APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12 ,2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 1 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.6314°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: WoUS 1 = 532; WoUS 2 = 302; WoUS 31=1696 **Total =2530** linear feet: width (ft) and/or acres.
   Wetlands: Wetland 5 = 0.58 acres; Wetland 6 = 0.14 acres; Wetland 7 = 0.35 acres; Wetland 8 = 0.51 acres; Wetland 13 = 0.54 acres; Wetland 14 = 6.76 acres; Wetland 15 = 8.62 acres **Total = 17.5 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):** [3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The drainage area contains a two linear drainage ditches, which flow into wetlands onsite. However these features do not contain evidence of relatively permanent flow and were excavated in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

Note: WOUS 1 and WOUS 2 are the same tributary, which flows northwest and offsite along the property boundary. The tributary then re-enters the review area and flow into WOUS 31 and is considered the same tributary. These combined features will be identified as "tributary".

(i) General Area Conditions:
Watershed size: 380 **acres**
Drainage area: 0.6 **square miles**
Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**: The tributary flows offsite and into Cow Castle Creek. Cow Castle Creek is a pRPW that flows directly into Four Hole Swamp, the downstream TNW**.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The onsite tributary has been straightened and excavated to carry more water from the site into Cow Castle Creek**. **On-site, the tributary has evidence of seasonal relatively permanent flow.**

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributary had relatively stable banks with no evidence of erosion or sloughing.**
Presence of run/riffle/pool complexes. Explain: **None observed.**
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:
Tributary provides for: **Seasonal flow**.
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: **The tributary provides seasonal flow and was observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.**
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributary.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributary was observed to have cloudy flowing water present; no oily film was observed. The tributary had trash and debris present from an adjacent chicken house.**

Identify specific pollutants, if known: **Because a large portion of the watershed and the smaller drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **The tributary is a 1st order tributary that supports a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion. The offsite portion of the tributary is cleared just north of the site, but supports a riparian zone along the majority of the reach.**

☐ Wetland fringe. Characteristics: .

☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributary provides important aquatic habitat for wildlife functions and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland 5 = 0.58 acres; Wetland 6 = 0.14 acres; Wetland 7 = 0.35 acres; Wetland 8 = 0.51 acres; Wetland 13 = 0.54 acres; Wetland 14 = 6.76 acres; Wetland 15 = 8.62 acres Total = 17.5 acres.**

Wetland type. Explain: **Palustrine forested**.

Wetland quality. Explain: **Wetland 13 has been logged but otherwise, all are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: **The wetlands flow into the onsite tributary after major storm events and other periods of high rainfall. The tributary onsite then flows offsite and into the downstream TNW.**

Surface flow is**: Discrete**

Characteristics: **The wetlands overflow into the onsite tributary, which shares a border with the onsite wetlands. The tributary then flows offsite into a tributary and then directly into Cow Castle Creek**.

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting: Wetland 5 = 0.58 acres; Wetland 6 = 0.14 acres; Wetland 7 = 0.35 acres; Wetland 8 = 0.51 acres; Wetland 13 = 0.54 acres; Wetland 14 = 6.76 acres; Wetland 15 = 8.62 acres **Total = 17.5 acres**.

☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain:
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetland was saturated. Land use within this watershed and smaller drainage area is comprised of agricultural land, forested land, forested wetland (swamp), urban land, water, and nonforested wetland (marsh).**

Identify specific pollutants, if known: : **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☒ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **9**

Approximately (**26.5**) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	Wetland 5 = 0.58	Y	Wetland 13 = 0.54
Y	Wetland 6 = 0.14	Y	Wetland 14 = 6.76
Y	Wetland 7 = 0.35	Y	Wetland 15 = 8.62
Y	Wetland 8 = 0.51	Y	Offsite Wetland= 5
Y	Offsite Wetland= 4		

Summarize overall biological, chemical and physical functions being performed: **The on-site tributary and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.**

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **The tributary flows offsite and into Cow Castle Creek. Cow Castle Creek is a pRPW that flows directly into Four Hole Swamp, the downstream TNW. On-site, the tributary has evidence of seasonal relatively permanent flow. The tributary provides seasonal flow and was observed to have flowing water during the field delineation. The onsite tributary has been straightened and excavated to carry more water from the site into Cow Castle Creek.**

Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel. During the site visit, the tributary was observed to have cloudy flowing water present; no oily film was observed. The tributary had trash and debris present from an adjacent chicken house.

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **2530** linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     - Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**
     - ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 5-8 and 13-15 surround, border, and are contiguous with the top-of-bank of the tributary (WoUS 1&2 and WoUS 31) that flows north to Cow Castle Creek**.

   Provide acreage estimates for jurisdictional wetlands in the review area: **17.5** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area:

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☒ Other: (explain, if not covered above): **The drainage area contains a two linear drainage ditches, which flow into wetlands onsite. However these features do not contain evidence of relatively permanent flow and were excavated in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.

☒ National wetlands inventory map(s). Cite name: **USFWS NWI Mapper**.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.

or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 5-8 and Wetlands 13-15 flow into an unnamed tributary (WoUS 1&2 and WoUS 31) which flows offsite and into Cow Castle Creek. Cow Castle Creek is a pRPW that flows directly into Four Hole Swamp, the downstream TNW. Therefore, the above mentioned waters are determined to be jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 2 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.63143°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Edisto River**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: Wetland 1 = 3.18 acres; Wetland 2 = 0.03 acres; Wetland 3 = 0.02 acres; Wetland 4 = 1.05 acres; Wetland 9 = 0.24 **Total = 4.52 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

***Note- The tributary discussed below is offsite and was not evaluated during the site visit due to limited accessibility.**

(i) General Area Conditions:
Watershed size: 480 **acres**
Drainage area: 0.75 **square miles**
Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

Project waters are **10-15** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **10-15** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: **Wetlands 1-4 & 9 flow into an unnamed and offsite sRPW which flows into another unnamed tributary and then into Mill Branch. Mill Branch flows directly into Indian Field Swamp and then into the Edisto River, the downstream TNW**.
Tributary stream order, if known: 1.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The tributary is located offsite and could not be viewed during the site visit. Based on a review of aerial imagery, NWI maps, and LIDAR, the tributary has been straightened and excavated to carry more water from the site, draining into Mill Branch**. **Furthermore, it was determined that the tributary flows seasonally.**

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributary likely has relatively stable banks.**
Presence of run/riffle/pool complexes. Explain: **None observed**.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20** ; estimated based on other seasonal tributaries in the area.
Describe flow regime: The tributary provides seasonal flow
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is likely restricted under normal conditions between the bed and bank of the tributary.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community

☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain **The tributary is offsite and was not observed during the site visit. Land use within this watershed and smaller drainage area is comprised of agricultural land, forested land, forested wetland (swamp), urban land, water, and nonforested wetland (marsh).**

Identify specific pollutants, if known: **Because a much of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **Based on review of aerial photography, the offsite tributary supports a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion.**

☐ Wetland fringe. Characteristics: .

