

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): October 9, 2019

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Savannah District, 1,258 Acre Blackwater Solar SAS-2019-00554

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Georgia County/parish/borough: Ware City: Bickley

Center coordinates of site (lat/long in degree decimal format): Lat. 31.401857° N, Long. -82.615989° W.

Universal Transverse Mercator: 17R 346369.25 3475268.20

Name of nearest waterbody: Hogg Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Satilla River

Name of watershed or Hydrologic Unit Code (HUC): 03070201

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: 10/08/2019

Field Determination. Date(s): 9/24/2019

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 waters² (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: 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

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

Explain: (See Section IV.B for more information)

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.

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: N/A.

Summarize rationale supporting determination: N/A.

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": N/A.

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 waterbody⁴ 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

(ii) Physical Characteristics:

(a) Relationship with TNW:

- Tributary flows directly into TNW.
 Tributary flows through 2 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: N/a.

Identify flow route to TNW⁵: P1 originates on-site and then flows off-site flows and into Lotts Creek (RPW), which flows directly into the Canoochee River (TNW).

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

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.

Tributary stream order, if known: 1st.

(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: Relatively stable.

Presence of run/riffle/pool complexes. Explain: riffle/pool complexes are not present throughout channel because channel slope is minimal and well developed riffles are not present.

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): n/a %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime: Channel appears to have flow most of the year.

Other information on duration and volume: P1 appears to be a perennial stream that has flow most of the year. The portion of P1 that is within the site is located within a wetland system, so the area around it has a high water table.

Surface flow is: **Discrete and confined**. **Characteristics:** During normal conditions, flow is confined to channel, but during high flow events, surface flow can extend outside of channel.

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

Dye (or other) test performed:

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (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: The channel of P1 is a shallow channel and banks are not continuous throughout entire length. The channel gets shallow at the lower portion and no distinct OHWM was observed. Therefore, an OHWM is not present throughout the entire length of the channel.

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

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

(iii) **Chemical Characteristics:**

⁶A 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.

⁷Ibid.

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

Explain: In general, the water appearance and quality throughout I4 and upstream appeared to be fine.

Identify specific pollutants, if known: .

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

- Riparian corridor. Characteristics (type, average width): Riparian corridor is of varying widths and overall somewhat narrow. Stream and wetland system is surrounded by livestock pasture areas. Riparian trees are a mixture of hardwood species.
- 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: Evidence of usage by terrestrial wildlife as travel corridor.

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: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: drainage patterns present where surface water flows overland into stream channel.

Subsurface flow: **Pick List**. Explain findings: Wetland area contains hydric soils, so water table is close to the surface for portions of the year. It is assumed that there is some subsurface flow from wetland to stream.

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): Mixed hardwood species >100 ft.
- 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)

See attached table describing all delineated waters within the site including details of each, specifically significant nexus connections

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:
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:

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: P1 had significant flow during field review. It contained a defined channel with evidence of seasonal water flow.

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-RPWs⁸ 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: **Wetland L directly abuts P1. Channel of P1 begins at several sepages and flow through the center fo Wetland L..**
 - 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: **3.85** 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 jurisdictional. 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

- 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: .

⁸See 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 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:

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: 52.21 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: .
- 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: Ware Quad, 1inch = 2,000 feet USGS Topographic Map.
- USDA Natural Resources Conservation Service Soil Survey. Citation: Heelstone Energy, NRCS Soil Map.
- National wetlands inventory map(s). Cite name: Heelstone Energy, National Wetlands Inventory.
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: Heelstone Energy
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):
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): Lidar with Isolated wetlands Image

B. ADDITIONAL COMMENTS TO SUPPORT JD:

The proposed non-jurisdictional wetlands located on-site are a combination of isolated depressional bowls, cypress domes, and scrub-shrub depressions. All features were field delineated and showed no physical, chemical or biological connections with any other Waters of the U.S. No ditches or pine bed rows were oriented in any direction as to form a hydrological connection between wetlands. Large topographical upland surrounds each isolated wetland feature on-site and no significant nexus is found between the proposed isolated features and jurisdictional wetlands.

