**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):**

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State:TX County/parish/borough: Collin City: Celina
Center coordinates of site (lat/long in degree decimal format): Lat. 33.287248° **N**, Long. -96.847535° **E**.
Universal Transverse Mercator:
Name of nearest waterbody: Doe Branch
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Elm Fork Trinity River
Name of watershed or Hydrologic Unit Code (HUC): HUC10:1203010309

☒ 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): August 7, 2014

**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 and are not** "*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: 5896 linear feet: width (ft) and/or 0.82 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): unknown.

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: **Isolated tributary segment; man-made off-channel pond**.

[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: .

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: Doe Branch 29441 **acres**
Drainage area: ~11,000 **acres**
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 **30 (or more)** 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: .

[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.

(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: 8-10 feet
Average depth: 3-4 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: Blackland Prairie clays. | | |

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
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: Doe Branch Tributary D is a straight modified ephemeral drainage that at different times of year may have discontinuous OHWM. Doe Branch Tributary 10 is a highly meandering ephemeral channel that may retain intermittent pools over the course of the year. The Doe Branch tributary is a RPW that likely has perennial flow based on observations at the site and elsewhere in the watershed on separate occasions (i.e. other projects).
Other information on duration and volume: See above.

Surface flow is: **Pick List.** Characteristics: Doe Branch Tributary D entails a narrow ditch-type feature in a larger overland swale. Flow during large events likely leaves the channel and is contained in the swale. For the remaining tributaries, flow is confined within the channel.

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: .

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:**

[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.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Watershed mostly rural pasture not too distant from Lake Lewisville limits of impoundment.
Identify specific pollutants, if known: .

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

- ☒ Riparian corridor. Characteristics (type, average width): Does not apply to Doe Branch Tributary D.
- ☐ 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: **Pick List**. Explain: .

Surface flow is**: Pick List**

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: All ephemeral stream segments comprise the majority of woody vegetation in the watershed by way of their riparian corridors. Riparian corridors shade relatively undisturbed stream segments prolonging inundation periods for intermittent pools that may exist in larger drainages. Not converted to crop or pasture, these riparian areas reduce runoff and sediment transport into the systems and are the primary means of wildlife movement in the watershed Given the proximity to Lake Lewisville, an impoundment of the Elm Fork Trinity, the physical, chemical, and biological influence on downstream TNW is less than speculative.

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: Doe Branch within the study area and upstream has been observed to contain flowing water at multple times during the year, including summer months.

☒ 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: Although dry during field inspection, numerous aerial photography sources demonstrate appreciable level of inundation within the channel.

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:**The feature is located within a wooded area within an agricultural field, identified as an Unnamed Tributary to Doe Branch 10. This feature has a sporadic defined OHWM within the wooded area but due to extenstive agricultural activity within proximity it has lost a defined OHWM south of the aforementioned feature.**
☐ 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): **2,285** linear feet, **3 - 12** 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: .
☒ 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:1:24,000 "Celina, TX".
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☒ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Landiscor,2003; Landiscor, 2013; NTCOG, 2015 .
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:**

DOE BRANCH TRIBUTARY 10 SEGMENT: The features identified as remnant channels of Doe Branch Tributary 10 are located within the central portion of the study area. This feature consists of two remnant channels of a historic unnamed tributary to Doe Branch which is depicted on both the USGS topographic map and historic soil survey maps (not provided). These features exhibit a defined ordinary high watermark within the wooded portion of the agricultural field but due to agricultural practices over time, the stream feature has lost a discernable OHWM connection between its southern reaches south of Carey Road. Areas located between the remanant channels shown in Figure 3 have been reduced to topographic depressions due to extensive agricultural practices within the study area. These areas only convey stormwater runoff during heavier precipitation events through overland flow. Frequency of flow within these areas is insufficient to maintain an OHWM or wetland condition; plowing of row crops seem continuous (i.e. uniterrupted by the presence of non-crop vegetation) within these topographic depressions. Although floodplain maps (Figure 9) depict the southern portions of the remnant channels lie within the one percent annual floodhazard zone, the floodplain mapped within the study area was estimated with no base flood elevations determined. The floodplain within the study area is based on FEMA's best estimates of historic stream characterstics, capacity, and topography. It can be concluded that due to the extensive agricultural practices within the study area, the topography and stream condition has been greatly modified. These modifications have likely led to an over estimation of the mapped floodplain within the study area.

Aerial photography supports that the existing condition and intensive agricultural practices within the study area have been present for decades and further support the lack of a significant channel between the remnant channela of Doe Branch Tributary 10 and its southern reaches outside the study area south of Carey Road. South of of Carey Road, the OHWM is continuous for several miles downstream leaving little question as to jurisdiction. The remnant channels observed during field investigations were largely devoid of water except in areas of concentrated cattle use that had led to deep depressions within the feature. The water present during field investigations is not groundwater influenced but the result of remnant surface water runoff. Due to the ephermeral nature of the remnant channel to Doe Branch Tributary 10 and the intensive agricultural practices within the area, this feature does not support aquatic life such as fish. These remnant channels to Doe Branch Tributary 10 are seperated from the lower portions of this stream by approximately 2,200 feet, which greatly limits these features capacity to tranport pollutants, flood waters, nutrients, or organic cabon that would influence downstream food webs or TNWs. Furthermore, any contribution from the channels on the biological, physical, and chemical condition of the nearest relatively permanent water (RPW), Doe Branch, and the Elm Fork Trinity River (the nearest TNW), would be speculative and insubstantial.