☒ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributary provides important aquatic habitat for wildlife and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **4.52** acres

Wetland type. Explain: **Palustrine forested**.

Wetland quality. Explain: **Wetlands 1, 2, 3, 4, and 9 are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: **The wetlands flow into the offsite tributary after major storm events and other periods of high rainfall.**

Wetlands 1 and 4 Surface flow is**: Discrete**

Characteristics: **Wetlands 1 and 4 flow directly into the offsite tributary seasonally and/or after rain events. These wetlands are part of a larger wetland system that directly abuts the offsite tributary.**

Wetlands 2, 3 and 9 Surface flow is**: Discrete**

Characteristics: **Wetlands 2, 3, and 9 flow directly into the offsite tributary seasonally and/or after rain events. These wetlands are adjacent to, but do not abut the offsite tributary. No flow was observed, however the topography of the area is fairly flat and uniform. It may be possible that there is ephemeral or intermittent flow into the offsite tributary.**

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting **Wetlands 1 and 4**

☒ Not directly abutting **Wetland 2, 3, and 9**

☒ Discrete wetland hydrologic connection. Explain: **Based on LiDAR the wetlands lie within lower topographic crenulations and soils typical of similar hydrologic regimes.** .

☒ Ecological connection. Explain: **Wildlife utilizes the similarly situated wetlands of the relevant reach**.

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **10-15** river miles from TNW.

Project waters are **10-15** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetlands were saturated.**

Identify specific pollutants, if known: : **Because a large portion of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries. Indian Field Swamp and the Edisto River are blackwater systems, characterized by naturally low dissolved oxygen concentrations.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☒ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **9**
Approximately (**116.23**) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	JW2=0.03	Y (offsite)	6.1
N	JW3=0.02	Y (offsite)	14.5
N	JW9=0.24	Y (offsite)	60
N	31	Y	JW1=3.18
Y	JW4=1.05		

Summarize overall biological, chemical and physical functions being performed: **The on-site tributary and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of the Edisto River, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Mill Branch, Indian Field Swamp, and the downstream TNW.**

   Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

     Provide estimates for jurisdictional waters in the review area (check all that apply):
     - ☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 1&4 surround, border, and are directly contiguous with the top-of-bank off an offsite tributary that flows south to Mill Branch**.

Provide acreage estimates for jurisdictional wetlands in the review area: **4.23** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C. **Wetlands 2, 3, and 9**

Provide acreage estimates for jurisdictional wetlands in the review area: **0.29** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.

☒ National wetlands inventory map(s). Cite name: **USFWS NWI Mapper**.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.

or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 1-4 & 9 flow into an unnamed and offsite tributary which flows into a series of tributaries and then into Mill Branch. Mill Branch flows directly into Indian Field Swamp and then the Edisto River, the downstream TNW. Therefore, the above mentioned waters are jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 3 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.63143°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: WoUS 30= linear feet: **363** width (ft) and/or acres.
      Wetlands: Wetland 16 = 0.88 acres; Wetland 17 = 2.98 acres; Wetland 18 = 19.9 acres; Wetland 19 = 0.15 acres **Total = 23.91 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
      Elevation of established OHWM (if known): .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

Note: The "tributary" discussed below is WOUS 30.

(i) General Area Conditions:
Watershed size: **103 acres ;**
Drainage area: **0.16 square miles**
Average annual rainfall: **47** inches
Average annual snowfall: **0** inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **3** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.

[3] Supporting documentation is presented in Section III.F.
[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: **The tributary flows offsite and into another unnamed tributary, and into Cow Castle Creek. Cow Castle Creek is a pRPW that flows directly into Four Hole Swamp, the downstream TNW.**
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The onsite tributary has been straightened and excavated to carry more water from the site into the offsite tributary and Cow Castle Creek. On-site, the tributary has evidence of seasonal relatively permanent flow.**

Tributary properties with respect to top of bank (estimate):
Average width: **4** feet
Average depth: **4** feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributary had relatively stable banks with no evidence of erosion or sloughing.**
Presence of run/riffle/pool complexes. Explain: **None observed**.
Tributary geometry: **Relatively straight.**
Tributary gradient (approximate average slope): **0-1** %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: **The tributary provides seasonal flow and was observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.**
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributary.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community

☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributary was observed to have cloudy flowing water present; no oily film was observed. The tributary had trash and debris present.**

Identify specific pollutants, if known: **Because a large portion of the watershed and the smaller drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **The tributary is a 1st order tributary that supports a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion. The offsite portion of the tributary is cleared just north of the site, but supports a riparian zone along the majority of the reach.**

☐ Wetland fringe. Characteristics: .

☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributary provides important aquatic habitat for wildlife functions and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland 16 = 0.88 acres; Wetland 17 = 2.98 acres; Wetland 18 = 19.9 acres; Wetland 19 = 0.15 acres; Total = 23.91 acres.**

Wetland type. Explain: **Palustrine forested**.

Wetland quality. Explain: **Wetlands are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: **The wetlands flow into the onsite tributary after major storm events and other periods of high rainfall. The tributary onsite then flows offsite into an unnamed tributary and then into Cow Castle Creek and then the downstream TNW.**

Surface flow is**: Discrete**

Characteristics: **The wetlands overflow into the onsite tributary, which shares a border with the onsite wetlands. The tributary then flows offsite into a tributary and then directly into Cow Castle Creek**.