Isolated Non-Jurisdictional Wetland 1 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 1,080 feet east of the nearest jurisdictional wetland. Furthermore, the pine beds that comprise the land between Isolated Non-Jurisdictional Wetland 1 and its' nearest jurisdictional wetland are oriented north/south further isolating it from other Waters of the U.S. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 1. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 1 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 2 is a hardwood depression with obvious signs of past excavation activities that now collects precipitation as the sole driver of its' hydrologic regime. This wetland area is located at one of the highest elevations on the property, is physically isolated from all other wetlands on the project site and is 540 feet east of the nearest proposed jurisdictional wetland. Furthermore, the pine beds that comprise the land between Isolated Non-Jurisdictional Wetland 2 and its' nearest jurisdictional wetland are oriented north/south further isolating it from other Waters of the U.S. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 2. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 2 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 4 is a hardwood depression with obvious signs of significant rutting during the last timber harvest, these ruts now collect precipitation as the sole driver of its' hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 900 feet south of the nearest jurisdictional wetland, which is located offsite and on the opposite side of Old Nicholis Hwy. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 4. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 4 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 5 is a densely vegetated, depressional, scrub-shrub wetland that has been recently clear-cut and ponds water during seasonal rain events. This wetland area is physically isolated from all other wetlands on the project site and is 360 feet northeast of the nearest proposed jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 5. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 5 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 7 is a densely vegetated, depressional, scrub-shrub wetland that has been recently clear-cut and ponds water during seasonal rain events. This wetland area is physically isolated from all other wetlands on the project site and is 405 feet north of the nearest proposed jurisdictional wetland, which is located on the opposite side of Courson Road. There is no culvert or any other drainage structure present that could transport water from the north side of Courson Road to the south side.. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 7. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 7 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 9 is a densely vegetated, depressional, scrub-shrub wetland that has been recently clear-cut and ponds water during seasonal rain events. This wetland area is physically isolated from all other wetlands on the project site and is 810 feet southwest of the nearest proposed jurisdictional wetland. There is a significant man-made berm, with no drainage structure through it present on the downhill side (southeastern side) preventing surface water drainage. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 9. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 9 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 10 is a densely vegetated, depressional, scrub-shrub wetland that has been recently clear-cut and ponds water during seasonal rain events. This wetland area is physically isolated from all other wetlands on the project site and is 675 feet southwest of the nearest proposed jurisdictional wetland. There is a significant man-made berm, with no drainage structure through it present on the downhill side (northwestern side) preventing surface water drainage. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 10. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur.

Isolated Non-Jurisdictional Wetland 10 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 11 is a very densely vegetated depression that is dominated by cypress trees in the canopy and fetterbush (*Lyonia lucida*) in the shrub layer. Isolated Non-Jurisdictional Wetland 11 has a hydrologic regime solely driven by precipitation. This wetland area is physically isolated from all other wetlands on the project site and is 540 feet south of the nearest jurisdictional wetland. Furthermore, the pine beds that comprise the land between Isolated Non-Jurisdictional Wetland 11 and its' nearest jurisdictional wetland are oriented east/west further isolating it from other Waters of the U.S. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 11. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 11 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