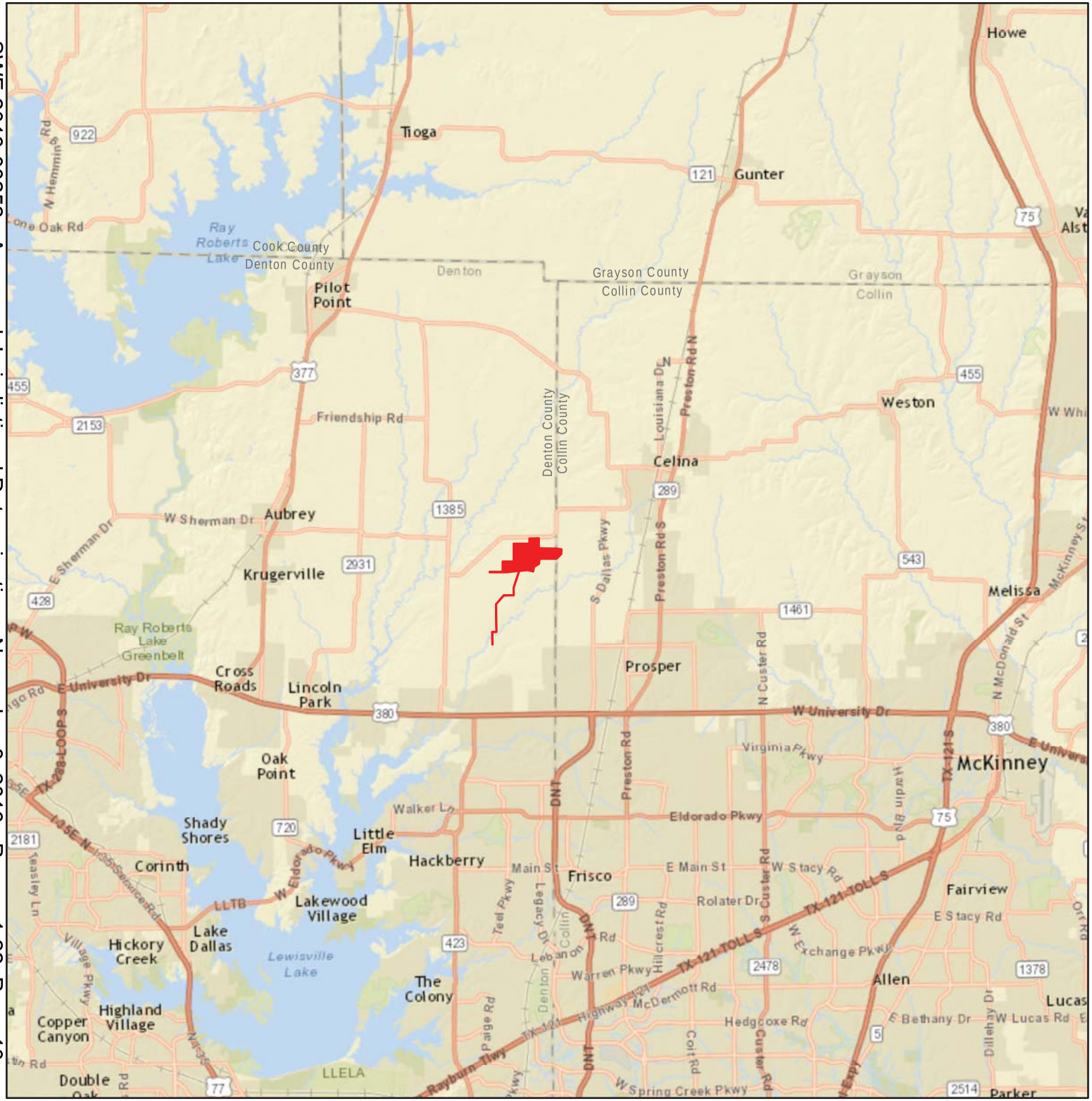
UNNAMED OPEN WATER
This feature is an isolated excavation that was presumably used for livestock watering in the prior site history. The pond is not located on-channel and is not in the realm for classification as a water of the United States under 33 CFR 328.3. This features is considered a non-water of the United States and a determination of jurisdiction through the approved jurisdictional determination process is not warranted.

DOE BRANCH TRIBUTARY D
This is a headwater tributary to Doe Branch that at different times of the year may have a discontinuous OHWM within the study area. Nonetheless, there is sufficient evidence that flow is continuous during even moderate rain events, contributing channel flow to the downstream tributary system. It is expected that the influence on downstream physical, chemical, and biological processes is more than speculative and the feature should be considered a water of the United States.

DOE BRANCH TRIBUTARY 10 (SOUTH OF CAREY ROAD)
Proximal to the study area, this tributary is a highly sinuous natural channel that based on lack of groundwater influence should be classified as an ephemeral channel. However, the channel may hold water for extended periods based on backwater influences from Lake Lewisville and Doe Branch. t is expected that the influence on downstream physical, chemical, and biological processes is more than speculative and the feature should be considered a water of the United States.

UNNAMED TRIBUTARY TO DOE BRANCH
This is an intermittent tributary to Doe Branch, and should be classified as a relatively permanent water. No further demonstration for jurisdiction is required. This tributary is considered a water of the United States.

DOE BRANCH
Doe Branch is a perennial stream (i.e. relatively permanent water) and no further demonstration for jurisdiction is required. This tributary is considered a water of the United States.




0 2 4 8

SCALE IN MILES

## Legend

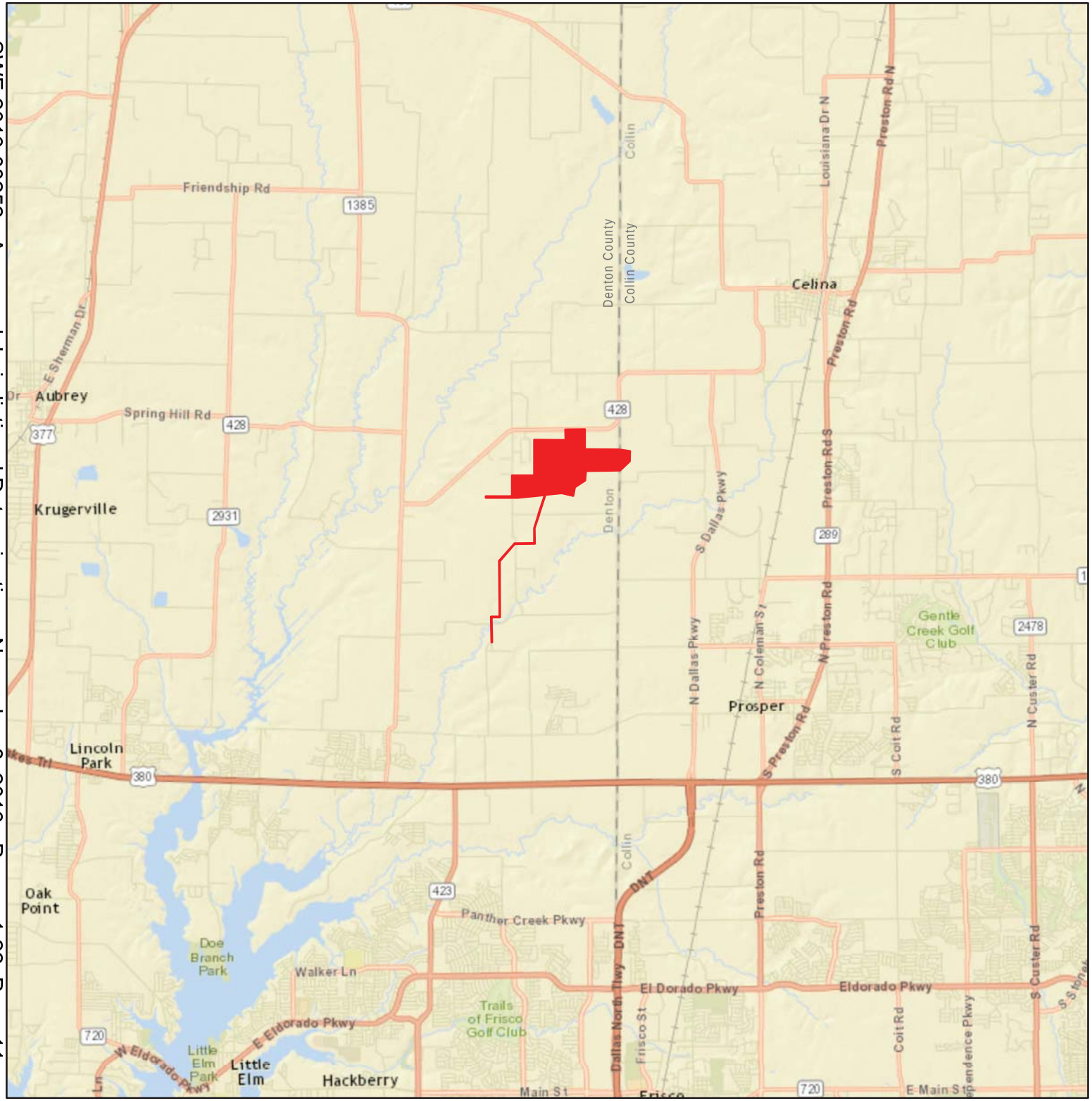
Study Area

Notes:
1. Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
2.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: VICINITY MAP |
| Sheet Number: FIGURE 1 |

HALFF

SWF-2016-00252 - Approved Jurisdictional Determination - November 8, 2016 - Pages 1-22, Page 10




0 1 2 4

SCALE IN MILES

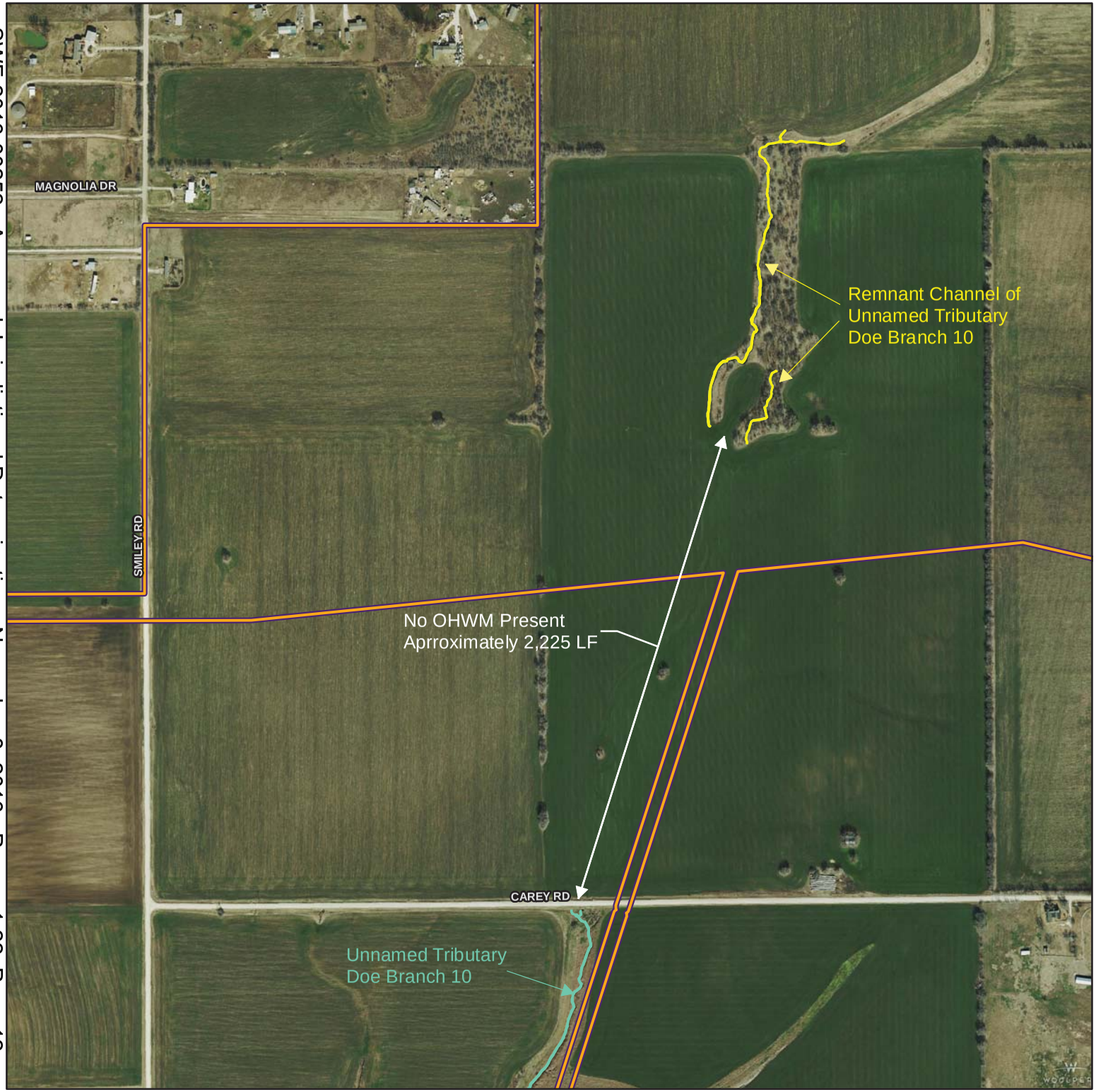
## Legend

Study Area

Notes:
1. Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
2.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: LOCATION MAP |
| Sheet Number: FIGURE 2 |