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting **Wetland 16 = 0.88 acres; Wetland 17 = 2.98 acres; Wetland 18 = 19.9 acres; Wetland 19 = 0.15 acres; Total = 23.91 acres.**

☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetland was saturated. Land use within this watershed and smaller drainage area is comprised of agricultural land, forested land, forested wetland (swamp), urban land, water, and nonforested wetland (marsh).**

Identify specific pollutants, if known: : **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☒ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **8**

Approximately (**35.44**) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	**Wetland 16 = 0.88**	**Y**	**0.16 (offsite)**
Y	**Wetland 17 = 2.98**	**Y**	**2.24 (offsite)**
Y	**Wetland 18 = 19.9**	**Y**	**9.06 (offsite)**
Y	**Wetland 19 = 0.15**	**Y**	**0.79 (offsite)**

Summarize overall biological, chemical and physical functions being performed: **The on-site tributary and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a

tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.**

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

4.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **WOUS 30= 363 lf; The tributary flows offsite, into an unnamed tributary and then into Cow Castle Creek.**

Cow Castle Creek is a pRPW that flows directly into Four Hole Swamp, the downstream TNW. On-site, the tributary has evidence of seasonal relatively permanent flow.
The tributary provides seasonal flow and was observed to have flowing water during the field delineation. The onsite tributary has been straightened and excavated to carry more water from the site into Cow Castle Creek.
Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.
During the site visit, the tributary was observed to have cloudy flowing water present; no oily film was observed. The tributary had trash and debris present.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **363** linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 16-19 surround, border, and are contiguous with the top-of-bank of WoUS 30 that flows north offsite into an unnamed tributary and then into Cow Castle Creek.**

Provide acreage estimates for jurisdictional wetlands in the review area: **23.91** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
- ☒ National wetlands inventory map(s). Cite name: **USFWS NWI Mapper**.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 16-19 directly abut the onsite sRPW (WoUS 30) and are therefore jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 4 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.6314°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: WoUS 3 = 232; WoUS 4 = 451; WoUS 5 = 405; WoUS 6 = 394; WoUS 7 = 1123; WoUS 8 = 3031; WoUS 9 = 697; WoUS 10 = 906 linear feet: **Total =7239**

      Wetlands: Wetland 20 = 0.08 acres; Wetland 21 = 4.56 acres; Wetland 22 = 2.03 acres; Wetland 23 = 0.34 acres; Wetland 24 = 0.22 acres; Wetland 25 = 1.19 acres; Wetland 26 = 0.04 acres; Wetland 27 = 0.04 acres; Wetland 28 = 0.92; Wetland 29 = 0.36 acres; Wetland 30 = 0.29 acres; Wetland 31 = 3.45 acres; Wetland 32 = 0.06; Wetland 33 = 1.11 acres **Total = 14.69 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
      Elevation of established OHWM (if known): .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**[3]

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The site contains a several linear drainage ditches that serves as a continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 20-27). However, the linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, although these features provide a downstream connection for the wetlands, it was determined that these feature are not jurisdictional under section 404 of the CWA. Furthermore, the site contains an upland dug borrow pit (0.14 acre), now functioning as an open water pond. As stated in the Preamble to the November 13, 1986, Regulations found on page 41217 (Federal Register vol. 51 No. 219) "waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and resulting body of water meets the definition of waters of the United States" are generally not considered waters of the U.S. There are no fringe wetlands associated with this borrow pit/open water area. This borrow pit is excavated in and is wholly draining uplands and is therefore, non-jurisdictional under Section 404 of the CWA.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

Note: WOUS 3-10 form a braided network of tributaries located within the drainage area of this form 4 of 8.

(i) General Area Conditions:

Watershed size: 450 **acres**

Drainage area: 0.70 **square miles**

[3] Supporting documentation is presented in Section III.F.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**: Unnamed tributaries (WoUS 3-10) flow to an offsite tributary which flows into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW**.
Tributary stream order, if known: 1.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The tributaries onsite have been straightened and excavated to carry more water from the site into an offsite tributary which drains to Cow Castle Creek**.

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributaries had relatively stable banks with no evidence of erosion or sloughing.**
Presence of run/riffle/pool complexes. Explain: **None observed**.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:

Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: The tributary provides seasonal flow and was observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributary.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributaries were observed to have cloudy flowing water present; no oily film was observed. Land use within this drainage area is comprised of agricultural land, forested land, forested wetland (swamp), and urban land.**

Identify specific pollutants, if known: **Because a large portion of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **WoUS 3-10 are sRPWs that supports a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion. The offsite tributary supports a riparian zone along the majority of the reach.**

☐ Wetland fringe. Characteristics: .

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: **The tributaries provide important aquatic habitat values for wildlife and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland 20 = 0.08 acres; Wetland 21 = 4.56 acres; Wetland 22 = 2.03 acres; Wetland 23 = 0.34 acres; Wetland 24 = 0.22 acres; Wetland 25 = 1.19 acres; Wetland 26 = 0.04 acres; Wetland 27 = 0.04 acres; Wetland 28 = 0.92; Wetland 29 = 0.36 acres; Wetland 30 = 0.29 acres; Wetland 31 = 3.45 acres; Wetland 32 = 0.06; Wetland 33 = 1.11 acres Total = 14.69 acres.**

Wetland type. Explain: **Palustrine forested**.

Wetland quality. Explain: **Wetlands 20, 21, 22, 23, 24, 25, 26, and 27 are fully functional. Wetlands 28, 29, 30, 31, 32, and 33 have been either partially or fully logged but otherwise, all are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Wetlands 21- 26 Flow is: **Intermittent flow**. Explain: **The wetlands flow directly into a system of non-jurisdictional linear conveyance after major storm events and other periods of high rainfall. This linear conveyance system flows directly into the onsite tributary which then flows offsite and into the downstream TNW.**

Wetlands 20 and 27 Flow is: **No Flow** . Explain: **No flow was observed and no evidence that flow occurs between the wetlands and linear conveyance system was observed in the field. However, the topography of the wetland and the adjacent uplands is fairly flat and uniform, so it may be possible that the wetlands overflow into a system of non-jurisdictional linear conveyances after major storm events and other periods of high rainfall. Based on the discrete and confined flow that was observed from wetlands 21-26 into the linear conveyance system, it is likely that the discrete flow through the uplands also occurs seasonally and/or after rain events from Wetlands 20 and 27 to the onsite tributary when surface water in the wetland may be present.**

[7]Ibid.

Wetlands 28-33 Flow is: **Intermittent flow**. Explain: **The wetlands are part of a larger wetland system offsite which directly abuts the offsite tributary, Cow Castle Creek, which to the downstream TNW.**

Wetlands 21-26 Surface flow is**: Discrete and confined**
Characteristics: **The wetlands overflow into the non-jurisdictional linear conveyance system and then into the onsite tributary. The tributary then flows offsite into a tributary and then directly into Cow Castle Creek**.