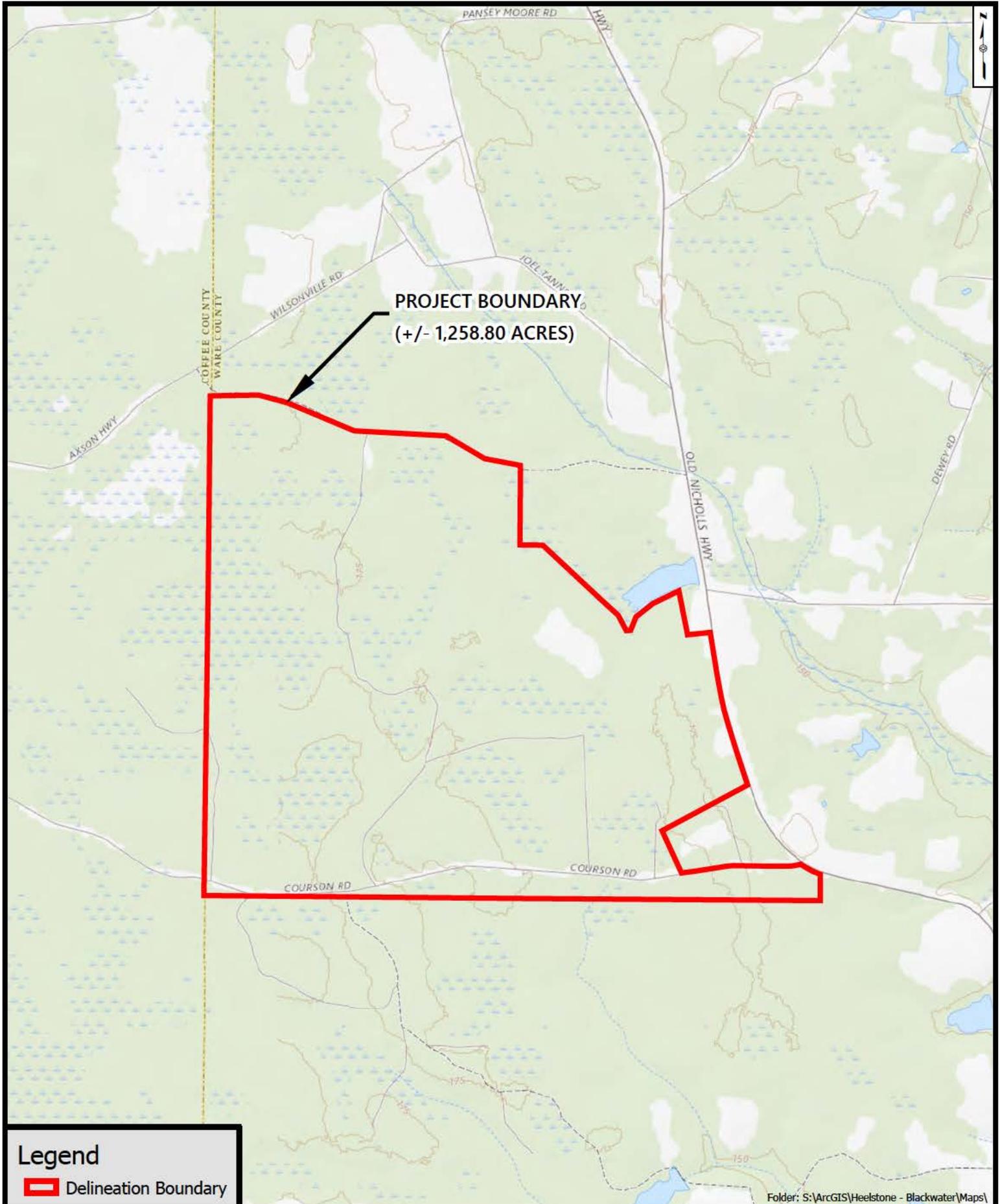
Isolated Non-Jurisdictional Wetland 12 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 450 feet northwest of the nearest jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 12. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 12 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 21 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 270 feet east of the nearest jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 21. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 21 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 23 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 315 feet northwest of the nearest jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 23. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 23 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 24 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 450 feet north of the nearest jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 23. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 23 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.

Isolated Non-Jurisdictional Wetland 26 is a cypress and blackgum dome, depressional in nature that has a solely precipitation driven hydrologic regime. This wetland area is physically isolated from all other wetlands on the project site and is 400 feet southwest of the nearest jurisdictional wetland. No ditches or drainage features are associated with, or connected to Isolated Non-Jurisdictional Wetland 26. There is discernable topographic relief between the isolated feature and neighboring wetlands that prevents hydrologic interactions. Based upon numerous inspections of this wetland, permanent standing water does not occur. Isolated Non-Jurisdictional Wetland 26 appears to only stage water after storm events, and then this water percolates downward through the sandy soils.



