Rel.Strat. Cover | Indicator Status |
| 1. | <i>Ilex coriacea</i> | 20 | <input checked="" type="checkbox"/> 60.6% | FACW |
| 2. | <i>Cyrilla racemiflora</i> | 10 | <input checked="" type="checkbox"/> 30.3% | FACW |
| 3. | <i>Magnolia virginiana</i> | 3 | <input type="checkbox"/> 9.1% | 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: 16.5 | | 20% of Total Cover: 6.6 | 33 = 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"/> 25.0% | OBL |
| 2. | <i>Arundinaria tecta</i> | 10 | <input checked="" type="checkbox"/> 50.0% | FACW |
| 3. | <i>Sarracenia alabamensis</i> | 2 | <input type="checkbox"/> 10.0% | OBL |
| 4. | <i>Carex lurida</i> | 1 | <input type="checkbox"/> 5.0% | OBL |
| 5. | <i>Dichanthelium scabriusculum</i> | 2 | <input type="checkbox"/> 10.0% | 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: 10 | | 20% of Total Cover: 4 | 20 = 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: | 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 39 | x 1 = 39 |
| FACW species 66 | x 2 = 132 |
| FAC species 0 | x 3 = 0 |
| FACU species 0 | x 4 = 0 |
| UPL species 0 | x 5 = 0 |
| Column Totals: 105 (A) | 171 (B) |
| Prevalence Index = B/A = 1.629 | |

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: Wet - 37

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 | 2/1 | 100 | | | | | Sandy Clay Loam | |
| 5-20 | 10YR | 3/1 | 97 | 10YR | 7/1 | 3 | D M | Silty Clay Loam | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

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:** Wet - 38
Investigator(s): Lars Larson, Randy Ellis **Section, Township, Range:** S 32 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° 23' 54.543" N **Long.:** 89° 37' 1.688" 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"/> |
| Remarks: Low drainage area approximately 200 feet West of Up - 38. | |

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) <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) </td> <td style="width:50%; border: none;"> <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) </td> </tr> </table> | <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) | Secondary Indicators (minimum of 2 required) <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> <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) </td> <td style="width:50%; border: none;"> <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) </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 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) |
| <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 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) | | | | |
| 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 checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>12</u> | Wetland Hydrology Present? 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 - 38

| Tree Stratum (Plot size: 30 m) | Absolute % Cover | Dominant Species? Rel.Strat. Cover | Indicator Status |
|---|------------------|---|------------------|
| 1. <i>Pinus elliotii</i> | 10 | <input checked="" type="checkbox"/> 34.5% | FACW |
| 2. <i>Nyssa biflora</i> | 10 | <input checked="" type="checkbox"/> 34.5% | OBL |
| 3. <i>Taxodium ascendens</i> | 5 | <input type="checkbox"/> 17.2% | OBL |
| 4. <i>Magnolia virginiana</i> | 3 | <input type="checkbox"/> 10.3% | FACW |
| 5. <i>Acer rubrum</i> | 1 | <input type="checkbox"/> 3.4% | 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: | 14.5 | 20% of Total Cover: 5.8 | 29 = 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> | 10 | <input checked="" type="checkbox"/> 35.7% | FACW |
| 2. <i>Magnolia virginiana</i> | 5 | <input type="checkbox"/> 17.9% | FACW |
| 3. <i>Taxodium ascendens</i> | 8 | <input checked="" type="checkbox"/> 28.6% | OBL |
| 4. <i>Acer rubrum</i> | 5 | <input type="checkbox"/> 17.9% | 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: | 14 | 20% of Total Cover: 5.6 | 28 = Total Cover |
| Shrub Stratum (Plot size: 30 m) | Absolute % Cover | Dominant Species? Rel.Strat. Cover | Indicator Status |
| 1. <i>Ilex glabra</i> | 30 | <input checked="" type="checkbox"/> 62.5% | FACW |
| 2. <i>Morella cerifera</i> | 10 | <input checked="" type="checkbox"/> 20.8% | FAC |
| 3. <i>Magnolia virginiana</i> | 5 | <input type="checkbox"/> 10.4% | FACW |
| 4. <i>Taxodium ascendens</i> | 3 | <input type="checkbox"/> 6.3% | OBL |
| 5. | 0 | <input type="checkbox"/> 0.0% | |
| 6. | 0 | <input type="checkbox"/> 0.0% | |
| 50% of Total Cover: | 24 | 20% of Total Cover: 9.6 | 48 = Total Cover |
| Herb Stratum (Plot size: 30 m) | Absolute % Cover | Dominant Species? Rel.Strat. Cover | Indicator Status |
| 1. <i>Arundinaria tecta</i> | 10 | <input checked="" type="checkbox"/> 35.7% | FACW |
| 2. <i>Sarracenia alabamensis</i> | 3 | <input type="checkbox"/> 10.7% | OBL |
| 3. <i>Dichanthellum scabriusculum</i> | 2 | <input type="checkbox"/> 7.1% | OBL |
| 4. <i>Hypericum cistifolium</i> | 3 | <input type="checkbox"/> 10.7% | FACW |
| 5. <i>Lycopodiella alopecuroides</i> | 10 | <input checked="" type="checkbox"/> 35.7% | 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: | 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> | 3 | <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: | 1.5 | 20% of Total Cover: 0.6 | 3 = 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: 41 Multiply by:

OBL species 41 x 1 = 41

FACW species 79 x 2 = 158

FAC species 16 x 3 = 48

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 136 (A) 247 (B)

Prevalence Index = B/A = 1.816

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: Wet - 38

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 | 3/2 | 100 | | | | | Silt Loam | |
| 4-16 | 10YR | 4/2 | 97 | 10YR | 7/1 | 3 | D | M | Silt Loam |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

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:

depleted matrix with redox features present in soil profile.

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: Wet - 39
Investigator(s): Lars Larson, Randy Ellis
 Section, Township, Range: S 32 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° 23' 47.542" N
 Long.: 89° 37' 8.862" 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"/> |
|--|--|

Remarks:
 generally normal conditions except that Keller Road (old logging road) has split wetland and drainage culverts are sufficiently designed to allow water to flow through area. Water in turn backs up to abnormally high levies to the north of Keller Road. Area is 30-40 ft North of Keller Road.

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 checked="" 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 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) |
|--|---|

| | |
|--|---|
| 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 checked="" type="radio"/> No <input type="radio"/> Depth (inches): 9 | Wetland Hydrology Present? 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.

Dominant Species?

Sampling Point: Wet - 39

| Tree Stratum (Plot size: 30 m) | Absolute % Cover | Ref.Strat. Cover | Indicator Status |
|---------------------------------|------------------|---|------------------|
| 1. <i>Pinus elliotii</i> | 10 | <input checked="" type="checkbox"/> 27.0% | FACW |
| 2. <i>Nyssa biflora</i> | 20 | <input checked="" type="checkbox"/> 54.1% | OBL |
| 3. <i>Magnolia virginiana</i> | 5 | <input type="checkbox"/> 13.5% | FACW |
| 4. <i>Acer rubrum</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: | 18.5 | 20% of Total Cover: 7.4 | 37 = Total Cover |

| Sapling or Sapling/Shrub Stratum (Plot size: 30 m) | Absolute % Cover | Ref.Strat. Cover | Indicator Status |
|---|------------------|---|------------------|
| 1. <i>Cyrilla racemiflora</i> | 10 | <input checked="" type="checkbox"/> 50.0% | FACW |
| 2. <i>Pinus elliotii</i> | 2 | <input type="checkbox"/> 10.0% | FACW |
| 3. <i>Nyssa biflora</i> | 5 | <input checked="" type="checkbox"/> 25.0% | OBL |
| 4. <i>Acer rubrum</i> | 3 | <input type="checkbox"/> 15.0% | 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 |

| Shrub Stratum (Plot size: 30 m) | Absolute % Cover | Ref.Strat. Cover | Indicator Status |
|----------------------------------|------------------|---|------------------|
| 1. <i>Ilex glabra</i> | 20 | <input checked="" type="checkbox"/> 90.9% | FACW |
| 2. <i>Cyrilla racemiflora</i> | 2 | <input type="checkbox"/> 9.1% | 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: | 11 | 20% of Total Cover: 4.4 | 22 = Total Cover |

| Herb Stratum (Plot size: 30 m) | Absolute % Cover | Ref.Strat. Cover | Indicator Status |
|---------------------------------|------------------|---|------------------|
| 1. <i>Arundinaria tecta</i> | 20 | <input checked="" type="checkbox"/> 95.2% | FACW |
| 2. <i>Scirpus expansus</i> | 1 | <input type="checkbox"/> 4.8% | 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: | 10.5 | 20% of Total Cover: 4.2 | 21 = Total Cover |

| Woody Vine Stratum (Plot size: 30 m) | Absolute % Cover | Ref.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: 6 (A)

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

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

Prevalence Index worksheet:

Total % Cover of: 26 Multiply by: 1

OBL species 26 x 1 = 26

FACW species 70 x 2 = 140

FAC species 5 x 3 = 15

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 101 (A) 181 (B)

Prevalence Index = B/A = 1.792

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: Wet - 39

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 | | | |
| 0-8 | 10YR | 3/1 | 100 | | | | | | Sandy Clay Loam | |
| 8-18 | 10YR | 5/3 | 95 | 10YR | 6/1 | 5 | D | M | Sandy Clay Loam | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

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

Hydric Soil Indicators:

- Histisol (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: