APPENDIX N: Water Resources

ADDENDUM

24-MARCH-2022

APPENDIX N – WATER RESOURCES – Proposed ROW Change

SPUR 399 EXTENSION EIS - US 75 to US 380, Collin County
CSJs 0364-04-051, 0047-05-058, and 0047-10-002; Dallas District

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PURPOSE OF ADDENDUM:

Changes were made to the proposed right-of-way (ROW) limits for the Spur 399 Extension in the 60% Geometric Schematic Design submittal made on 3-JAN-2022. A copy of that submittal is included in Appendix B of this DEIS.

This addendum is an UPDATED Water Features Report, Surface Water Analysis Form, and 404-10 Impact Table incorporating the JAN-2022 proposed ROW changes and the updated EO 11988 finding that this project will involve a significant encroachment in the floodplain. The revised impacts based on the proposed ROW changes are disclosed in the DEIS.

UPDATED SPUR 399 EXTENSION PROJECT DESCRIPTION:

With submittal of the 60% Geometric Schematic Design on 3-JAN-2022, the description of the proposed Spur 399 Extension has been updated as follows:

> *The proposed Spur 399 Extension is comprised of improvements within the existing section of SH 5 between US 75 and Stewart Road, and new location improvements from Stewart Road to US 380 east of McKinney. Within the section of SH 5 between US 75 and Stewart Road, one new travel lane in each direction would be striped and ramping improvements would be constructed within the existing ROW and roadway pavement section to be established by the recently cleared SH 5 project (CSJs 0135-03-046 and 0135-04-033).*
>
> *From Stewart Road to US 380, the Spur 399 Extension would be constructed on new location as an 8-lane, access-controlled freeway with 2-lane, one-way frontage roads on each side, starting east of Couch Drive, within an anticipated average ROW width of 400 feet, but with areas of ROW ranging from 165 feet to 696 feet wide depending on location. Frontage roads may be eliminated, and the primary travel lanes may be elevated on structure to minimize impacts on sensitive resources. The freeway facility would also include ramps, frontage roads, and arterial roadways to support connectivity to the existing roadway network along with safety lighting/signage/ITS. Grade-separated interchanges would be constructed at major crossroads.*

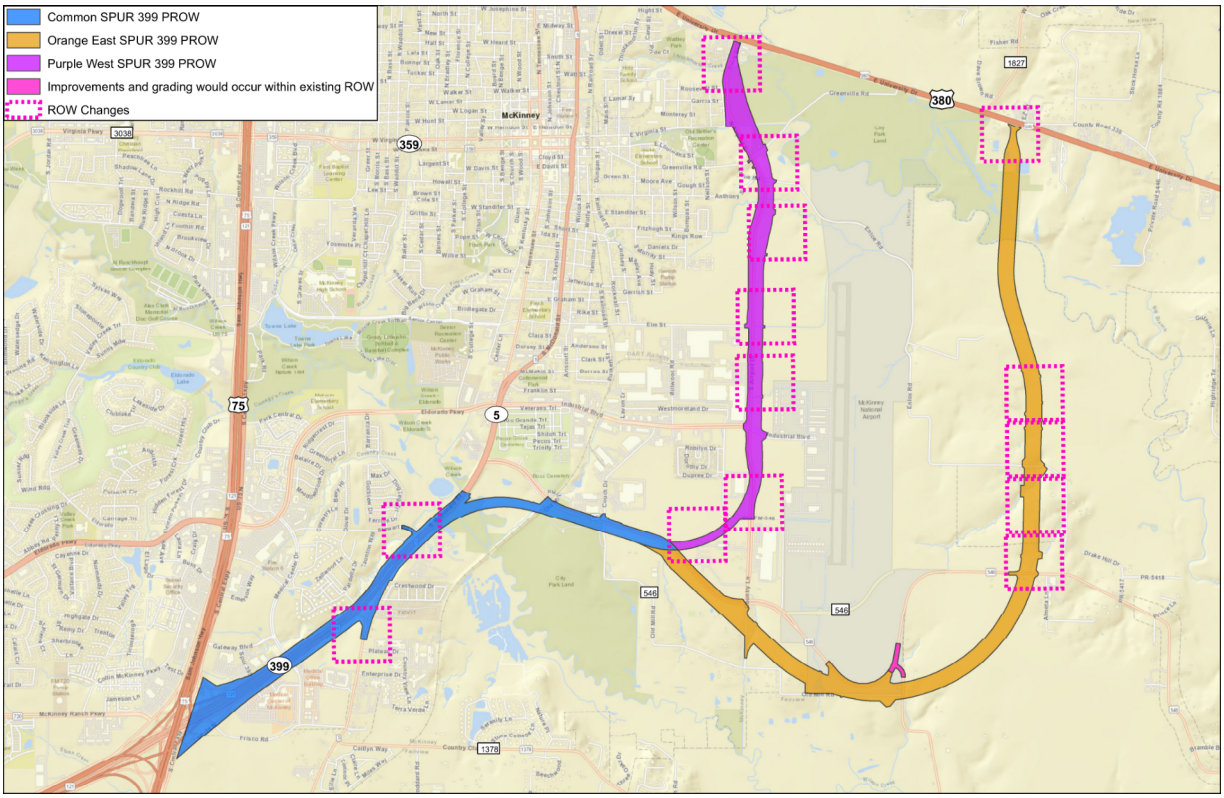
DESCRIPTION OF THE PROPOSED ROW CHANGE

The JAN-2022 submittal made minor adjustment to the proposed ROW limits throughout the length of the new location sections of both build alternatives to account for drainage, access, and geometric improvements. The following table summarizes the proposed ROW changes.

Proposed ROW Change – July 2021 to January 2022

Build Alternative	July 2021 Proposed ROW	October 2021 Proposed ROW	January 2022 Proposed ROW
PURPLE ALTERNATIVE	303.9 acres 340 acres (Purple Option 2)	259.7 acres	263.4 acres
ORANGE ALTERNATIVE	396.0 acres	366.4 acres	366.1 acres

Illustration of the January 2022 Proposed ROW Changes



Water Features Delineation Report – Final

Spur 399 Extension
(CSJ 0364-04-051, 0047-05-058, 0047-10-002)

Texas Department of Transportation, Dallas District

April 2022

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

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1.0 Introduction

The Texas Department of Transportation (TxDOT) conducted a delineation of water features for the proposed extension of Spur 399 on new location from US 75 to US 380 in McKinney, Collin County, Texas (the Project) (CSJ 0364-04-051, 0047-05-058, 0047-10-002). The delineation was completed on August 28; September 8, 10, 11, 24, 25; October 12, 13, 14, 15; and December 1, 3, 2020, and June 8, August 16, and September 22, 2021. The delineation was performed to evaluate water features and identify their boundaries within the Project area.

Waterbodies were delineated according to United States Army Corps of Engineers (USACE) Regulatory Guidance Letter (RGL) 05-05 Ordinary High Water Mark (OHWM) Identification for non-tidal waters. As required under Section 404 of the Clean Water Act (CWA), wetlands were delineated using the routine method described in the USACE 1987 Wetlands Delineation Manual (1987 Manual; USACE, 1987) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (2010 Regional Supplement; USACE, 2010). Wetland types and boundaries were determined through initial map review, followed by fieldwork involving the examination of three (3) parameters: hydrology, vegetation, and soils. Delineation criteria and indicators for each of these parameters are outlined in the 1987 Manual and the 2010 Regional Supplement. The 2010 Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Great Plains Region, per the regional supplement. Wetlands were classified according to the Cowardin Classification System used for the United States Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI).

This document contains the following five (5) attachments:

- Attachment 1 – Figures: contains maps of the Project area
- Attachment 2 – Wetland Determination Data Forms and Stream Data Forms
- Attachment 3 – Antecedent Precipitation Tool for McKinney, Texas
- Attachment 4 – Site Photographs: contains photographs taken during the site visit(s)
- Attachment 5 – Historical Aerial Photographs: contains historical aerial imagery, starting with the oldest photographs first

2.0 Project Overview

TxDOT proposes to extend and upgrade Spur 399 in McKinney, Texas to interstate standards. The Spur 399 extension would be an eight-lane, access-controlled freeway with one-way frontage roads on each side within an anticipated right-of-way (ROW) width of between 330 to 350 feet (ft) depending on location. Frontage roads may be eliminated, and the primary travel lanes may be elevated (on bridge/viaduct). The freeway facility would also include ramps, direct connector roadways, frontage roads, and arterial roadways to support connectivity to the existing roadway network. Grade-separated interchanges would be constructed at major crossroads including U.S. Route (US) 75 / State Highway (SH) 5 and existing US 380. The Project area is approximately 920.72 acres (ac), extends approximately 13.24 miles, and intersects 174 parcels. Permanent and temporary easements are included in Project design plans.

The Project begins near the intersection of Spur 399 and US 75 (approx. lat/long: 33°9'28.56"N, 96°38'44.18"W), continues northeast toward South McDonald Street (approx. lat/long: 33°10'24.97"N, 96°37'18.55"W), then extends east toward the McKinney National Airport (approx. lat/long: 33°10'10.13"N, 96°36'18.65"W). The east alignment of the Project then continues toward the intersection of Farm-to-Market Road (FM) 317 and Old Mill Road (approx. lat/long: 33°9'33.55"N, 96°35'10.78"W) and concludes to the north near FM 1827 (approx. lat/long: 33°11'51.39"N, 96°34'32.65"W). The west alignment of the Project from the McKinney National Airport location continues north toward the intersection of Enloe Road and Airport Drive

(approx. lat/long: 33°11'36.69"N, 96°35'45.87"W). The first west alignment option concludes north near the intersection of FM 1827 and Airport Drive (approx. lat/long: 33°12'4.41"N, 96°35'17.10"W). The second west alignment option concludes near the intersection of FM 1827 and Greenville Road (approx. lat/long: 33°12'3.43"N, 96°35'9.07"W).

Attachment 1 – Figures contains numbered maps of the Project area. Figure 1 provides a vicinity map that depicts the location of the Project area. Figure 2 is an aerial overview map of the Project area. Figure 3 is a 7.5-minute series United States Geological Survey (USGS) topographic overview map. Figure 4 is an NWI map. Figure 5 is a Natural Resources Conservation Service (NRCS) soil unit map. Figure 6 is a Federal Emergency Management Agency (FEMA) 100-year floodplain map. Figure 7 is a TxDOT Contour map showing 2-foot contours of the Project area. Figure 8 is a series of Water Features maps depicting delineated water feature boundaries.

3.0 Ecological Site Description

The Project area is located within the Southwestern Prairies Cotton and Forage Land Resource Region (LRR J) of the Great Plains and is more specifically located in Major Land Resource Area (MLRA) 86A (Texas Blackland Prairie, Northern Part). This area is characterized by level to gently sloping and dissected plains with steep slopes along river and creek valleys, meander belts associated with major streams, and wide floodplains along stream terraces (NRCS, 2006). Geology in this area consists of chalk, claystone, marl, and shale. Average annual precipitation in the area ranges from 30 to 46 inches. Average annual temperature in the area ranges from 63°F to 69°F.

Historic vegetation was little false bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), yellow Indian grass (*Sorghastrum nutans*), and tall dropseed (*Sporobolus asper*). Other species commonly encountered included Silveus' dropseed (*Sporobolus silveanus*), Mead's sedge (*Carex meadii*), long-spike fluff grass (*Tridens strictus*), asters (*Aster* sp.), prairie clovers (*Dalea* sp.), and coneflowers (*Rudbeckia* sp.). Lowland sites and swales were often dominated by eastern gamagrass (*Tripsacum dactyloides*) and switchgrass (*Panicum virgatum*). Riparian areas included burr oak (*Quercus macrocarpa*), Shumard oak (*Quercus shumardii*), sugar-berry (*Celtis laevigata*), elm (*Ulmus* sp.), ash (*Fraxinus* sp.), eastern cottonwood (*Populus deltoides*), and pecan (*Carya illinoinensis*). Currently, only remnants of this system exist, with most of the historical distribution replaced by crop production or improved pasture.

The Project area is within the East Fork Trinity River-Lavon Lake Watershed, Clemons Creek-East Fork Trinity River Sub Watershed within the northern portion of the Project area, and the Lower Wilson Creek Sub Watershed within the southern portion of the Project area, of the Trinity River Basin (Hydrologic Unit Code 8: 12030106). The Project area consists of existing ROW, residential areas, pastures, rangelands, and forested and emergent wetlands.

4.0 Methods

4.1 Map and Database Review

The following information sources were considered and, if applicable, consulted prior to and during the field delineation to assist in the identification of water features within the Project area.

4.1.1 USGS Topographic Maps

USGS topographic maps illustrate elevation contours, drainage patterns, and hydrography. The McKinney East, Texas, USGS Quadrangle map was reviewed to determine the likelihood of the Project area containing water features (USGS, 7.5 Minute Topographic Map Series, McKinney East, Texas, 2011).

4.1.2 USFWS NWI Data

NWI data was reviewed as a contributing resource to help identify potential wetland features located within the Project area.

4.1.3 NRCS Soil Survey Data

The United States Department of Agriculture (USDA) NRCS maintains an online Web Soil Survey database. The data provided in the Web Soil Survey provides a good basis for the soil textures and types one can expect to find at a particular delineation area. NRCS-mapped soil types at the Project area were reviewed to determine which of the soils exhibit hydric characteristics. NRCS-mapped soil types are assigned a hydric indicator status of "hydric" or "non-hydric" by the National Technical Committee for Hydric Soils.

4.1.4 Aerial Photography

Aerial photography provides good insight to the state and function of land resources. Signs of inundation and vegetative signatures on aerial images indicate whether land might be functioning as a wetland or supporting a stream system. Historic and current aerial photography was reviewed utilizing Google Earth, prior to and during the field delineation, in order to further understand the nature of the Project area. Historic and current aerial photography was utilized to photo-interpret water features for areas without access and with limited ground verification from the public ROW.

4.1.5 FEMA FIRM

FEMA maintains flood insurance rate maps (FIRMs). The FIRM including the Project area was reviewed to determine if the 100-year floodplain is mapped. The USACE utilizes the 100-year floodplain to assist in determining presence of water features. FEMA FIRM data was reviewed to evaluate the location of any mapped floodplain in relation to water features located within the Project area.

4.1.6 LiDAR

Light detection and ranging (LiDAR) is a remote sensing technique that measures spatial and temporal data. LiDAR was not available for the Project area; however, TxDOT contours collected in 2011 were reviewed for microtopographic changes in elevation within the Project area.

4.2 Water Features Delineation Methodology

With respect to any non-tidal water features located within the Project area, biologists followed the methodology outlined in USACE Regulatory Guidance Letter (RGL) 05-05.

Data collected for any water features includes average water depth, average width per water features, length of linear segments within the Project boundary, and water flow classification (i.e., tidal, non-tidal, ephemeral, intermittent, and/or perennial).

Any wetland delineation was conducted based on the 1987 Manual and the 2010 Regional Supplement, as well as the three (3) parameters described within. The three-parameter approach requires investigation of hydrological characteristics, hydrophytic vegetation, and hydric soils at selected sample points within a Project area. Sample points are located to ascertain upland/wetland boundaries and to record significant spatial changes in wetland plant communities. All three (3) indicator parameters must be met in order for the area to be classified as a wetland. See subsections on Hydrology, Vegetation, and Soils, below, for indicator-specific information.

Geospatial data was collected utilizing a Trimble GeoXT 2007 Series Global Positioning System (GPS) and Trimble Nomad 5 with sub-meter accuracy.

4.2.1 Hydrology

Wetland hydrology is characterized when, under normal circumstances, the surface is either inundated or the upper horizon(s) of the soil are saturated at a sufficient frequency and duration to create anaerobic conditions. Seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage are factors that influence hydrology.

Wetland hydrology indicators include: oxidized rhizospheres along living roots, saturated soils, standing surface water, algal mat, aquatic fauna, high water table, iron deposits, sparsely vegetated concave surface, geomorphic position, moss trim lines, water-stained leaves, crawfish burrows, watermarks, drainage patterns, and surface soil cracks.

During the field survey, these indicators were used to determine if an area exhibited wetland hydrology.

4.2.2 Vegetation

In accordance with the procedure set forth in the 1987 Manual and the 2010 Regional Supplement, the hydrophytic status of vegetation communities was determined by identifying dominant species and, if necessary, calculating a "Prevalence Index," as defined in the 1987 Manual.

Individual plant species were checked against the current National Wetland Plant List (NWPL), and their regional wetland indicator status was determined. Species are classified as follows:

- Obligate Wetland (OBL) if they almost always occur in wetlands (>99 percent of the time)
- Facultative Wetland (FACW) if they usually occur in wetlands (67-99 percent of the time)
- Facultative (FAC) if they are equally likely to occur in wetlands and non-wetlands (34-66 percent of the time)
- Facultative Upland (FACU) if they usually occur in non-wetlands (67-99 percent of the time)
- Obligate Upland (UPL) if they almost always occur in non-wetlands (>99 percent of the time)

A no indicator (NI) status is recorded for those species for which insufficient information is available to determine an indicator status.

Hydrophytic (wetland) vegetation is considered present where more than 50 percent of the dominant species in a plant community have an indicator status of OBL, FACW, or FAC. However, in cases where the vegetation community does not meet this hydrophytic threshold, but indicators of hydric soils and wetland hydrology are present, the prevalence index can be applied. Calculation of this index is based on consideration of both dominant and non-dominant plants in the vegetation community, whereby each indicator status category is given a numeric code and weighted by absolute percent cover. The prevalence index ranges from 1.0 to 5.0, and an index of 3.0 or less signifies that hydrophytic vegetation is present. In the current delineation, and as shown on the Wetland Determination Data Forms in Attachment 2, a prevalence index was calculated for each sample point's vegetation community.

4.2.3 Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons. Anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry. The changes in soil color are used to differentiate hydric from non-hydric soils.

At each sample point, in areas where the absence of inundation or heavy saturation allowed, a pit was excavated to a depth of at least 16 inches below the ground surface to reveal soil profiles and to determine whether positive indicators of hydric soils were present. Hydric soil indicators relate to color, structure, organic content, and the presence of reducing conditions. Color characteristics (Hue, Value, and Chroma) were recorded using Munsell® Charts.

5.0 Results

5.1 Map and Database Review

5.1.1 USGS Topographic Maps

Topographic maps reviewed for the Project area reported elevations of 650 to 600 ft above sea level (abs) near roadways, 550 ft abs near Wilson Creek, and 500 ft abs near the East Fork Trinity River. Surface water flow in the Project area is assumed to be to the southeast toward Lavon Lake. A topographic overview map is included in Attachment 1, Figure 3.

5.1.2 USFWS NWI Data

The table below summarizes the NWI features within the Project area. Refer to Figure 4 in Attachment 1 for an illustration of the NWI features in and surrounding the Project area.

Table 1: NWI Features

Classification Code	Code Description	Wetland Type
PUBHh	Palustrine Unconsolidated Bottom Permanently Flooded and Dike/Impounded	Freshwater Pond
PUBHx	Palustrine Unconsolidated Bottom Permanently Flooded Excavated	Freshwater Pond
PFO1C	Palustrine Forested Broad-Leaved Deciduous Seasonally Flooded	Freshwater Forested/Shrub Wetland
PFO1Cx	Palustrine Forested Broad-Leaved Deciduous Seasonally Flooded Excavated	Freshwater Forested/Shrub Wetland
PFO1A	Palustrine Forested Broad-Leaved Deciduous Temporarily Flooded	Freshwater Forested/Shrub Wetland
R5UBH	Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded	Riverine
R4SBC	Riverine Intermittent Streambed Seasonally Flooded	Riverine
PEM1A	Palustrine Emergent Persistent Temporarily Flooded	Freshwater Emergent Wetland
PEM1Ah	Palustrine Emergent Persistent Temporarily Flooded and Dike/Impounded	Freshwater Emergent Wetland
PEM1C	Palustrine Emergent Persistent Seasonally Flooded	Freshwater Emergent Wetland
PEM1Ch	Palustrine Emergent Persistent Seasonally Flooded and Dike/Impounded	Freshwater Emergent Wetland

Classification Code	Code Description	Wetland Type
PEM1Cx	Palustrine Emergent Persistent Seasonally Flooded Excavated	Freshwater Emergent Wetland

5.1.3 NRCS Soil Survey Data

The table below summarizes the soil units represented within the Project area based on information collected from the Web Soil Survey database. Refer to Figure 5 in Attachment 1 for an illustration of the mapped soil units in and surrounding the Project area.

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric Soil
AlD2	Altoga silty clay, 5 to 8 percent slopes, eroded	Very deep, well drained, moderately permeable soils of gently to strongly sloping soils on risers on stream terraces.	No
AuB	Austin silty clay, 1 to 3 percent slopes	Moderately deep, well drained, moderately slowly permeable soils on nearly level to sloping erosional uplands.	No
AuC2	Austin silty clay, 2 to 5 percent slopes, moderately eroded	Moderately deep, well drained, moderately slowly permeable soils on nearly level to sloping erosional uplands.	No
AuD2	Austin silty clay, 5 to 8 percent slopes, moderately eroded	Moderately deep, well drained, moderately slowly permeable soils on nearly level to sloping erosional uplands.	No
BcA	Burleson clay, 0 to 1 percent slopes	Very deep to clayey alluvium, moderately well drained soils of nearly level to gently sloping soils on treads of Pleistocene stream terraces.	No
BcB	Burleson clay, 1 to 3 percent slopes	Very deep to clayey alluvium, moderately well drained soils of nearly level to gently sloping soils on treads of Pleistocene stream terraces.	No
EdD2	Eddy gravelly clay loam, 3 to 8 percent slopes, eroded	Soils on gently sloping to moderately steep uplands and native pasture.	No

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric Soil
HoA	Houston Black clay, 0 to 1 percent slopes	Nearly level to sloping uplands found in center of a micro-pasture.	No
HoB	Houston Black clay, 1 to 3 percent slopes	Nearly level to sloping uplands found in center of a micro-pasture.	No
HoB2	Houston Black clay, 2 to 4 percent slopes, eroded	Nearly level to sloping uplands found in center of a micro-pasture.	No
LeB	Lewisville silty clay, 1 to 3 percent slopes	Very deep, well drained, moderately permeable soils of upland pasture.	No
LeC2	Lewisville silty clay, 3 to 5 percent slopes, eroded	Very deep, well drained, moderately permeable soils of upland pasture.	No
Tf	Tinn clay, 0 to 1 percent slopes, frequently flooded	Very deep, moderately well drained, very slowly permeable soils on flood plains of dissected plains that drain the Blackland Prairies.	Yes
To	Trinity clay, 0 to 1 percent slopes, occasionally flooded	Very deep, moderately well drained, very slowly permeable soils on flood plains on river valleys and large streams on dissected plains.	Yes

5.1.4 Aerial Photography

Historic aerial imagery for the Project and surrounding areas was evaluated using images provided by Google Earth, Texas Orthoimagery Program (TOP), National Agriculture Imagery Program (NAIP), and Pictometry. Historic and recent natural color aerial photography, color infrared, and Pictometry were reviewed. The table below summarizes observations for the Project area for each year reviewed. Attachment 5 contains copies of the historic aerial photographs reviewed for the Project area.

Table 3: Historic Aerial Photography Observations

Year	Observations
1952	US 75, both landfills, and airport have not been constructed yet. Small quarry located on the site of the current northern-most landfill (near US 380). Area has been heavily cleared for cultivated fields.
1972	Area between US 380 and East Fork Trinity River (just west of where the northernmost landfill is currently location) is ditched to drain water out of the floodplain, resulting in the loss of wetlands and stream channel.
1985	Spur 399 and US 75 interchange and SH 5 are noted on aerial imagery in the far southwest extent of the Project area. Southern-most landfill is operational. Small airstrip constructed where the airport is now located.
1995	Airport appears to be larger than 1985. Large industrial complex construction begins on the west side of Project area.
2003	Large housing development begins near Stewart Road and SH 5. Development in this area results in modifications to the floodplain of Wilson Creek and its tributaries.
2005	Airport Drive constructed, including the construction of several ditches to drain water from road.
2011	Airport is expanded. Spur 399 and US 75 interchange is modified to its current alignment, and construction on medical complex is complete.
2017	Harry McKillop Boulevard is constructed in the southern extension of the Project area.
2019	More industrial facilities are constructed along west side of Airport Drive.

5.1.5 FEMA FIRM

A review of FEMA FIRMs indicated the Project area is intersected by the 100-year floodplain, 500-Year floodplain, and regulatory floodway hazard areas. The floodplains are associated with Wilson Creek and the East Fork Trinity River. Base Flood Elevation (BFE) for Wilson Creek is between 524 and 547 ft. Refer to Figure 6 in Attachment 1 for an illustration of the FEMA FIRM data within and surrounding the Project area.

5.1.6 LiDAR

LiDAR was not available for the Project area; however, TxDOT contours were reviewed for microtopographic changes in elevation within the Project area. Two-foot TxDOT Contours (2011) were reviewed. Reduced elevation occurs within the Wilson Creek and the East Fork Trinity River floodplains. Refer to Figures 7-1 through 7-14 in Attachment 1 for illustrations of TxDOT Contours within the Project area.

5.2 Water Features Delineation Results

Table 4 summarizes the water features identified within the Project area. Refer to Figure 8 in Attachment 1 for a depiction of the boundaries of each water feature, as well as the location within the Project area where sample point data was collected. Refer to Attachment 2 – Wetland Determination Data Forms and Stream Data Forms

that provide the wetland and stream data collected. Refer to Attachment 4 – Representative Site Photos, for representative photographs of each water feature observed within the Project area.

Table 4: Summary of Water Features

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
1*	Isolated Emergent Wetland	Palustrine Emergent Wetland	33.160187/ -96.643283	0.87	-
2*	Isolated Emergent Wetland	Palustrine Emergent Wetland	33.161304/ -96.642664	0.34	-
3*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.161168/ -96.641351	0.01	138
4*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.166914/ -96.630355	0.08	587
5	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.164526/ -96.642213	0.002	34
6A*	Unnamed Tributary to Wilson Creek	Intermittent Stream	33.166753/ -96.630500	0.16	1,717
6B*	Unnamed Tributary to Wilson Creek	Intermittent Stream	33.170044/ -96.628353	0.08	880
7*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.164761/ -96.631175	0.03	417
8*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.169584/ -96.626335	0.14	1,977
9*	Unnamed Tributary to Wilson Creek	Perennial Stream	33.170896/ -96.626128	0.05	250

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
10A	Unnamed Tributary to Wilson Creek	Perennial Stream	33.171331/ -96.625606	0.03	117
10B	Unnamed Tributary to Wilson Creek	Perennial Stream	33.173781/ -96.622437	0.01	45
11	Swale	Swale Drainage Feature	33.172715/ -96.622777	-	296
12	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.172422/ -96.622261	0.02	167
13	On-Channel Pond Associated with Wilson	On-Channel Pond	33.172031/ -96.622076	0.09	-
14	Wilson Creek	Perennial Stream	33.173425/ -96.621130	0.78	1,139
15	Unnamed Tributary to Wilson Creek	Intermittent Stream	33.172391/ -96.620405	0.03	63
16	Emergent Wetland Associated with Wilson Creek	Palustrine Emergent Wetland	33.172524/ 33.172524	0.57	-
17	Forested Wetland Associated with Wilson Creek	Palustrine Forested Wetland	33.172524/ -96.617385	0.20	-
18	Unnamed Tributary to Wilson Creek	Intermittent Stream	33.172691/ -96.615773	0.07	411

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
19*	Isolated Emergent Wetland	Palustrine Emergent Wetland	33.172141/ -96.614265	0.95	-
20	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.170985/ -96.610544	0.005	69
21	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.179995/ -96.597478	0.06	501
22	Upland Pond	Upland Pond	33.182848/ -96.598656	0.26	-
23	Ditch	Ditch Drainage Feature	33.184729/ -96.597270	0.19	417
24	Ditch	Ditch Drainage Feature	33.189701/ -96.597077	0.13	380
25	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.193435/ -96.596189	0.21	916
26	East Fork Trinity River	Perennial Stream	33.195836/ -96.593573	0.56	820
27*	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.196549/ -96.597218	0.04	333
28	Swale	Swale Drainage Feature	33.197474/ -96.597721	-	52

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
29	Upland Pond	Upland Pond	33.197545/ -96.597430	0.09	-
30	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.197814/ -96.597755	0.02	217
31	Swale	Swale Drainage Feature	33.197709/ -96.597613	-	44
32	Forested Wetland Associated with East Fork Trinity River	Palustrine Forested Wetland	33.197805/ -96.597506	0.22	-
33	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.198135/ -96.597761	0.01	99
34	Forested Wetland Associated with East Fork Trinity River	Palustrine Forested Wetland	33.198125/ -96.597553	0.01	-
35*	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.198151/ -96.597863	0.004	45
36	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.198516/ -96.598396	0.08	556

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
37*	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.198439/ -96.599698	0.03	208
38*	Unnamed Tributary to East Fork Trinity River	Perennial Stream	33.202213/ -96.600338	0.17	334
39	Unnamed Tributary to East Fork Trinity River	Perennial Stream	33.202817/ -96.598338	0.42	839
40	East Fork Trinity River	Perennial Stream	33.203347/ -96.596554	0.87	754
41	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.204744/ -96.598906	0.01	79
42	Upland Pond	Upland Pond	33.202124/ -96.592053	0.33	-
43	Upland Pond	Upland Pond	33.200242/ -96.590364	0.32	-
44	Upland Pond	Upland Pond	33.196839/ -96.591423	0.03	-
45	Upland Pond	Upland Pond	33.200091/ -96.584822	0.23	-
46*	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.200781/ -96.584406	0.02	53

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
47	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.199761/ -96.584386	0.30	875
48*	Upland Pond	Upland Pond	33.197562/ -96.597549	0.22	-
49	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.199615/ -96.583051	0.03	261
50*	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.198593/ -96.579630	0.12	645
51	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.199136/ -96.578274	0.01	35
52*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.164171/ -96.598187	0.13	1,108
53	Isolated Forested Wetland	Palustrine Forested Wetland	33.160887/ -96.592964	0.34	-
54	Isolated Pond Not Connected to Wilson Creek	Isolated Pond	33.160121/ -96.593174	0.89	-
55	Swale	Swale Drainage Feature	33.159884/ -96.592759	-	28

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
56	Unnamed Stream Not Connected to Wilson Creek	Intermittent Stream	33.159687/ -96.592967	0.03	291
57	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.158742/ -96.586122	0.29	1,791
58*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.159099/ -96.586518	0.02	107
59	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.157379/ -96.585613	0.01	143
60*	Unnamed Tributary to Wilson Creek	Ephemeral Stream	33.156620/ -96.586265	0.04	274
61	Upland Pond	Upland Pond	33.160371/ -96.584348	0.35	-
62	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.168470/ -96.575379	0.09	677
63	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.168889/ -96.575029	0.02	226
64	Swale	Swale Drainage Feature	33.172187/ -96.575119	-	750
65	Unnamed Tributary to East Fork Trinity River	Perennial Stream	33.173965/ -96.575261	0.21	1,521

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
66	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.173355/ -96.575367	0.01	118
67	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.173500/ -96.576277	0.01	176
68	Upland Pond	Upland Pond	33.176258/ -96.574621	0.17	-
69	Emergent Wetland Associated with East Fork Trinity River	Palustrine Emergent Wetland	33.177019/ -96.574545	0.25	-
70	Forested Wetland Associated with East Fork Trinity River	Palustrine Forested Wetland	33.177301/ -96.574543	0.03	-
71	Unnamed Tributary to East Fork Trinity River	Perennial Stream	33.178192/ -96.575152	0.11	803
72	Swale	Swale Drainage Feature	33.180202/ -96.575108	-	550
73	Upland Pond	Upland Pond	33.182042/ -96.576591	0.08	-
74	Upland Pond	Upland Pond	33.182216/ -96.576698	0.03	-

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
75	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.184532/ -96.576455	0.10	761
76	Swale	Swale Drainage Feature	33.185640/ -96.576338	-	773
77	Emergent Wetland Associated with East Fork Trinity River	Palustrine Emergent Wetland	33.185750/ -96.577583	0.47	-
78	Swale	Swale Drainage Feature	33.187465/ -96.577711	-	362
79	East Fork Trinity River	Perennial Stream	33.190432/ -96.577086	0.61	664
80	Unnamed Tributary to East Fork Trinity River	Intermittent Stream	33.190741/ -96.576669	0.04	220
81	Swale	Swale Drainage Feature	33.191062/ -96.576944	-	262
82	Swale	Swale Drainage Feature	33.191515/ -96.577212	-	379
83	On-Channel Pond Associated with East Fork Trinity River	On-Channel Pond	33.191981/ -96.576895	0.07	-

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
84	Swale	Swale Drainage Feature	33.192316/ -96.576886	-	101
85	On-Channel Pond Associated with East Fork Trinity River	On-Channel Pond	33.192739/ -96.577013	0.20	-
86	Swale	Swale Drainage Feature	33.193388/ -96.577320	-	170
87	On-Channel Pond Associated with East Fork Trinity River	On-Channel Pond	33.192350/ -96.578094	0.21	-
88	Forested Wetland Associated with East Fork Trinity River	Palustrine Forested Wetland	33.193188/ -96.578276	0.15	-
89	On-Channel Pond Associated with East Fork Trinity River	On-Channel Pond	33.193789/ -96.578028	0.05	-
90	Swale	Swale Drainage Feature	33.193874/ -96.577993	-	41
91	On-Channel Pond Associated with East Fork Trinity River	On-Channel Pond	33.194060/ -96.578004	0.10	-

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
92	Upland Pond	Upland Pond	33.195270/ -96.576019	1.22	-
93	Upland Pond	Upland Pond	33.196064/ -96.577033	0.47	-
94	Unnamed Stream Not Connected to East Fork Trinity River	Ephemeral Stream	33.197015/ -96.573861	0.01	133
95	Ditch	Ditch Drainage Feature	33.197244/ -96.573647	0.01	85
96	Ditch	Ditch Drainage Feature	33.197244/ -96.573647	0.01	52
97	Ditch	Ditch Drainage Feature	33.196927/ -96.572034	0.02	207
98	Ditch	Ditch Drainage Feature	33.197413/ -96.572278	0.04	386
99*	Unnamed Tributary to East Fork Trinity River	Ephemeral Stream	33.196049/ -96.570272	0.01	148
100	Ditch	Ditch Drainage Feature	33.196269/ -96.570130	0.01	59
101	Ditch	Ditch Drainage Feature	33.196138/ -96.569053	0.05	440

Water Feature Number*	Name	Type	Lat/ Long	Acres within Project area (all water features including streams)	Linear feet (LF) within Project area (streams only)
102	Ditch	Ditch Drainage Feature	33.196209/ -96.568093	0.01	90
103	Ditch	Ditch Drainage Feature	33.196209/ -96.568093	0.005	43
104	Unnamed Stream Not Connected to East Fork Trinity River	Ephemeral Stream	33.195442/ -96.567532	0.01	140
105	Ditch	Ditch Drainage Feature	33.195561/ -96.567351	0.02	209
106	Ditch	Ditch Drainage Feature	33.195904/ -96.567046	0.02	136
Total				16.55 AC	31,192 LF

* indicates a Photo-Interpreted Feature

Ephemeral streams are characterized as having a defined OHWM but only flowing during, and for a short duration after, precipitation events, and do not exhibit seasonal flow. Swales do not have a defined OHWM and are characterized by low volume and infrequent, short duration flow. Artificial lakes and ponds are characterized as having been constructed or excavated in uplands.