PROJECT BOUNDARY
 (+/- 1,258.80 ACRES)

Legend

 Delineation Boundary

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Figure 2 - USGS Topo Map

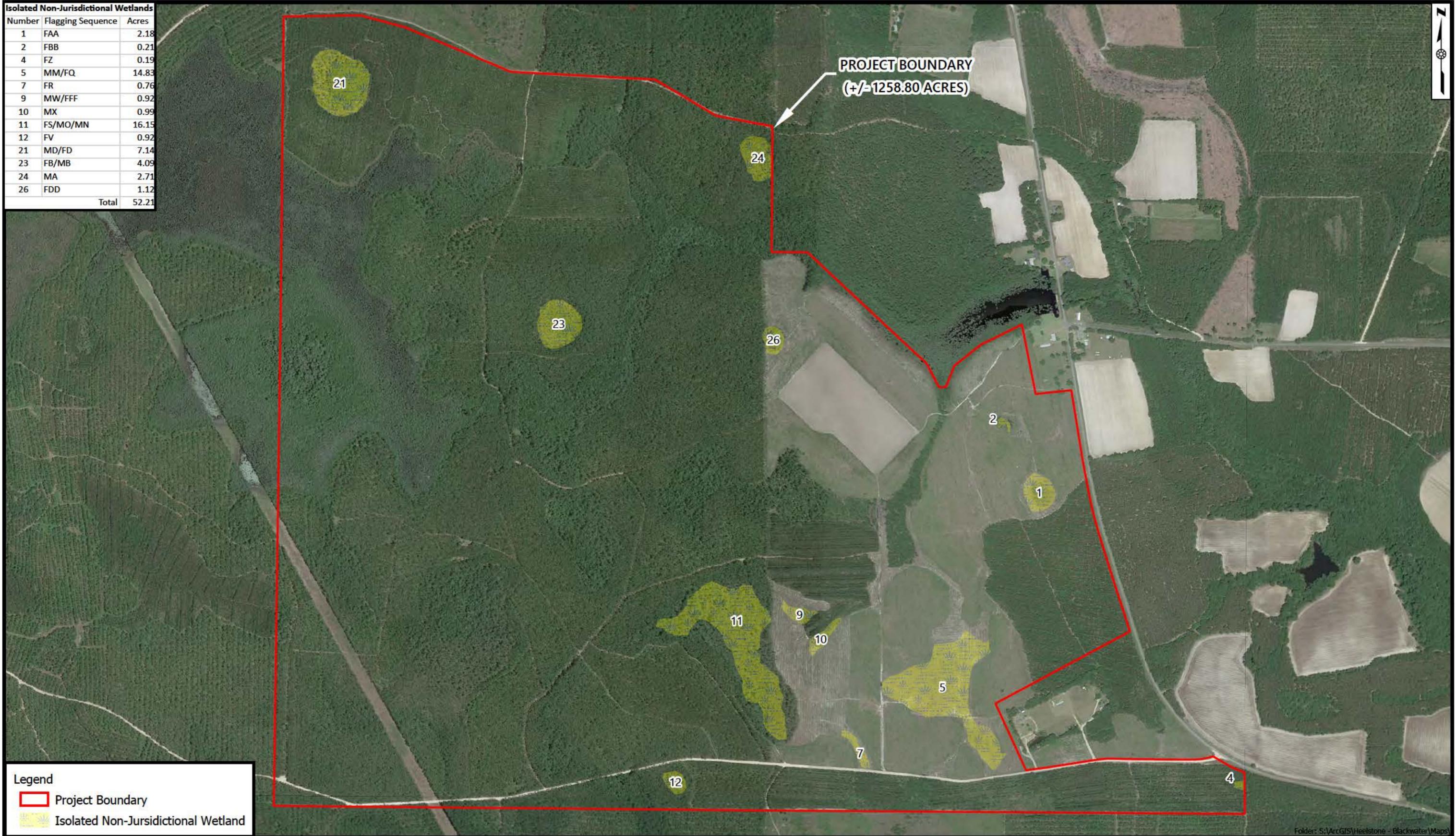
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Ware County, GA



Date: 6/10/2019

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Isolated Non-Jurisdictional Wetlands		
Number	Flagging Sequence	Acres
1	FAA	2.18
2	FBB	0.21
4	FZ	0.19
5	MM/FQ	14.83
7	FR	0.76
9	MW/FFF	0.92
10	MX	0.99
11	FS/MO/MN	16.15
12	FV	0.92
21	MD/FD	7.14
23	FB/MB	4.09
24	MA	2.71
26	FDD	1.12
Total		52.21