HALFF




N

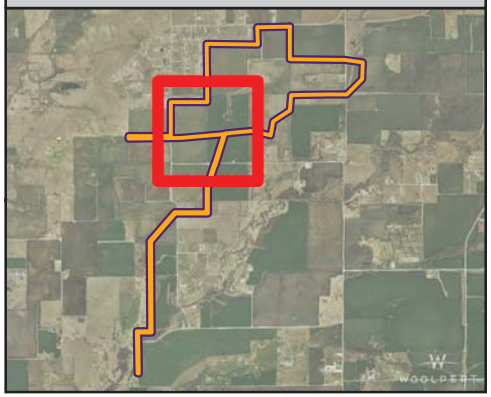
0 300 600 1,200

SCALE IN FEET

## Legend

- Study Area
- Ephemeral Stream
- Remnant Channel of UTDB-10

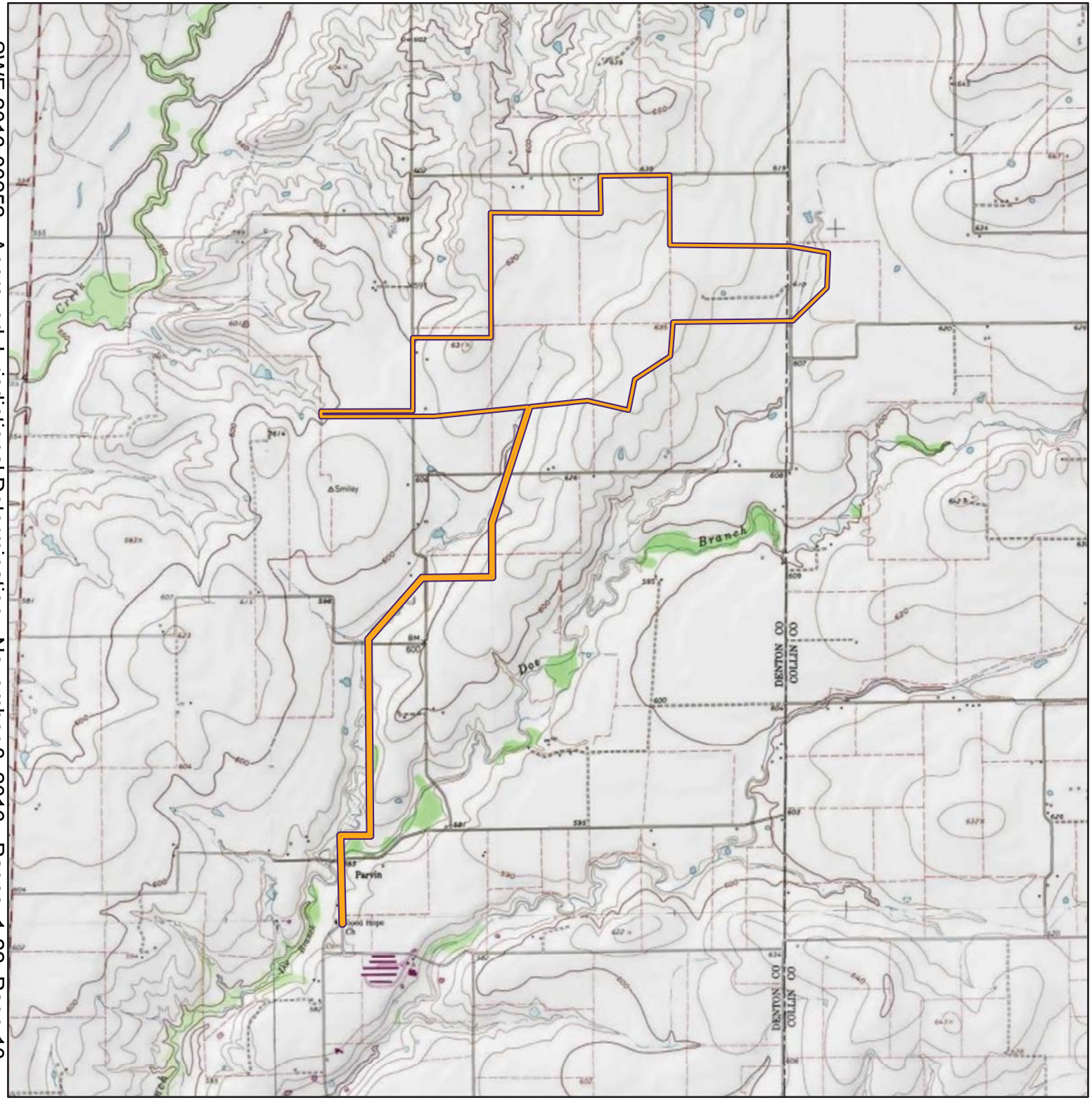
## Map View Extent



Notes:
1. Image Source: NTCOG/2015
2.
3.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: AQUATIC FEATURES MAP |
| Sheet Number: FIGURE 3 |