An area of particular interest is the complex between US 380 and East Fork Trinity River (Water Feature 79). Between 1952 and 1972 (see Table 3) a ditch was excavated to the northwest of the Project area to reroute the former alignment of Intermittent Stream Water Feature 80 and drain the floodplain, likely eliminating a historic wetland area. This modification resulted in a split watershed. Forested Wetland Water Feature 88, On-Channel Pond Water Feature 87, 89, and 91, and Swale Water Feature 90 drain into the man-made alignment of the former stream and drain northwest to the East Fork Trinity River outside the Project area. Alternately, a patchwork of channel scars drain south, where some portions of the old stream persist as deep, open water depressions and currently function as open water features (On-Channel Pond Water Features 83 and 85). These ponds are connected by upland, vegetated swales (Swale Water Features 81, 82, 84, and 86). These swales and ponds drain to the only remaining portion of the original stream, Intermittent Stream Water Feature 80, which flows into the East Fork Trinity River (79). All water features in this complex are flooded by the East Fork Trinity River in a typical year.

Additionally, in the southern portion of the Project area, Water Feature 56 is an intermittent stream that outfalls from Isolated Pond Water Feature 54 with Forested Wetland Water Feature 53, then dissipates into upland

floodplain without a defined hydrologic connection to Wilson Creek. In the northern portion of the Project area, Water Feature 29 is an upland pond that was excavated between 1985 and 1995 and does not have a defined hydrologic connection downstream to the East Fork Trinity River.

5.2.1 Hydrology

A review of the Antecedent Precipitation Tool (APT) reported mostly normal conditions that ranged from moderate wetness to incipient drought conditions present within the Project area at the time of the field investigations. The table below summarizes wetland hydrological indicators identified within the Project area. Refer to the Wetland Determination Data Forms in Attachment 2 to see the specific hydrology recorded at each sample point. Refer to the APT for McKinney, Texas in Attachment 3 for hydrologic conditions during field investigations.

Table 5: Wetland Hydrological Indicators

Wetland Type	Water Feature Number(s)	Primary Wetland Hydrological Indicators	Secondary Wetland Hydrological Indicators
Palustrine Forested Wetland	17, 32, 34, 70, 88	A1 – Surface Water A3 – Saturation B1 – Water Marks B7 – Inundation Visible on Aerial Imagery B9 – Water-Stained Leaves	C9 – Saturation Visible on Aerial Imagery D5 – FAC-Neutral Test
Palustrine Emergent Wetland	16, 69, 77	A2 – High Water Table A3 – Saturation B7 – Inundation Visible on Aerial Imagery	C9 – Saturation Visible on Aerial Imagery D5 – FAC-Neutral Test

5.2.2 Vegetation

Normal conditions were reported within the Project area at the time of the field investigations. Representative dominant taxa for each distinct habitat type encountered within the Project area are listed in the tables below. Indicator status for each species was obtained from the 2018 NWPL.

Table 6: Wetland Dominant Forested Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	*Salix nigra*	black willow	FACW
Tree	*Acer negundo*	boxelder	FAC
Tree	*Fraxinus pennsylvanica*	green ash	FAC
Tree	*Ulmus americana*	American elm	FAC
Tree	*Celtis laevigata*	sugar-berry	FAC
Tree	*Populus deltoides*	eastern cottonwood	FAC
Sapling/Shrub	*Acer negundo*	boxelder	FAC
Sapling/Shrub	*Fraxinus pennsylvanica*	green ash	FAC

Strata	Scientific Name	Common Name	NWPL Classification
Sapling/Shrub	*Ulmus americana*	American elm	FAC
Sapling/Shrub	*Celtis laevigata*	sugar-berry	FAC

Table 7: Wetland Dominant Emergent Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Herbaceous	*Leersia oryzoides*	rice cut grass	OBL
Herbaceous	*Persicaria hydropiperoides*	swamp smartweed	OBL
Herbaceous	*Iva annua*	annual marsh-elder	FAC
Herbaceous	*Eleocharis palustris*	common spike-rush	OBL
Herbaceous	*Xanthium strumarium*	rough cocklebur	FAC
Herbaceous	*Juncus torreyi*	Torrey's rush	FACW

Table 8: Upland Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	*Acer negundo*	boxelder	FAC
Tree	*Fraxinus pennsylvanica*	green ash	FAC
Tree	*Maclura pomifera*	Bois d'arc	FACU
Tree	*Ulmus americana*	American elm	FAC
Sapling/Shrub	*Ilex vomitoria*	yaupon	FACU
Sapling/Shrub	*Acer negundo*	boxelder	FAC
Herbaceous	*Toxicodendron radicans*	poison ivy	FACU
Herbaceous	*Elymus virginicus*	Virginia wildrye	FAC
Woody Vine	*Vitis riparia*	riverbank grape	FAC

5.2.3 Soils

Normal conditions were present within the Project area at the time of the field investigations. Refer to the Wetland Determination Data Forms in Attachment 2 to see the specific soil indicators recorded at each sample point. The table below summarizes hydric soil data identified within the Project area.

Table 9: Hydric Soil Indicators

Wetland Type	Water Feature Number(s)	Hydric Soil Indicator(s)
Palustrine Forested Wetland	17, 32, 34, 70, 88	F3 – Depleted Matrix F6 – Redox Dark Surface F7 – Depleted Dark Surface F8 – Redox Depressions
Palustrine Emergent Wetland	16, 69, 77	F3 – Depleted Matrix F8 – Redox Depressions Other – Sample Point within disturbed pipeline ROW, inundation and saturation on aerial imagery shows sufficient hydrology

6.0 Conclusion

A water feature delineation was conducted for Spur 399 (from US 75 to US 380) in McKinney, Collin County, Texas (CSJ 0364-04-051, 0047-05-058, 0047-10-002). The field delineation was completed on August 28; September 8, 10, 11; October 12, 13; and December 3, 2020, and June 8, August 16, and September 22, 2021. Refer to Section 5.2, above, for a table summarizing the water features (i.e., waterbodies/wetlands) identified within the Project area.

The Project area contained intermittent and perennial tributaries, palustrine forested and emergent wetlands, open water features (ponds), excavated upland ponds, ephemeral streams, swales, ditches, water-filled depressions associated with road construction, and stormwater retention ponds and wetlands.

7.0 References

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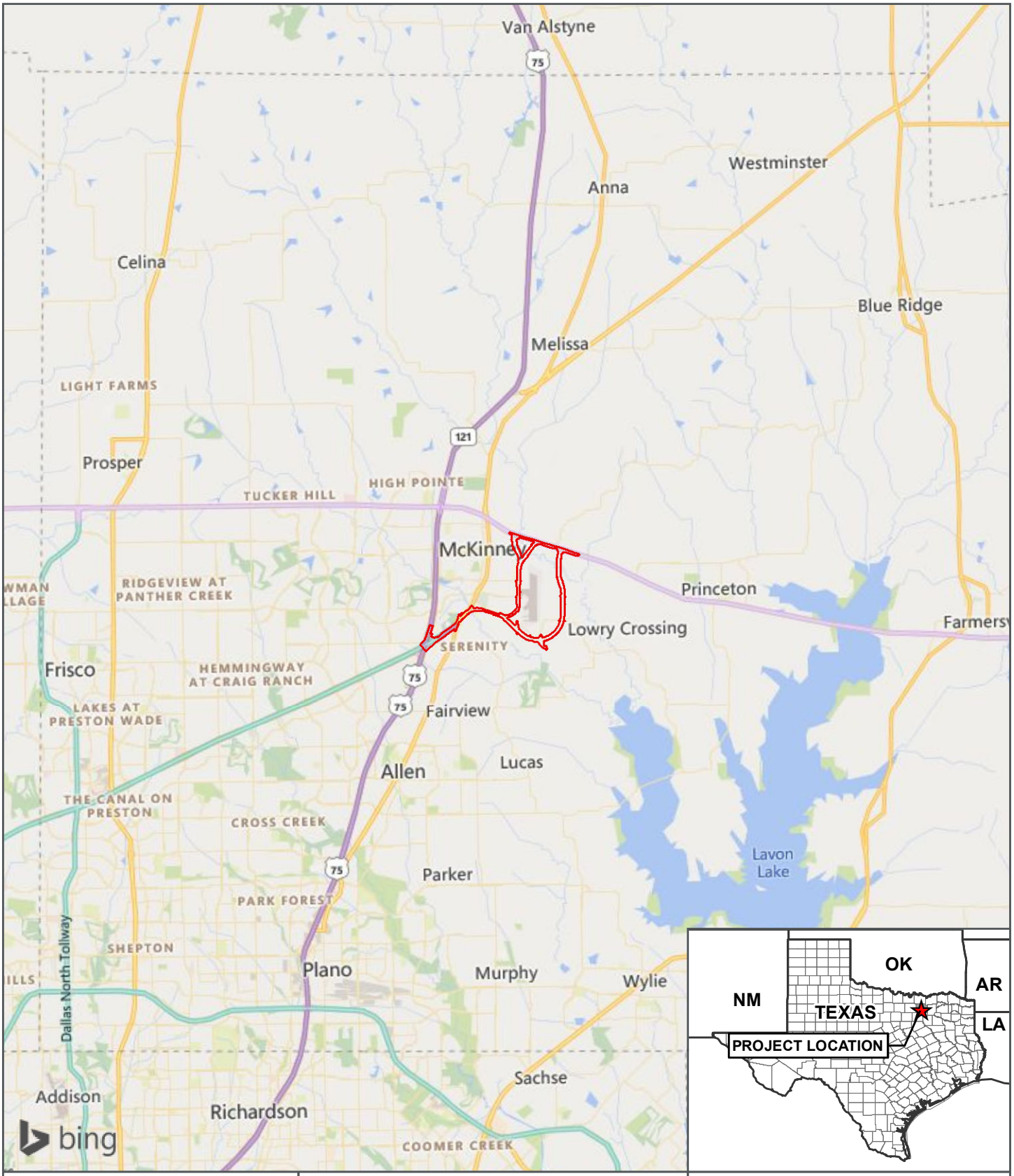
8.0 Attachments

1. Figures
2. Wetland Determination Data Forms and Stream Data Forms
3. Antecedent Precipitation Tool for McKinney, Texas
4. Site Photographs
5. Historical Aerial Photographs

Attachment 1 – Figures



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LEGEND

PROJECT AREA

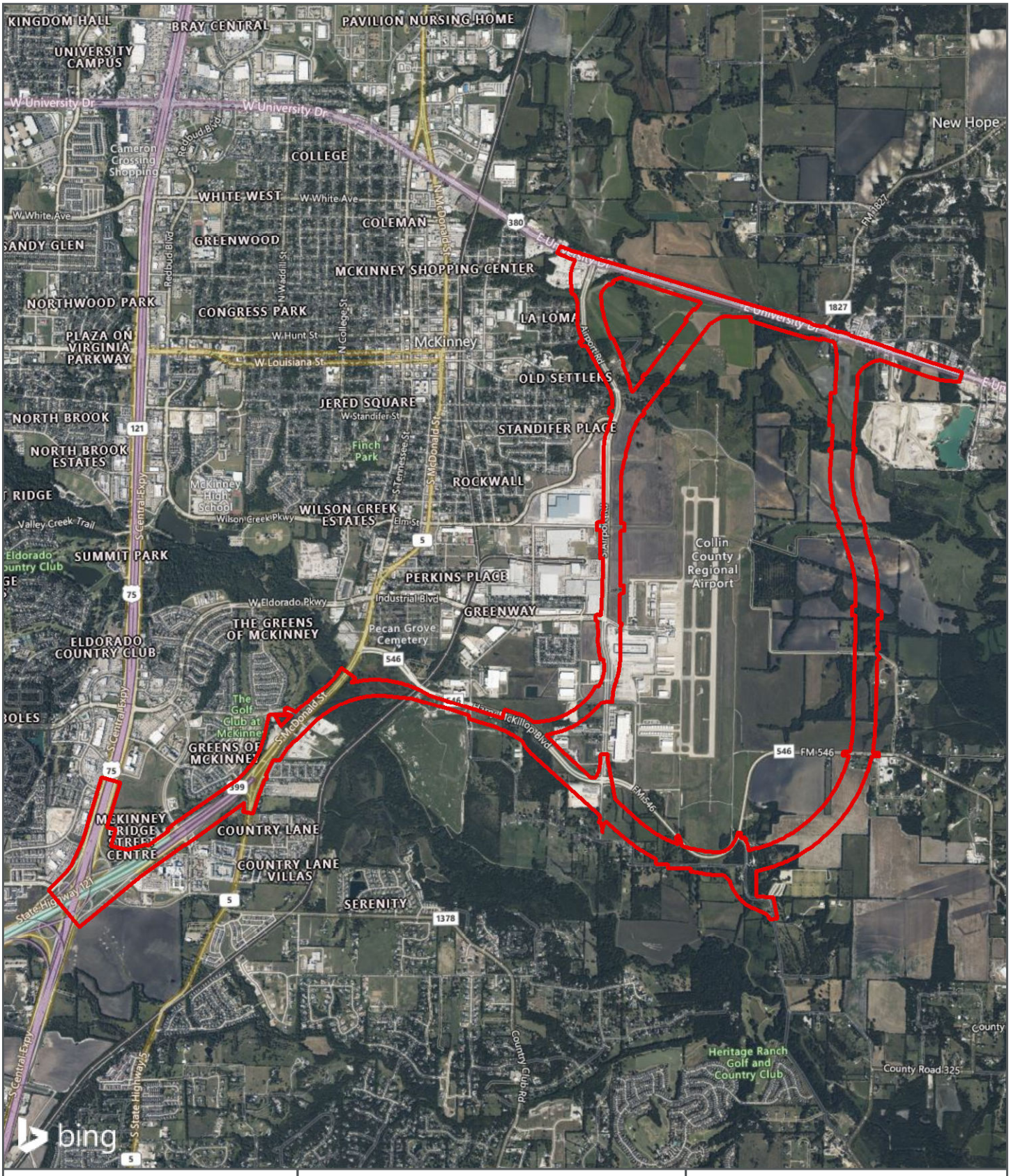
GENERAL LOCATION

SPUR 399 EXTENSION

MAR 2022

FIGURE 1

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG1_GENLOC_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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PROJECT AREA

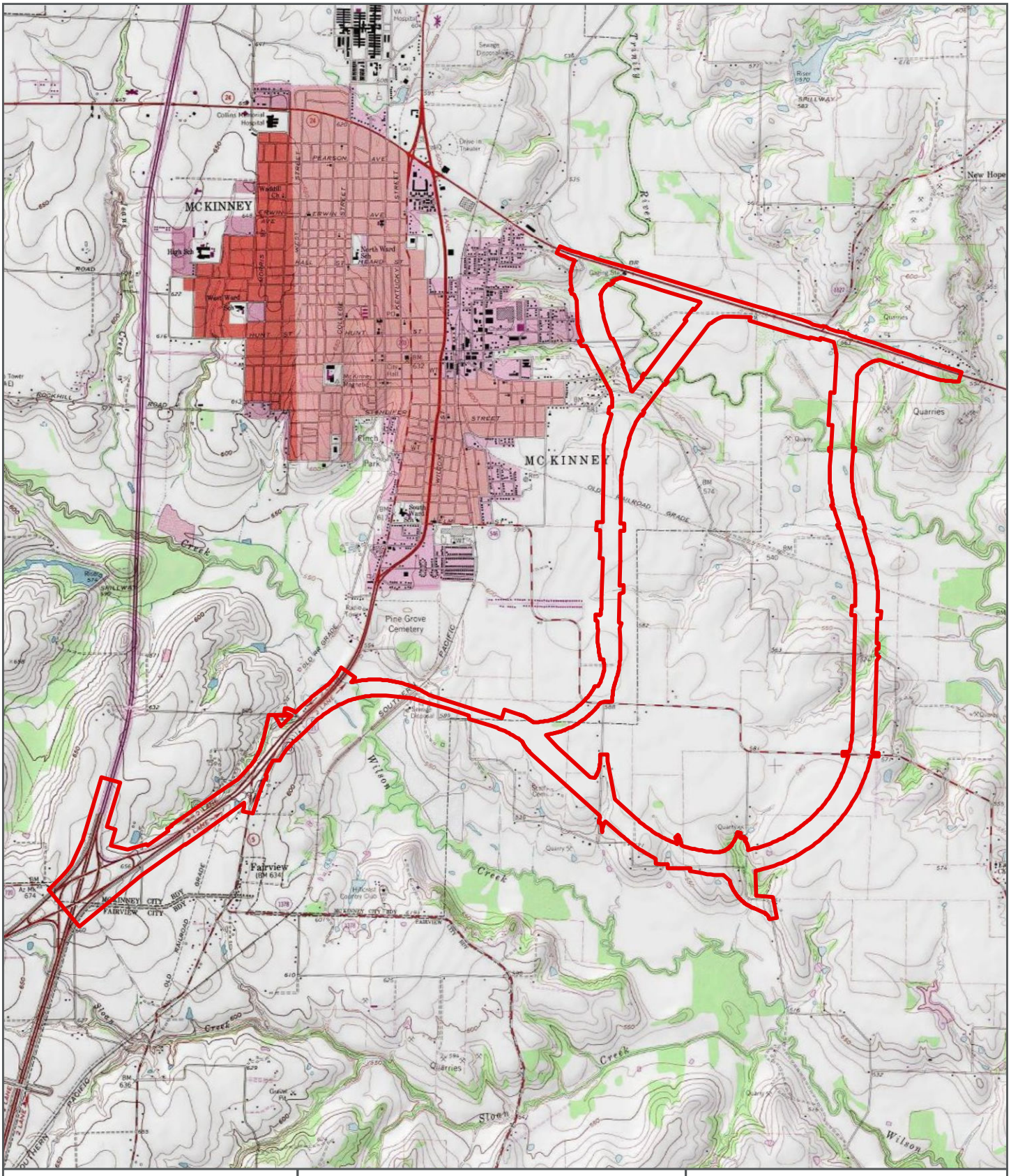
STUDY AREA ON AERIAL

SPUR 399 EXTENSION

MAR 2022

FIGURE 2

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG2_AERIAL_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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PROJECT AREA

TOPOGRAPHIC OVERVIEW

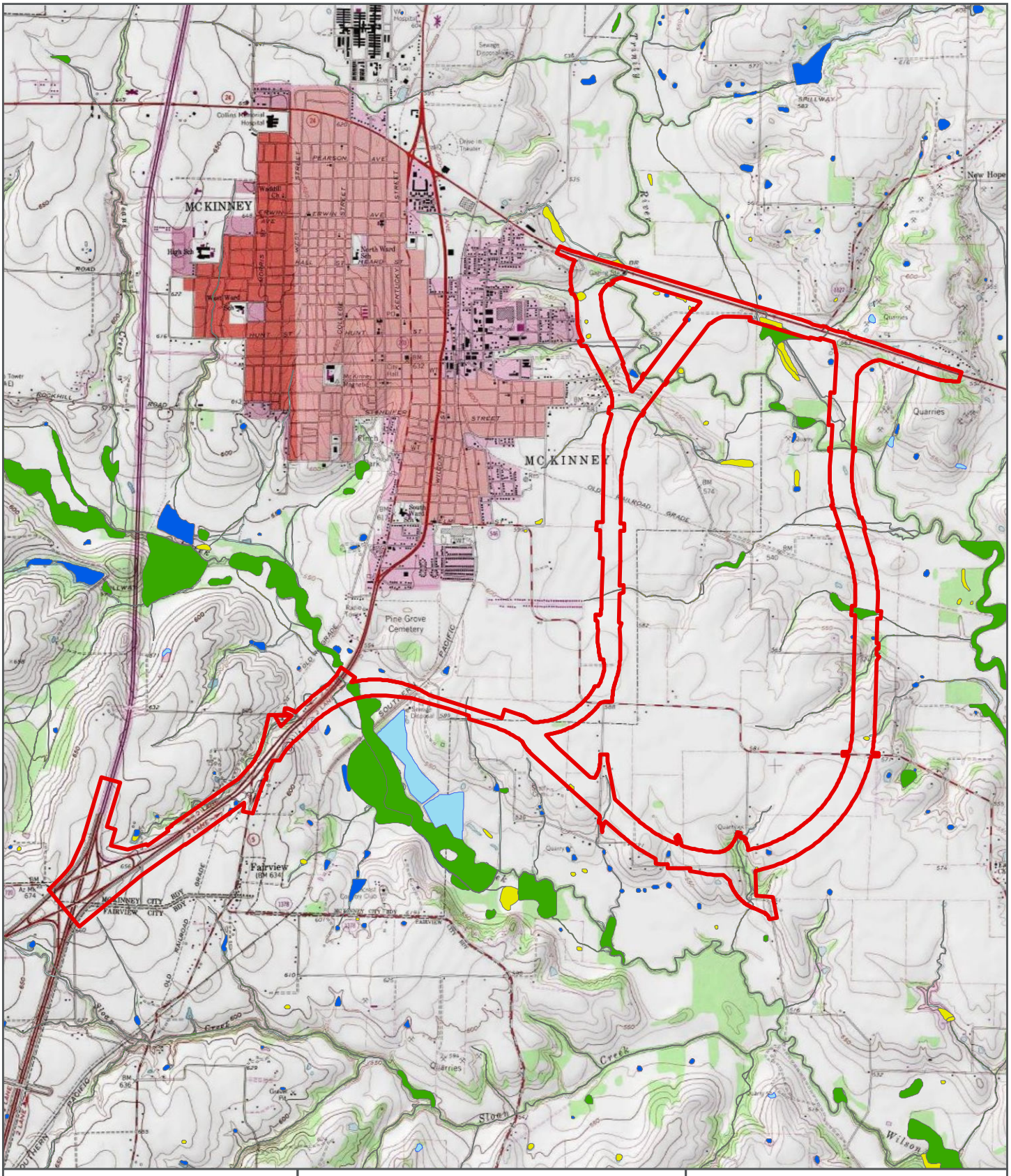
SPUR 399 EXTENSION

MAR 2022

FIGURE 3

Texas Department of Transportation

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG3_TOPO_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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- PROJECT AREA
- FRESHWATER EMERGENT WETLAND (NWI)
- FRESHWATER FORESTED/SHRUB WETLAND (NWI)
- FRESHWATER POND (NWI)
- LAKE (NWI)
- RIVERINE (NWI)

Texas Department of Transportation

NWI MAP

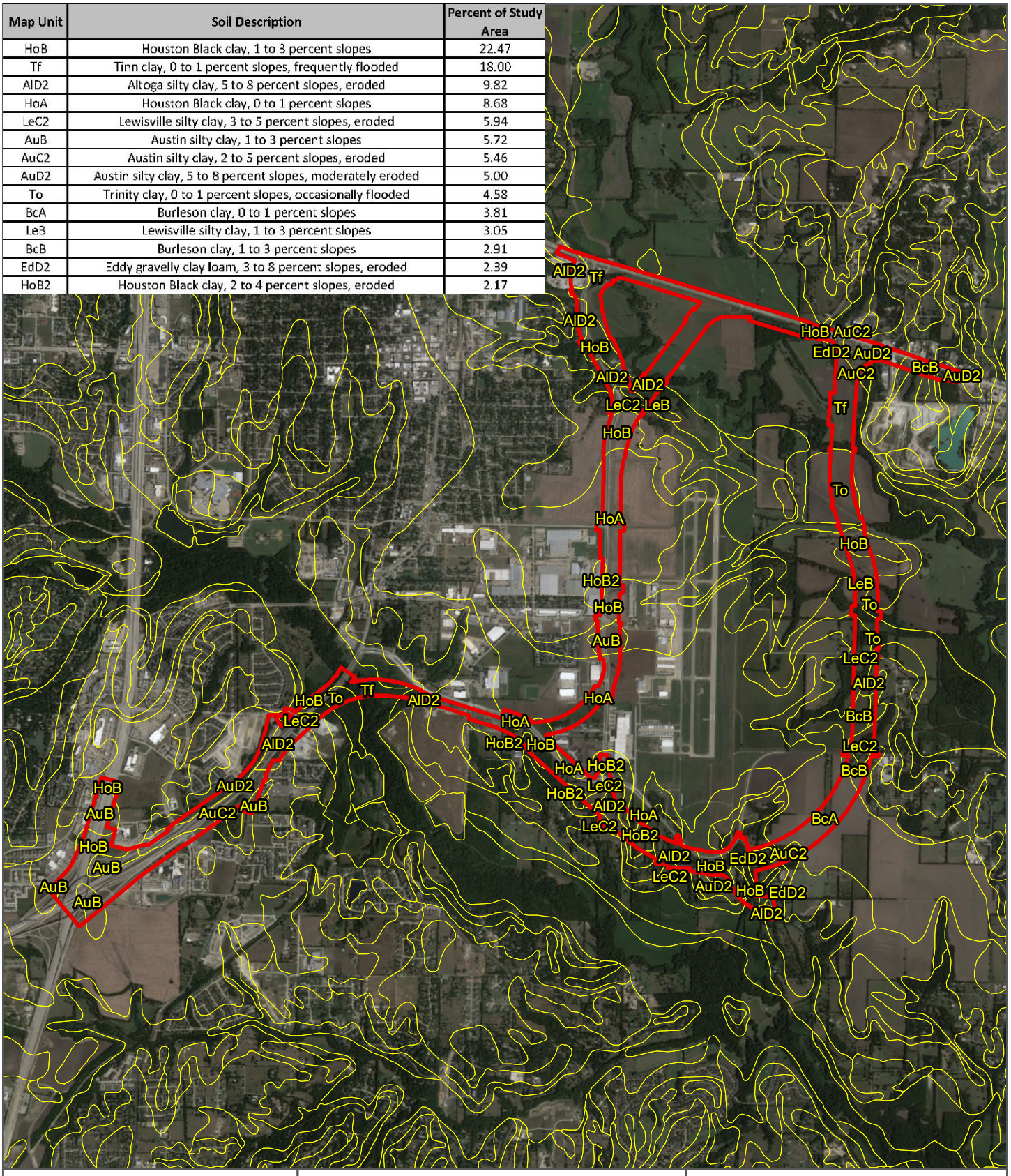
SPUR 399 EXTENSION

MAR 2022

FIGURE 4

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG4_NWI_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

Map Unit	Soil Description	Percent of Study Area
HoB	Houston Black clay, 1 to 3 percent slopes	22.47
Tf	Tinn clay, 0 to 1 percent slopes, frequently flooded	18.00
AlD2	Altoga silty clay, 5 to 8 percent slopes, eroded	9.82
HoA	Houston Black clay, 0 to 1 percent slopes	8.68
LeC2	Lewisville silty clay, 3 to 5 percent slopes, eroded	5.94
AuB	Austin silty clay, 1 to 3 percent slopes	5.72
AuC2	Austin silty clay, 2 to 5 percent slopes, eroded	5.46
AuD2	Austin silty clay, 5 to 8 percent slopes, moderately eroded	5.00
To	Trinity clay, 0 to 1 percent slopes, occasionally flooded	4.58
BcA	Burleson clay, 0 to 1 percent slopes	3.81
LeB	Lewisville silty clay, 1 to 3 percent slopes	3.05
BcB	Burleson clay, 1 to 3 percent slopes	2.91
EdD2	Eddy gravelly clay loam, 3 to 8 percent slopes, eroded	2.39
HoB2	Houston Black clay, 2 to 4 percent slopes, eroded	2.17



NRCS SOILS MAP

SPUR 399 EXTENSION

MAR 2022

FIGURE 5

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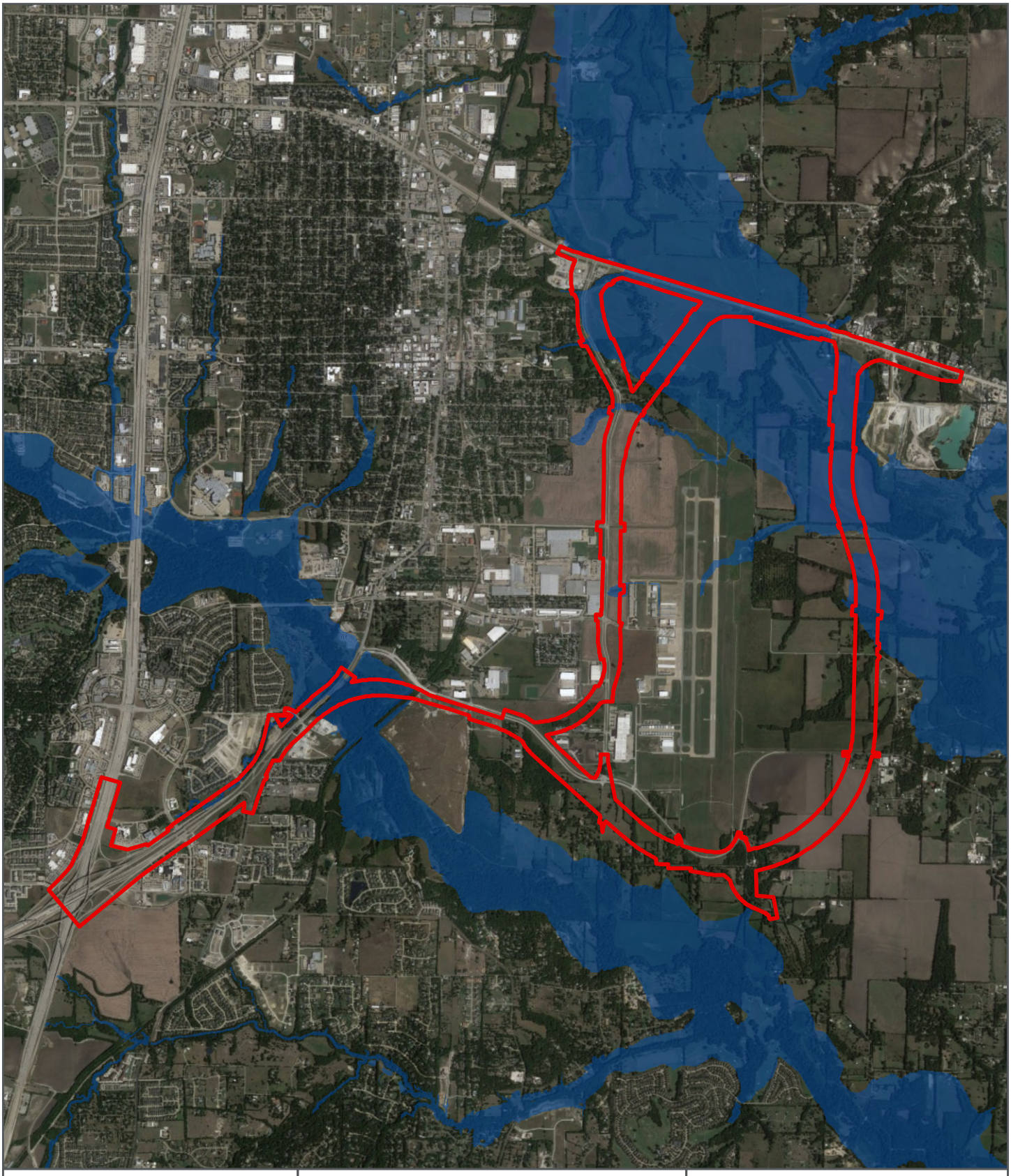

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PROJECT AREA

100-YEAR FLOODPLAIN

Texas Department of Transportation

FEMA FLOODPLAIN MAP

SPUR 399 EXTENSION

MAR 2022

FIGURE 6

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PROJECT AREA

MAJOR CONTOUR (10 FT)

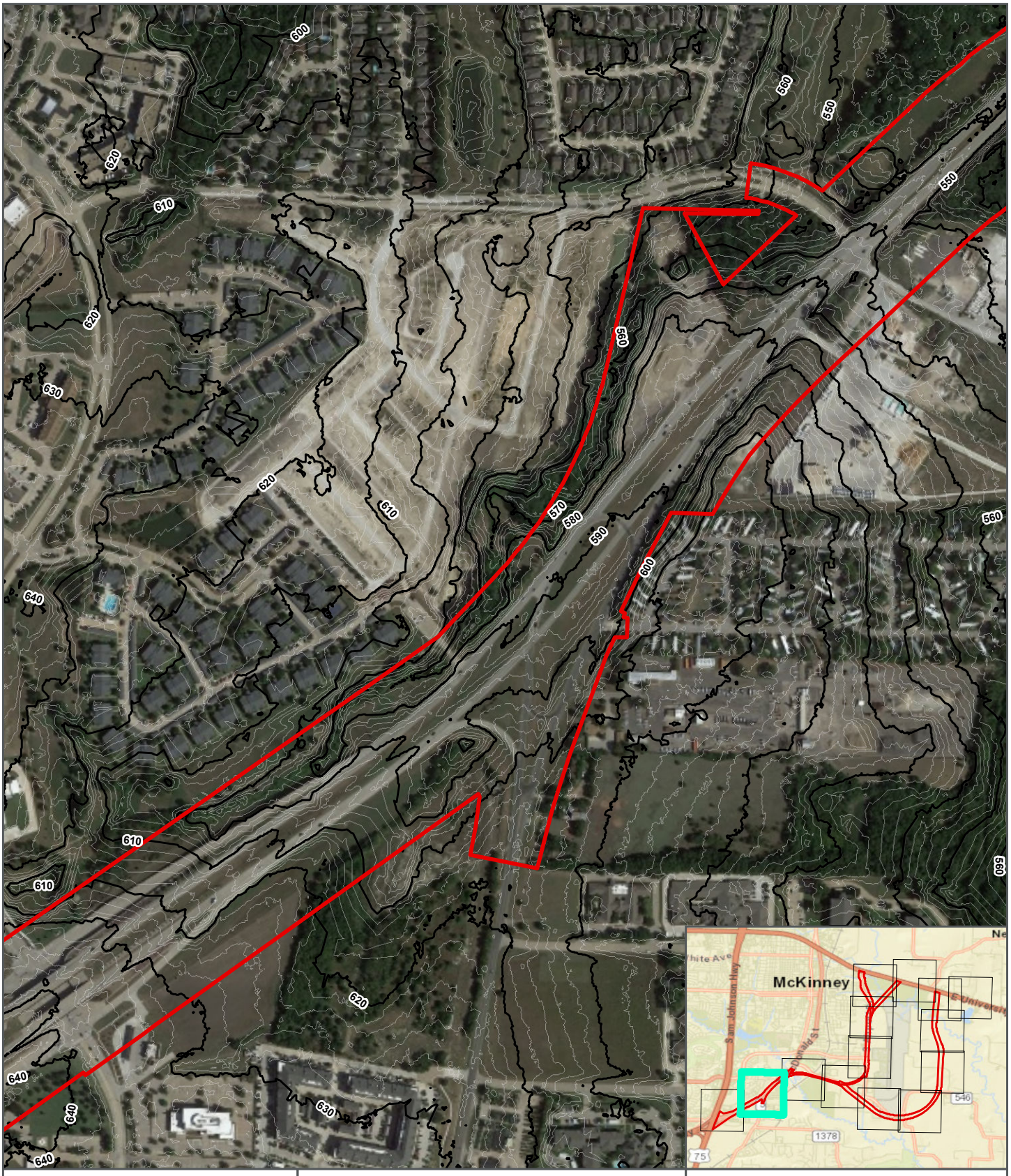
MINOR CONTOUR (2 FT)

CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022	FIGURE 7-1

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

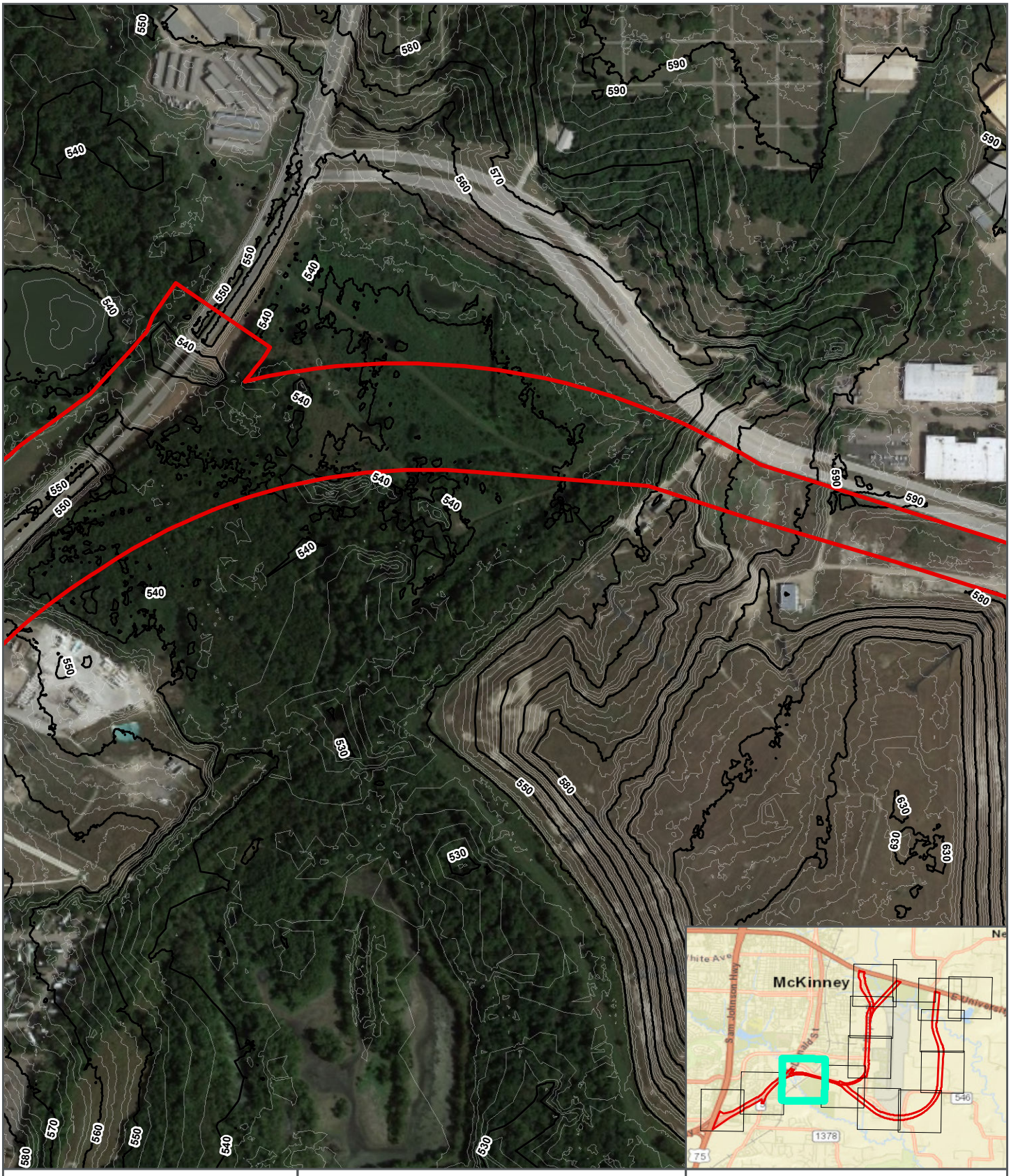
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-2

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-3

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

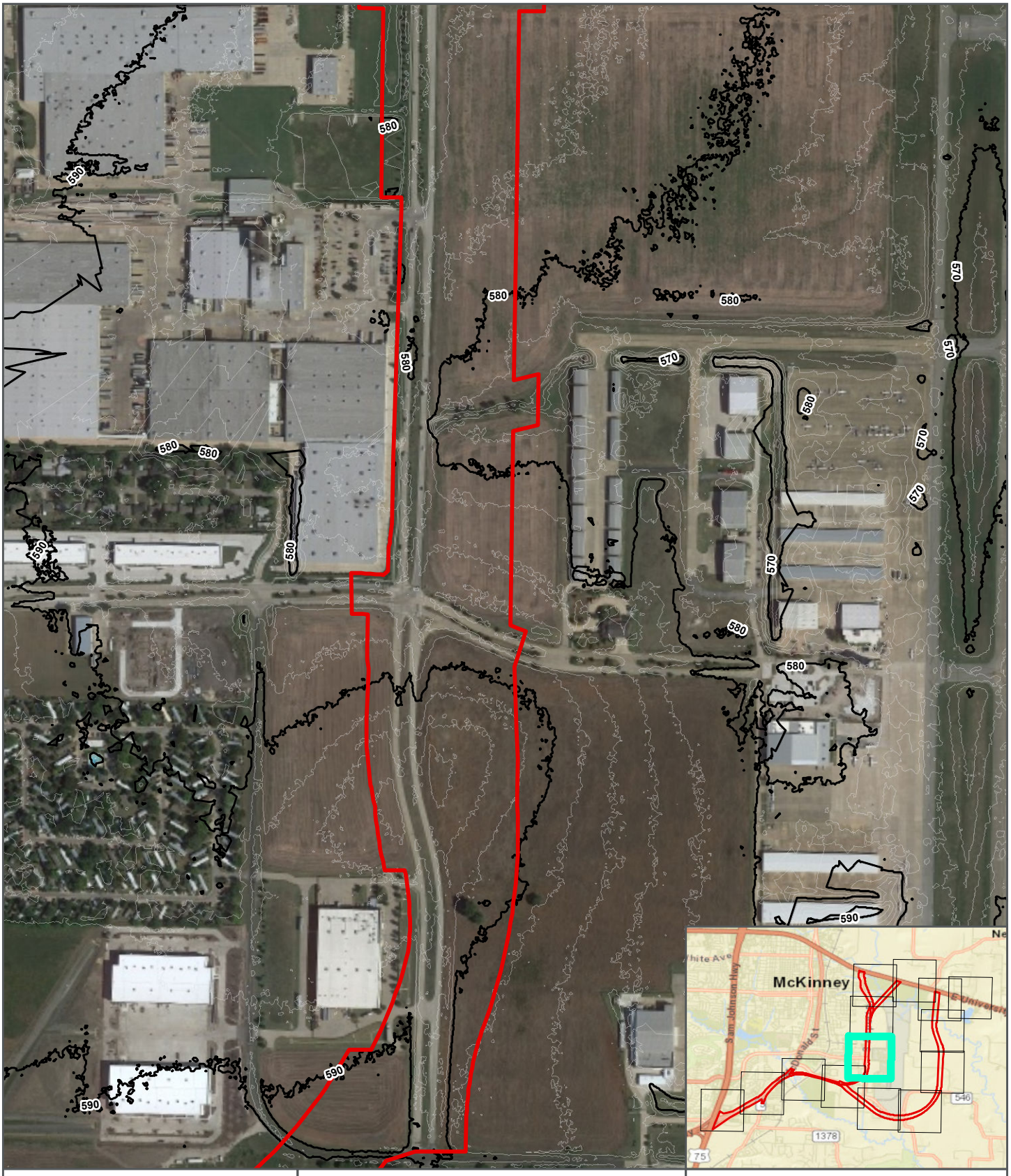
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-4

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

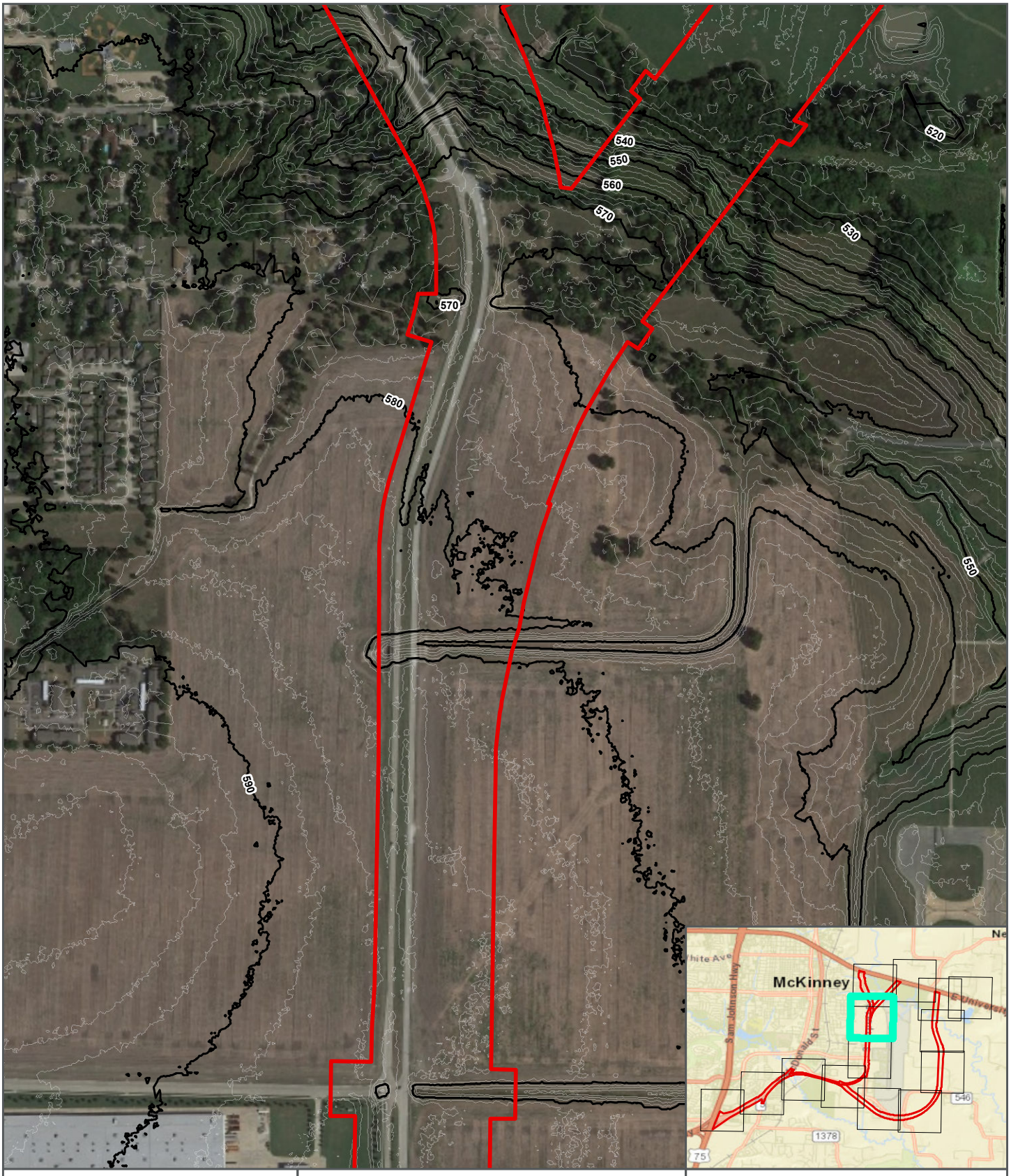
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-5

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-6

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

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FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

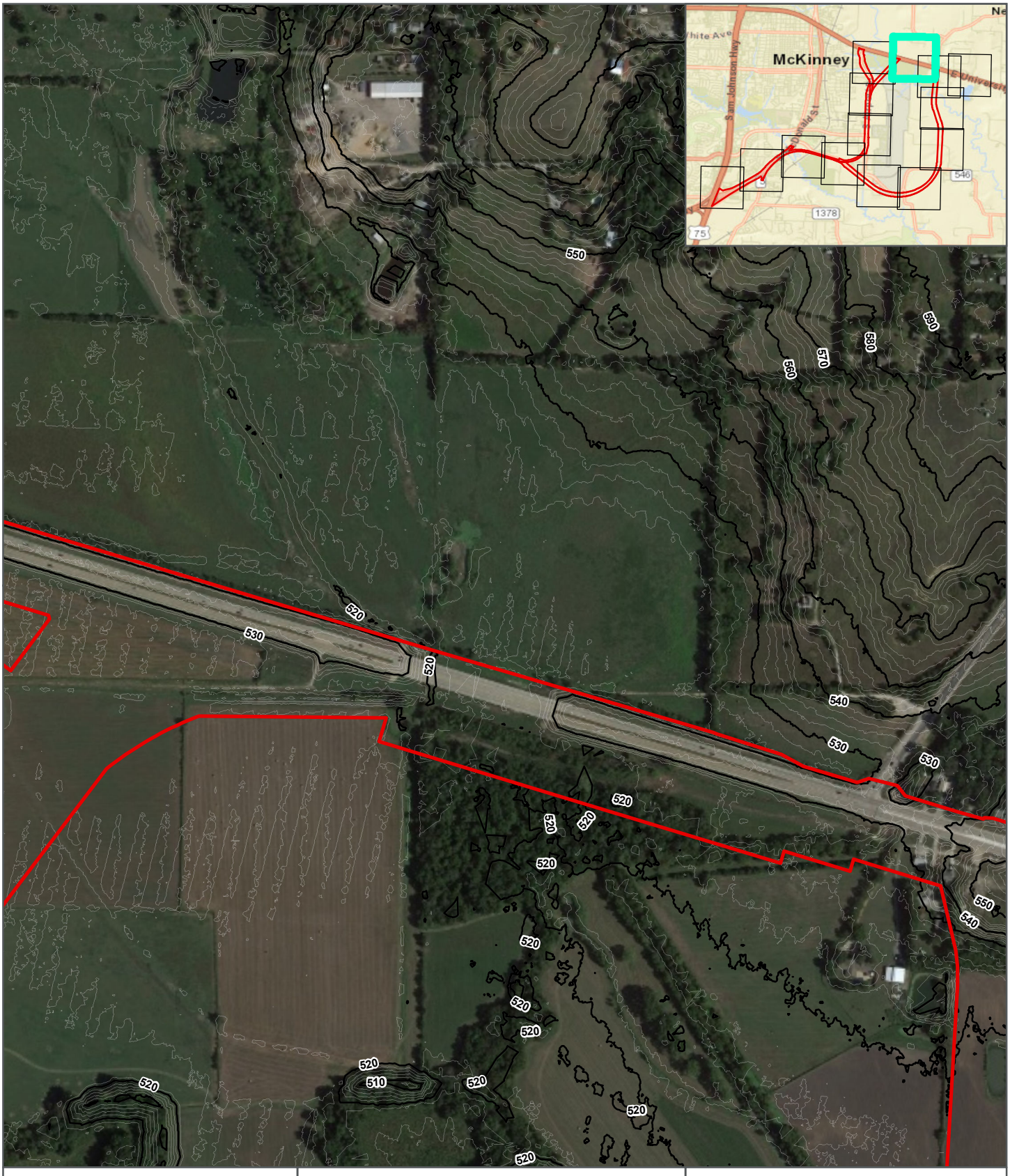
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-7

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



N

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FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

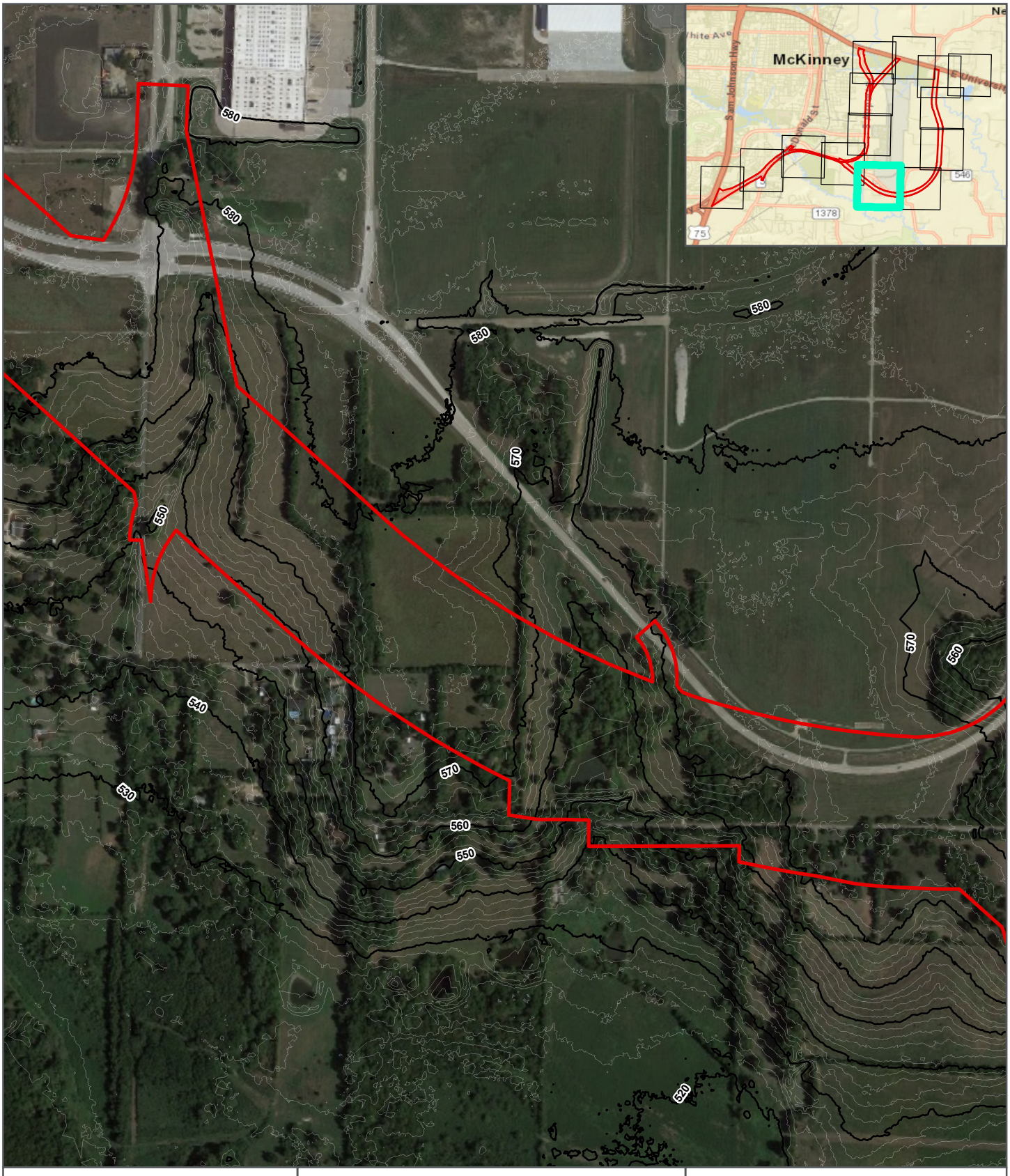
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-8

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



N

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FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

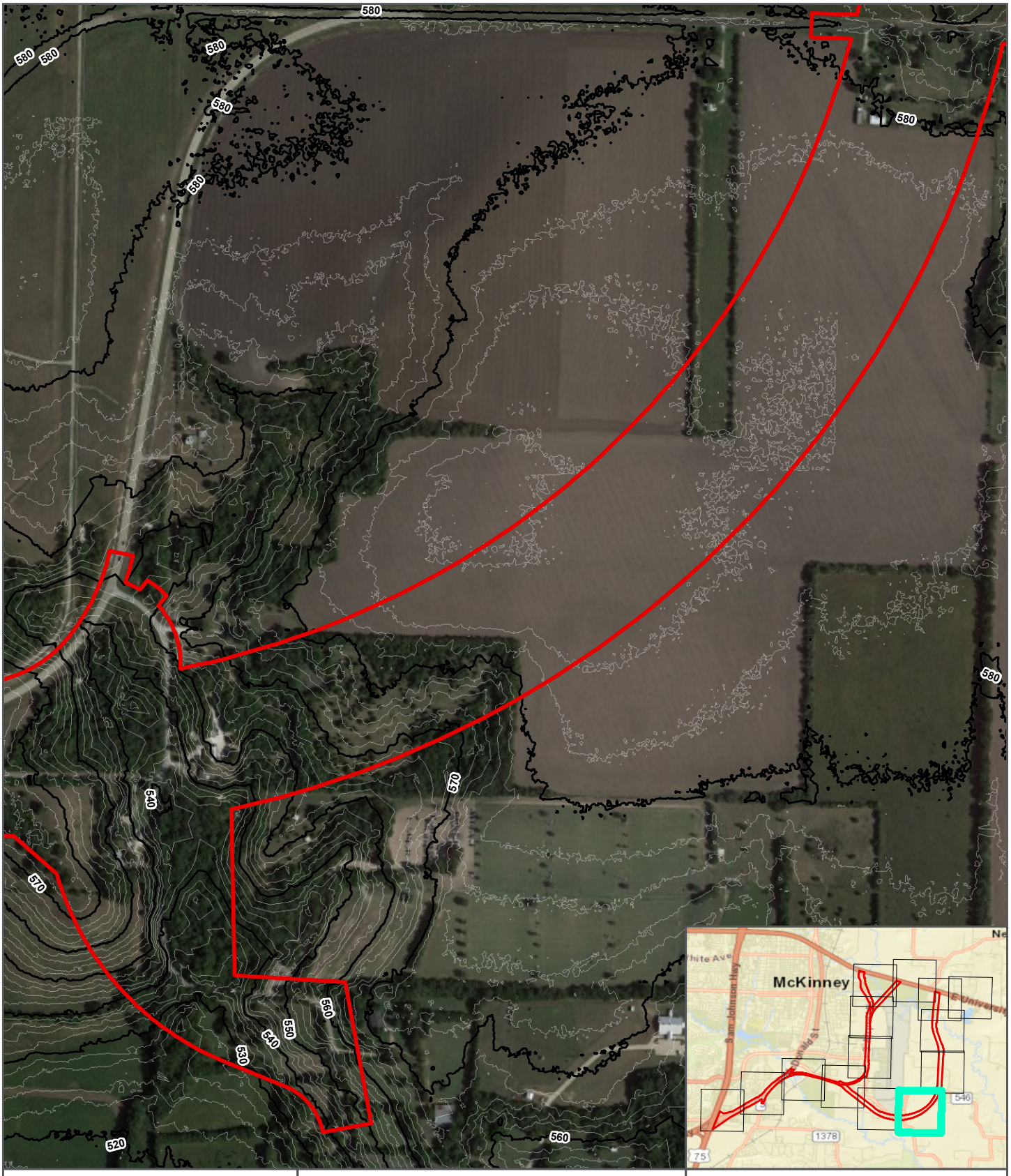
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-9

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

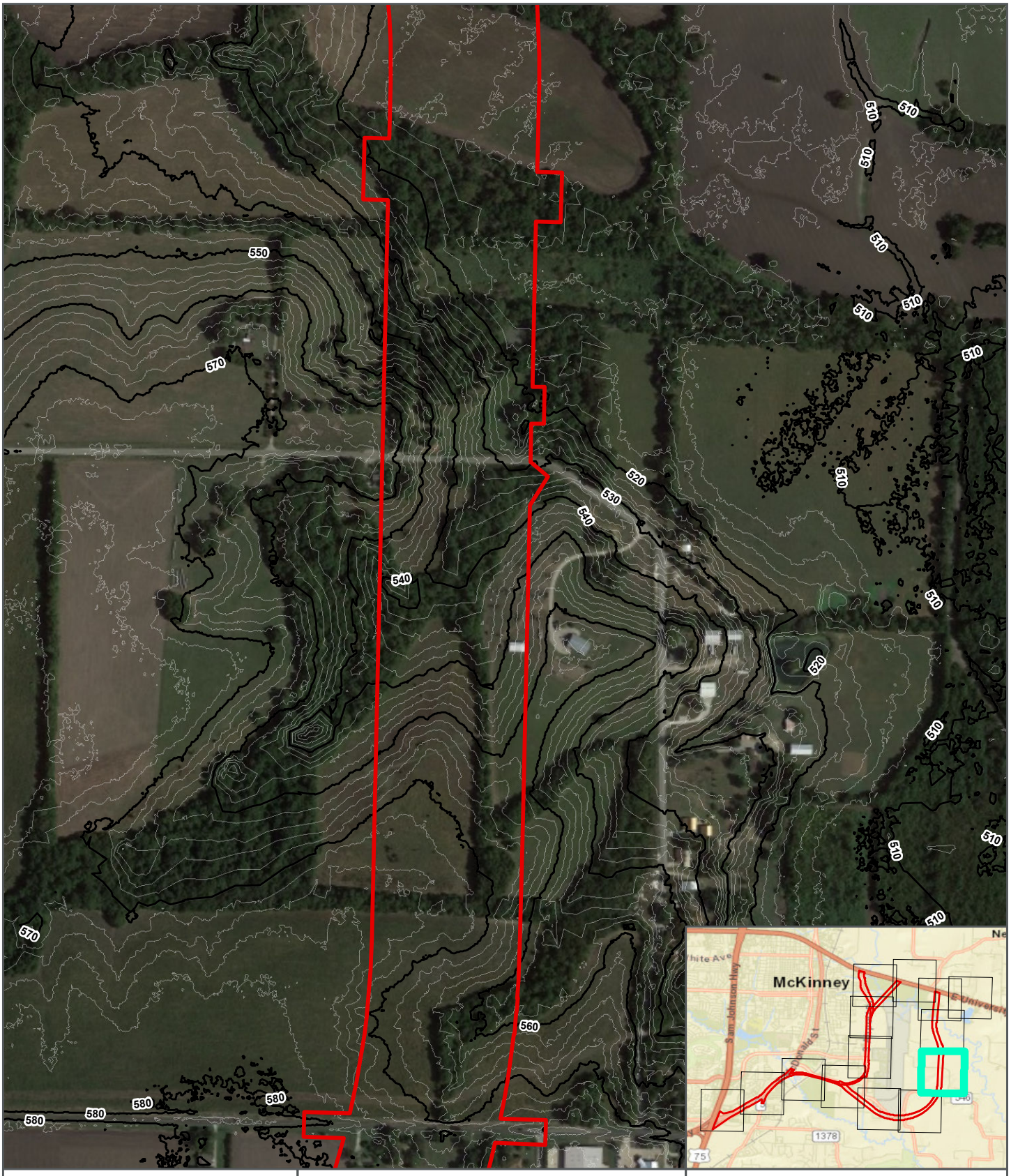
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-10