Wetlands 21-26 Surface flow is**: Discrete**
Characteristics: **It is likely that the discrete flow through the uplands occurs seasonally and/or after rain events from Wetlands 20 and 27 to the onsite tributary when surface water in the wetland may be present.**

Wetlands 28-33 Surface flow is**: Discrete and confined**
Characteristics: **The wetlands directly abut and flow directly into the offsite tributary, Cow Castle Creek.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting: **Wetland 28 = 0.92 acres; Wetland 29 = 0.36 acres; Wetland 30 = 0.29 acres; Wetland 31 = 3.45 acres; Wetland 32 = 0.06; Wetland 33 = 1.11 Total= 6.19 acres**
☒ Not directly abutting: **Wetland 20 = 0.08 acres; Wetland 21 = 4.56 acres; Wetland 22 = 2.03 acres; Wetland 23 = 0.34 acres; Wetland 24 = 0.22 acres; Wetland 25 = 1.19 acres; Wetland 26 = 0.04 acres; Wetland 27 = 0.04 acres; Total=8.5 acres**
☒ Discrete wetland hydrologic connection. Explain: Wetlands 20 through 27 are adjacent to the tributary and are connected through a continuous hydrologic surface connection via non-jurisdictional ditch.
☒ Ecological connection. Explain: Wildlife utilizes the similarly situated wetlands along the relevant reach.
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **2-5** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetlands were dry. Land use within this drainage are is comprised of agricultural land, forested land, forested wetland (swamp), and urban land.**
Identify specific pollutants, if known: : **Because a large portion of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/percent cover. Explain: Palustrine forested wetlands.
☒ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings: The wetland supports aquatic functions and provides habitat for aquatic species and wildlife.

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **15**
Approximately (55) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	JW20=0.08	Y	JW28=0.92
N	JW21=4.56	Y	JW29=0.36
N	JW22=2.03	Y	JW30=0.29
N	JW23=0.34	Y	JW31=3.45
N	JW24=0.22	Y	JW32=0.06
N	JW25=1.19	Y	JW33=1.11
N	JW26=0.04	Y	Offsite=40
N	JW27=0.04		

Summarize overall biological, chemical and physical functions being performed: **The on-site tributaries and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to

Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.**

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:
- ☐ TNWs: linear feet width (ft), Or, acres.
- ☐ Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.
- ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **The onsite tributaries (WoUS 3-7 & 10) flow following major storm events and other periods of high rainfall. The tributaries also received flow from uplands, adjacent wetlands, and areas that may have previously been wetlands. The presence of a defined bed and bank and a clear natural impressed line indicating an OHWM was observed during the site visit. However, the channels appeared to have the presence of leaf litter. Therefore, it was determined that the tributaries have seasonal flow.**
WoUS 8 & 9 are 8 to 10 feet deep, intercept groundwater, have large upstream watersheds, and flow year round. The tributaries also received flow from uplands and the adjacent wetlands. The tributaries contain a clear, natural impressed line on the bank and are absent of leaf litter or debris. The tributaries also contained flowing water at the time of the site visit.

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **7239** linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: **.**

[8]See Footnote # 3.

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 28-33 are part of a larger wetland system that directly abuts Cow Castle Creek, the offsite perennial RPW.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

   Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland 28 = 0.92 acres; Wetland 29 = 0.36 acres; Wetland 30 = 0.29 acres; Wetland 31 = 3.45 acres; Wetland 32 = 0.06; Wetland 33 = 1.11 Total= 6.19 acres**

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland 20 = 0.08 acres; Wetland 21 = 4.56 acres; Wetland 22 = 2.03 acres; Wetland 23 = 0.34 acres; Wetland 24 = 0.22 acres; Wetland 25 = 1.19 acres; Wetland 26 = 0.04 acres; Wetland 27 = 0.04 acres; Total=8.5 acres.**

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☒ **Other: (explain, if not covered above): The site contains a several linear drainage ditches that serves as a continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 20-27). However, the linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, although these features provide a downstream connection for the wetlands, it was determined that these feature are not jurisdictional under section 404 of the CWA. Furthermore, the site contains an upland dug borrow pit (0.14 acre), now functioning as an open water pond. As stated in the Preamble to the November 13, 1986, Regulations found on page 41217 (Federal Register vol. 51 No. 219) "waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and resulting body of water meets the definition of waters of the United States" are generally not considered waters of the U.S. There are no fringe wetlands associated with this borrow pit/open water area. This borrow pit is excavated in and is wholly draining uplands and is therefore, non-jurisdictional under Section 404 of the CWA.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
☒ National wetlands inventory map(s). Cite name: **NWI Mapper**.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
  or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 20-27 flow into unnamed RPWs (WoUS 3-10) which flow offsite into Cow Castle Creek. Wetlands 28-33 are part of a larger wetland system offsite that directly abut Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW. Therefore, the above mentioned waters are considered jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 5 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.63143°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: WoUS 11 = 3782; WoUS 12 = 452; WoUS 13 = 175; WoUS 14 = 263; WoUS 15 = 270; WoUS 16 = 293; WoUS 17 = 2382; WoUS 18 = 5314; Tributary 1 = 250; Tributary 2 = 2968 **Total =16,149** linear feet.

      Wetlands: Wetland 34 = 0.45 acres; Wetland 35 = 0.02 acres; Wetland 40 = 2.8 acres; Wetland 41 = 0.25 acres; Wetland 42 = 2.51 acres; Wetland 43 = 0.23 acres; Wetland 53 = 6.46 acres; Wetland 54 = 0.28 acres; Wetland 55 = 1.03; Wetland 56 = 10.9 acres; **Total = 24.93 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
      Elevation of established OHWM (if known): .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**[3]

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The site contains several linear drainage ditches that have been excavated wholly in uplands. The linear features do not contain evidence of relatively permanent flow. The features may provide a continuous hydrologic surface connection for other waters onsite. However, due to the lack of flow characteristics, these features were determined not to be jurisdictional under section 404 of the CWA.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

WoUS 11 = 3782; WoUS 12 = 452; WoUS 13 = 175; WoUS 14 = 263; WoUS 15 = 270; WoUS 16 = 293; WoUS 17 = 2382; WoUS 18 = 5314; **Total =12,931** linear feet.

*Note- WOUS 11- 18 form a braided network of tributaries within the drainage area of this form 5 of 8.