Legend

- Project Boundary
- Isolated Non-Jurisdictional Wetland

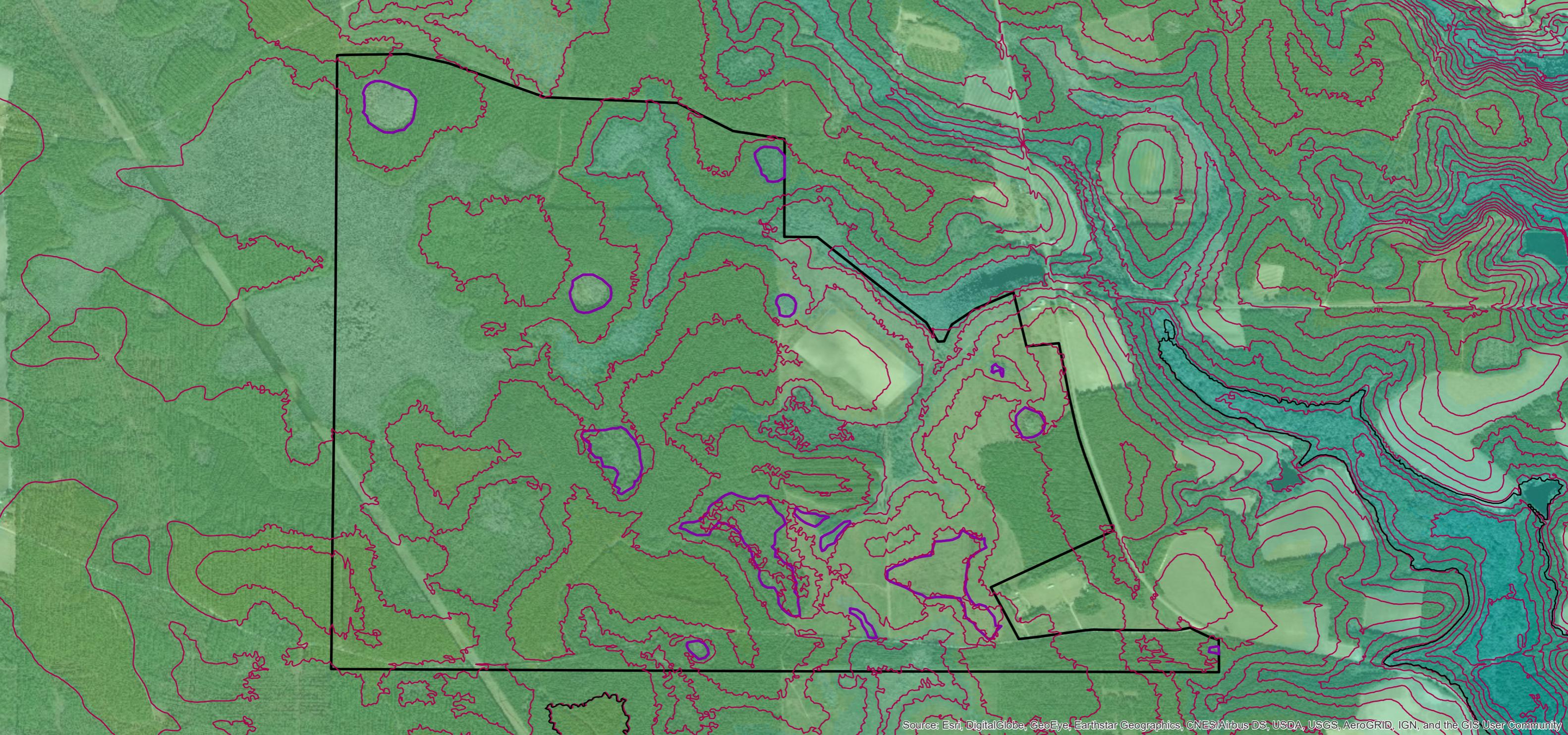
Figure 8 - Isolated Non-Jurisdictional Wetland Map