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

Texas Department of Transportation

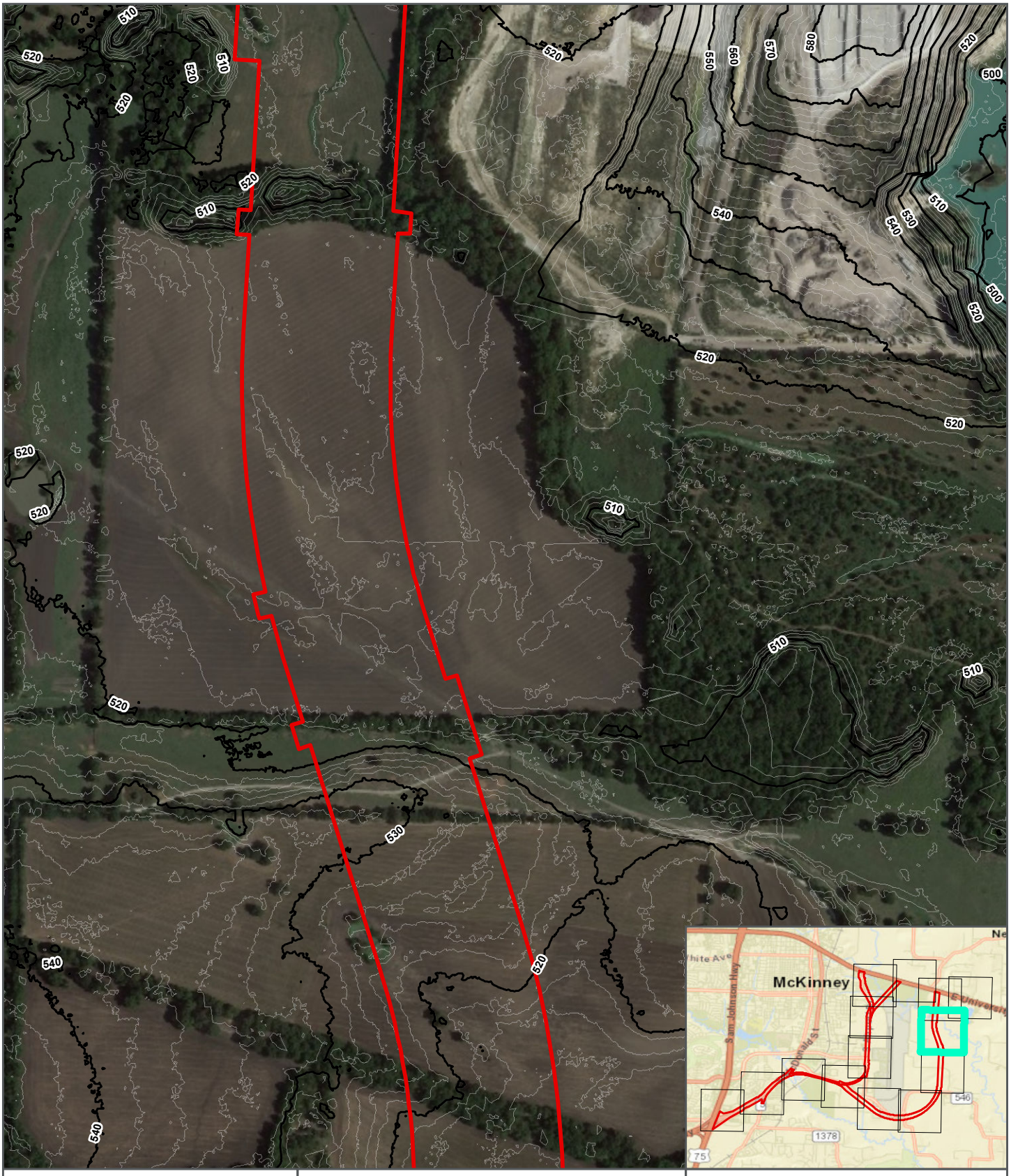
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-11

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

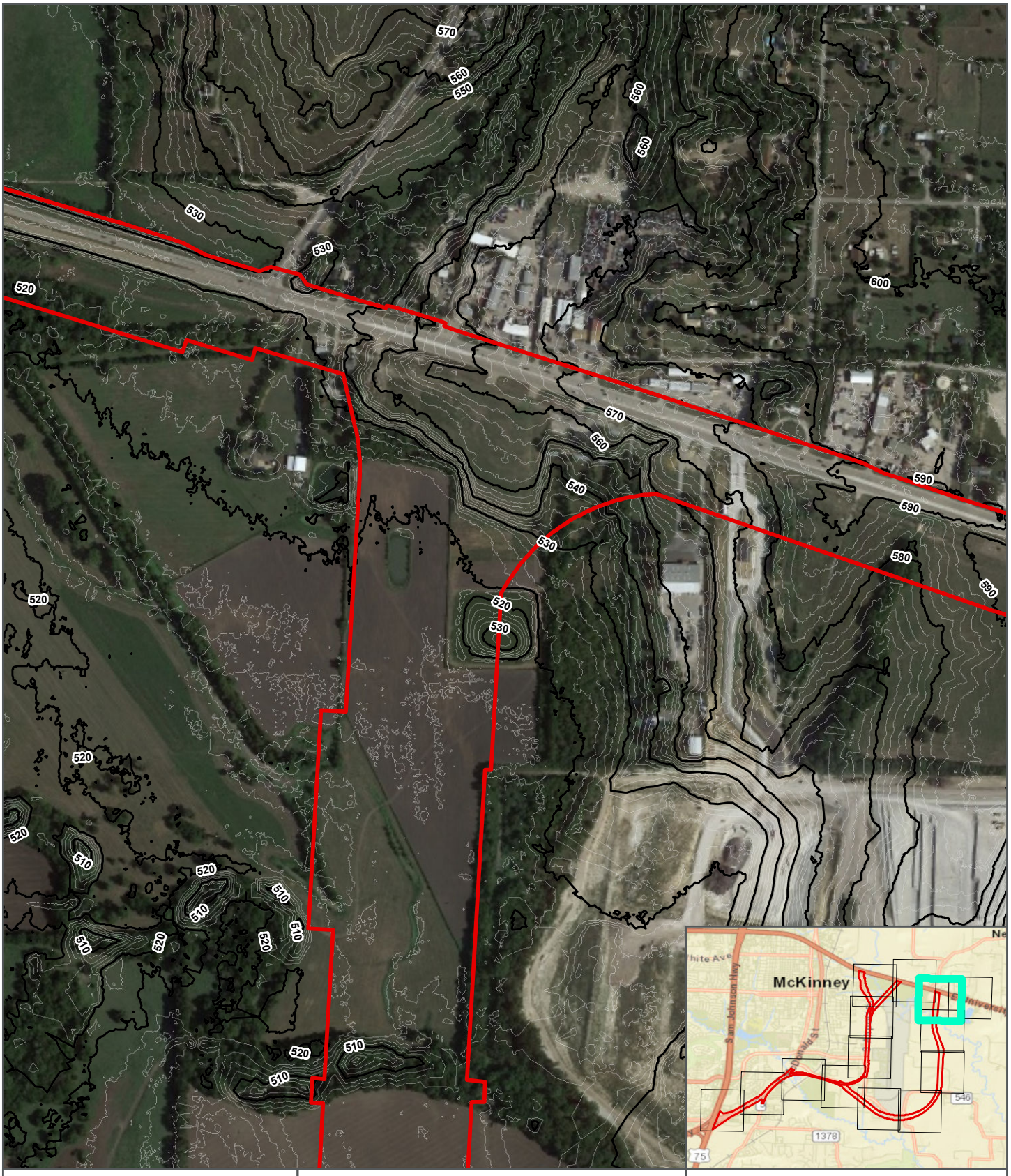
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-12

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

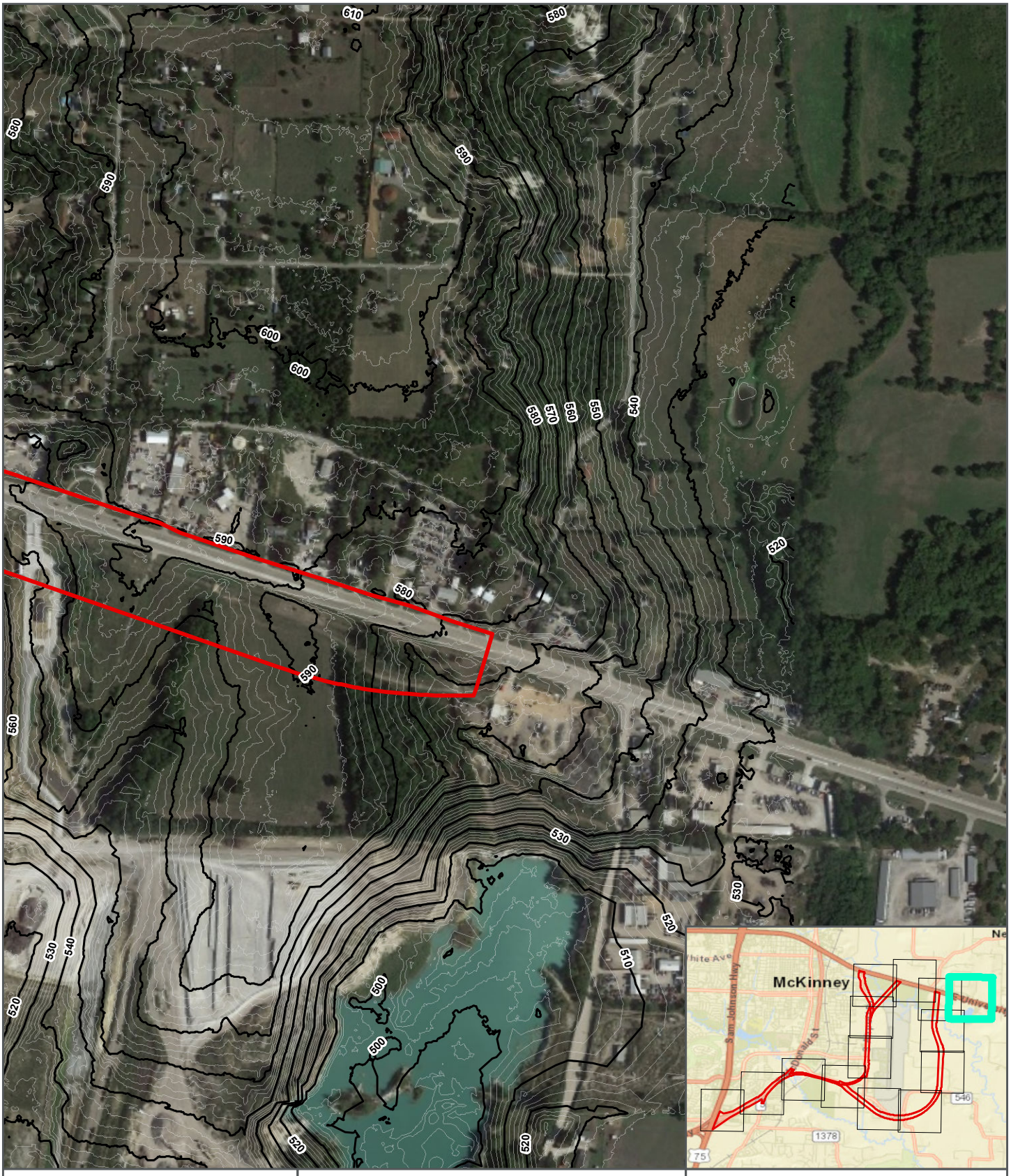
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-13

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 310 620
FEET

LEGEND

PROJECT AREA

MAJOR CONTOUR (10 FT)

MINOR CONTOUR (2 FT)

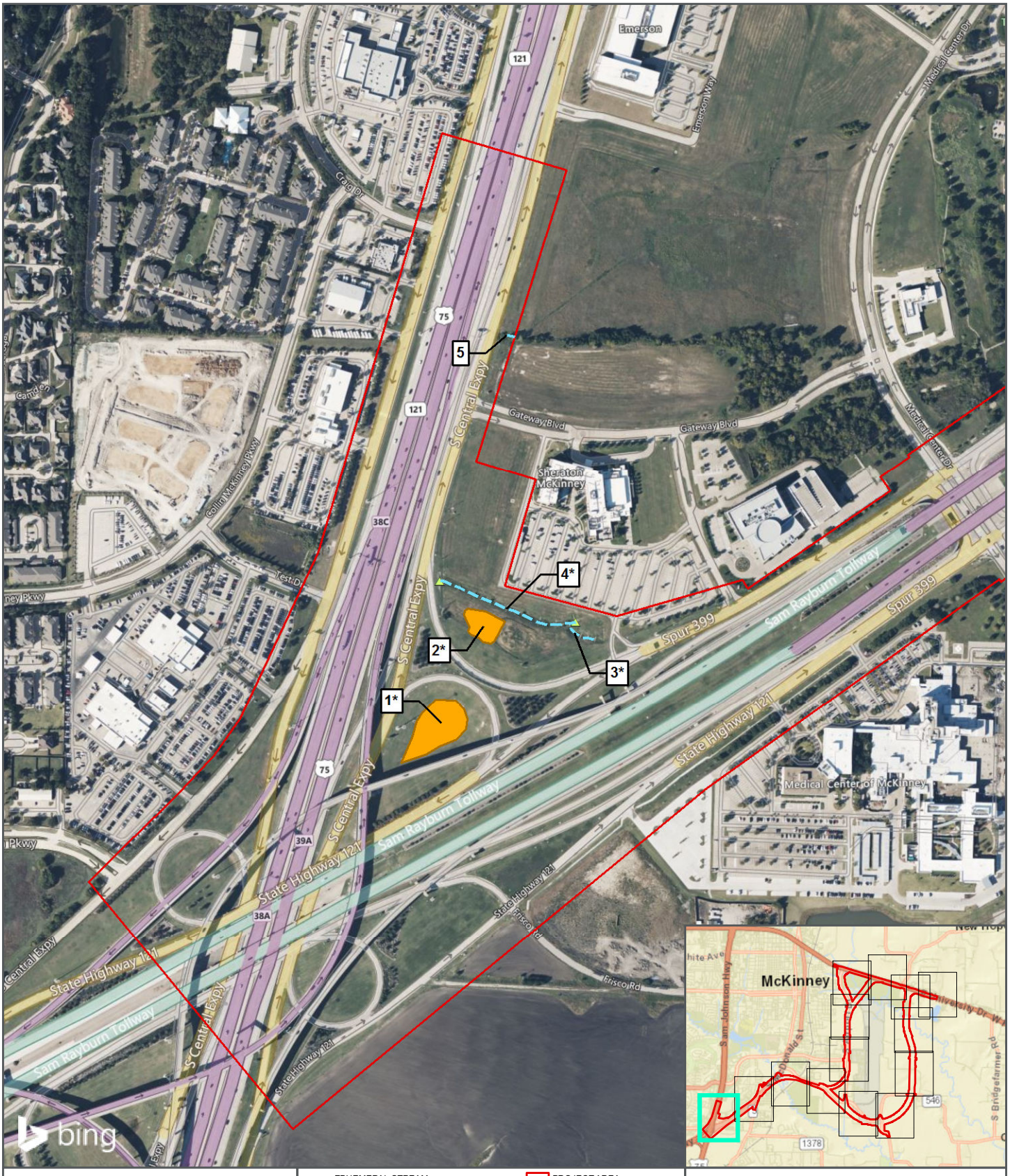
CONTOURS FROM TXDOT (2011)

SPUR 399 EXTENSION

MAR 2022

FIGURE 7-14

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG7_LIDAR_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-1

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

N

0 250 500
FEET

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

Texas Department of Transportation

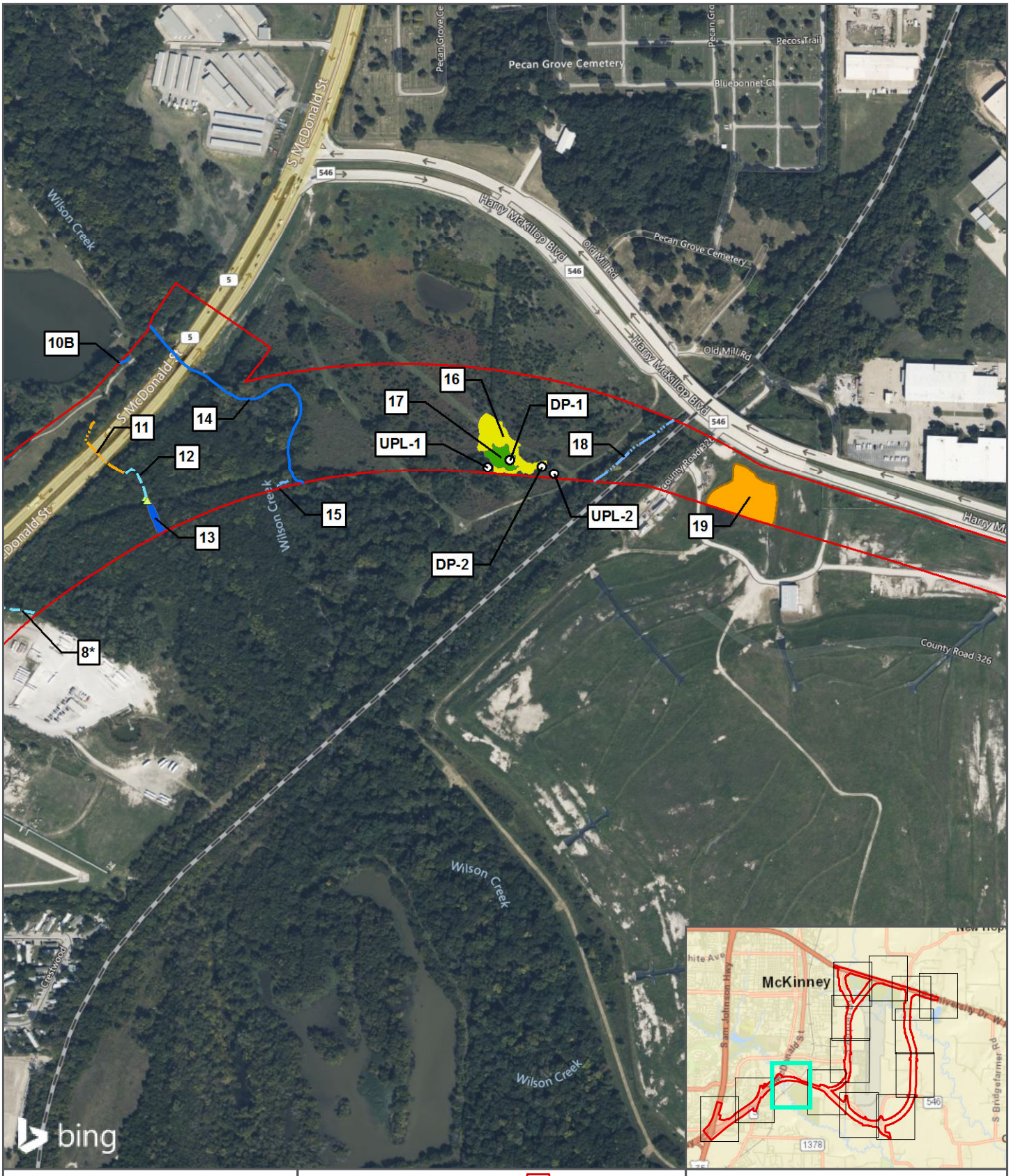
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-2

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

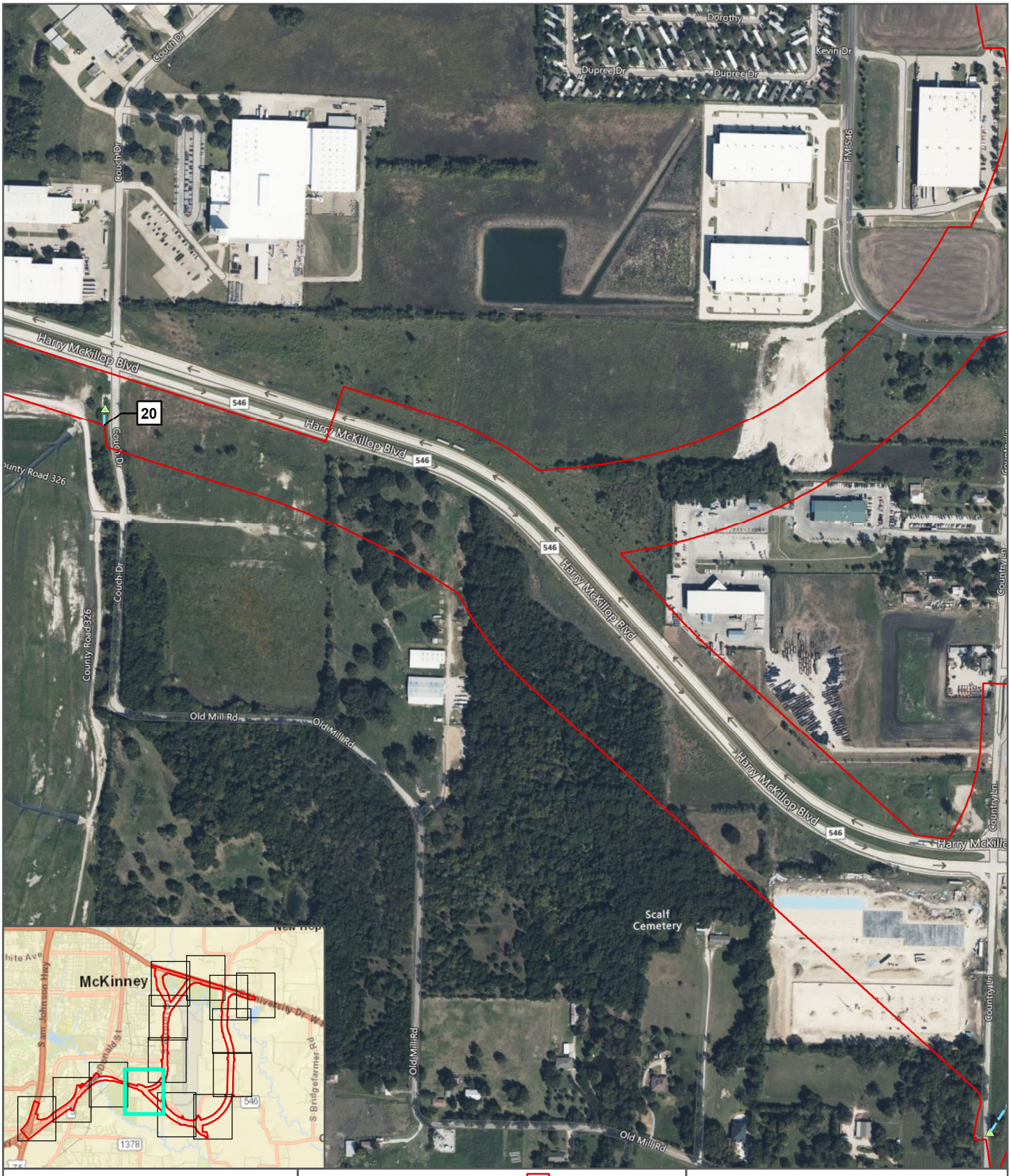
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-3

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



Texas Department of Transportation

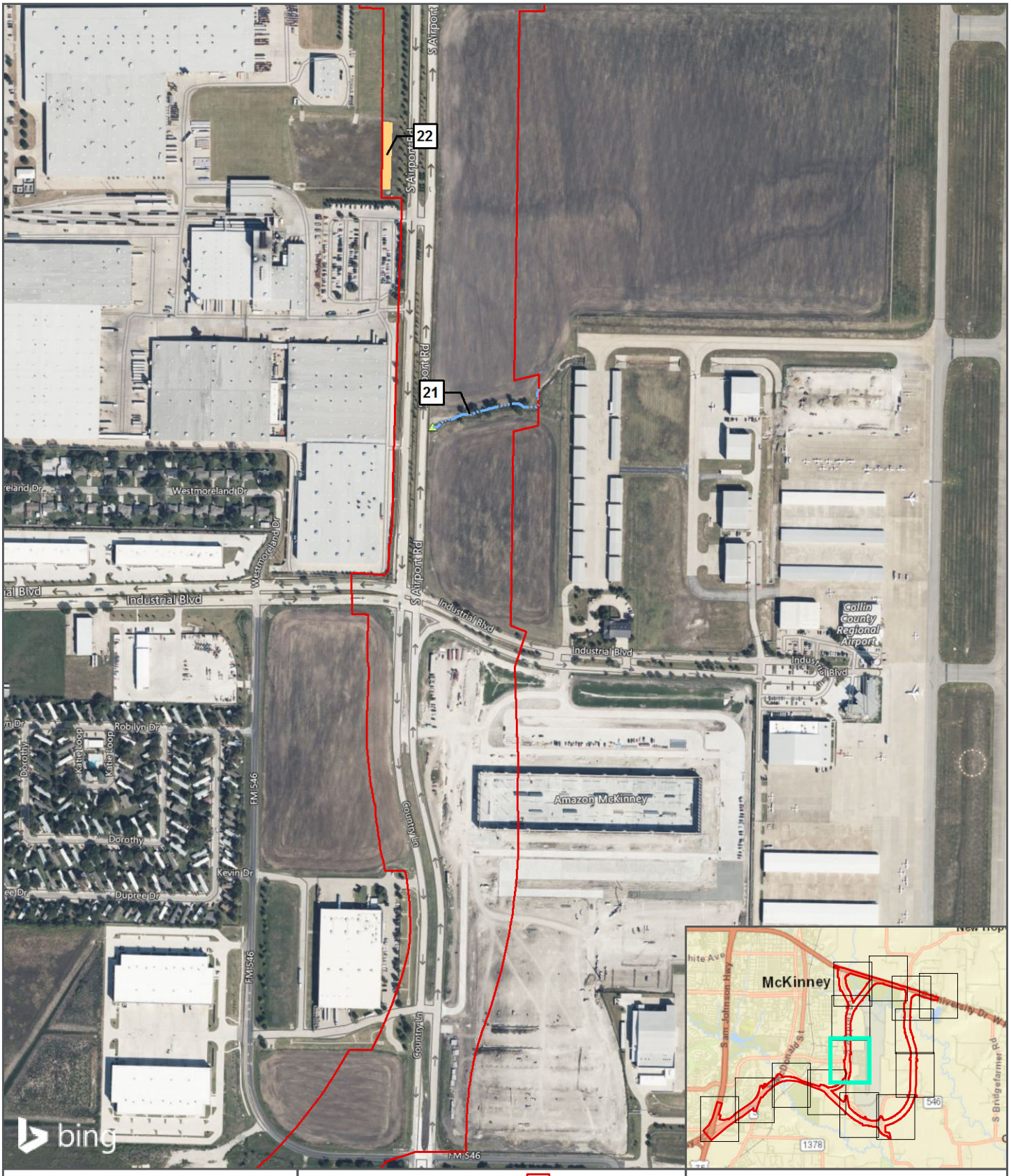
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-4

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



N

0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
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- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND
- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-5

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

0 250 500
FEET

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

Texas Department of Transportation

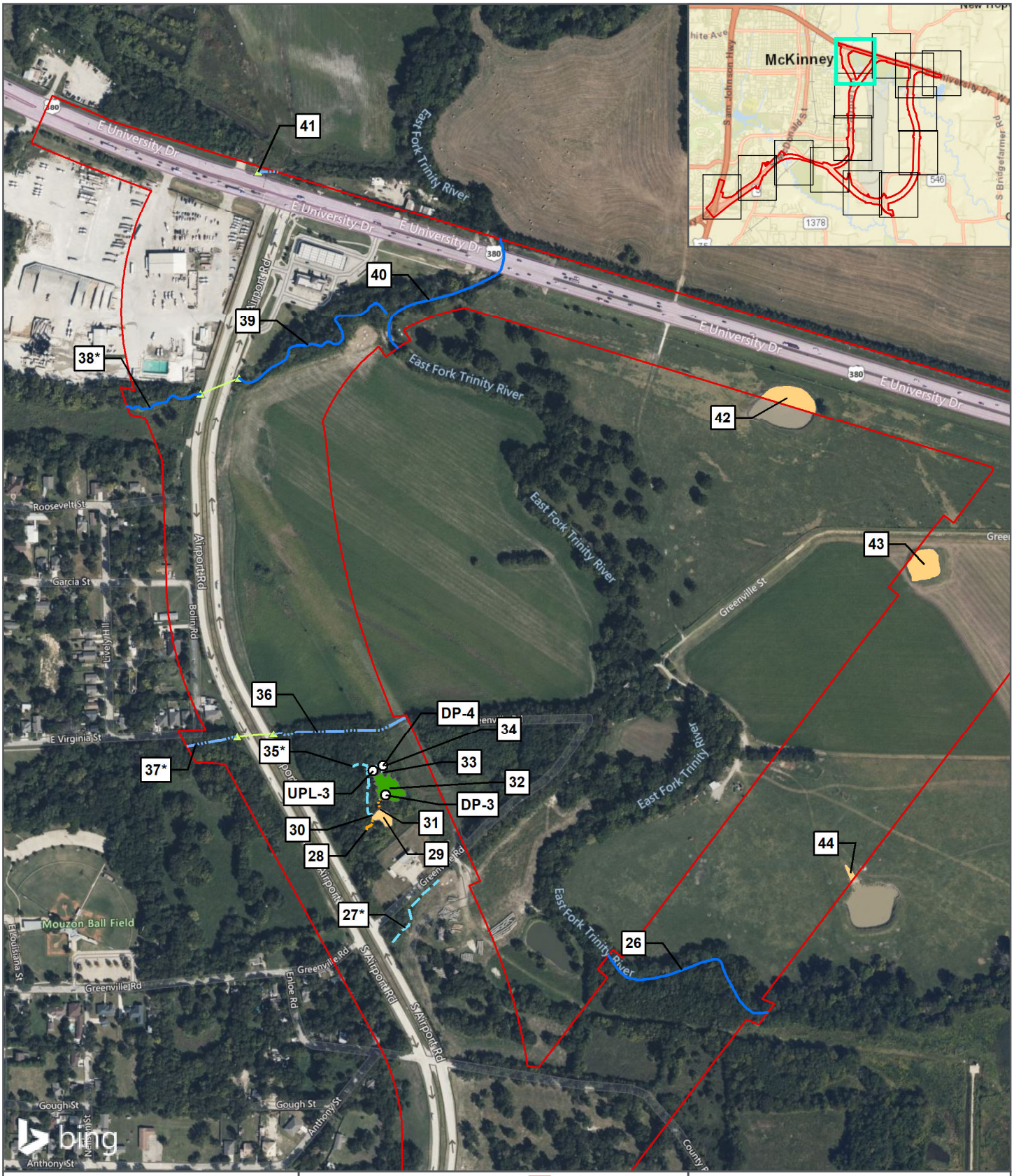
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-6

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 250 500
FEET

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

Texas Department of Transportation

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-7

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022

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0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND
- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

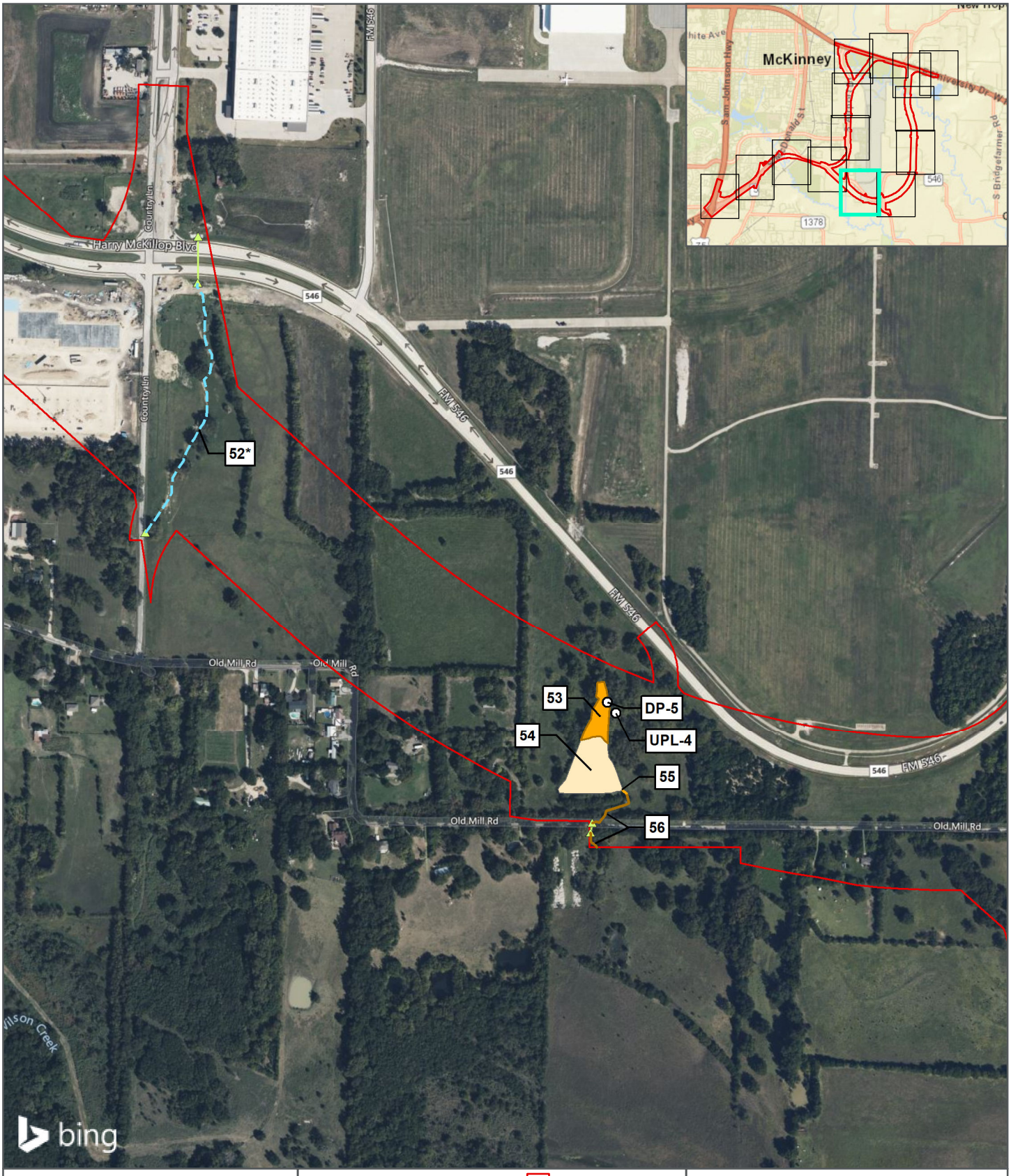
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-8

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022



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0 250 500
FEET

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
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- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

Texas Department of Transportation

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-9

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/21/2022

N

0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
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- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