(i) General Area Conditions:

Watershed size: 700 **acres**
Drainage area: 1.0 **square miles**
Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

[3] Supporting documentation is presented in Section III.F.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**: The unnamed tributaries (WoUS 11-18) and into Tributaries 1 and 2. Flow continues offsite into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW**.
Tributary stream order, if known: 1.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **WoUS 11-18 and Tributaries 1 and 2 have been straightened and excavated to carry more water from the site into an offsite tributary which drains to Cow Castle Creek**. **The onside tributaries contain evidence of relatively permanent flow.**

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **The tributaries had relatively stable banks with no evidence of erosion or sloughing.**
Presence of run/riffle/pool complexes. Explain: None observed.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:

Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: The tributary provides seasonal flow and was observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributaries.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

☐ sediment deposition
☐ water staining
☐ other (list):
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributaries were observed to have cloudy flowing water present; no oily film was observed.**

Identify specific pollutants, if known: **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **WoUS 11-18 are 1st order seasonal tributaries that support a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion.**

☒ Wetland fringe. Characteristics: The tributaries have surrounding wetlands.

☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributaries provides important aquatic habitat values for wildlife and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: Wetland 34 = 0.45 acres; Wetland 35 = 0.02 acres; Wetland 40 = 2.8 acres; Wetland 41 = 0.25 acres; Wetland 42 = 2.51 acres; Wetland 43 = 0.23 acres; Wetland 53 = 6.46 acres; Wetland 54 = 0.28 acres; Wetland 55 = 1.03; Wetland 56 = 10.9 acres; **Total = 24.93 acres**

Wetland type. Explain:**Palustrine forested**.

Wetland quality. Explain: **The wetlands are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Wetlands 34-35, 40-43, and 56 Flow is: **Intermittent flow**. Explain: **The wetlands directly abut the onsite seasonal tributaries after major storm events and other periods of high rainfall. The tributaries flow offsite directly into Cow Castle Creek and the downstream TNW.**

Wetlands 53 and 54 Flow is: **Intermittent flow**. Explain: **The wetlands are adjacent to the onsite seasonal tributary and flow into the tributary after major storm events and other periods of high rainfall. This tributary flows into Tributary 1 and 2. Flow continues offsite directly into Cow Castle Creek and the downstream TNW.**

Wetland 55 Flow is: **Intermittent flow**. Explain: **The wetland is adjacent to and flows directly into a non-jurisdictional linear conveyance after major storm events and other periods of high rainfall. This linear conveyance system flows directly into the onsite tributary which then flows offsite and into the downstream TNW.**

Wetlands 34-35, 40-43, and 56 Surface flow is**: Discrete and confined**

Characteristics: **Surface flow is discrete within the wetlands and confined when it reaches the channel of the tributary.**

Wetlands 53 and 54 Surface flow is**: Discrete and confined**

[7]Ibid.

Characteristics: **It is likely that the discrete flow through the uplands occurs seasonally and/or after rain events from the wetlands to the onsite tributary when surface water in the wetland may be present. Once the flow reaches the tributaries, the flow becomes confined.**

Wetlands 55 Surface flow is**: Discrete and confined**

Characteristics: **Surface flow is discrete within the wetlands and confined when it reaches the channel of the non-jurisdictional linear conveyance after major storm events and other periods of high rainfall. This linear conveyance flows into a similarly situated wetland that flows directly into the onsite tributary via discrete and confined flow.**

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting Wetland 34 = 0.45 acres; Wetland 35 = 0.02 acres; Wetland 40 = 2.8 acres; Wetland 41 = 0.25 acres; Wetland 42 = 2.51 acres; Wetland 43 = 0.23 acres; Wetland 54 = 0.28 acres; Wetland 56 = 10.9 acres; Total= 17.44 acres

☒ Not directly abutting Wetland 53 = 6.46 acres; Wetland 55 = 1.03; Total= 7.49 acres

☒ Discrete wetland hydrologic connection. Explain: Infiltration via hydric soils, overland sheetflow, and discrete and confined flow

☒ Ecological connection. Explain: Wildlife uses the similarly situated wetlands along the RPW.

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetlands were saturated.**

Identify specific pollutants, if known: : **Because a large portion of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributaries. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .

☒ Vegetation type/percent cover. Explain:Palustrine forest.

☒ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings: Important habitat for various species.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: 12

Approximately (700) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	JW53=6.46	Y	JW 43= 0.23
Y	JW54=0.28	Y	JW 55= 1.03
Y	JW 34=0.45	Y	JW 56=10.9
Y	JW 35= 0.02	Y	Offsite= 20
Y	JW 40= 2.8	Y	Offsite= 10
Y	JW 41=0.25		
Y	JW 42= 2.51		

Summarize overall biological, chemical and physical functions being performed:

The on-site tributaries and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely

important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This**

prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:
- ☐ TNWs: linear feet width (ft), Or, acres.
- ☐ Wetlands adjacent to TNWs: acres.

2. RPWs that flow directly or indirectly into TNWs.
- ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: **Tributaries 1 and 2 are deep enough to intercept groundwater, have large upstream watersheds, and flow year round. Additionally, a defined bed and bank was observed. A clear OHWM was also observed during the site visit. The channels were absent of leaf litter and debris and contained flowing water.**
- ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **Onsite WoUS 12-17 are tributaries that would likely flow following major storm events and other periods of high rainfall. The tributaries had a clearly defined bed and bank and had a clear OHWM. However, the channels contained leaf litter and debris and did not have flowing water at the time of the site visit. WoUS 11 and 18 had water flowing during the site visit.**

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **16,149** linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
- ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
  - ☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 42-43 and 56 surround, border, and are contiguous with Tributary 1 and Tributary 2, a perennial stream and the relevant reach to Cow Castle Creek.**

  - ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetland 34 surrounds, borders, and is contiguous with the top-of-bank of tributary 11 (WoUS 11). Wetland 35 surrounds, borders, and is contiguous with the top-of-bank of tributary 12 (WoUS 12). Wetlands 40-41 surround, border, and are contiguous with the top-of-bank of tributaries 14 and 15 (WoUS 14 and 15). Wetlands 53-54 surround, border, and are contiguous with the top-of-bank of tributary 18 (WoUS 18).**

Provide acreage estimates for jurisdictional wetlands in the review area: **17.44** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

[8]See Footnote # 3.

☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **7.49** acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **The site contains several linear drainage ditches that have been excavated wholly in uplands. The linear features do not contain evidence of relatively permanent flow. The features may provide a continuous hydrologic surface connection for other waters onsite. However, due to the lack of flow characteristics, these features were determined not to be jurisdictional under section 404 of the CWA.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
☒ National wetlands inventory map(s). Cite name: **NWI Mapper.**
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 34-35, 40-43, and 53-56 flow into unnamed tributaries (WoUS 11-18) and into Tributary 1 and 2 flow offsite and into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW. Therefore, the above mentioned waters are jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 6 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.6314°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: WoUS 19 = 153; WoUS 20 = 205; **Total =358** linear feet: width (ft) and/or acres.
      Wetlands: Wetland 36 = 0.52 acres; Wetland 37 = 1.74 acres; Wetland 38 = 2.89 acres; Wetland 39 = 1.11 acres; Wetland 44= 19.43 **Total = 25.69 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The site contains a several linear drainage ditches that serves as continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 37, 39, and 44). However, these linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

Note: WOUS 19 and WOUS 20 are the same tributary and will be identified as "tributary".

(i) General Area Conditions:
Watershed size: 170 **acres**
Drainage area: 0.27 **square miles**
Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**: The tributary flows into an offsite tributary which flows into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW**.
Tributary stream order, if known: 1.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The tributary has been straightened and excavated to carry more water from the site into an offsite feature which drains to Cow Castle Creek**. **The tributary was determined to have evidence of relatively permanent flow.**

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The tributary had relatively stable banks with no evidence of erosion or sloughing.
Presence of run/riffle/pool complexes. Explain: None observed.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: The tributary provides seasonal flow and was observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channel.
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributary.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community

☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributary was observed to have cloudy flowing water present; no oily film was observed.**

Identify specific pollutants, if known: **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **The tributary is a 1st order tributary that support a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion.**

☒ Wetland fringe. Characteristics: Wetlands are located along the tributary banks.

☒ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributary provides important aquatic habitat values for wildlife and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland 36 = 0.52 acres; Wetland 37 = 1.74 acres; Wetland 38 = 2.89 acres; Wetland 39 = 1.11 acres; Wetland 44= 19.43 Total = 25.69 acres**

Wetland type. Explain:**Palustrine forested**.

Wetland quality. Explain:**The wetlands are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Wetlands 36 and 37 Flow is: **Intermittent flow**. Explain: **The wetlands flow into the onsite tributary which flows offsite into Cow Castle Creek. The wetland likely flows into this tributary after major storm events and other periods of high rainfall.**

Wetland 38 Flow is: **Intermittent flow. Explain: The wetland is part of a larger wetland offsite that flows into an offsite tributary and directly into Cow Castle Creek. The wetland likely flows into this tributary after major storm events and other periods of high rainfall.**

Wetlands 39, and 44 Flow is: **Intermittent flow**. Explain: **The wetlands flow directly into a system of non-jurisdictional linear conveyance system after major storm events and other periods of high rainfall. This linear conveyance system flows directly into the onsite tributary which then flows offsite and into the downstream TNW.**

Wetlands 36, 37, and 38 Surface flow is**: Discrete and confined**

Characteristics: **The wetlands directly abut and flow directly into the onsite tributary and then offsite into Cow Castle Creek.**

Wetlands 39 and 44 Surface flow is**: Discrete and confined**

Characteristics: **The wetlands overflow into the non-jurisdictional linear conveyance system and then into the onsite tributary. The tributary then flows offsite into a tributary and then directly into Cow Castle Creek**.

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting Wetland 36 = 0.52 acres; Wetland 37 = 1.74 acres; Wetland 38 = 2.89 acres; **Total= 5.15 acres**

☒ Not directly abutting Wetland 39 = 1.11 acres; Wetland 44= 19.43 **Total = 20.54 acres**

☒ Discrete wetland hydrologic connection. Explain: Flow directly into onsite ditches which serve as a non-jurisdictional linear conveyance to the tributaries onsite.

☒ Ecological connection. Explain: Wildlife uses the similarly situated wetlands along the relevant reach.

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetlands were saturated.**

Identify specific pollutants, if known: : **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributary. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .

☒ Vegetation type/percent cover. Explain: Palustrine forest.

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☒ Aquatic/wildlife diversity. Explain findings:Provides habitat for various organisms.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **7**

Approximately (53.69) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Y	JW36=0.52	N	JW 44= 19.43
Y	JW 38= 2.89	Y	Offsite= 20
Y	JW 37= 1.74	Y	Offsite= 8
N	JW 39= 1.11		

Summarize overall biological, chemical and physical functions being performed: **The on-site tributaries and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity

of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.**

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **The tributary (WoUS 19 and WoUS 20) flow into the offsite tributary after major storm events and other periods of high rainfall. A defined bed and bank with very little leaf litter and debris was observed during the site visit. Therefore, it was determined that the tributary flows seasonally.**

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☒ Tributary waters: **358** linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:**.**
   - ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 36 and 38 are part of larger wetlands that are directly contiguous with the offsite tributary. Wetland 37 surrounds, borders, and is contiguous with the top-of-bank of the onsite tributary which flow to the offsite tributary that flows north to Cow Castle Creek**.

   Provide acreage estimates for jurisdictional wetlands in the review area: **5.15** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: **20.54** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **The site contains a several linear drainage ditches that serves as continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 37, 39, and 44). However, these linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
☒ National wetlands inventory map(s). Cite name:**NWI Mapper**.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 36-39 and 44 flow into an unnamed tributary (WoUS 19-20) and an offsite tributary which flows into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW. Therefore, the above mentioned waters are jurisdictional under Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12, 2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 7 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.6314°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: WoUS 21 = 368; WoUS 22 = 1591; WoUS 23 = 506; WoUS 24 = 95; WoUS 25 = 1034; WoUS 26 = 775; WoUS 27 = 252; WoUS 28 = 674; WoUS 29 = 1145; **Total =6440** linear feet: width (ft) and/or acres.
   Wetlands: Wetland 45 = 2.21 acres; Wetland 46 = 0.11 acres; Wetland 47 = 4.56; Wetland 48 = 3.46; Wetland 49 = 2.46; Wetland 50 = 0.17; Wetland 51 = 19.42; Wetland 52 = 0.25 acres **Total = 32.64 acres**.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual, Established by OHWM**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):** [3]

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The site contains a several linear drainage ditches that serves as continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 45 and 46). However, the linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

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SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

Non-wetland waters: WoUS 21 = 368; WoUS 22 = 1591; WoUS 23 = 506; WoUS 24 = 95; WoUS 25 = 1034; WoUS 26 = 775; WoUS 27 = 252; WoUS 28 = 674; WoUS 29 = 1145; **Total =6440** linear feet

*Note: WoUS 21-29 form a braided network of tributaries within the drainage area of this form 7 of 8.