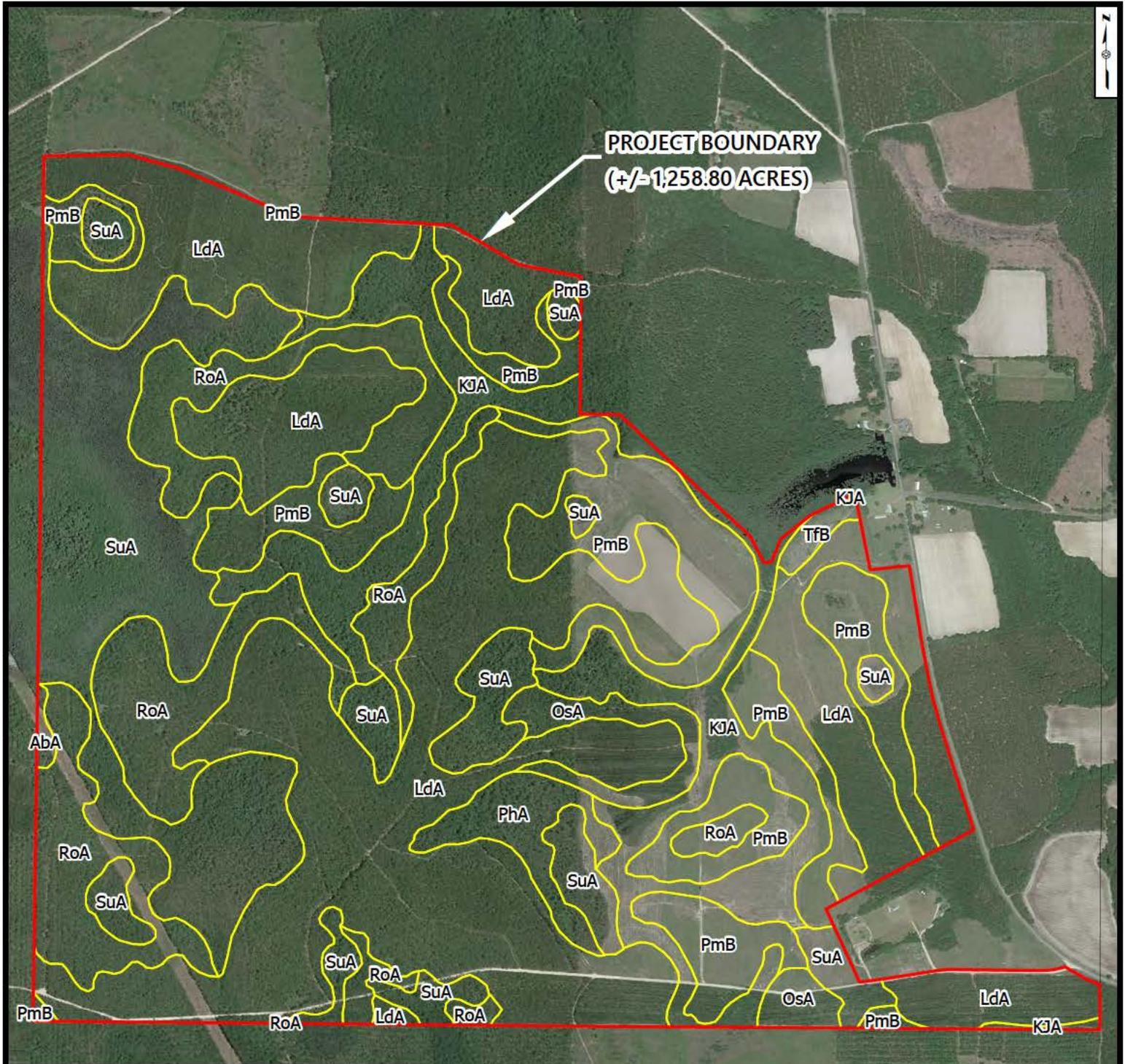


**Heelstone Energy
Blackwater Solar**
Ware County, Ga
Date: 9/30/2019

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PROJECT BOUNDARY
 (+/-1,258.80 ACRES)

Legend

Project Boundary

Soils

- AbA - Albany-Leafield complex; somewhat poorly drained
- KJA - Kinston and Johnston soils; poorly drained
- LdA - Leafield loamy sand; somewhat poorly drained
- OsA - Olustee loamy fine sand; poorly drained
- PhA - Pelham fine sand; poorly drained
- PmB - Pelham loamy fine sand; poorly drained
- RoA - Rigdon-Olustee complex; somewhat poorly drained
- SuA - Surrency mucky fine sand; very poorly drained
- TFB - Tifton loamy sand; well drained