HALFF




N

0 1,500 3,000 6,000

SCALE IN FEET

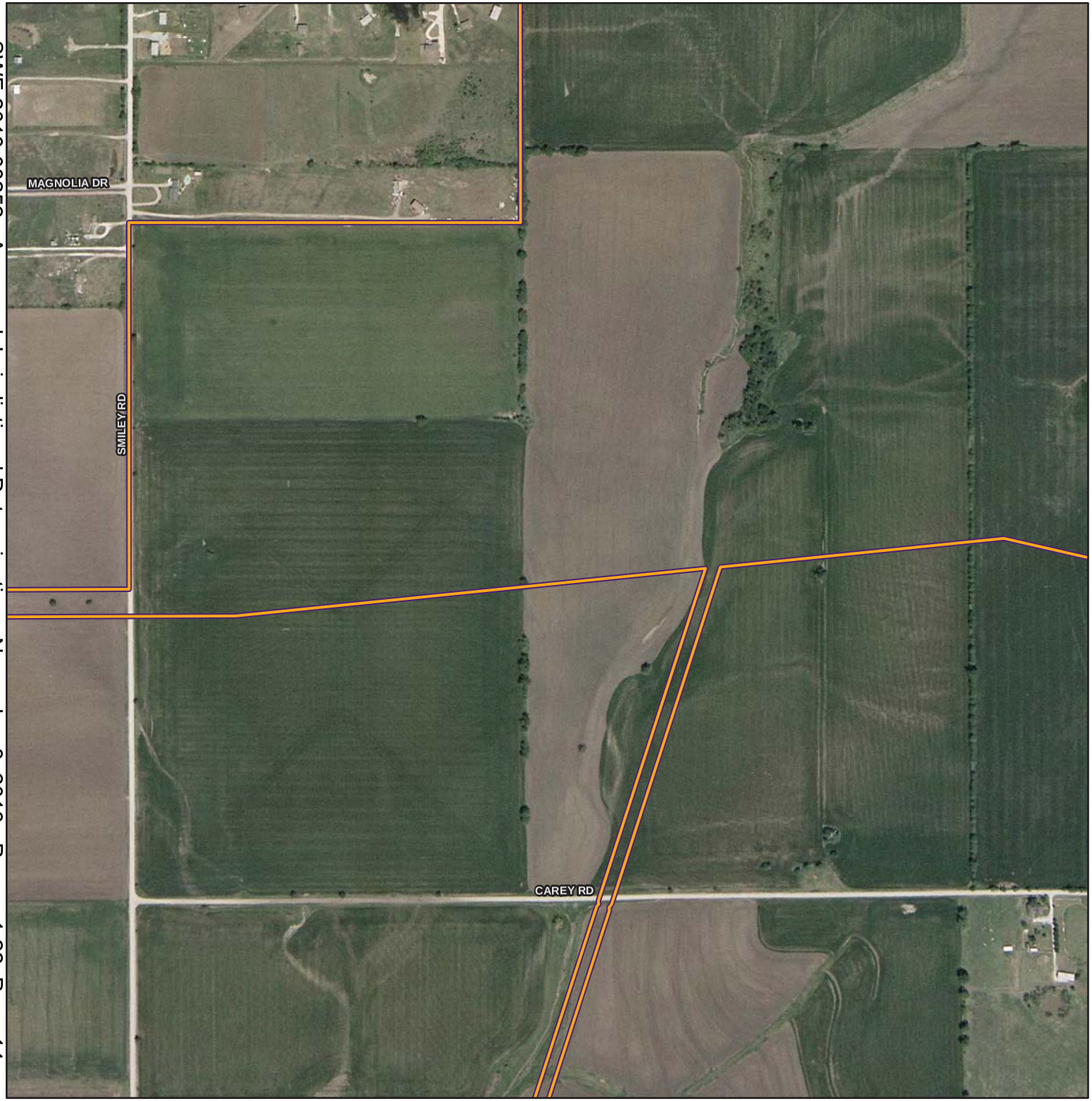
## Legend

Study Area

Notes:
1. Service Layer Credits: Copyright: © 2013 National Geographic Society
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: USGS MAP |
| Sheet Number: FIGURE 4 |

HALFF




N

0 300 600 1,200

SCALE IN FEET

## Legend

Study Area

Notes:
1. Image Layer: Landiscor/2003
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: 2003 AERIAL MAP |
| Sheet Number: FIGURE 5 |

HALFF


N

0 300 600 1,200

SCALE IN FEET

## Legend

Study Area

Notes:
1. Image Layer: Landiscor/2013
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: 2013 AERIAL MAP |
| Sheet Number: FIGURE 6 |

HALFF


N

0 300 600 1,200

SCALE IN FEET

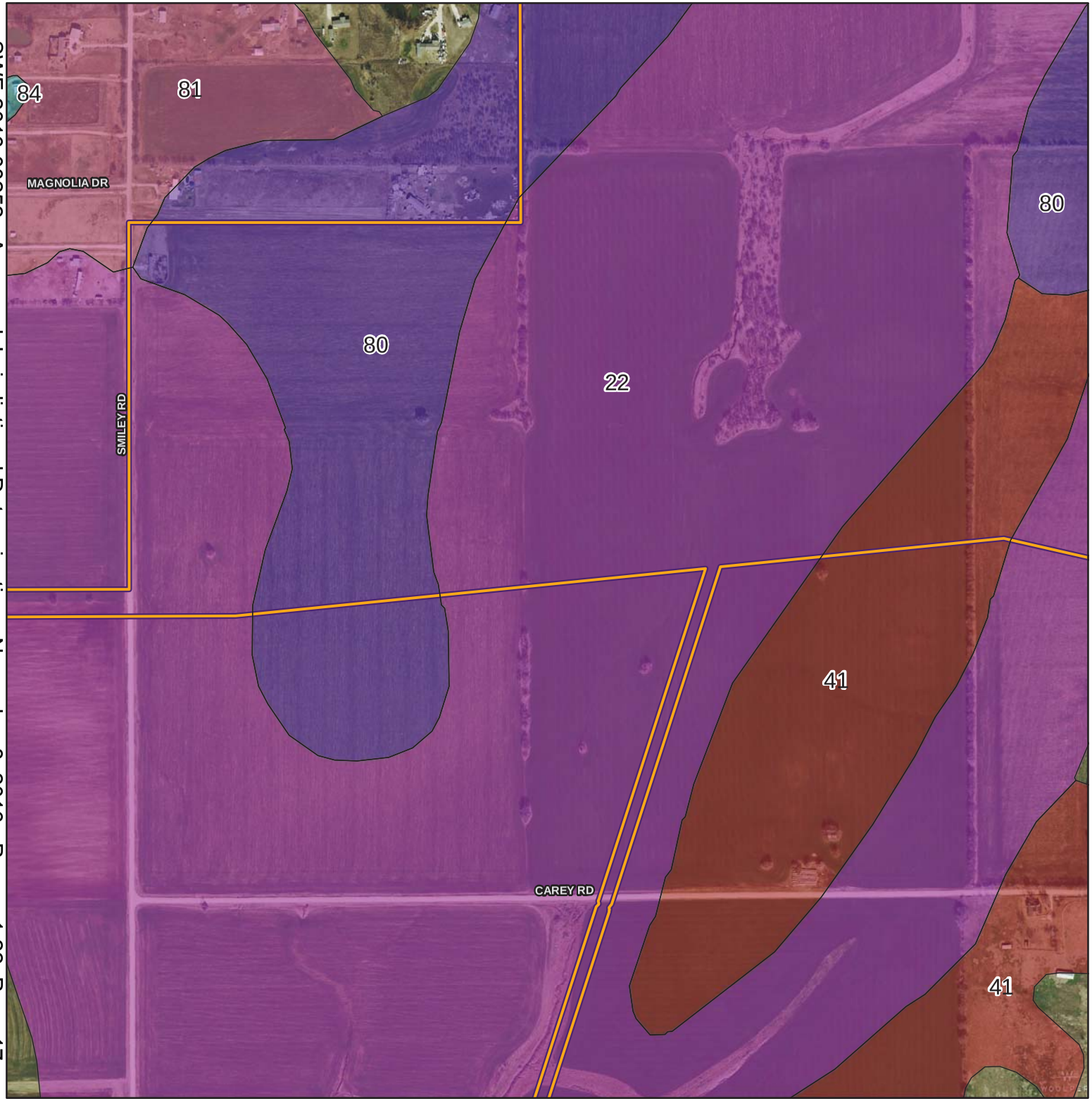
## Legend

Study Area

Notes:
1. Image Layer: NTCOG/2015
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: 2015 AERIAL MAP |
| Sheet Number: FIGURE 7 |