(i) General Area Conditions:
Watershed size: 1054 **acres**
Drainage area: 1.65 **square miles**
Average annual rainfall: 47 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**: The tributaries (WoUS 21-29) flow into an offsite tributary which flows into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW**.
Tributary stream order, if known: 1.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: **The tributaries have been straightened and excavated to carry more water from the site into an offsite tributary which drains to Cow Castle Creek**.

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The tributary had relatively stable banks with no evidence of erosion or sloughing.
Presence of run/riffle/pool complexes. Explain: None observed.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0-1 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **11-20**
Describe flow regime: The tributaries onsite provide seasonal flow and were observed to have flowing water during the field delineation. Leaf litter and debris in the channel was relatively absent and wrack lines were present within the channels.
Other information on duration and volume: .

Surface flow is: **Discrete and confined**. Characteristics: **Surface flow is restricted under normal conditions between the bed and bank of the tributaries.**

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **During the site visit, the tributaries were dry; no oily film was observed.**

Identify specific pollutants, if known: **Because a large portion of the drainage area is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributaries. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries**.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): **WoUS 21-29 are 1st order tributaries that support a riparian zone that contributes to the health of the aquatic system by filtering out pollutants and preventing erosion.**

☒ Wetland fringe. Characteristics: Wetlands are present along the banks of the RPWs.

☒ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☒ Aquatic/wildlife diversity. Explain findings: **The tributaries provide important aquatic habitat values for wildlife and a travel corridor for aquatic fauna.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland 45 = 2.21 acres; Wetland 46 = 0.11 acres; Wetland 47 = 4.56; Wetland 48 = 3.46; Wetland 49 = 2.46; Wetland 50 = 0.17; Wetland 51 = 19.42; Wetland 52 = 0.25 acres Total = 32.64 acres.**

Wetland type. Explain: **Palustrine forested**.

Wetland quality. Explain: **The wetlands are fully functional.**

Project wetlands cross or serve as state boundaries. Explain: N/A.

(b) General Flow Relationship with Non-TNW:

Wetlands 45 Flow is**: Intermittent flow. Explain: The wetland is depressional and during periods of high rainfall, flows directly into the adjacent tributaries and then into Cow Castle Creek.**

Wetlands 46- 52 Flow is: **Intermittent flow**. Explain: **The wetlands are depressional and during periods of high rainfall, flow directly into the tributaries and then into Cow Castle Creek.**

Wetlands 45-52 Surface flow is**: Discrete and confined**

Characteristics: Discrete flow through the wetland and then confined flow via defined bed and bank of the tributaries.

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting Wetland 46 = 0.11 acres; Wetland 47 = 4.56; Wetland 48 = 3.46; Wetland 49 = 2.46; Wetland 50 = 0.17; Wetland 51 = 19.42; Wetland 52 = 0.25 acres **Total = 30.43 acres**.

☒ Not directly abutting **Wetland 45 = 2.21 acres**
- ☒ Discrete wetland hydrologic connection. Explain: Wetland 45 into a roadside ditch into the sRPW onsite.
- ☒ Ecological connection. Explain: Wildlife uses the similarly situated wetlands along the relevant reach.
- ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

[7]Ibid.

Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **During the site visit, the wetlands were saturated.**

Identify specific pollutants, if known: : **Because a large portion of the watershed is comprised of agricultural land, the potential exists for herbicides and other pesticides, as well as runoff from land disturbing activities such as plowing and harvesting, to enter the on-site tributaries. Because agricultural lands require regular manipulation of the soils, agricultural activities can create an increase in suspended sediments in the downstream tributaries.**

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:Palustrine forest.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☒ Aquatic/wildlife diversity. Explain findings:Provides habitat for various species.

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **12**
Approximately (323) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	JW45=2.21	Y	JW 49=2.46
Y	JW 46= 0.11	Y	JW 50=0.17
Y	JW 47= 4.56	Y	JW 51=19.72
Y	JW 48= 3.46	Y	JW 52= 0.25
Y	Offsite= 40	Y	Offsite= 80
Y	Offsite= 20	Y	Offsite= 150

Summarize overall biological, chemical and physical functions being performed: **The on-site tributaries and adjacent wetlands are providing important biological, chemical, and physical functions. The 1st order tributary and adjacent wetlands act as a catch basin to help filter out pollutants from the neighboring uplands and hold runoff prior to it flowing downstream into the TNW. Besides the obvious functions of stormwater attenuation, absorption, and overstory biomass input into the food web, the seasonal RPW and its adjacent wetlands provide a uniquely important ecological connection to the downstream TNW. The onsite seasonal RPWs and adjacent wetlands are providing important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. As a result, the waters of the US in the drainage area supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. Not only does this prevent the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, but it also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **Land use within this watershed is comprised of 47.9% agricultural land, 28.1% forested land, 15.5% forested wetland (swamp), 8.1% urban land, 0.2% water, and 0.2% nonforested wetland (marsh). According to the SCDHEC Website, there is a low to moderate potential for growth in this watershed, which contains the Towns of Cameron and Bowman, and portions of the City of Orangeburg and the Town of Elloree. Due to the predominance of agricultural land use in this watershed and in the drainage area, herbicides and other pollutants are likely to enter the tributary and downstream TNW. Furthermore, the seasonal RPW and its adjacent wetlands provide stormwater attenuation, absorption, and overstory biomass input into the food web. These waters also provide an important ecological connection to the downstream TNW via important biological, chemical, and physical functions within a watershed comprised primarily of agricultural land use. The biological functions being performed include providing breeding grounds and shelter for aquatic animals and diversifying the plant life within the watershed. The waters of the US in the drainage area also supply food sources for a variety of water dependent species, such as invertebrates, amphibians, reptiles, and mammals. The tributary is essential in providing organic carbons in the form of their collective primary productivity to downstream waters, resulting in the nourishment of the downstream foodweb. The chemical functions being performed consist of the removal of excess pollutants, which are contributed by runoff from the surrounding agricultural areas and uplands, from the downstream TNW. This reduces nitrogen and phosphorus loading downstream and effectively prevents oxygen depletion that can result from eutrophication. Physically, the tributary and adjacent wetlands help reduce stormwater flow. This prevents the accumulation of sediment downstream, which can smother fish and other aquatic wildlife, and also reduces the amount of pollutants downstream because these pollutants are usually transported by sediment particles. This helps to maintain flow volumes. Therefore, based on the collective functions described above and their importance to the biological, chemical, and physical integrity of the traditional navigable waters of Four Hole Swamp, it has been determined that there is a significant nexus between the relevant reach of the unnamed tributary and its adjacent wetlands, to Cow Castle Creek and the downstream TNW.**