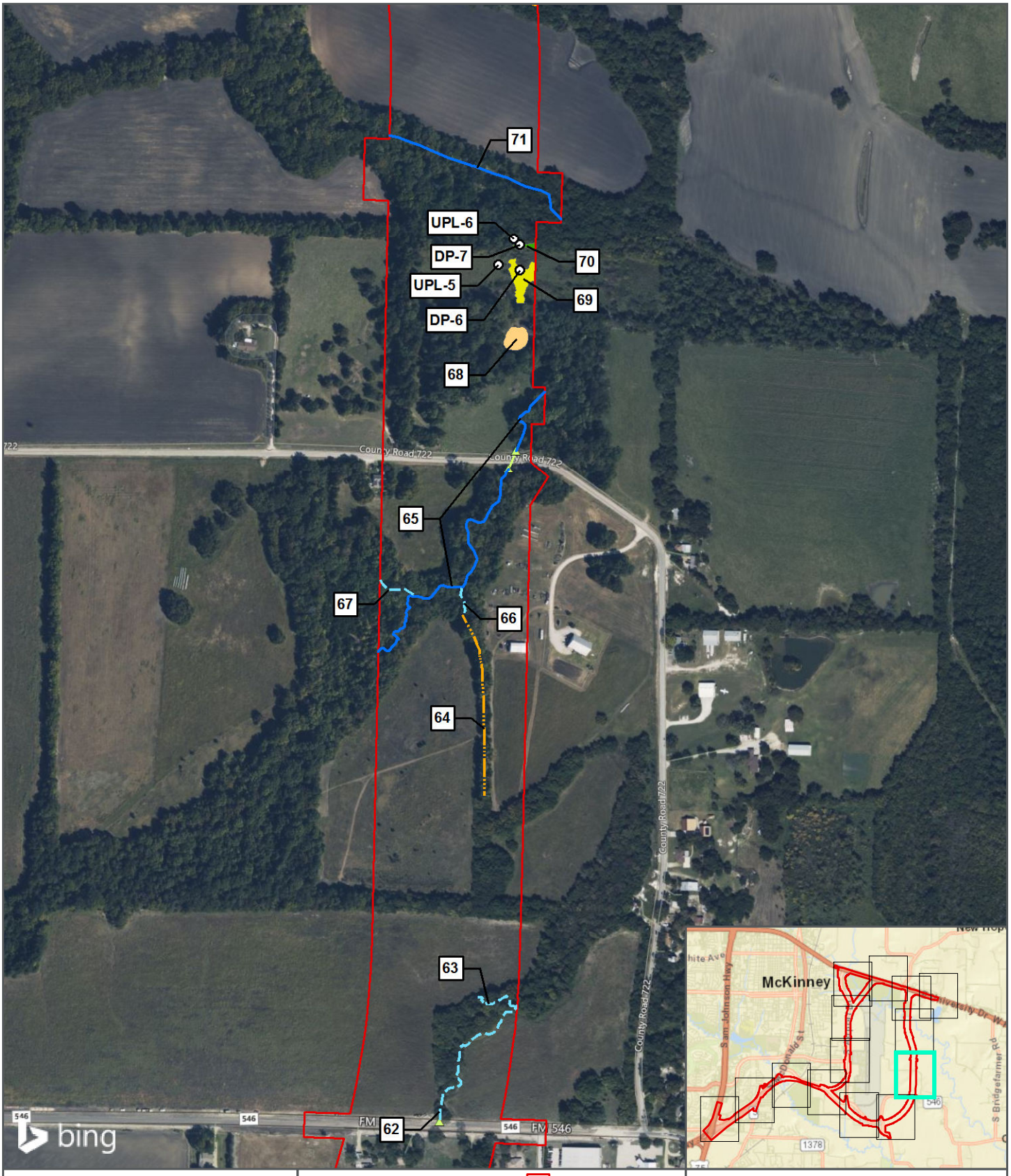
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-10

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
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- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

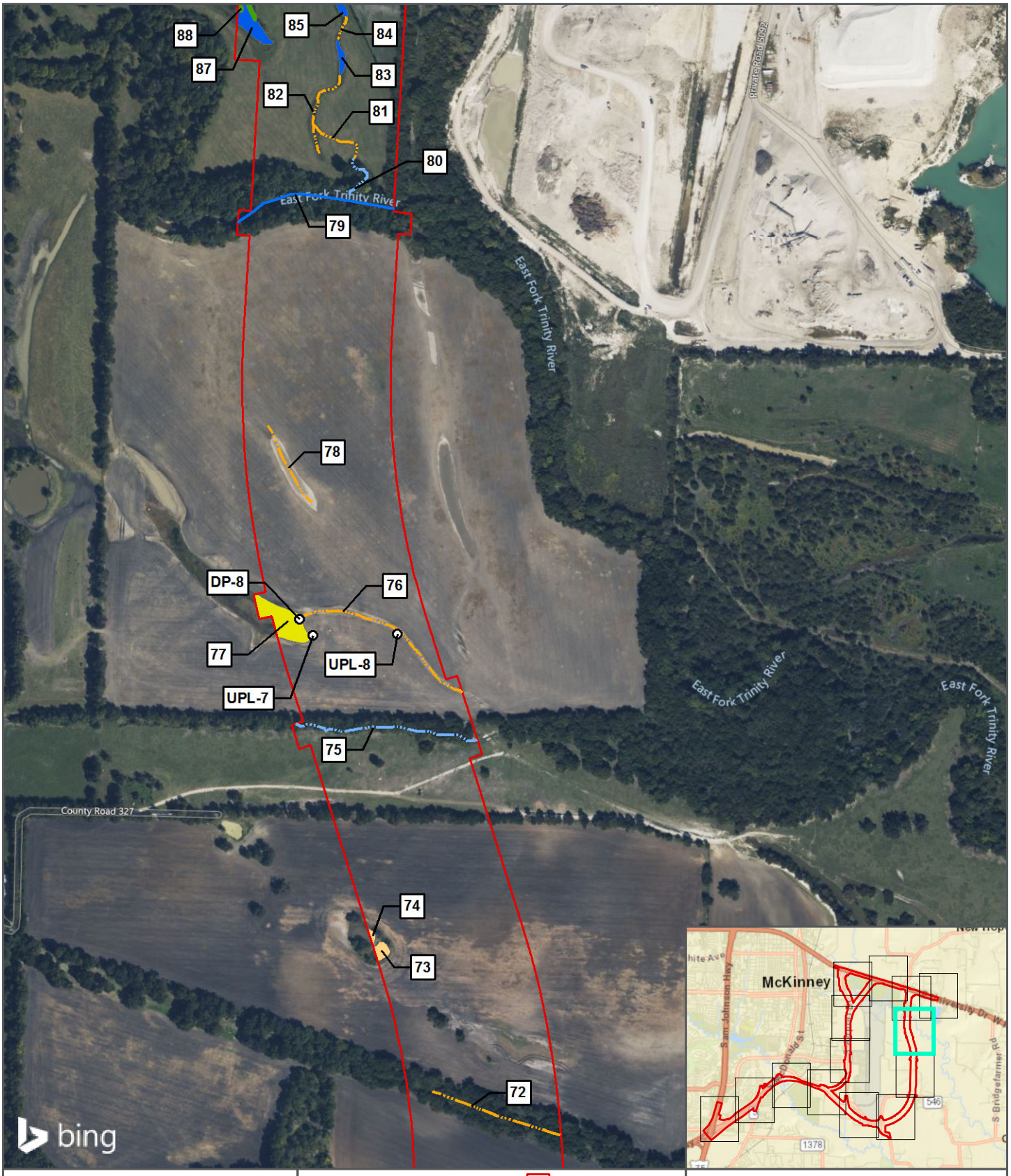
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-11

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
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- UPLAND POND
- ISOLATED POND

- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-12

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

Texas Department of Transportation

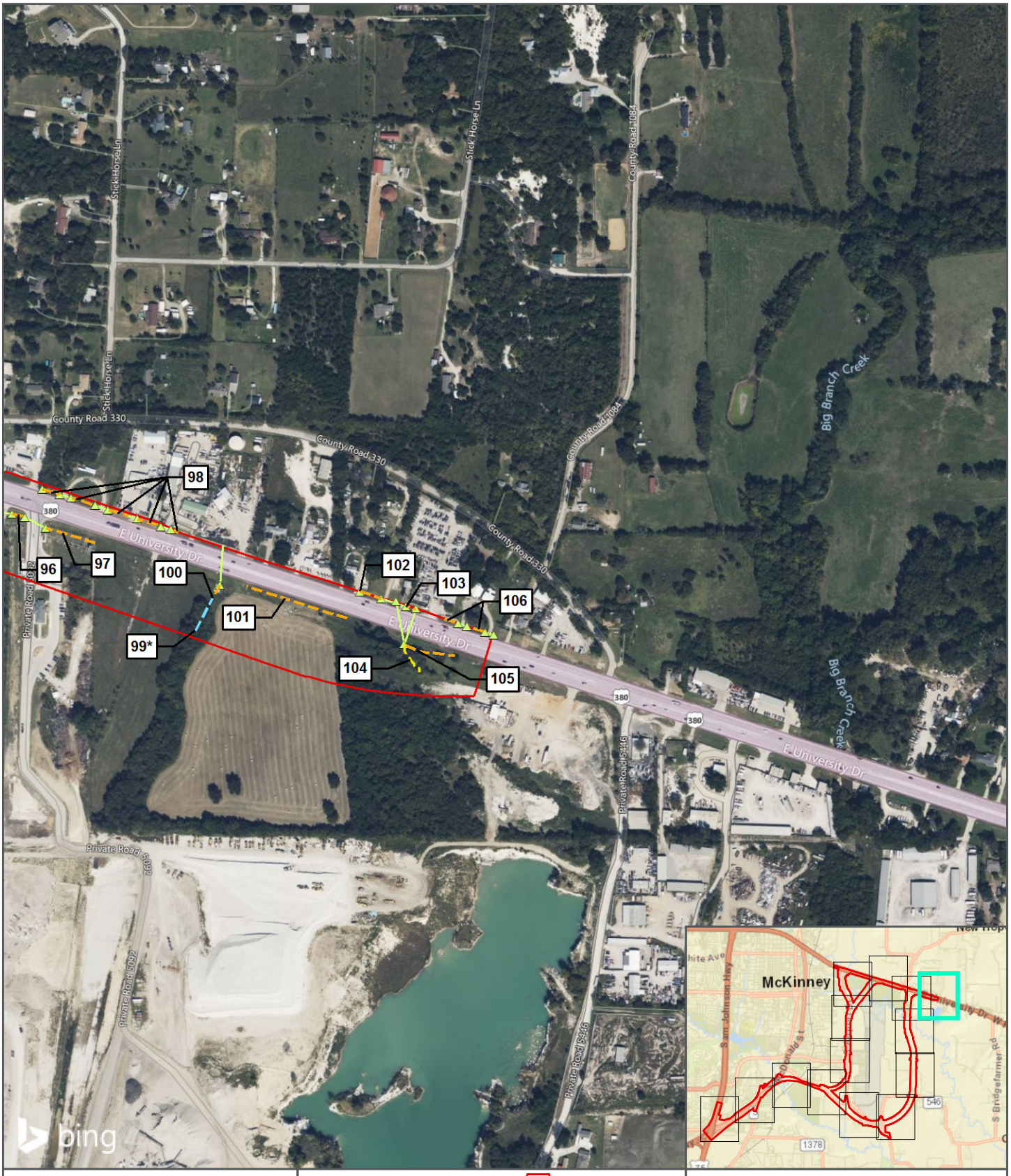
WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-13

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



N

0 250 500
FEET

Texas Department of Transportation

- EPHEMERAL STREAM
- INTERMITTENT STREAM
- PERENNIAL STREAM
- EMERGENT WETLAND
- FORESTED WETLAND
- ON-CHANNEL POND
- NON-CONNECTED INTERMITTENT STREAM
- NON-CONNECTED EPHEMERAL STREAM
- DITCH
- SWALE
- ISOLATED WETLAND
- UPLAND POND
- ISOLATED POND
- PROJECT AREA
- WETLAND DETERMINATION DATA POINT
- CULVERT POINT
- CULVERT LINE

*PHOTO INTERPRETED

WATER FEATURES

SPUR 399 EXTENSION

MAR 2022

FIGURE 8-14

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\SPUR399_FIG8_WATERFEATURES_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

Attachment 2 – Wetland Determination Data Forms and Stream Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 08/28/2020

Applicant/Owner: TxDOT State: TX Sampling Point: DP-1

Investigator(s): Kelsea Hiebert, Michael Keenan, and Ethan Eichler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.172602 Long: -96.617386 Datum: NAD 27

Soil Map Unit Name: Tf - Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Located within central eastern portion of Forested Wetland Water Feature 17. Emergent Wetland Water Feature 16 adjacent to Water Feature 17. Recently disturbed area from makeshift roadway construction.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	35	yes	FAC
2. Ulmus americana	25	yes	FAC
3. Salix nigra	10	no	FACW
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	20	yes	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	90	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	90	10YR 5/8	10	C	M/PL	Loamy clay	
8-12	10YR 3/2	100					Loamy clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

Water Feature 17 within and adjacent to makeshift roadway, soils likely disturbed. Inundation and saturation on aerials show repeat sufficient hydrology within wetland boundaries.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Google Earth Aerial Photographs

Remarks:

Water Feature 17 saturated and inundated on 01/2017, 02/2017, and 03/2018 aerials.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 08/28/2020

Applicant/Owner: TxDOT State: TX Sampling Point: DP-2

Investigator(s): Kelsea Hiebert, Michael Keenan, and Ethan Eichler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.172525 Long: -96.616956 Datum: NAD 27

Soil Map Unit Name: Tf - Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Located within eastern portion of Emergent Wetland Water Feature 16. Water Feature 16 surrounds Forested Wetland Water Feature 17. Recently disturbed area from makeshift roadway construction.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	yes	FAC
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	10	yes	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Persicaria hydropiperoides	90	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	70					Sandy clay	Heavy root layer
	10YR 4/4	30					Sandy clay	
4-12	10YR 3/2	67	10YR 6/6	3	D	M	Sandy clay	
	10YR 4/4	30					Sandy clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

Water Feature 16 within and adjacent to makeshift roadway, soils likely disturbed. Inundation and saturation on aerials show repeat sufficient hydrology within wetland boundaries.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Google Earth Aerial Photographs

Remarks:

Water Feature 16 saturated and inundated on 01/2017, 02/2017, 12/2017, and 03/2018 aerials.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension | City/County: Collin County | Sampling Date: 09/22/2021

Applicant/Owner: TxDOT | State: TX | Sampling Point: DP-3

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region | Lat: 33.197805 | Long: -96.597506 | Datum: NAD 83

Soil Map Unit Name: Houston Black clay, 1 to 3 percent slopes | NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Located within Forested Wetland Water Feature 32. Water Feature 32 is within the floodplain of the East Fork Trinity River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	40	yes	FACW
2. Populus deltoides	5	no	FAC
3.			
4.			
5.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Celtis laevigata	10	yes	FAC
2. Acer negundo	5	yes	FAC
3. Fraxinus pennsylvanica	5	yes	FAC
4.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Conoclinium coelestinum	40	yes	FACW
2. Zanthium strumarium	20	yes	FAC
3. Iva annua	10	no	FAC
4. Solidago altissima	3	no	FACU
5. Cardiospermum halicacabum	2	no	FAC
6.			
7.			
8.			
9.			
10.			
	75.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 25.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 6 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	57	x 3 =	171
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	140 (A)		343 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Clay	
3-8	10YR 3/2	98	2.5Y 5/6	2	C	PL	Clay	
8-12	10YR 3/2	95	2.5Y 5/6	5	C	PL	Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation on aerial imagery visible on 04/2016 and 03/2018.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension | City/County: Collin County | Sampling Date: 09/22/2021

Applicant/Owner: TxDOT | State: TX | Sampling Point: DP-4

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler | Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region | Lat: 33.198125 | Long: -96.597553 | Datum: NAD 83

Soil Map Unit Name: Houston Black clay, 1 to 3 percent slopes | NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Located within Forested Wetland Water Feature 34. Water Feature 34 is within the floodplain of the East Fork Trinity River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	30	yes	FAC
2. Salix nigra	20	yes	FACW
3.			
4.			
5.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	5	yes	FAC
2.			
3.			
4.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ludwigia linearis	5	yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	20	x 2 =	40
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		150 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	85	2.5Y 5/6	15	C	M/PL	Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 09/11/2020

Applicant/Owner: TxDOT State: TX Sampling Point: DP-5

Investigator(s): Kelsea Hiebert, Michael Keenan, and Ethan Eichler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Pond Backwater Depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.160888 Long: -96.592966 Datum: NAD 27

Soil Map Unit Name: AID2 - Altoga silty clay, 5 to 8 percent slopes, eroded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Located within Isolated Wetland Water Feature 53. North of Upland Pond Water Feature 54.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	80	yes	FACW
2. Populus deltoides	5	no	FAC
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Celtis laevigata	10	yes	FAC
2. Triadica sebifera	5	yes	FAC
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	10	yes	OBL
2. Persicaria hydropiperoides	5	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5YR 3/1	70	7.5YR 5/8	30	C	M/PL	Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1-6 inches

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0 inches

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Google Earth Aerial Photographs

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension | City/County: Collin County | Sampling Date: 06/8/2021

Applicant/Owner: TxDOT | State: TX | Sampling Point: DP-6

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler | Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region | Lat: 33.177020 | Long: -96.574547 | Datum: NAD 27

Soil Map Unit Name: LeB—Lewisville silty clay, 1 to 3 percent slopes To—Trinity clay, 0 to 1 percent slopes, occasionally flooded | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

DP-6 located in the northern extent of Emergent Wetland Water Feature 69. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus americana	5	yes	FAC
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	20	yes	FAC
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Eleocharis palustris	50	yes	OBL
2. Juncus torreyi	40	yes	FACW
3. Rumex crispus	5	no	FAC
4. Phyla nodiflora	5	no	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	100.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	40	x 2 =	80
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		235 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/1	95	10YR 4/6	5	C	PL	Clay	
10-14	10YR 4/1	100					Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2 inches

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent heavy rainfall event.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: DP-7

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.177302 Long: -96.574542 Datum: NAD 27

Soil Map Unit Name: LeB—Lewisville silty clay, 1 to 3 percent slopes NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

DP-7 located within the western extent of Forested Wetland Water Feature 70. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	30	yes	FAC
2. Celtis laevigata	30	yes	FAC
3. Ulmus crassifolia	10	no	FAC
4. Ulmus americana	10	no	FAC
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus americana	15	yes	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Persicaria hydropiperoides	5	yes	OBL
2. Elymus canadensis	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 90.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	105 (A)		310 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/1	85	7.5YR 4/6	15	C	M/PL	Silty Clay	Capillary Fringe

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 6"

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Analysis of aerial photos from 11/2020, 12/2019, 9/2019, and 11/2018 show inundation and saturation.

Remarks:

Location is within a flood plain. Recent heavy rainfall event. Heavy redox in soils and moss trim lines on trees observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 10/12/2020

Applicant/Owner: TxDOT State: TX Sampling Point: DP-8

Investigator(s): Kelsea Hiebert, Michael Keenan, and Ethan Eichler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.185744 Long: -96.577579 Datum: NAD 27

Soil Map Unit Name: To - Trinity clay, 0 to 1 percent slopes, occasionally flooded NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:
DP-8 located within eastern portion of Emergent Wetland Water Feature 77. Water Feature 77 located within agricultural field. Water Feature 77 receives overland flow from the East Fork Trinity River. Water Feature 77 also exhibited a high water table at 6 inches below land surface.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Eleocharis palustris	40	yes	OBL
2. Iva annua	20	yes	FAC
3. Xanthium strumarium	20	yes	FAC
4. Cardiospermum halicacabum	15	no	FAC
5. Ammannia coccinea	5	no	OBL
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	93	7.5YR 5/8	5	C	PL	Silty clay	
			BLACK	2	C	M	Silty clay	
4-14	10YR 4/1	98	7.5YR 5/8	2	C	PL	Silty clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 6 in

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0 in

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Google Earth Aerial Photographs

Remarks:

Water Feature 77 saturated and inundated on 12/2015, 04/2016, 03/2018, 11/2018, 12/2019, and 11/2020 aerials.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 09/10/2020

Applicant/Owner: TxDOT State: TX Sampling Point: DP-9

Investigator(s): Kelsea Hiebert, Michael Keenan, and Ethan Eichler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Slough Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.193183 Long: -96.578266 Datum: NAD 27

Soil Map Unit Name: Tf - Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

DP-9 located within north portion of Forested Wetland Water Feature 88 outside of the study area. Recent precipitation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	65	yes	FAC
2. Fraxinus pennsylvanica	20	yes	FAC
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	15	yes	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	5	yes	OBL
2. Persicaria hydropiperoides	5	yes	OBL
3. Xanthium strumarium	5	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: DP-9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8								TOO SATURATED TO COLOR
8-16	10YR 4/1	60	5YR 5/8	40	C	M	CLAY	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2-4 inches

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0 inches

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Google Earth Aerial Photographs

Remarks:

Recent precipitation. Inundation and saturation on 03/2015, 12/2015, 01/2017, 03/2018, 11/2018, and 09/2019 aerial photographs.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-1

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Depression by ruts Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.172442 Long: -96.616807 Datum: NAD 27

Soil Map Unit Name: Tf- Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Adjacent to Emergent Wetland Water Feature 16 and makeshift roadway construction. Recent rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis laevigata	45	yes	FAC
2. Fraxinus pennsylvanica	25	yes	FAC
3. Maclura pomifera	20	yes	FACU
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Hordeum pusillum	40	yes	FACU
2. Solidago gigantea	30	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Eastern Poison Ivy	5	yes	FACU
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 30.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	165 (A)		560 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: UPL-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 5/2	90					Clay	
0-4	7.5YR 6/4	10					Clay	
4-14	5YR 2.5/1	100					Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent heavy rain caused ponding in upland areas.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-2

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.172530 Long: -96.617677 Datum: NAD 27

Soil Map Unit Name: Tf- Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Adjacent to Forested Wetland Water Feature 17. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Maclura pomifera	20	yes	FACU
2. Fraxinus pennsylvanica	10	yes	FAC
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	10	yes	FAC
2. Carya illinoinensis	10	yes	FAC
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Lolium perenne	50	yes	FACU
2. Solidago gigantea	30	yes	FAC
3. Ambrosia trifida	10	no	FAC
4. Carex cherokeensis	5	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	95.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 5.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	70	x 3 =	210
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	145 (A)		500 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: UPL-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	90					Clay	
0-4	10YR 5/3	10					Clay	
4-14	10YR 4/1	100					Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0-1

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inspection of aerial photos from 12/2017, 3/2018, 11/2018, 9/2019, and 11/2020 showed no inundation or saturation.

Remarks:

Recent heavy rainfall inundated upland areas near wetland.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 09/22/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-3

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.198125 Long: -96.597553 Datum: NAD 83

Soil Map Unit Name: Houston Black clay, 1 to 3 percent slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Located adjacent to Forested Wetland Water Feature 32 and Forested Wetland Water Feature 34.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	20	yes	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	10	yes	FAC
2. Celtis laevigata	10	yes	FAC
3. Ulmus americana	10	yes	FAC
4.			
	30 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Elymus virginicus	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5.0 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	5	yes	FACU
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum 95.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	60 (A)		185 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: UPL-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					Clay Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-4

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.160764 Long: -96.592853 Datum: NAD 27

Soil Map Unit Name: AID2—Altoga silty clay, 5 to 8 percent slopes, eroded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Adjacent to Isolated Wetland Water Feature 53. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya illinoinensis	40	yes	FAC
2. Salix nigra	5	no	FACW
3. Populus deltoides	5	no	FAC
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	85	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron pubescens	10	yes	FACU
2. Parthenocissus quinquefolia	5	yes	FACU
	15	= Total Cover	

% Bare Ground in Herb Stratum 15.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	45	x 3 =	135
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	150 (A)		545 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: UPL-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	7.5YR 2.5/1	90					Silty Clay	
0-14	10YR 6/6	5					Silty Clay	
0-14	10YR 5/3	5					Silty Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-5

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.177090 Long: -96.574835 Datum: NAD 27

Soil Map Unit Name: LeB—Lewisville silty clay, 1 to 3 percent slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

UPL-5 located adjacent to Emergent Wetland Water Feature 69. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Bromus hordeaceus	30	yes	UPL
2. Lolium perenne	20	yes	FACU
3. Ambrosia trifida	10	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Rubus trivialis	10	yes	FACU
2.			
	10	= Total Cover	

% Bare Ground in Herb Stratum 40.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	30	x 5 =	150
Column Totals:	70 (A)		300 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: UPL-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/1	100					Silty Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0.5

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent heavy rainfall event.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-6

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Hillslope/berm Local relief (concave, convex, none): convex Slope (%): 3-4

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.177372 Long: -96.574622 Datum: NAD 27

Soil Map Unit Name: LeB—Lewisville silty clay, 1 to 3 percent slopes NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

UPL-6 located adjacent to Forested Wetland Water Feature 70. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	50	yes	UPL
2. Maclura pomifera	20	yes	FACU
3. Fraxinus pennsylvanica	15	no	FAC
4. Celtis laevigata	15	no	FAC
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Lonicera japonica	20	yes	FACU
2. Smilax bona-nox	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	5	yes	FACU
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 75.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	50	x 5 =	250
Column Totals:	130 (A)		540 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: UPL-6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Silty Clay	Large roots w/in matrix

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-7

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Agricultural field in floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.185577 Long: -96.577410 Datum: NAD 27

Soil Map Unit Name: To—Trinity clay, 0 to 1 percent slopes, occasionally flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

UPL-7 located adjacent to Emergent Wetland Water Feature 77. Agricultural field is an actively cultivated wheat field and recently harvested. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Triticum aestivum	65	yes	NA
2. Rumex crispus	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Triticum aestivum is the dominant vegetation. It is a non-native, cultivated crop and does not have a wetland indicator status. 30% bare soil present due to recent wheat harvest.

SOIL

Sampling Point: UPL-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	95	5YR 4/6	5	C	PL	Clay	
7-14	10YR 3/1	97	5YR 4/6	3	C	PL	Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Adjacent to standing water from recent heavy rainfall event.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-8

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.185564 Long: -96.576284 Datum: NAD 27

Soil Map Unit Name: To—Trinity clay, 0 to 1 percent slopes, occasionally flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

UPL-8 is located in Swale Water Feature 76. UPL-8 in an actively cultivated and recent harvested wheat field. Recent heavy rainfall event. Short duration overland flow from the East Fork Trinity River.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Triticum aestivum	65	yes	NA
2. Rumex crispus	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 0.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Triticum aestivum is the dominant vegetation. It is a non-native, cultivated crop and does not have a wetland indicator status. 30% bare soil present due to recent wheat harvest.

SOIL

Sampling Point: UPL-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100					Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 4 inches

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Standing water due to overland flow and ponding from recent heavy rainfall.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Spur 399 Extension City/County: Collin County Sampling Date: 06/8/2021

Applicant/Owner: TxDOT State: TX Sampling Point: UPL-9

Investigator(s): Kelsea Hiebert and Wyatt Wolfenkoehler Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): Fallow field in floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): J - Southwestern Prairies Cotton and Forage Region Lat: 33.192745 Long: -96.578064 Datum: NAD 27

Soil Map Unit Name: Tf—Tinn clay, 0 to 1 percent slopes, frequently flooded NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

UPL-9 located adjacent to Forested Wetland Water Feature 88. Recent heavy rainfall event.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	yes	FAC
2.			
3.			
4.			
	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Cynodon dactylon	90	yes	FACU
2. Ambrosia trifida	5	no	FAC
3. Paspalum dilatatum	5	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100.0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	115 (A)		435 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: UPL-9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	2.5YR 3/1	100					Silty Clay	recent rainfall

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Stream Data Form #: Water Feature 5
Project Name: Spur 399 Extension
CSJ: 0047-05-058

Stream Data Form

Surveyor(s): Kelsea Hiebert and Wyatt Wolfenkoehler
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s):

Date of Field Work: June 8, 2021
County/State: Collin County, Texas
Stream Number: 5
Coordinates: 33.164530 -96.642216

Stream Type: Ephemeral Characteristics: Receives flow from the adjacent pasture and roadway.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Vegetated and stabilized banks.
Stream Flow Direction: East
OHWM Width (ft): 3 OHWM Height (in): 4
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☑ Bedrock ☐ Muck
- ☐ Gravel ☑ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Recent rainfall caused water flow. Normal conditions dry.

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Aquatic insects.

Riparian Vegetation: List species observed.
eastern red cedar (Juniperus virginiana), eastern cottonwood (Populus deltoides), black willow (Salix nigra), green ash (Fraxinus pennsylvanica), eastern poison ivy (Toxicodendron radicans), common spike-rush (Eleocharis palustris), johnson grass (Sorghum halepense), herbwilliam (Ptilimnium capillaceum), tall goldenrod (Solidago altissima)

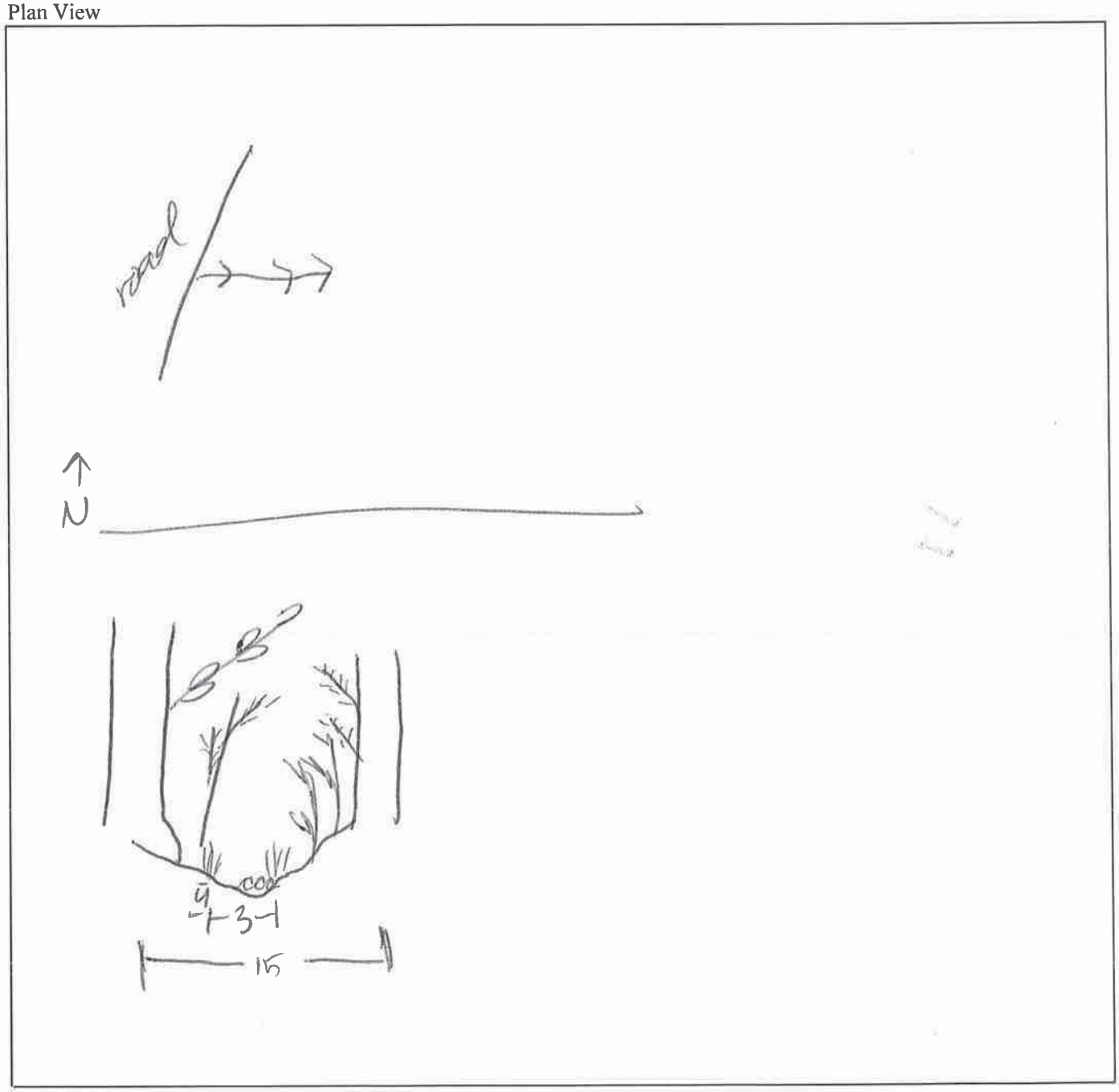
T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form #: Water Feature 5
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 10A/10B
Project Name: Spur 399 Extension
CSJ: 0047-05-058

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 11, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 10A 10B
Associated Wetland(s): Water Feature 9*
Coordinates: 33.171328 -96.625596

Stream Type: Perennial Characteristics: Tributary of Wilson Creek.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stable
Stream Flow Direction: northeast
OHWM Width (ft): 10 OHWM Height (in): 42
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Small fish.

Riparian Vegetation: List species observed.
green ash, American elm, eastern red cedar, sugarberry, giant ragweed, yaupon

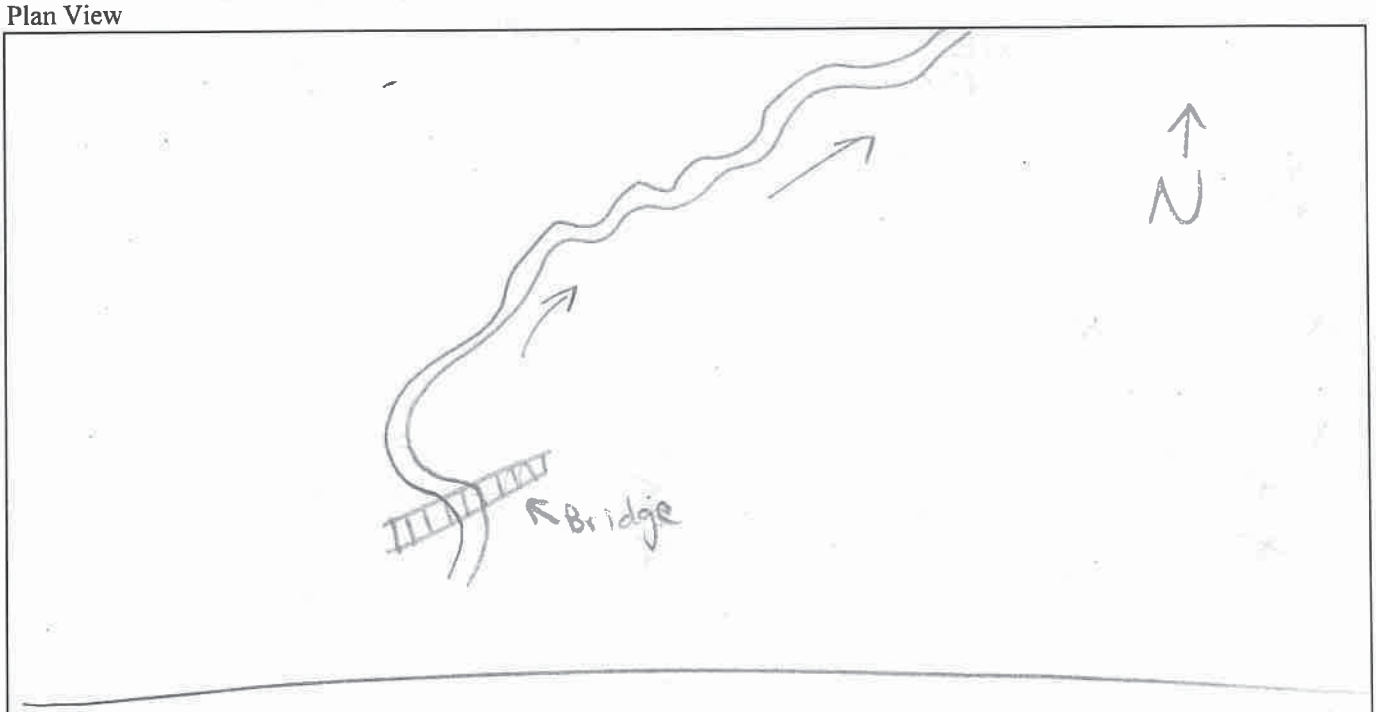
T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

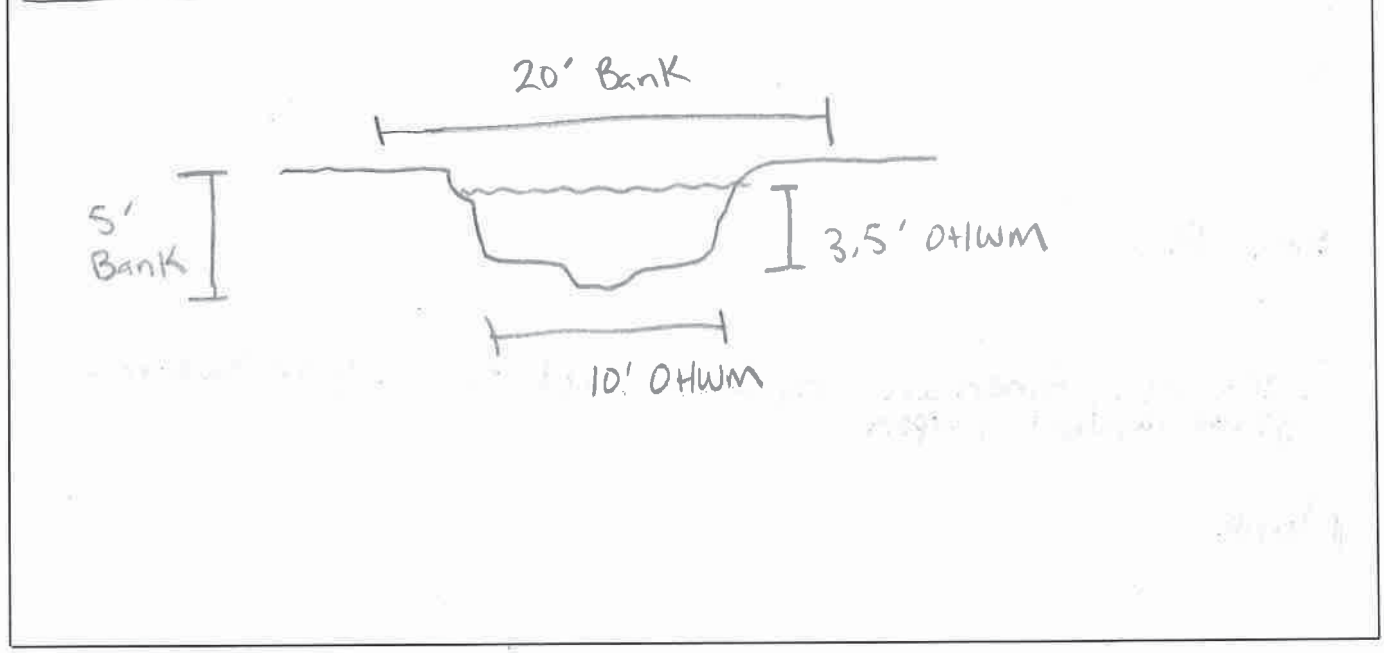
Stream Data Form #: Water Feature 10A/10B
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View





Sectional View

Stream Data Form #: Water Feature 12
Project Name: Spur 399 Extension
CSJ: 0047-05-058

Stream Data Form

Surveyor(s): Mike Keenan and Ethan Eichler
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s):

Date of Field Work: September 11, 2020
County/State: Collin County, Texas
Stream Number: 12
Coordinates: 33.172397 -96.622249

Stream Type: Ephemeral Characteristics: Flows into a water control structure to the south.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stabilized banks.
Stream Flow Direction: Southeast
OHWM Width (ft): 6 OHWM Height (in): 24
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Water backed up from OCP-1

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Aquatic insects.

Riparian Vegetation: List species observed.
green ash (Fraxinus pennsylvanica), sugarberry (Celtis laevigata), American elm (Ulmus americana), and fringed green brier (Smilax bona-nox).

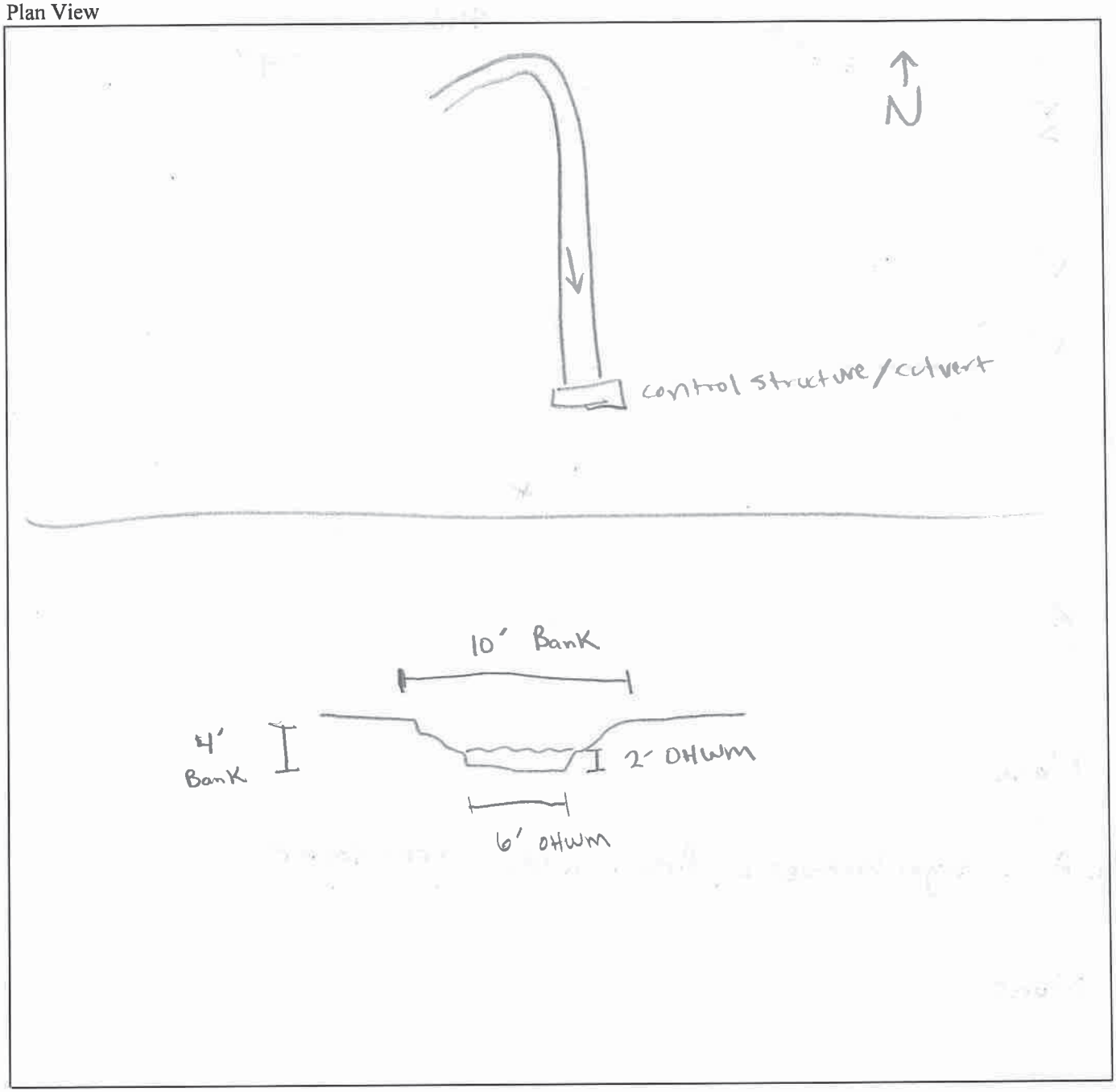
T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form #: Water Feature 12
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 14
Project Name: Spur 399 Extension
CSJ: 0047-05-058

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler
Date of Field Work: August 28, 2020
USGS Stream Name: Wilson Creek
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 14
Associated Wetland(s): Water Feature 13 and 15
Coordinates: 33°10'19.377"N 96°37'6.685"W

Stream Type: Perennial Characteristics: Wilson Creek with incised banks.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Incised banks
Stream Flow Direction: southeast
OHWM Width (ft): 30 OHWM Height (in): 180
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Snakes, insects, and frogs

Riparian Vegetation: List species observed.

green ash (Fraxinus pennsylvanica), American elm (Ulmus americana), ash leaf maple (Acer negundo), poison ivy (Toxicodendron radicans), sugarberry (Celtis laevigata), fringed green brier (Smilax bona-nox), Virginia wild rye (Elymus virginicus), Virginia creeper (Parthenocissus quinquefolia), falsemint (Dicliptera), Indian wood-oats (Chasmanthium latifolium), pecan (Carya illinoinensis), and osage-orange (Maclura pomifera)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

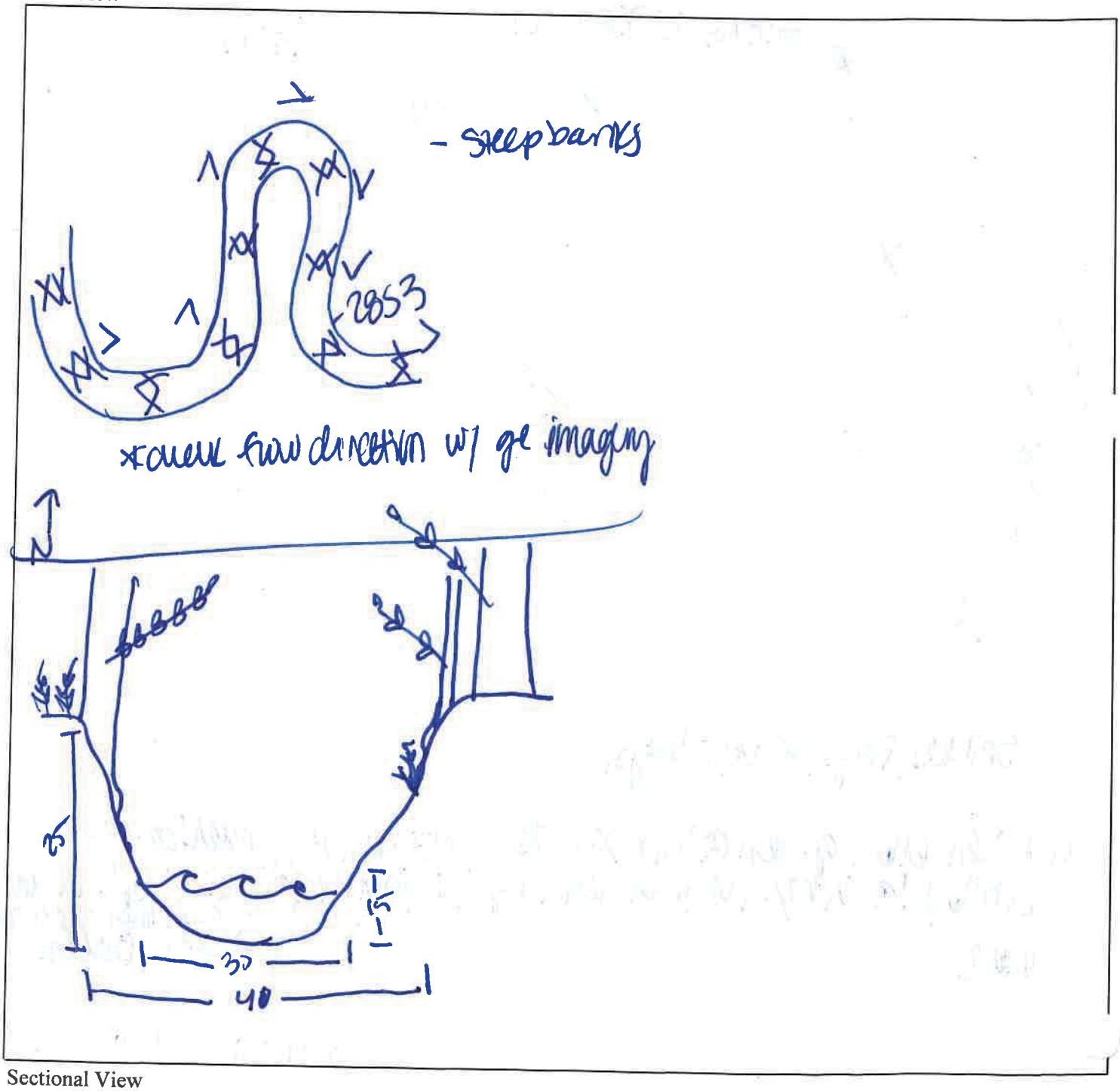
None.

Stream Data Form #: Water Feature 14
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 15
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 11, 2020
USGS Stream Name: Tributary of Wilson Creek
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 15
Associated Wetland(s): Water Feature 14
Coordinates: 33.172405 -96.620444

Stream Type: Intermittent
Characteristics: Overflow from Wilson Creek.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Highly incised
Stream Flow Direction: Southeast
OHWM Width (ft): 20
OHWM Height (in): 72

Stream Bottom composition:

- ☑ Silts
- ☑ Sands
- ☐ Gravel
- ☐ Cobbles
- ☐ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☑ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☐ Aquatic vegetation
- ☐ Overhanging trees/shrubs
- ☐ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear
- ☑ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

cedar elm, sugarberry, osage-orange, green ash

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

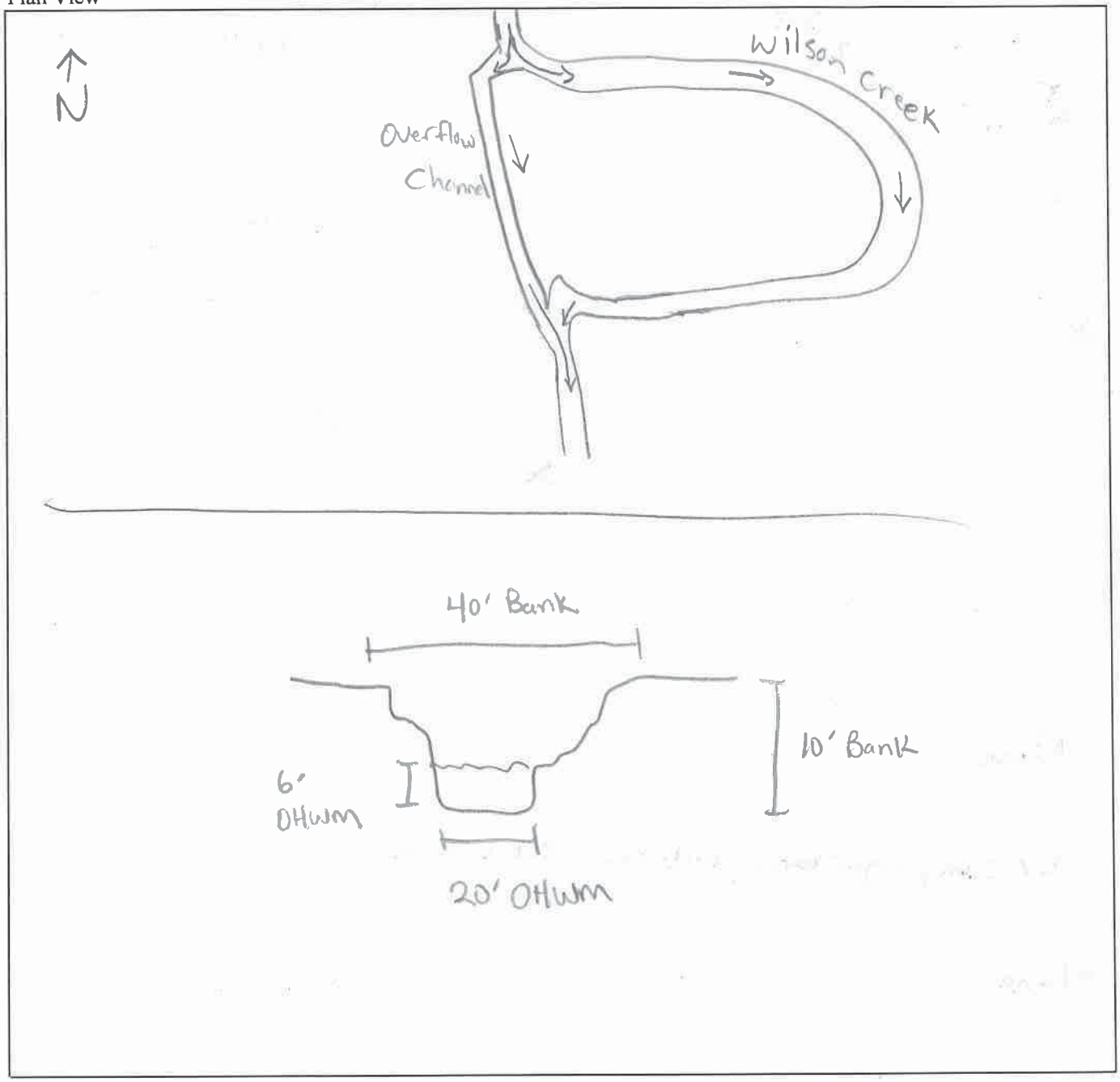
None.

Stream Data Form #: Water Feature 15
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 18
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler
Date of Field Work: August 28, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 18
Associated Wetland(s): Water Feature 16 and 17
Coordinates: 33°10'18.004"N 96°37'1.725"W

Steep banks.

Stream Type: Intermittent Characteristics:
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: southwest
OHWM Width (ft): 7 OHWM Height (in): 12

Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☑ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

green ash (Fraxinus pennsylvanica), poison ivy (Toxicodendron radicans), false daisy (Eclipta prostrata), American elm (Ulmus americana), sugarberry (Celtis laevigata), and cedar elm (Ulmus crassifolia).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

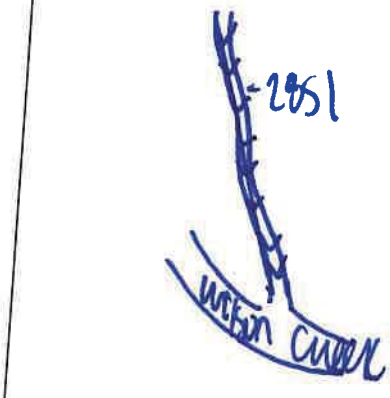
None.

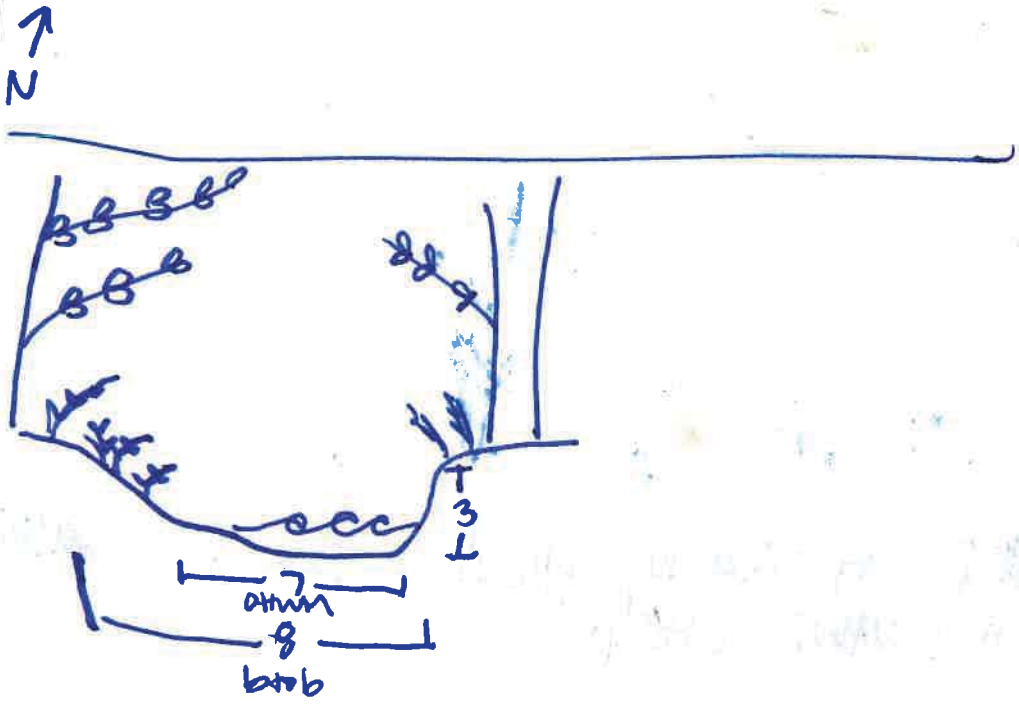
Stream Data Form #: Water Feature 18
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View





Sectional View

Stream Data Form #: Water Feature 20
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Mike Keenan and Ethan Eichler
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s):

Date of Field Work: September 11, 2020
County/State: Collin County, Texas
Stream Number: 20
Coordinates: 33.171028 -96.610540

Stream Type: Ephemeral Characteristics: Roadside ditch.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Eroded with heavy sedimentation
Stream Flow Direction: South
OHWM Width (ft): 3 OHWM Height (in): 6
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☑ Other: Rip rap within channel
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☐ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Runoff from the adjacent roadway

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Japanese honeysuckle (Lonicera japonica), cedar elm (Ulmus crassifolia), sugarberry (Celtis laevigata), eastern red cedar (Juniperus virginiana), black willow (Salix nigra), and eastern cottonwood (Populus deltoides)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

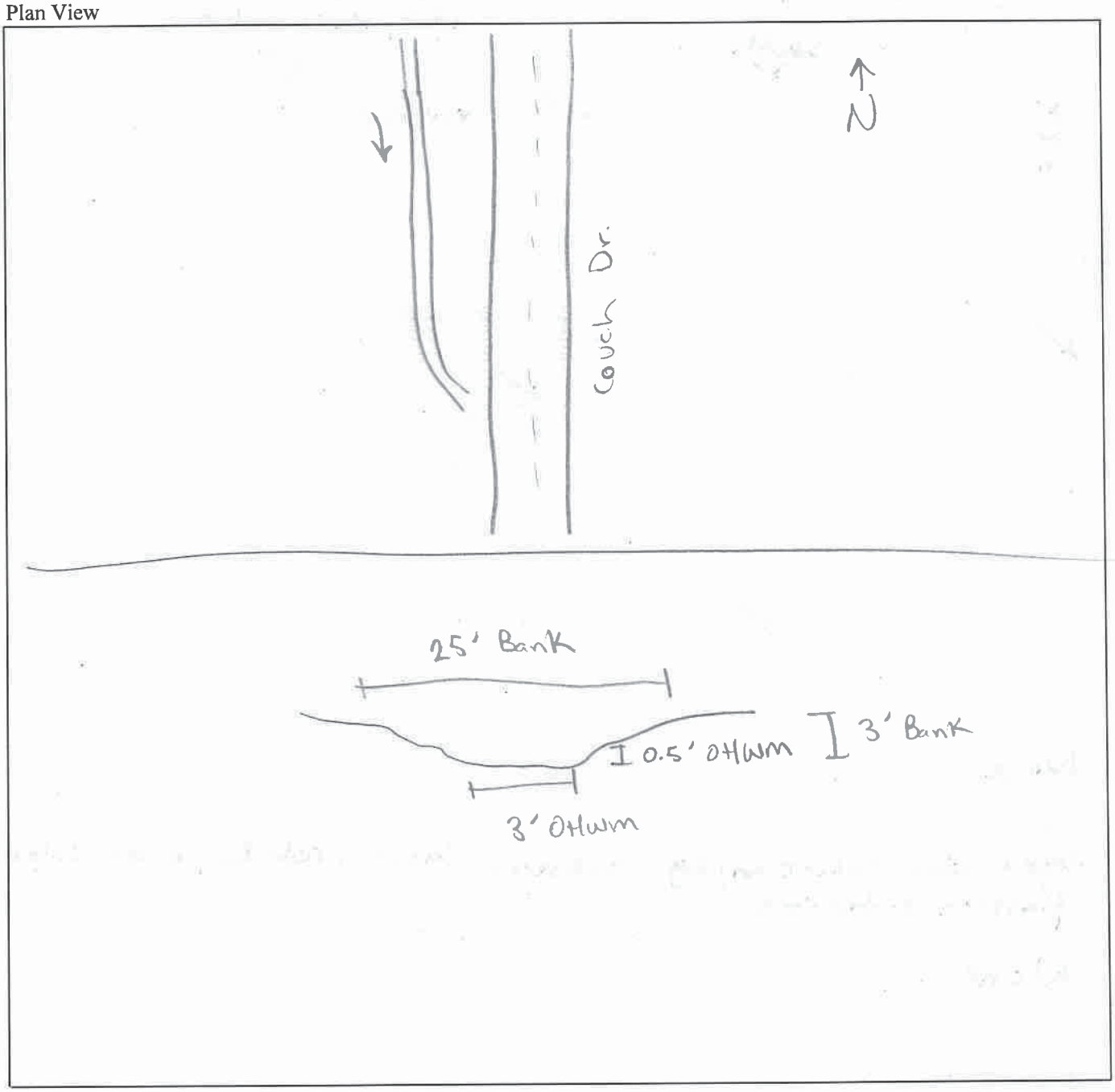
None.

Stream Data Form #: Water Feature 20
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 21
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler, Kelsea Hiebert
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s):

Date of Field Work: December 3, 2020
County/State: Collin County, Texas
Stream Number: 21
Coordinates: 33.179990 -96.597464

Stream Type: Intermittent Characteristics: Drainage from agricultural field.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Scour and vegetation bound banks.
Stream Flow Direction: East
OHWM Width (ft): 5 OHWM Height (in): 12
Stream Bottom composition:

- [x] Silts
- [x] Cobbles
- [ ] Concrete
- [ ] Other:
- [ ] Sands
- [ ] Bedrock
- [ ] Muck
- [ ] Gravel
- [ ] Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- [ ] Sand bar
- [ ] Sand/Gravel beach/bar
- [ ] Gravel riffles
- [ ] Aquatic vegetation
- [x] Overhanging trees/shrubs
- [x] Deep pool/ hole/ channel
- [ ] Other:

Stream has the following characteristics:

- [x] Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- [ ] Clear
- [x] Slightly Turbid
- [ ] Turbid
- [ ] Very Turbid
- [ ] Oily film
- [ ] High organic content
- [ ] Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

frogs.

Riparian Vegetation: List species observed.

bermudagrass (Cynodon dactylon), American elm (Ulmus americana), cedar elm (Ulmus crassifolia), curley dock (Rumex crispus), black willow (Salix nigra), sugarberry (Celtis laevigata), and eastern cottonwood (Populus deltoides).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

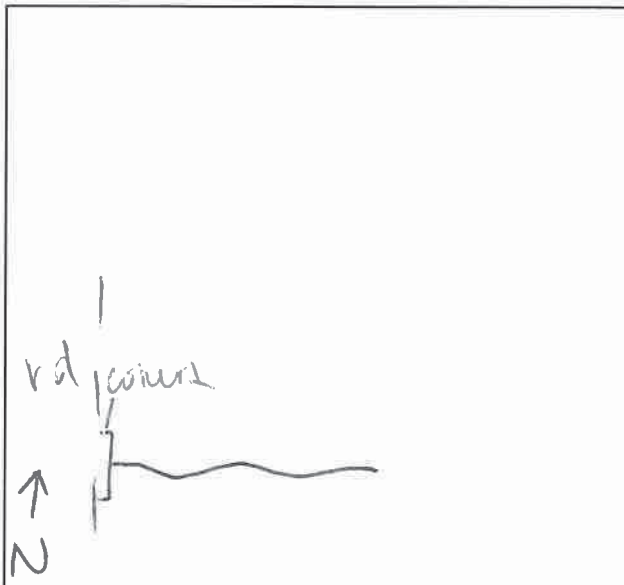
None.

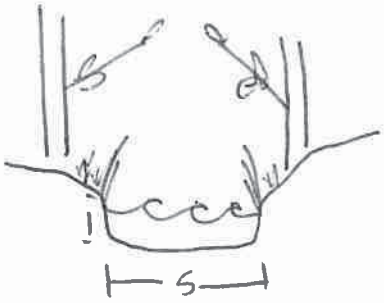
Stream Data Form #: Water Feature 21
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View





Sectional View

Stream Data Form #: Water Feature 25
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler, Kelsea Hiebert
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s):

Date of Field Work: December 3, 2020
County/State: Collin County, Texas
Stream Number: 25
Coordinates: 33.193353 -96.595098

Stream Type: Intermittent Characteristics: Large oak trees along the banks.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Heavy erosion along banks moving west.
Stream Flow Direction: East
OHWM Width (ft): 10 OHWM Height (in): 12
Stream Bottom composition:

- [x] Silts
- [x] Cobbles
- [ ] Concrete
- [ ] Other:
- [ ] Sands
- [x] Bedrock
- [ ] Muck
- [x] Gravel
- [ ] Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- [ ] Sand bar
- [ ] Sand/Gravel beach/bar
- [ ] Gravel riffles
- [ ] Aquatic vegetation
- [x] Overhanging trees/shrubs
- [ ] Deep pool/ hole/ channel
- [ ] Other:

Stream has the following characteristics:

- [x] Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- [ ] Clear
- [x] Slightly Turbid
- [ ] Turbid
- [ ] Very Turbid
- [ ] Oily film
- [ ] High organic content
- [ ] Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
frogs and snakes.