HALFF




N

0 300 600 1,200

SCALE IN FEET

**Legend**

Study Area

USDA Soil Survey

- 22 - Burleson clay, 1 to 3 percent slopes
- 41 - Heiden clay, 1 to 3 percent slopes
- 80 - Vertel clay, 1 to 3 percent slopes
- 81 - Vertel clay, 3 to 5 percent slopes
- 84 - Wilson clay loam, 1 to 3 percent slopes

Notes:
1. Source/Year of Soil Survey: NRCS/USDA Web Soil Survey dowloader for Denton and Collin Counties/2012
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: SOIL SURVEY MAP |
| Sheet Number: FIGURE 8 |

HALFF


N

0 300 600 1,200

SCALE IN FEET

## Legend

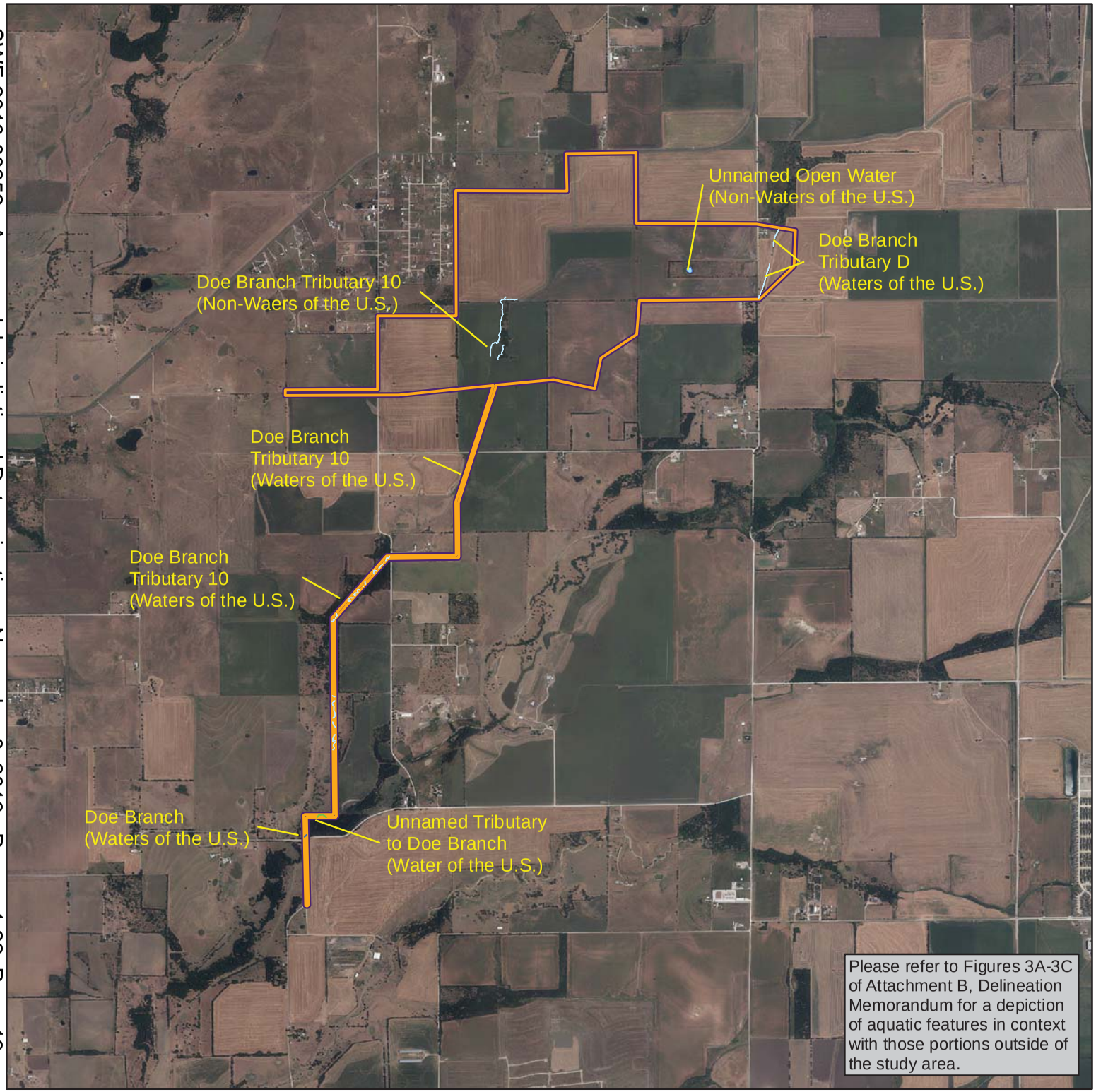
- Study Area
- NHD - Stream Centerline
- 1 % Annual Chance Flood Hazard*

*No base flood elevations determined

Notes:
1. Source/Year of Effective Floodplain Data: FEMA/2012
2. Source/Year of Streams: National Hydrography/2011
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 06/2016 AVO: 30341 |
| Sheet Title: FLOODPLAIN MAP |
| Sheet Number: FIGURE 9 |

HALFF




Please refer to Figures 3A-3C of Attachment B, Delineation Memorandum for a depiction of aquatic features in context with those portions outside of the study area.