Documentation for the Record only: Significant nexus findings for seasonal RPWs and/or wetlands abutting seasonal RPWs: See section C. 3. Above.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **The onsite tributaries (WoUS 21-29) flow after major storm events and other periods of high rainfall. The tributaries contain evidence of relatively permanent flow. The tributaries have well defined channels and bed and bank. They also contain a clear impressed line on the bank indicative of an ordinary high water mark. The channels were also absent of leaf litter and debris in most locations observed during the site visit.**

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **6440** linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:**.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Wetlands 46-52 surround, border, and are contiguous with the top-of-bank of on-site tributaries which flow to an offsite tributary that flows north to Cow Castle Creek**.
Wetland 46 directly abuts WoUS 22.
Wetland 47 directly abuts WoUS 23.
Wetlands 48 and 49 directly abut WoUS 24.
Wetland 50 directly abuts WoUS 21.
Wetland 51 directly abuts WoUS 25.
Wetland 5 direclty abuts WoUS 28.

Provide acreage estimates for jurisdictional wetlands in the review area: **30.43** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **2.21** acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **The site contains a several linear drainage ditches that serves as continuous hydrologic surface connections for the wetlands in the relevant reach (wetlands 45 and 46). However, the linear features do not contain evidence of relatively permanent flow and are excavated wholly in uplands. Therefore, these feature were determined not to be jurisdictional under section 404 of the CWA.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
☒ National wetlands inventory map(s). Cite name: **NWI Mapper**.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .

- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetlands 45-52 flow into unnamed tributaries (WoUS 21-29) and then into an offsite tributary which flows into Cow Castle Creek. Cow Castle Creek flows directly into Four Hole Swamp, the downstream TNW. Therefore, the above mentioned waters are subject to jurisdiction of Section 404 of the CWA.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 12 ,2018

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: JD Form 8 of 8: SAC 2018-00183 Huntley Solar Site

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: **South Carolina** County/parish/borough: **Orangeburg** City: **Bowman**
Center coordinates of site (lat/long in degree decimal format): Lat. **33.3353°** **N**, Long. **-80.6314°** **W**.
Universal Transverse Mercator: **17S; 534298.28mE; 3688524.13mN**
Name of nearest waterbody: **Cow Castle Creek**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Four Hole Swamp**
Name of watershed or Hydrologic Unit Code (HUC): **0305020501 Upper Four Hole Swamp**

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): **April 4-5, 2018**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands:

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **There are sixteen (16) wetlands which have been determined to be isolated and non-jurisdictional: NJD1 =**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

0.29 acre; NJD2 = 0.03 acre; NJD3 = 0.002 acre; NJD4 = 0.05 acre; NJD5 = 0.23 acre; NJD6 = 1.18 acre; NJD 7 = 0.3 acre; NJD8 = 0.83 acre; NJD9 = 0.27 acre; NJD10 = 0.63 acre; NJD11 = 0.79 acre; NJD12 = 0.06 acre; NJD13 = 0.04 acre; NJD14 = 0.33 acre; NJD15 = 0.44 acre; NJD16 = 0.87 acre; NJD 17 = 0.01 acres; NJD 18 = 4.97 acres; NJD 19= 3.55 acres; TOTAL= 14.872 acres

All features were determined to be depressional wetland pockets surrounded by uplands and positioned lower in the landscape than the surrounding uplands. There were no ditches, swales, or other linear features which would allow the conveyance of flow from the wetlands to the downstream TNW. No visible surface hydrologic connections between these wetlands and waters of the US appear to be present. In addition, there are no apparent shallow subsurface hydrologic connections, and no apparent physical, chemical, or biological connections to waters of the US. The wetlands also have no apparent ecological interconnection to waters of the US. For these reasons, the above referenced NJD wetlands were determined to be isolated and non-jurisdictional and therefore not regulated by Section 404 of the CWA.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]**:**
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope):

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime:
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics:

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:.

Wetland quality. Explain:**.**

Project wetlands cross or serve as state boundaries. Explain:.

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain:**.**

Surface flow is**: Not present**

Characteristics:

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain:.
  - ☐ Ecological connection. Explain:
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known: :

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. **Characteristics of all wetlands adjacent to the tributary (if any)**
   All wetland(s) being considered in the cumulative analysis: **Pick List**
   Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.

☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:.

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **.**
☐ Other: (explain, if not covered above): **.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters:**.**
☒ Wetlands: **NJD1 = 0.29 acre; NJD2 = 0.03 acre; NJD3 = 0.002 acre; NJD4 = 0.05 acre; NJD5 = 0.23 acre; NJD6 = 1.18 acre; NJD 7 = 0.3 acre; NJD8 = 0.83 acre; NJD9 = 0.27 acre; NJD10 = 0.63 acre; NJD11 = 0.79 acre; NJD12 = 0.06 acre; NJD13 = 0.04 acre; NJD14 = 0.33 acre; NJD15 = 0.44 acre; NJD16 = 0.87 acre; NJD 17 = 0.01 acres; NJD 18 = 4.97 acres; NJD 19= 3.55 acres; TOTAL= 14.872 acres**

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant**: Maps prepared by consultant; Wes Fryar of Land Management Group.**
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Bowman Quadrangle 7.5**.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **NRCS Web Soil Survey**.
☒ National wetlands inventory map(s). Cite name: **NWI Mapper.**
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **NAIP Imagery provided by consultant**.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: NJD1 through NJD16 were determined to be isolated and non-jurisdictional and therefore, not regulated by Section 404 of the CWA. The jurisdictional status of the remaining wetlands onsite are discussed on Forms 1 through 7 of 8.