Riparian Vegetation: List species observed.
bermudagrass (Cynodon dactylon), American elm (Ulmus americana), Shumard oak (Quercus shumardii), pecan (Carya illinoinensis), green ash (Fraxinus pennsylvanica), cedar elm (Ulmus crassifolia), american mistletoe (Phoradendron leucarpum), eastern cottonwood (Populus deltoides), water hickory (Carya aquatica), sugarberry (Celtis laevigata)

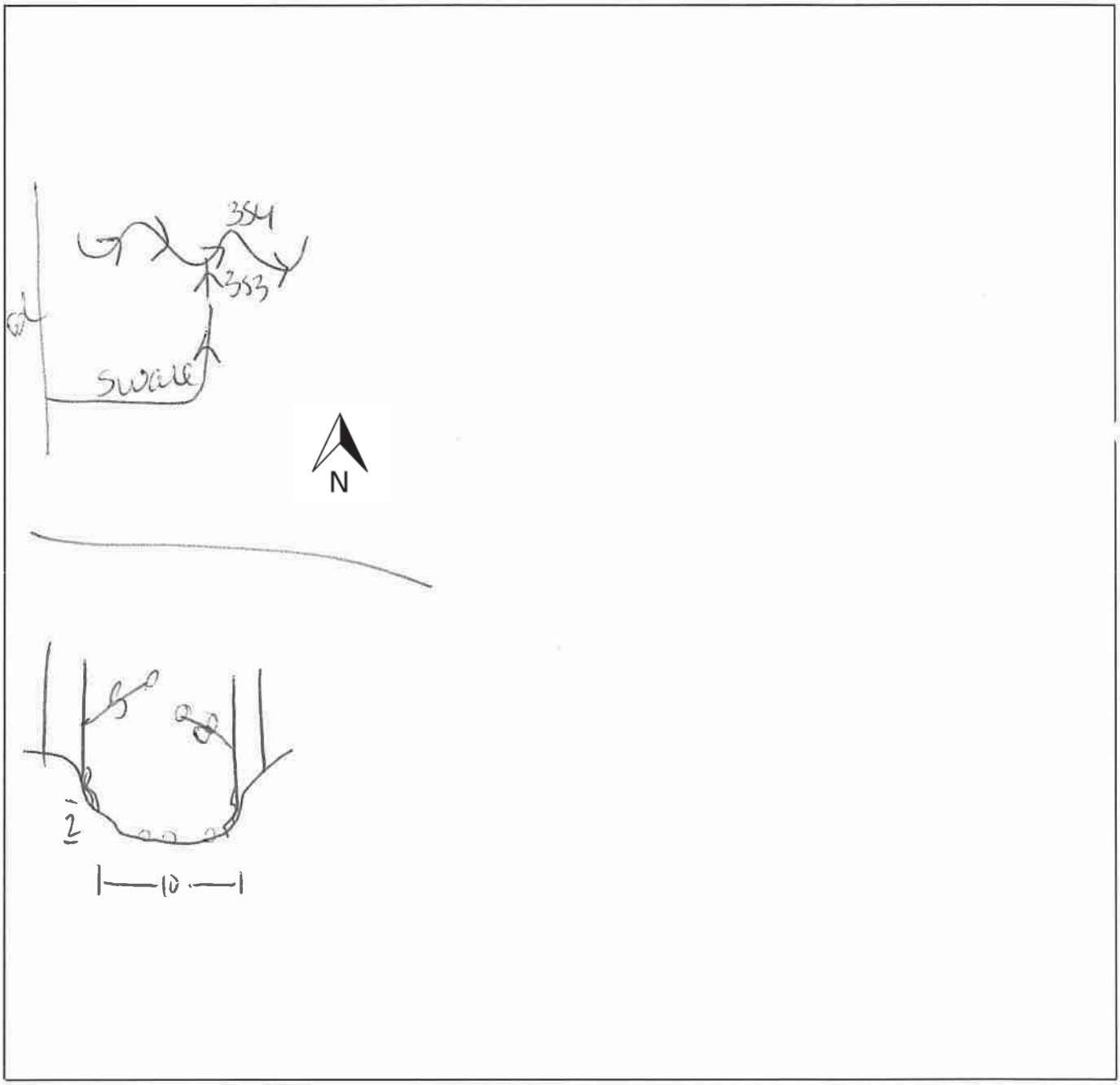
T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form #: Water Feature 25
Project Name: Spur 399 Extension
CSJ:

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 26
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: October 14, 2020
USGS Stream Name: East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 26
Associated Wetland(s):
Coordinates: 33.195908 -96.593306

Stream Type: Perennial Characteristics: Steep cut banks.
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: east
OHWM Width (ft): 30 OHWM Height (in): 42
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Frogs, fish, turtles

Riparian Vegetation: List species observed.

rough cocklebur, Virginia wild rye, eastern cottonwood, American elm, poison ivy, ash leaf maple, giant ragweed.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

None.

Stream Data Form (continued)

Stream Data Form #: Water Feature 26

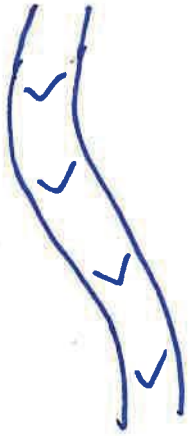
Project Name: Spur 399 Extension

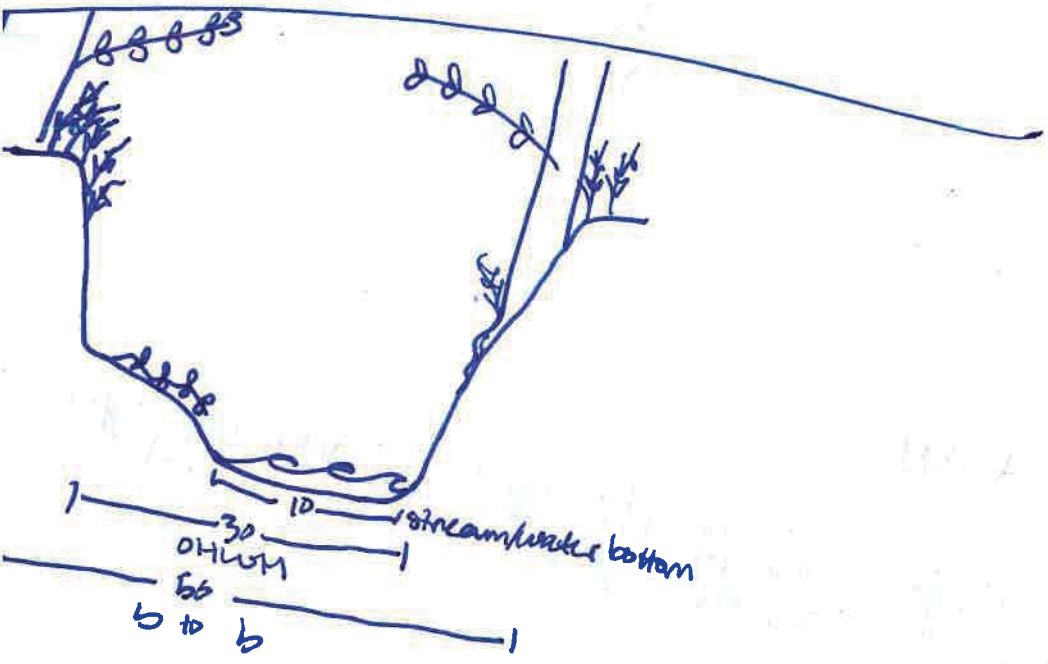
CSJ:

Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View





Stream Data Form #: Water Feature 30
Project Name: 380 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Wyatt Wolfenkoehler
Date of Field Work: September 22, 2021
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 30
Associated Wetland(s): Water Feature 29, 32, and 34
Coordinates: 33.197814 -96.597755

Stream Type: Ephemeral Characteristics: Shallow defined channel
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Vegetation lined banks.
Stream Flow Direction: South
OHWM Width (ft): 4 OHWM Height (in): 36
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) no water

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Riparian Vegetation: List species observed.

Narrow-leaf primrose-willow (Ludwigia linearis), sugar berry (Celtis laevigata), American elm (Ulmus americana), and Virginia wild rye (Elymus virginicus).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

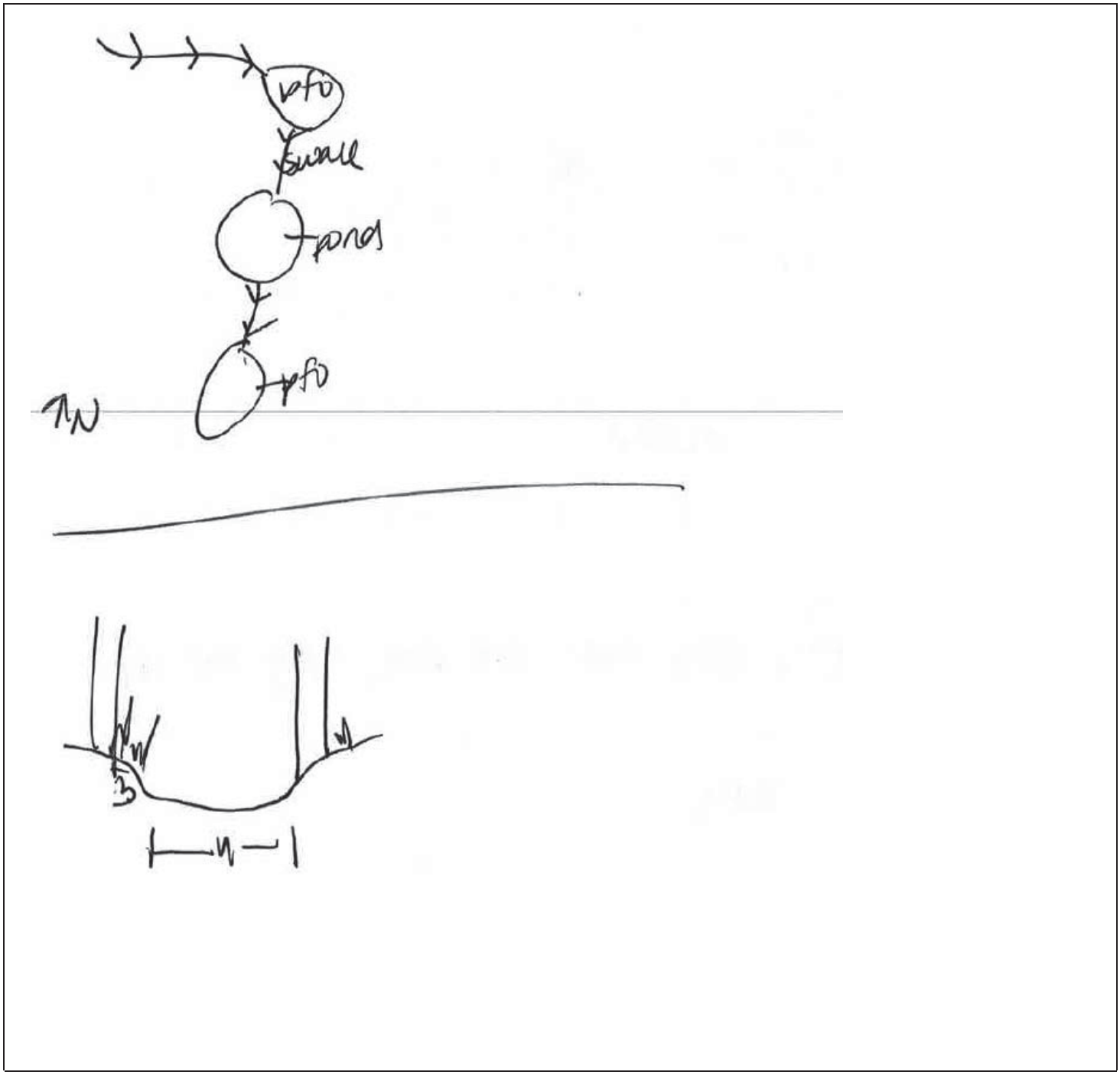
None

Stream Data Form #: Water Feature 30
Project Name: 380 Extension
CSJ: 0047-10-002

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 33
Project Name: 380 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Wyatt Wolfenkoehler
Date of Field Work: September 22, 2021
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 33
Associated Wetland(s): Water Feature 29, 32, and 34
Coordinates: 33.198135 -96.597761

Stream Type: Ephemeral
Characteristics: Shallow defined channel
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Vegetation lined banks.
Stream Flow Direction: East
OHWM Width (ft): 4
OHWM Height (in): 36

Stream Bottom composition:

- ☑ Silts
- ☑ Sands
- ☐ Gravel
- ☐ Cobbles
- ☐ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☐ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear
- ☐ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) no water

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Riparian Vegetation: List species observed.

Narrow-leaf primrose-willow (Ludwigia linearis), sugar berry (Celtis laevigata), American elm (Ulmus americana), and Virginia wild rye (Elymus virginicus).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

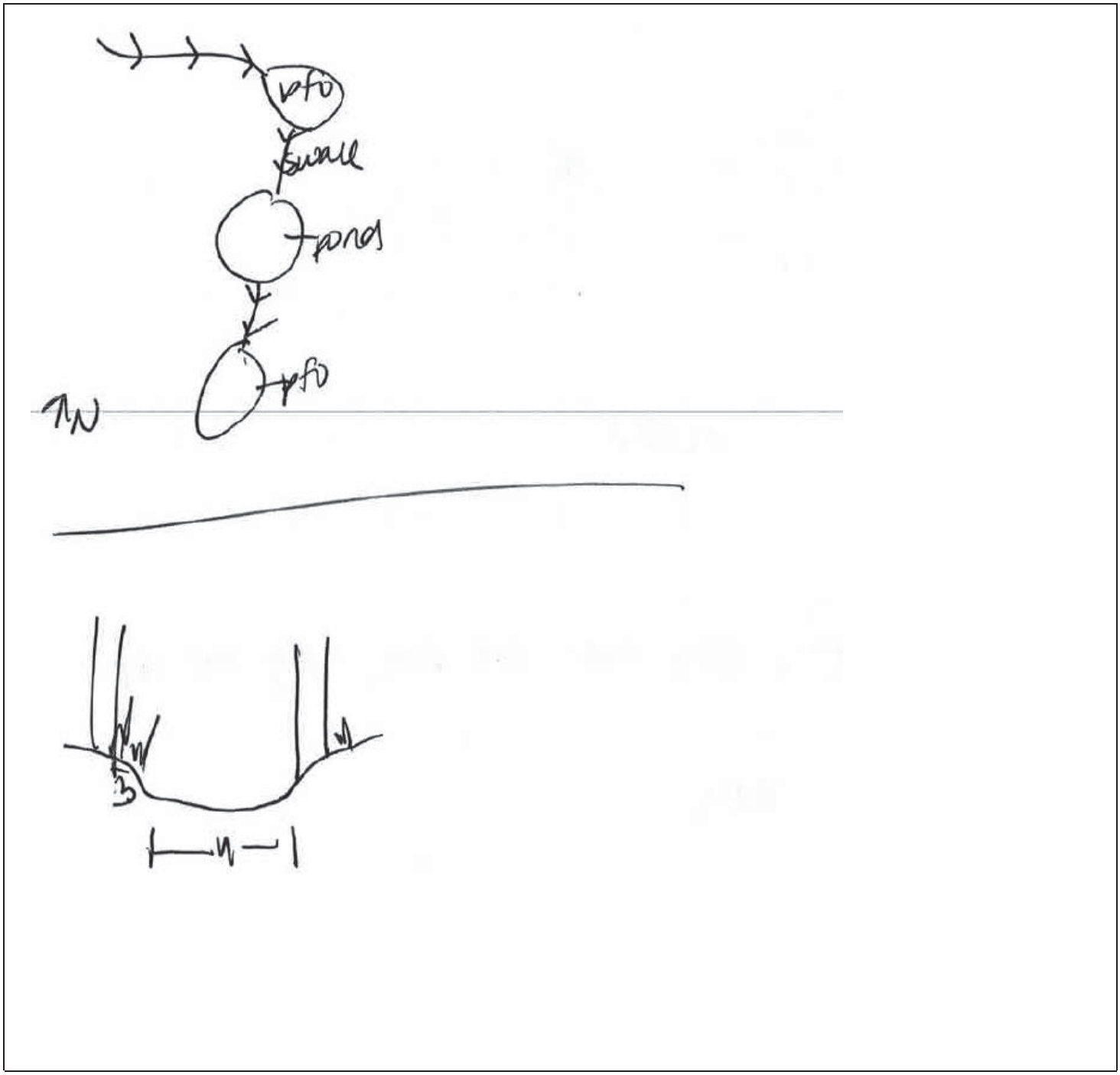
None

Stream Data Form #: Water Feature 33
Project Name: 380 Extension
CSJ: 0047-10-002

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 36
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 10, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 36
Associated Wetland(s): Water Feature 37*
Coordinates: 33°11'54.699"N 96°35'53.624"W

Stream Type: Intermittent Characteristics: Heavy flow due to rain in recent days. Moderate flow predicted from average precipitation.

Bank Stability (e.g. highly eroding, sloughing banks, etc.): Little erosion along banks

Stream Flow Direction: East

OHWM Width (ft): 6 OHWM Height (in): 14

Stream Bottom composition:

- ☐ Silts ☐ Cobbles ☐ Concrete ☑ Other: Significant broken glass within stream bed
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☑ Sand bar ☑ Sand/Gravel beach/bar ☑ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Sugarberry (Celtis laevigata), giant ragweed (Ambrosia trifida), osage-orange (Maclura pomifera), ash leaf maple (Acer negundo), fringed green brier (Smilax bona-nox), and poison ivy (Toxicodendron radicans).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

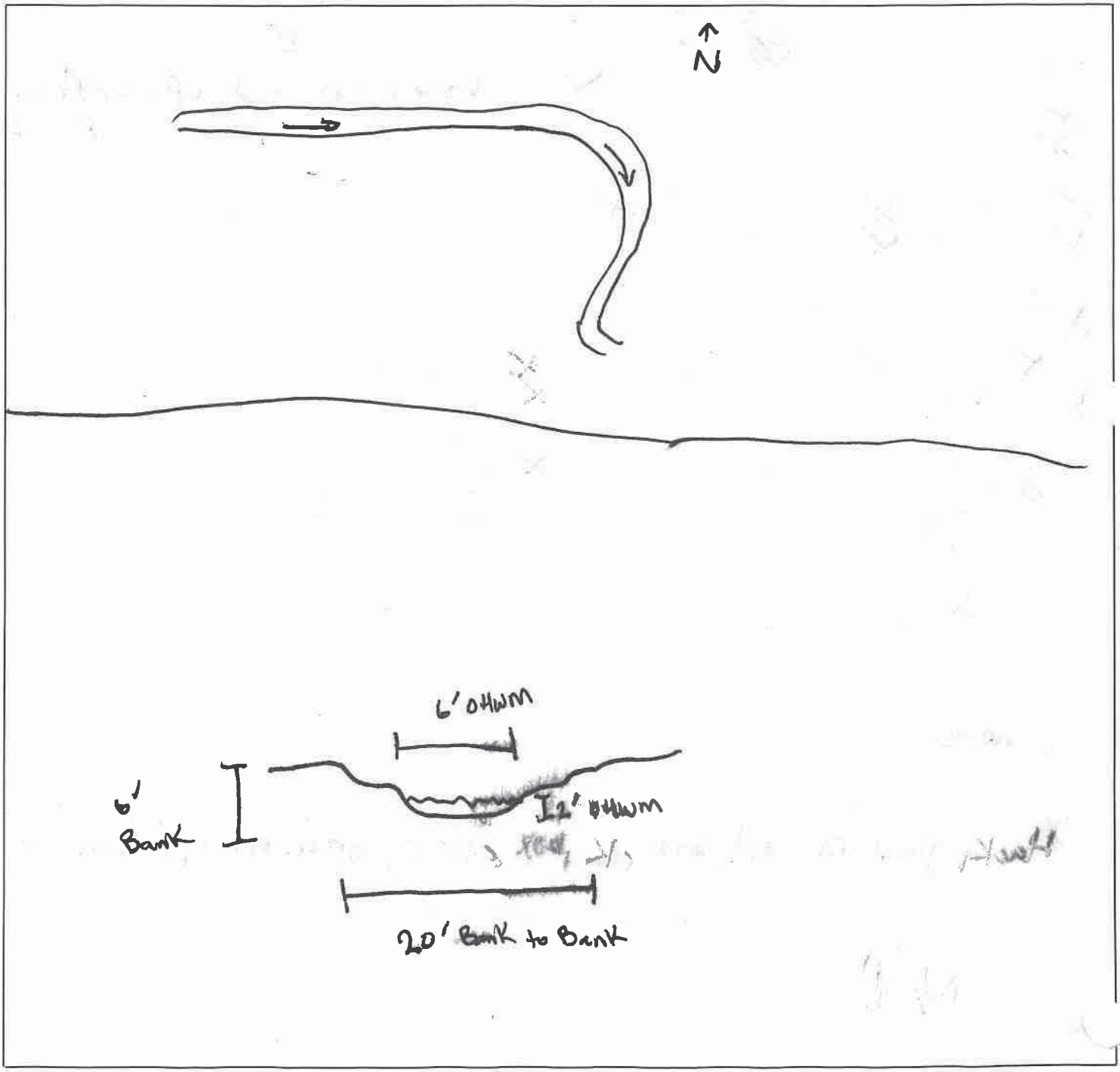
None.

Stream Data Form #: Water Feature 36
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 39
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 10, 2020
USGS Stream Name: Tributary of the East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 39
Associated Wetland(s): Water Feature 40 and 38*
Coordinates: 33°12'10.071"N 96°35'54.692"W

Flows east into the East Fork Trinity River.

Stream Type: Perennial Characteristics:

Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stable

Stream Flow Direction: East

OHWM Width (ft): 22 OHWM Height (in): 72

Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

osage-orange (Maclura pomifera), fringed green brier (Smilax bona-nox), black willow (Salix nigra), giant ragweed (Ambrosia trifida), pecan (Carya illinoinensis), green ash (Fraxinus pennsylvanica)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

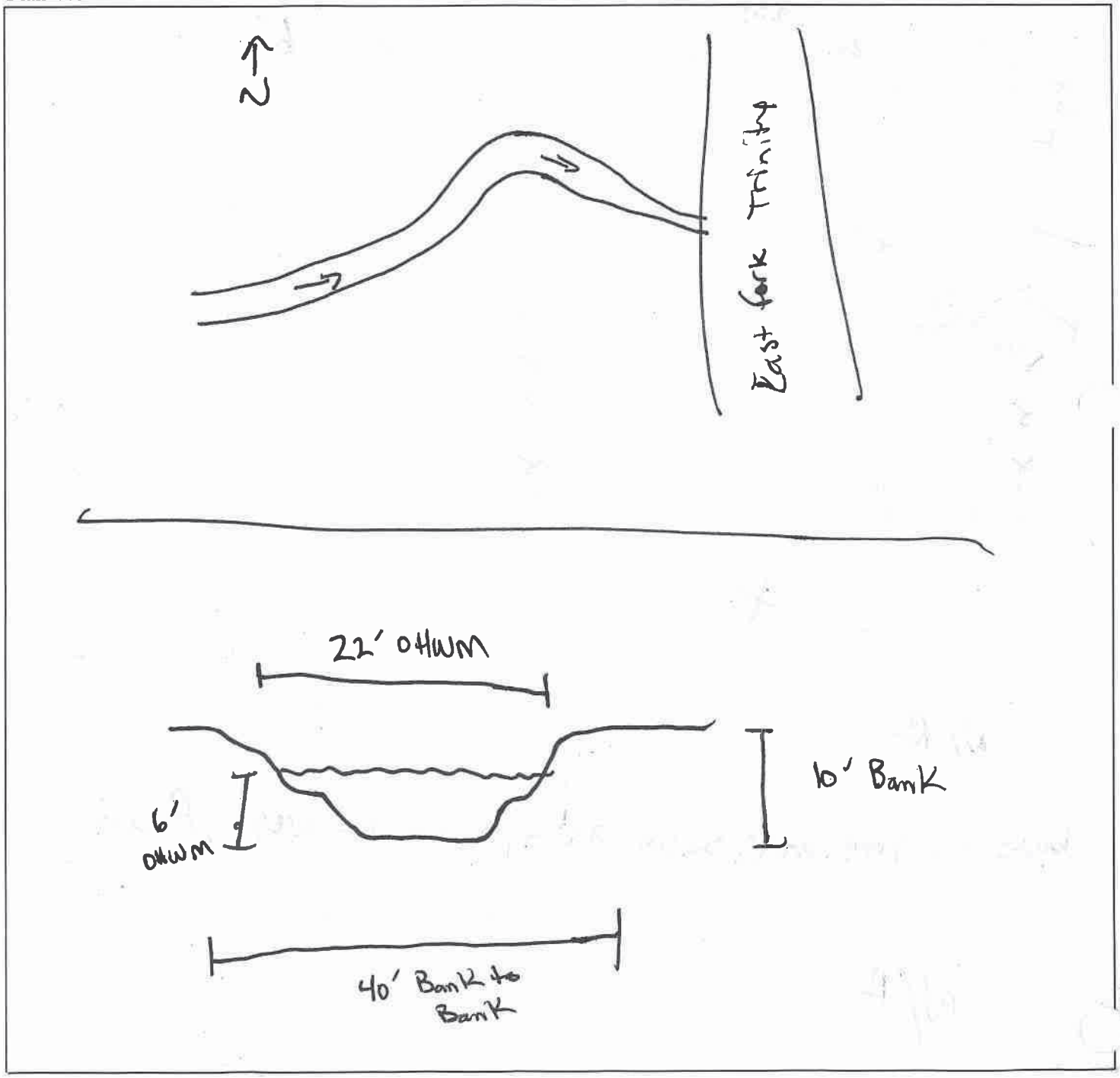
None.

Stream Data Form #: Water Feature 39
Project Name: Spur 399 Extension
CSJ:

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 40
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert Ethan Eichler and Mike Keen
Date of Field Work: October 14, 2020
USGS Stream Name: East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 40
Associated Wetland(s): Water Feature 39
Coordinates: 33.203354 -96.596544

Stream Type: Perennial
Characteristics: Incised with water.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Roots from trees along banks proving stabilization. Inundated outside of tree line.
Stream Flow Direction: South
OHWM Width (ft): 50
OHWM Height (in): 48

Stream Bottom composition:

- [x] Silts
- [ ] Cobbles
- [ ] Concrete
- [ ] Other:
- [ ] Sands
- [ ] Bedrock
- [ ] Muck
- [x] Gravel
- [ ] Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- [ ] Sand bar
- [x] Sand/Gravel beach/bar
- [ ] Gravel riffles
- [ ] Aquatic vegetation
- [x] Overhanging trees/shrubs
- [x] Deep pool/ hole/ channel
- [ ] Other:

Stream has the following characteristics:

- [x] Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- [ ] Clear
- [x] Slightly Turbid
- [ ] Turbid
- [ ] Very Turbid
- [ ] Oily film
- [ ] High organic content
- [ ] Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Snakes, frogs, bugs, otters

Riparian Vegetation: List species observed.

American elm, nodding wild rye, osage-orange, sugarberry, black locust, fringed green brier, johnsongrass, cedar elm, giant ragweed.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

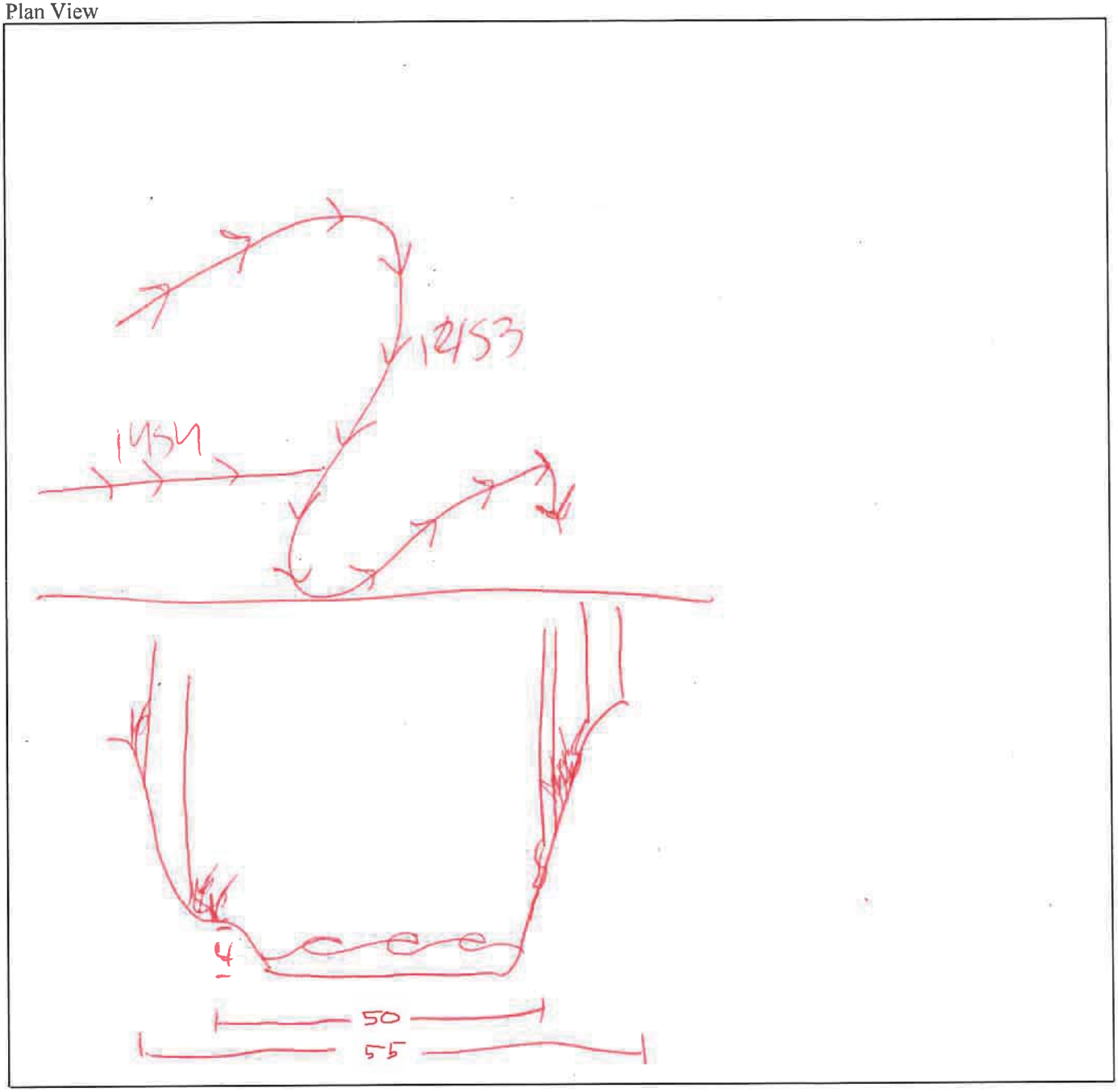
None.

Stream Data Form #: Water Feature 40
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 41
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Wyatt Wolfenkoehler, Kelsea Hiebert
Date of Field Work: August 16, 2021
USGS Stream Name: Tributary of the East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 41
Associated Wetland(s):
Coordinates: 33.204744 -96.598906

Stream Type: Intermittent
Characteristics: Receives seasonal high flow into the East Fork Trinity River
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Artificially Stabilized Bank
Stream Flow Direction: East
OHWM Width (ft): 6'
OHWM Height (in): 17"

Stream Bottom composition:

- ☑ Silts
- ☑ Sands
- ☑ Gravel
- ☐ Cobbles
- ☐ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☑ Sand bar
- ☑ Sand/Gravel beach/bar
- ☑ Gravel riffles
- ☑ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☑ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Small fish, Largemouth bass fry.

Riparian Vegetation: List species observed.

Sorghum halapense, Ambrosia trifida , Salix nigra, Acer negundo, Prunus angustifolia, Sagittaria lancifolia, and Ludwigia p

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

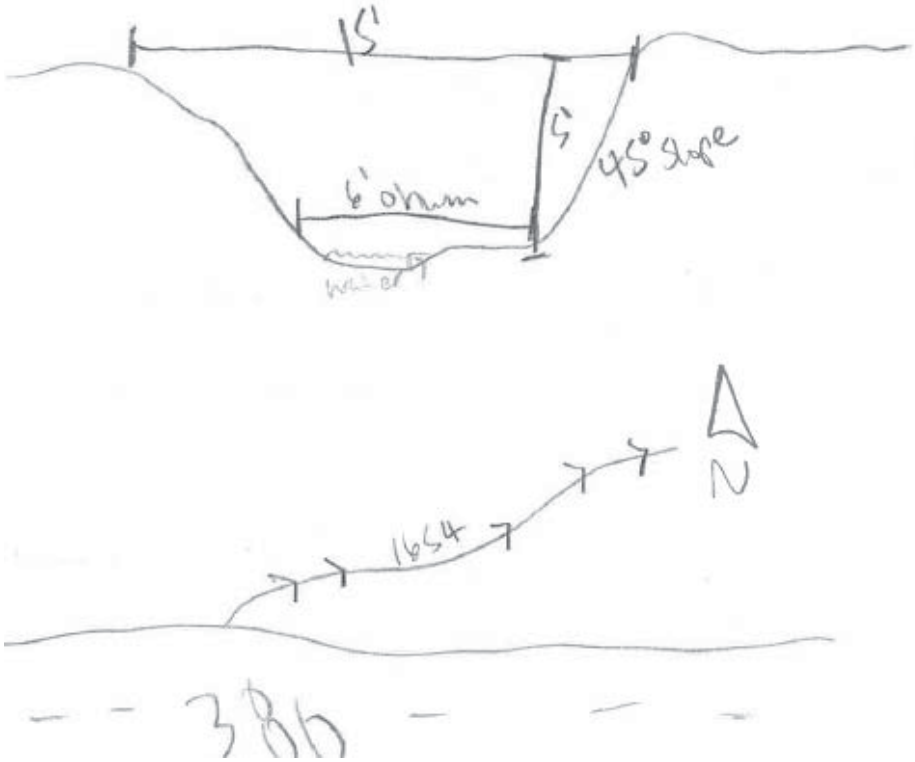
None

Stream Data Form #: Water Feature 41
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 47
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s): Water Feature 46*

Date of Field Work: September 10, 2020
County/State: Collin County, Texas
Stream Number: 47
Coordinates: 33.199619 -96.583969

Stream Type: Intermittent Characteristics: Overhanding veg and roots along banks.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stable.
Stream Flow Direction: Southeast
OHWM Width (ft): 15 OHWM Height (in): 36
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None

Riparian Vegetation: List species observed.