0 1,500 3,000 6,000

SCALE IN FEET

## Legend

Study Area

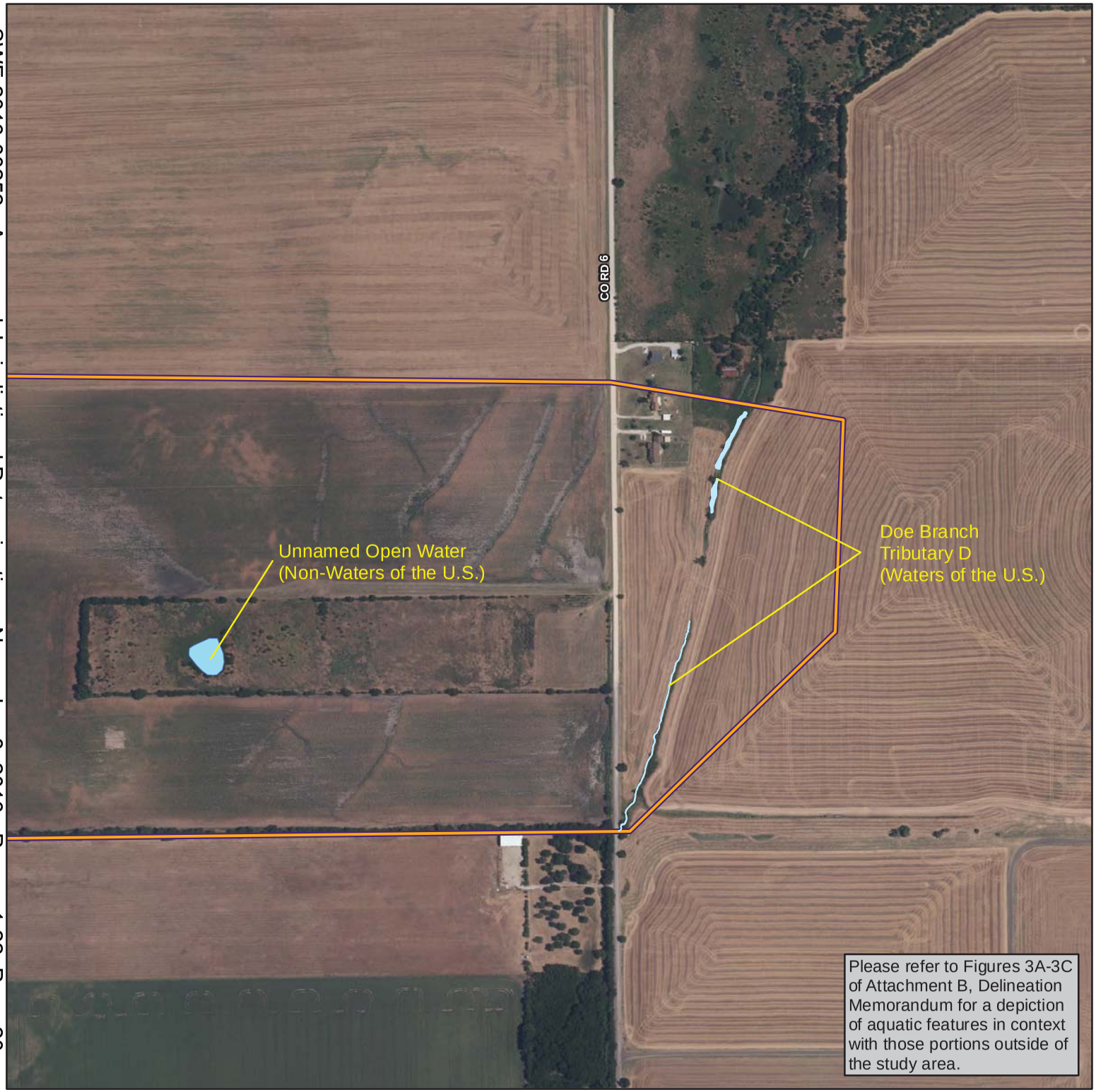
### Aquatic Features

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water

Notes:
1. Image Source: Landiscor/2013
2.
3.
4.
5.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 08/2016 AVO: 30341 |
| Sheet Title: AJD DELINEATION MAP |
| Sheet Number: FIGURE A |

HALFF




Please refer to Figures 3A-3C of Attachment B, Delineation Memorandum for a depiction of aquatic features in context with those portions outside of the study area.

N

0 250 500 1,000

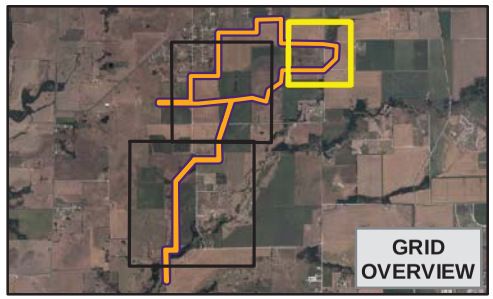
SCALE IN FEET

## Legend

Study Area

### Aquatic Features

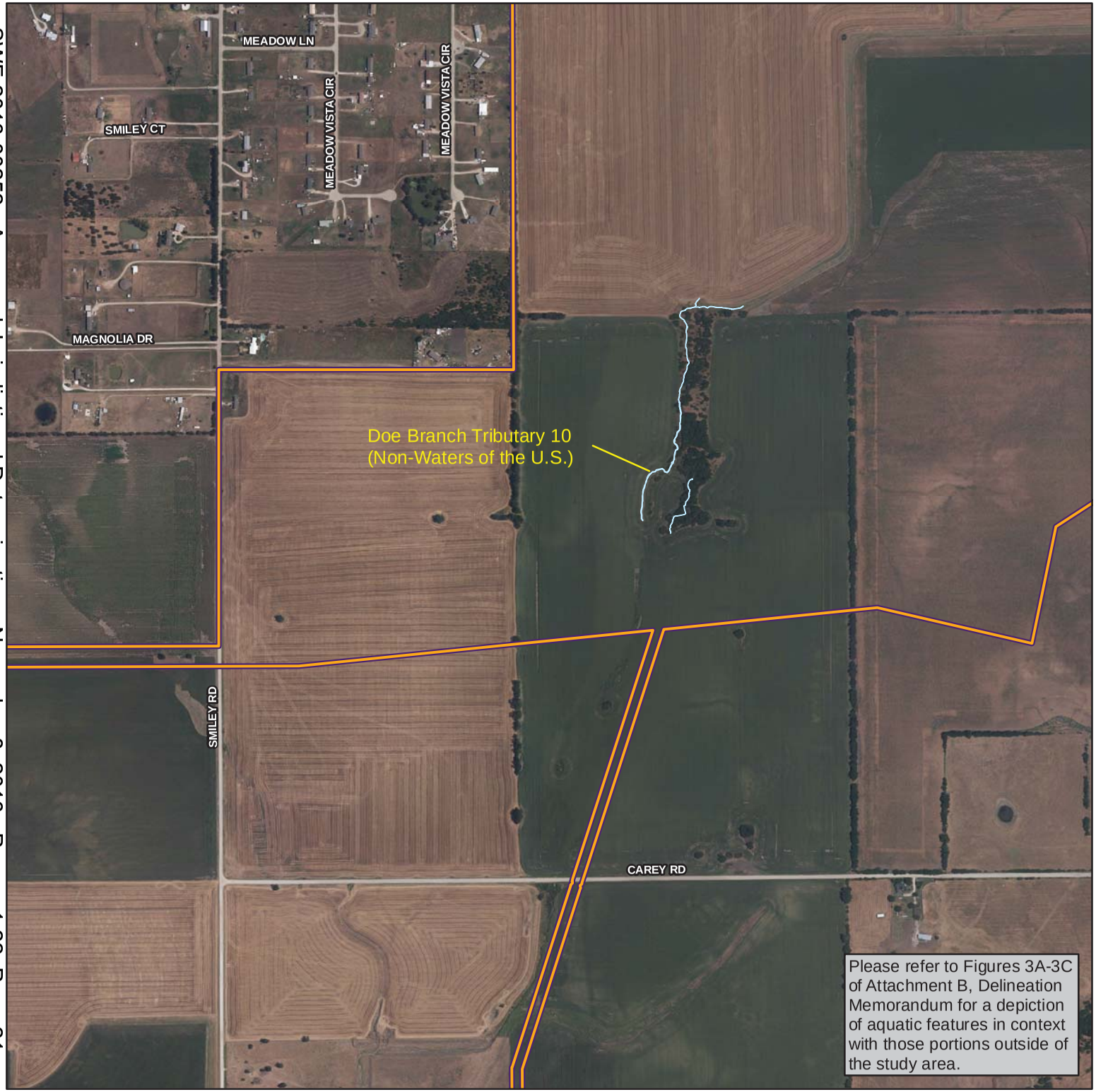
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water