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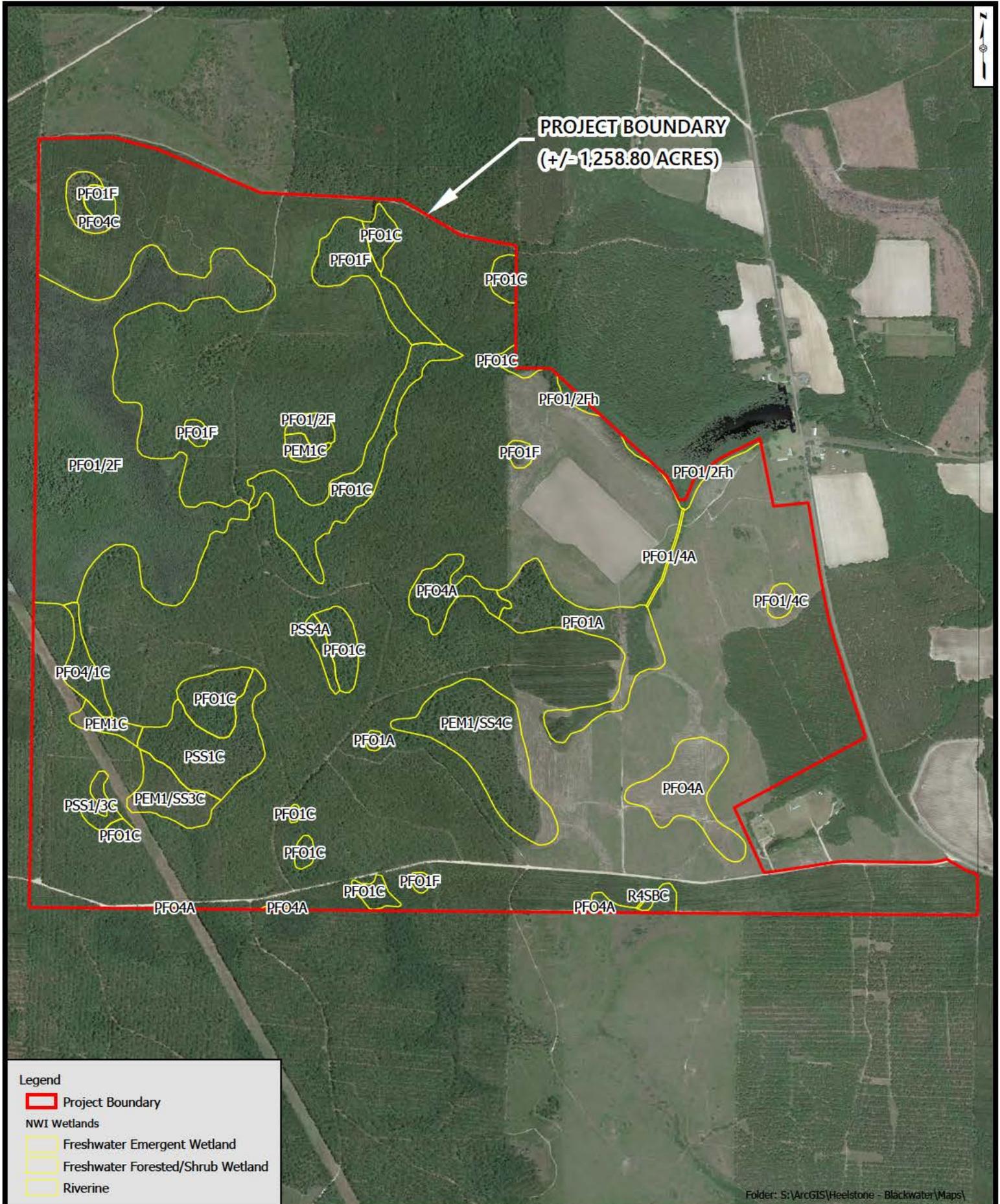
Figure 3 - Soils Map

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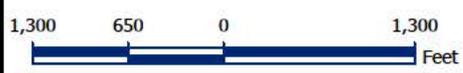
Legend

- Project Boundary
- NWI Wetlands
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Riverine