Notes:
1. Image Source: Landiscor/2013
2.
3.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 08/2016 AVO: 30341 |
| Sheet Title: AJD DELINEATION MAP |
| Sheet Number: FIGURE A-1 |

HALFF




N

0 250 500 1,000

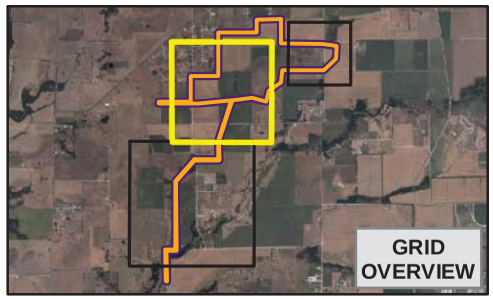
SCALE IN FEET

## Legend

Study Area

### Aquatic Features

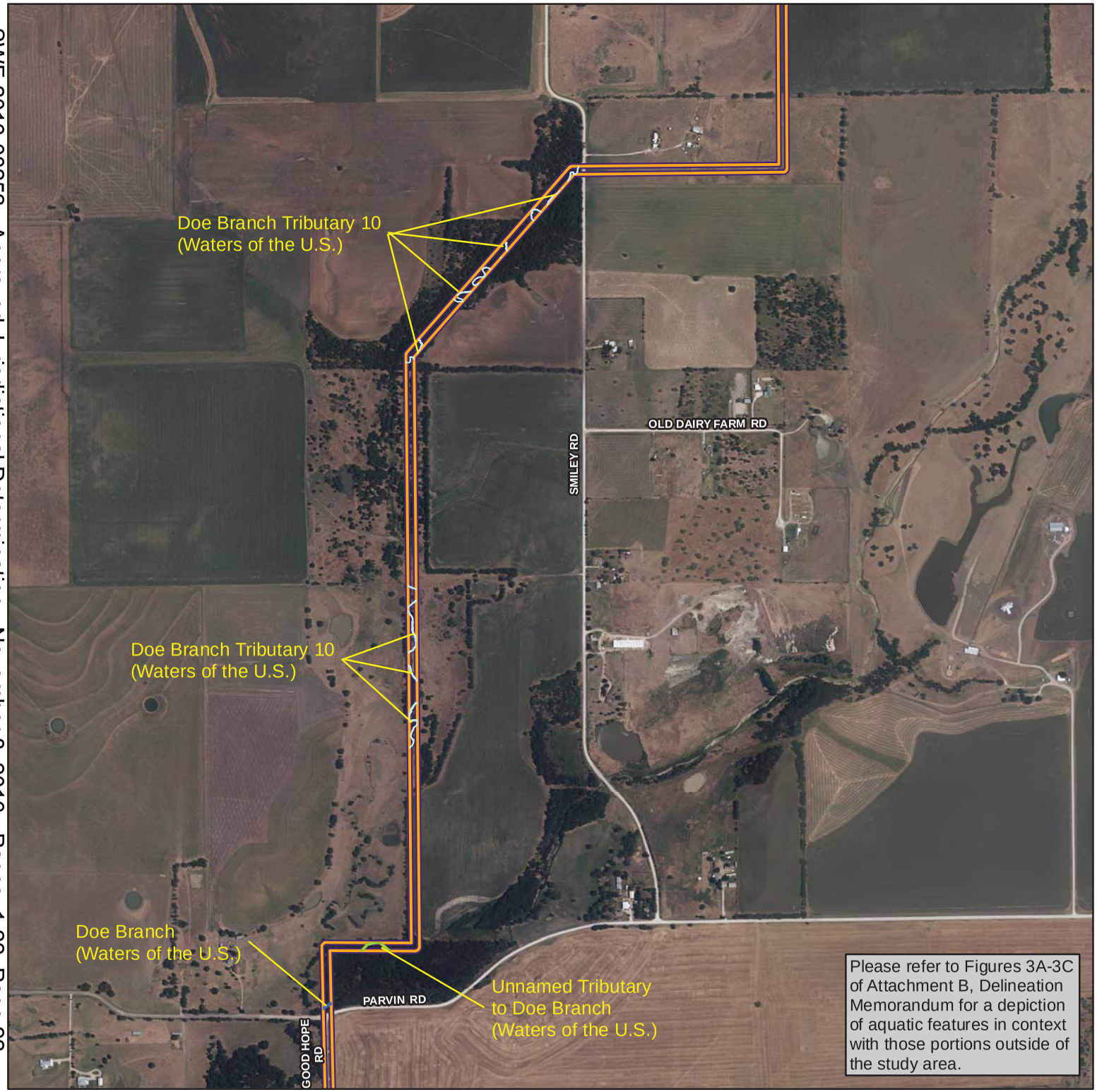
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water




Notes:
1. Image Source: Landiscor/2013
2.
3.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 08/2016 AVO: 30341 |
| Sheet Title: AJD DELINEATION MAP |
| Sheet Number: FIGURE A-2 |

HALFF




N

0 250 500 1,000

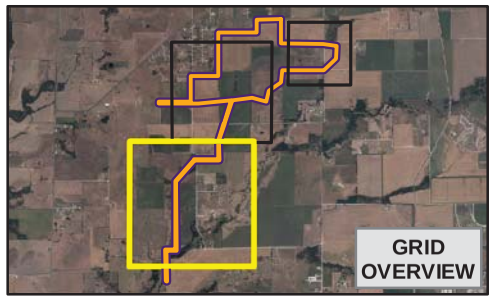
SCALE IN FEET

## Legend

Study Area

### Aquatic Features

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Open Water




Notes:
1. Image Source: Landiscor/2013
2.
3.

| |
|---|
| Project Title: GREEN MEADOWS |
| Project Number: <USACE #> |
| Date: 08/2016 AVO: 30341 |
| Sheet Title: AJD DELINEATION MAP |
| Sheet Number: FIGURE A-3 |

HALFF