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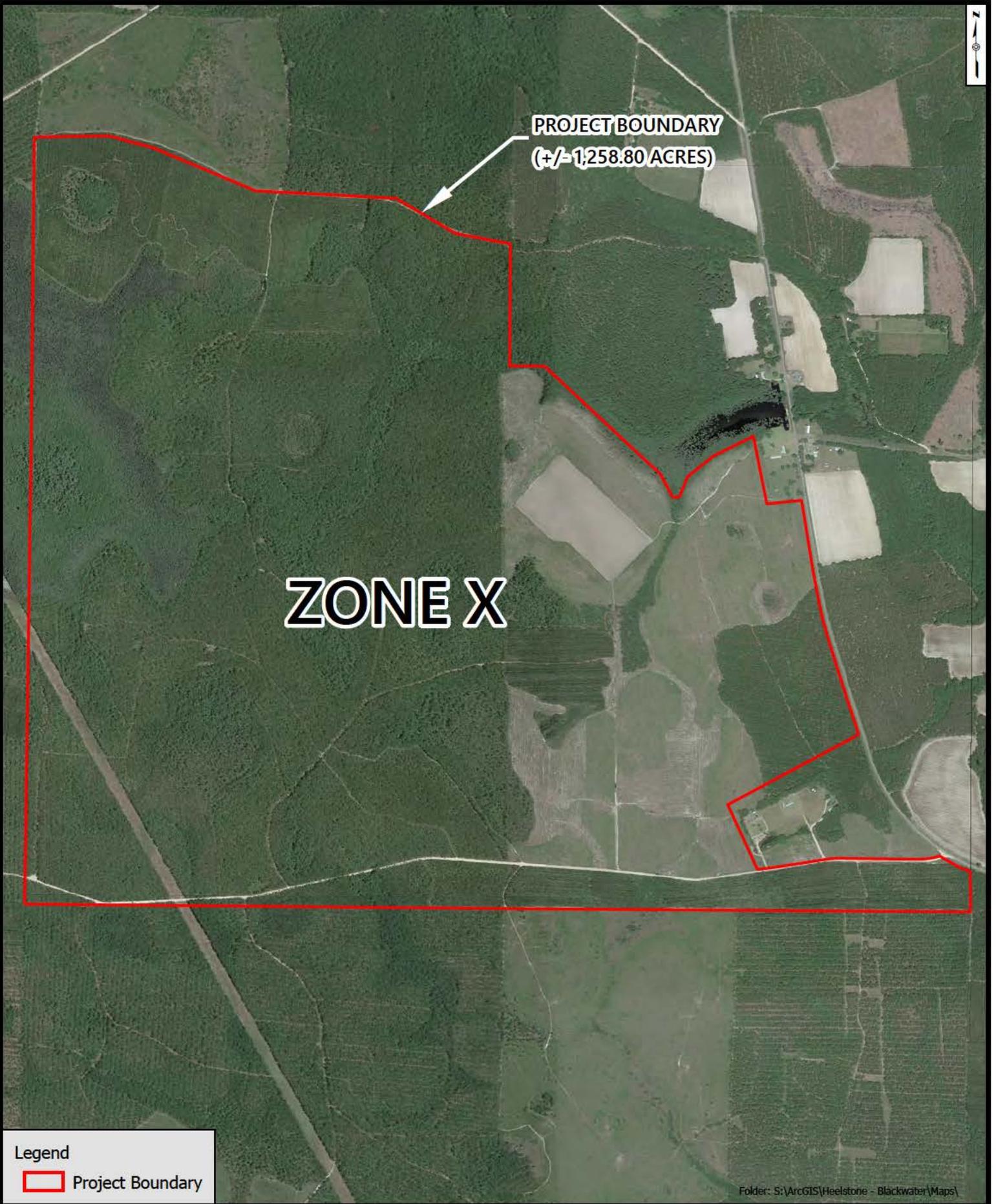
Figure 4 - NWI Map

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Ware County, GA



Date: 6/27/2019

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PROJECT BOUNDARY
(+/-1,258.80 ACRES)

ZONE X

Legend

 Project Boundary

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Figure 5 - FEMA Map

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Consulting Engineers



Date: 7/8/2019