Bur oak, green ash, osage-orange, poison ivy, cedar elm

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

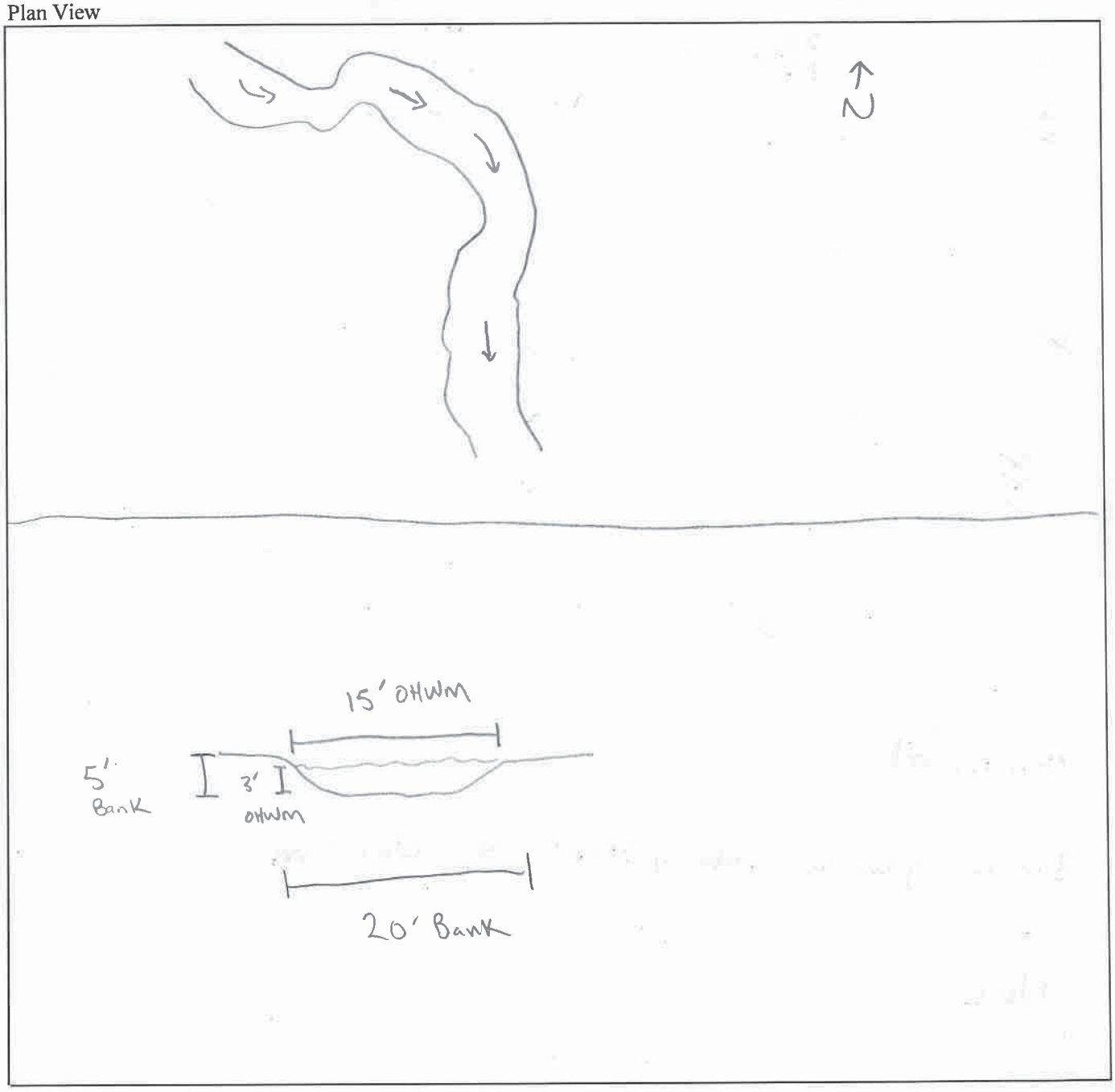
None.

Stream Data Form #: Water Feature 47
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 49
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 10, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 49
Associated Wetland(s): Water Feature 47
Coordinates: 33.199652 -96.583054

Stream Type: Ephemeral Characteristics: Receives runoff from right-of-way. Recent precipitation.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Heavy sedimentation
Stream Flow Direction: South
OHWM Width (ft): 5 OHWM Height (in): 18
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☑ Other characteristics (pollutants, etc.) Flow from recent precipitation and runoff from right-of-way.

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

American elm (Ulmus americana), green ash (Fraxinus pennsylvanica), great ragweed (Ambrosia trifida), osage orange (Maclura pomifera).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

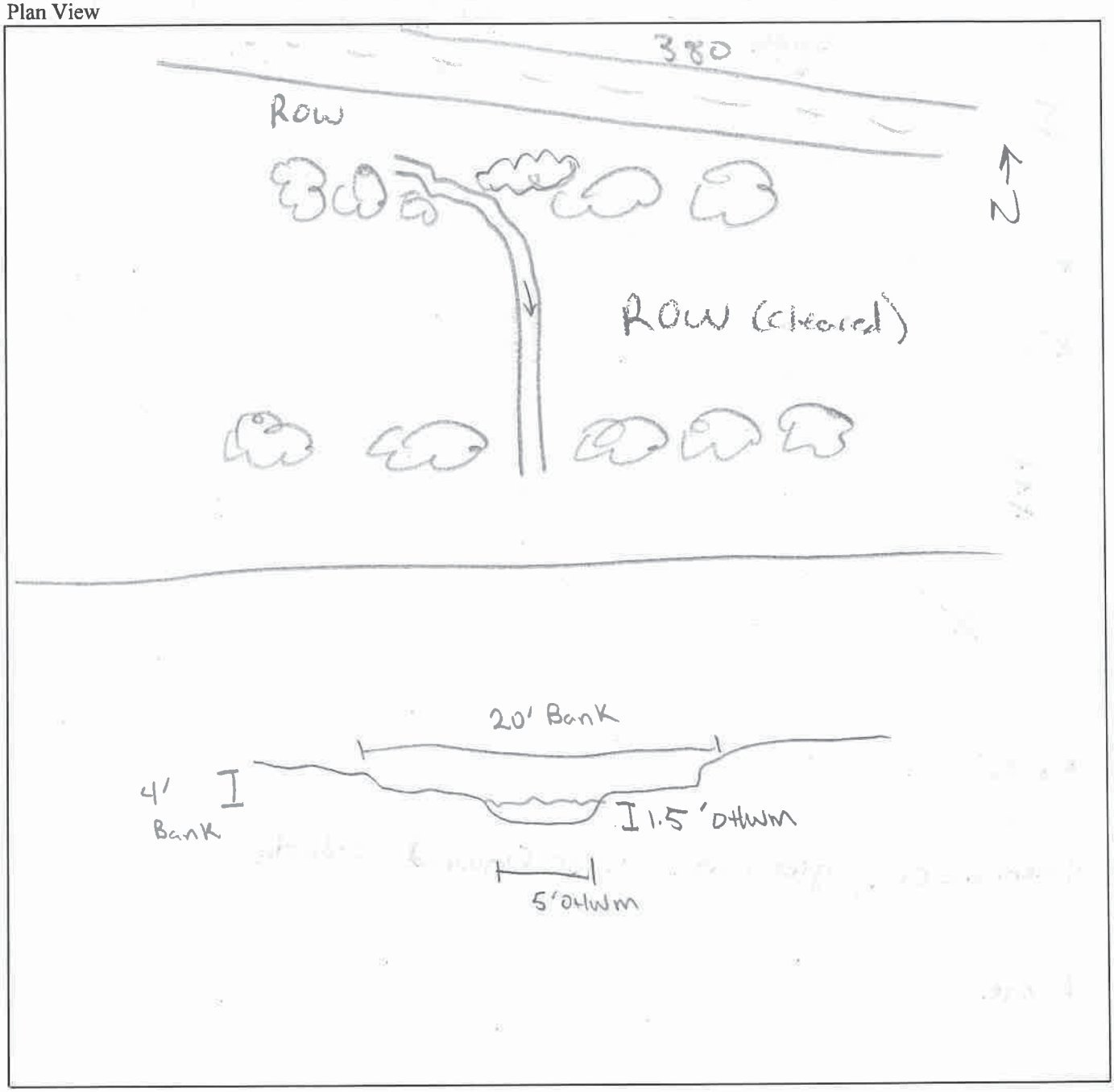
None.

Stream Data Form #: Water Feature 49
Project Name: Spur 399 Extension
CSJ:

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 51
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler, Mike Keenan
Date of Field Work: October 14, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 51
Associated Wetland(s): Water Feature 50*
Coordinates: 33.199150 -96.578261

Stream Type: Intermittent
Characteristics: Concrete culverts under roadway with concrete banks near culvert.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stable.
Stream Flow Direction: Southwest
OHWM Width (ft): 8
OHWM Height (in): 12
Stream Bottom composition:

- ☑ Silts
- ☐ Cobbles
- ☑ Concrete
- ☐ Other:
- ☐ Sands
- ☐ Bedrock
- ☐ Muck
- ☐ Gravel
- ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☐ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear
- ☐ Slightly Turbid
- ☑ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.
Snakes, Frogs

Riparian Vegetation: List species observed.
Southern catalpa, American elm, green ash, Chinese Privet, fringed green brier, sugarberry

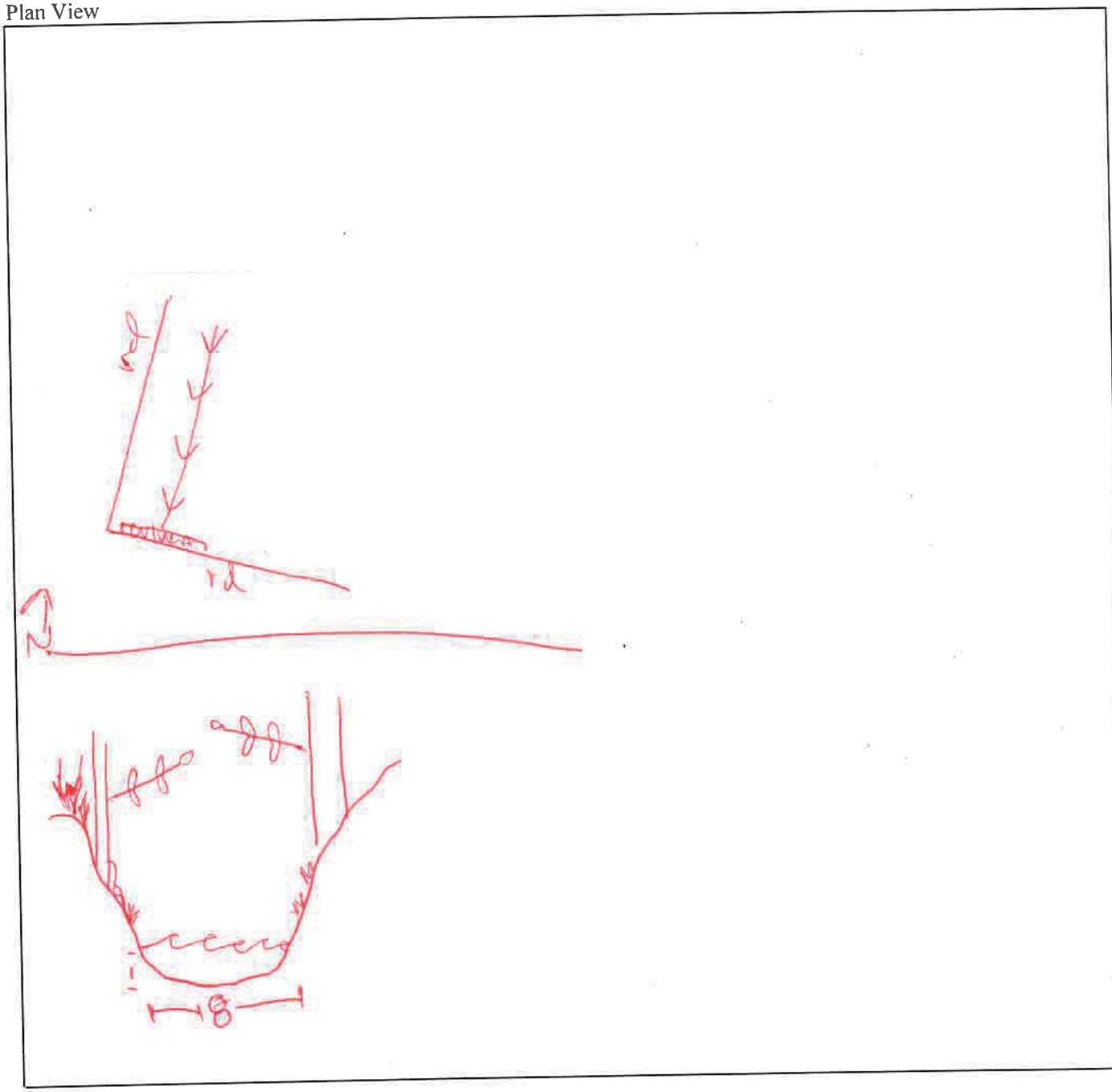
T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.
None.

Stream Data Form #: Water Feature 51
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 56
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
USGS Stream Name:
USGS Topo Quad Name: McKinney East
Associated Wetland(s): Water Feature 53 and 54

Date of Field Work: September 11, 2020
County/State: Collin County, Texas
Stream Number: 56
Coordinates: 33.159683 -96.592977

Stream Type: Intermittent Characteristics: Flows into floodplain of Wilson Creek to the south. Hydrology heavily influenced by pond to the north.

Bank Stability (e.g. highly eroding, sloughing banks, etc.): Rip rap placed within channel to stabilize banks.

Stream Flow Direction: Southwest

OHWM Width (ft): 5 OHWM Height (in): 36

Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☑ Other: rip rap
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☐ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

sugarberry (Celtis laevigata), American elm (Ulmus americana), eastern red cedar (Juniperus virginiana), black willow (Salix nigra)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

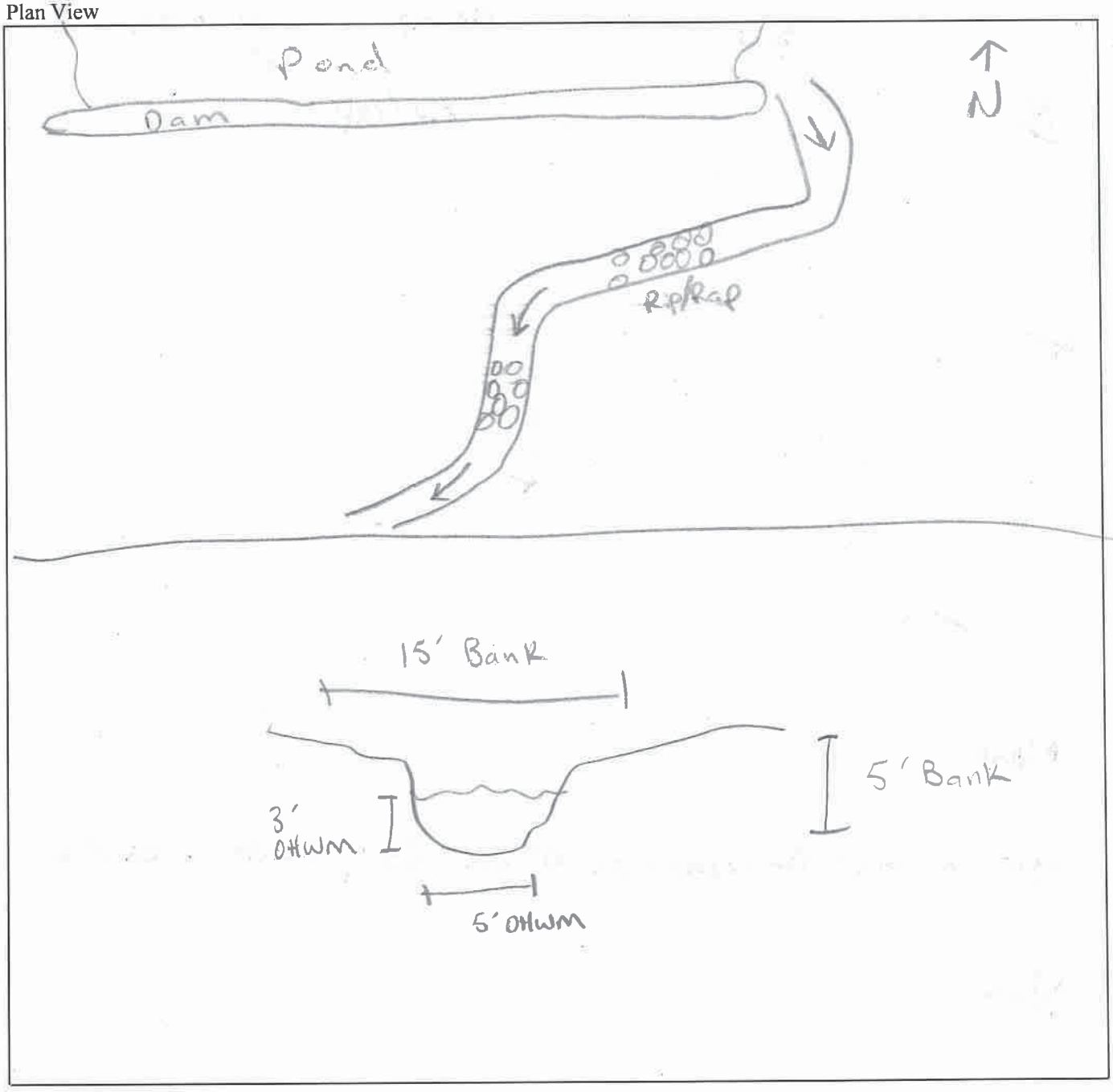
None.

Stream Data Form #: Water Feature 56
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 57
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 11, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 57
Associated Wetland(s): Water Feature 58*, 59, 60*
Coordinates: 33.158719 -96.586122

Stream Type: Ephemeral
Characteristics: Productive riparian corridor. Deep pools within stream. Receives flow from runoff from the north, and delivers flow to the south.

Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stabilized banks.

Stream Flow Direction: South

OHWM Width (ft): 7
OHWM Height (in): 12

Stream Bottom composition:

- ☑ Silts
- ☑ Sands
- ☐ Gravel
- ☐ Cobbles
- ☑ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☑ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☑ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear
- ☐ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Runoff from the adjacent roadway

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

American elm (Ulmus americana), eastern red cedar (Juniperus virginiana), eastern cottonwood (Populus deltoides), black willow (Salix nigra), Texas red oak (Quercus texana)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

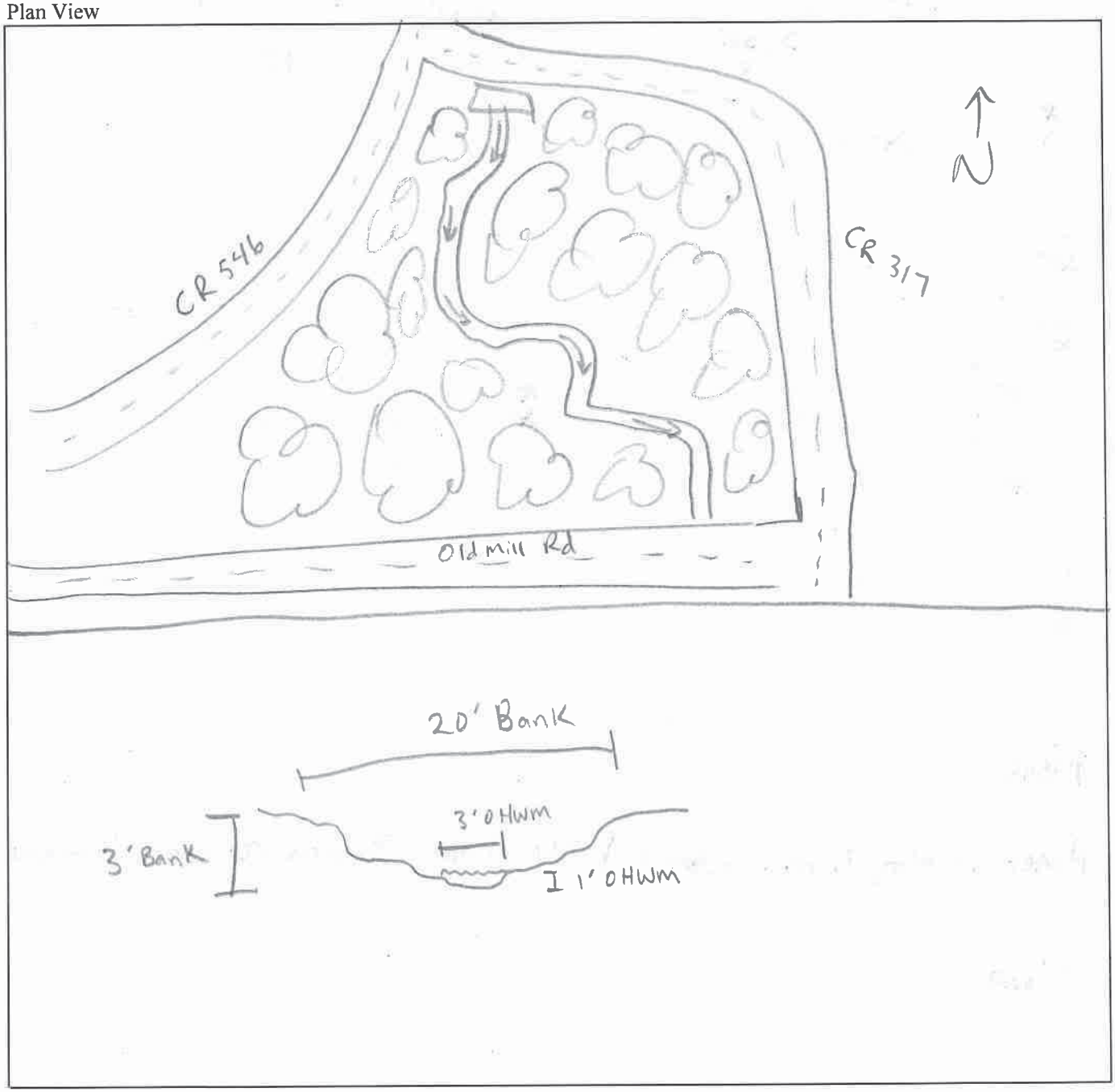
None.

Stream Data Form #: Water Feature 57
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 59
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler, Mike Keenan
Date of Field Work: October 12, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 59
Associated Wetland(s): Water Feature 57
Coordinates: 33.157383 -96.585566

Stream Type: Ephemeral Characteristics: Stream influenced by roadway runoff.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Stabilized banks.
Stream Flow Direction: West
OHWM Width (ft): 2 OHWM Height (in): 0.5
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☑ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☑ Other: Terrace vegetation

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Runoff from the adjacent roadway

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Aquatic insects and frogs.

Riparian Vegetation: List species observed.

Sweetscent (Pluchea odorata), Japanese honeysuckle (Lonicera japonica), Chinese privet (Ligustrum inense), yaupon (Ilex vomitoria), fringed green brier (Smilax bona-nox), osage orange (Maclura pomifera), American elm (Ulmus americana), black willow (Salix nigra), virginia creeper (Parthenocissus quinquefolia), eastern poison ivy (Toxicodendron radicans), swamp chestnut oak(Quercus michauxii), and great ragweed (Ambrosia trifida)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

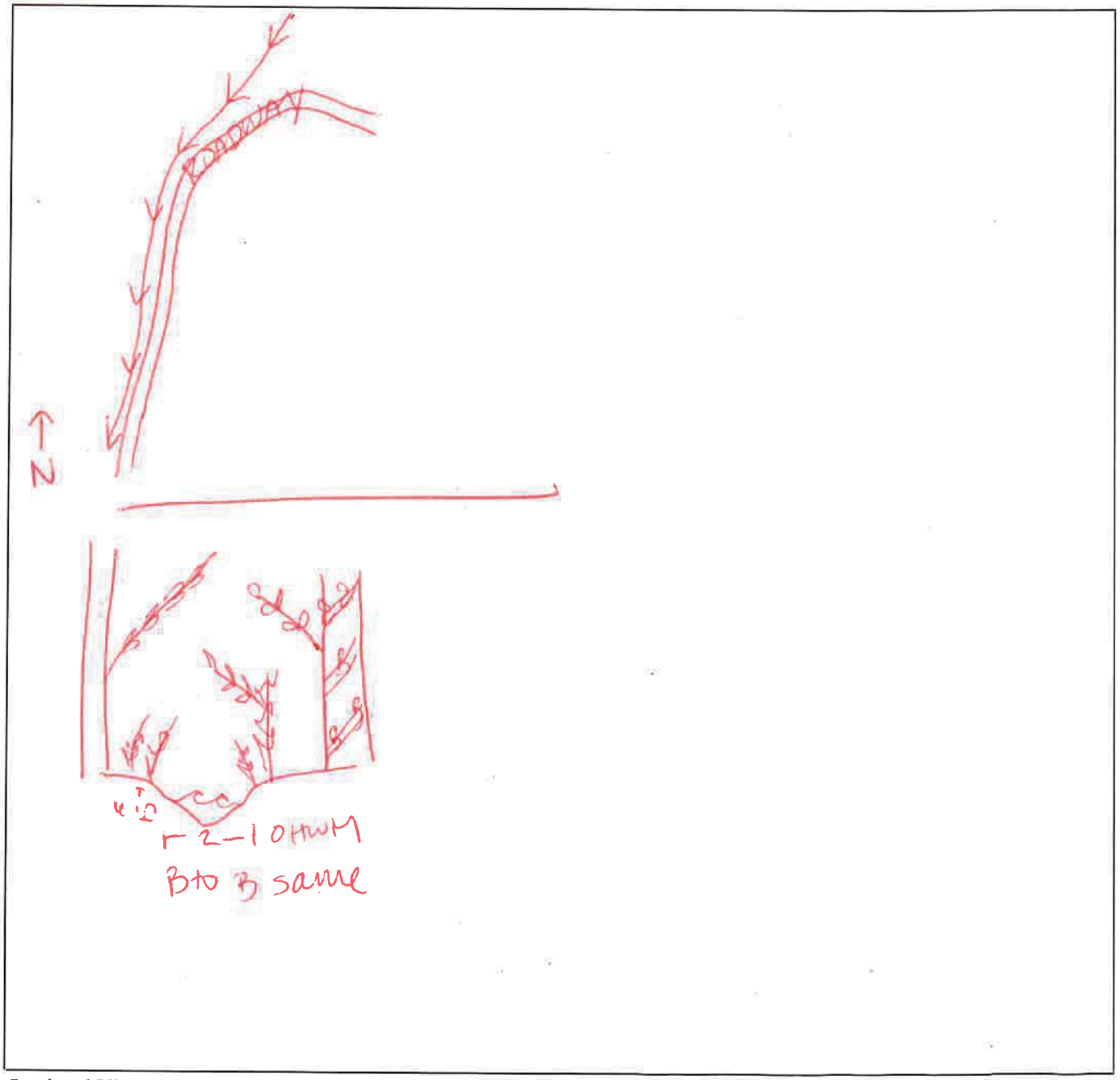
None.

Stream Data Form #: Water Feature 59
Project Name: Spur 399 Extension
CSJ: —

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 62
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 11, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 62
Associated Wetland(s): Water Feature 63
Coordinates: 33.168384 -96.575548

Stream Type: Ephemeral Characteristics: Incised channel.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Moderately stable banks.
Stream Flow Direction: Northeast
OHWM Width (ft): 6 OHWM Height (in): 24
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Runoff from the adjacent roadway

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

American elm (Ulmus americana), pecan (Carya illinoinensis), Virginia wild rye (Elymus virginicus), sugarberry (Celtis laevigata)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

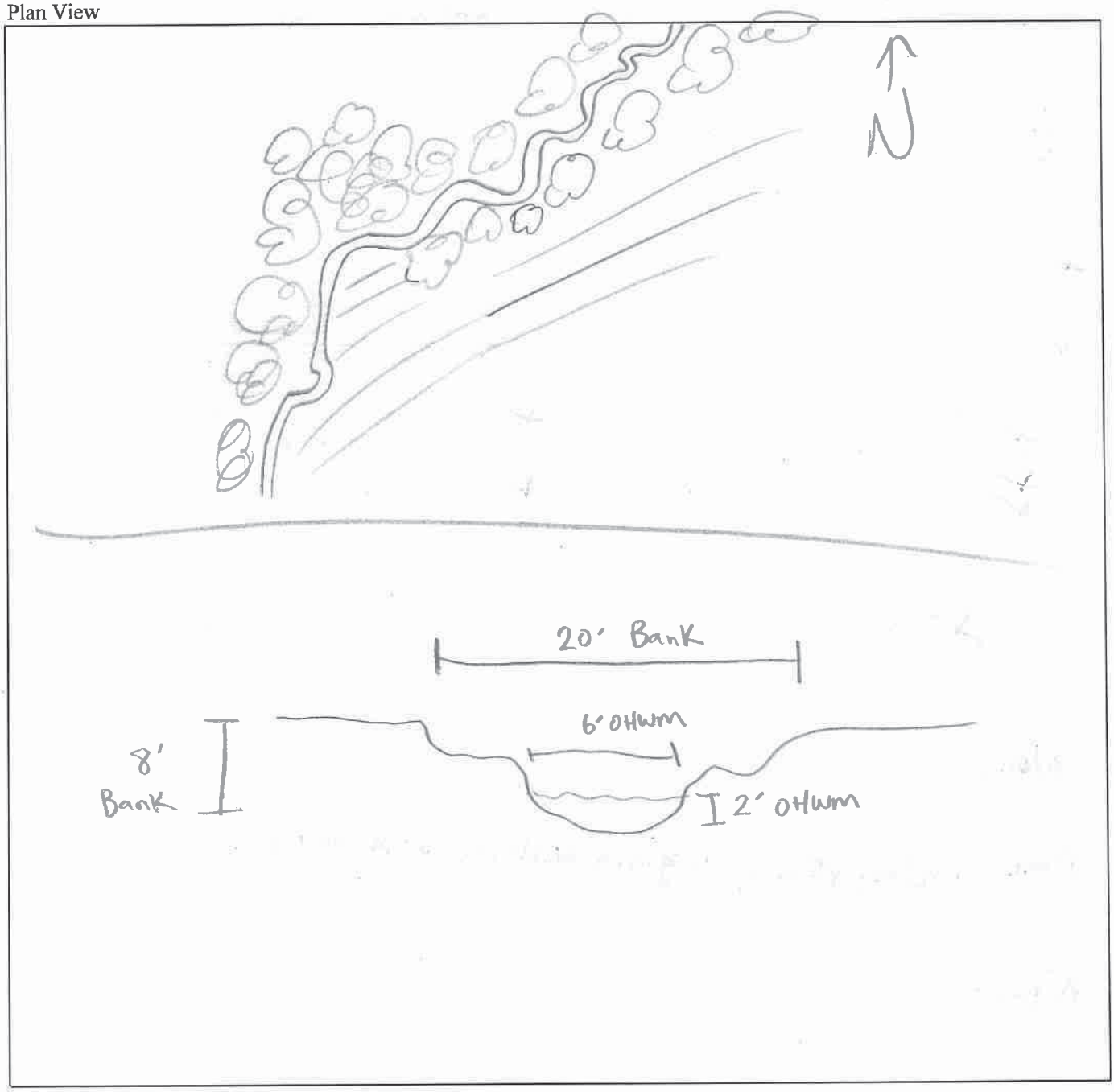
None.

Stream Data Form #: Water Feature 62
Project Name: Spur 399 Extension
CSJ:

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 63
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 11, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 63
Associated Wetland(s): Water Feature 62
Coordinates: 33.168941 -96.574934

Stream Type: Ephemeral Characteristics:
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Moderately stable banks.
Stream Flow Direction: East
OHWM Width (ft): 3 OHWM Height (in): 12
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) Runoff from the adjacent roadway

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Virginia wild rye (Elymus virginicus), sugarberry (Celtis laevigata), riverbank grape (Vitis riparia)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

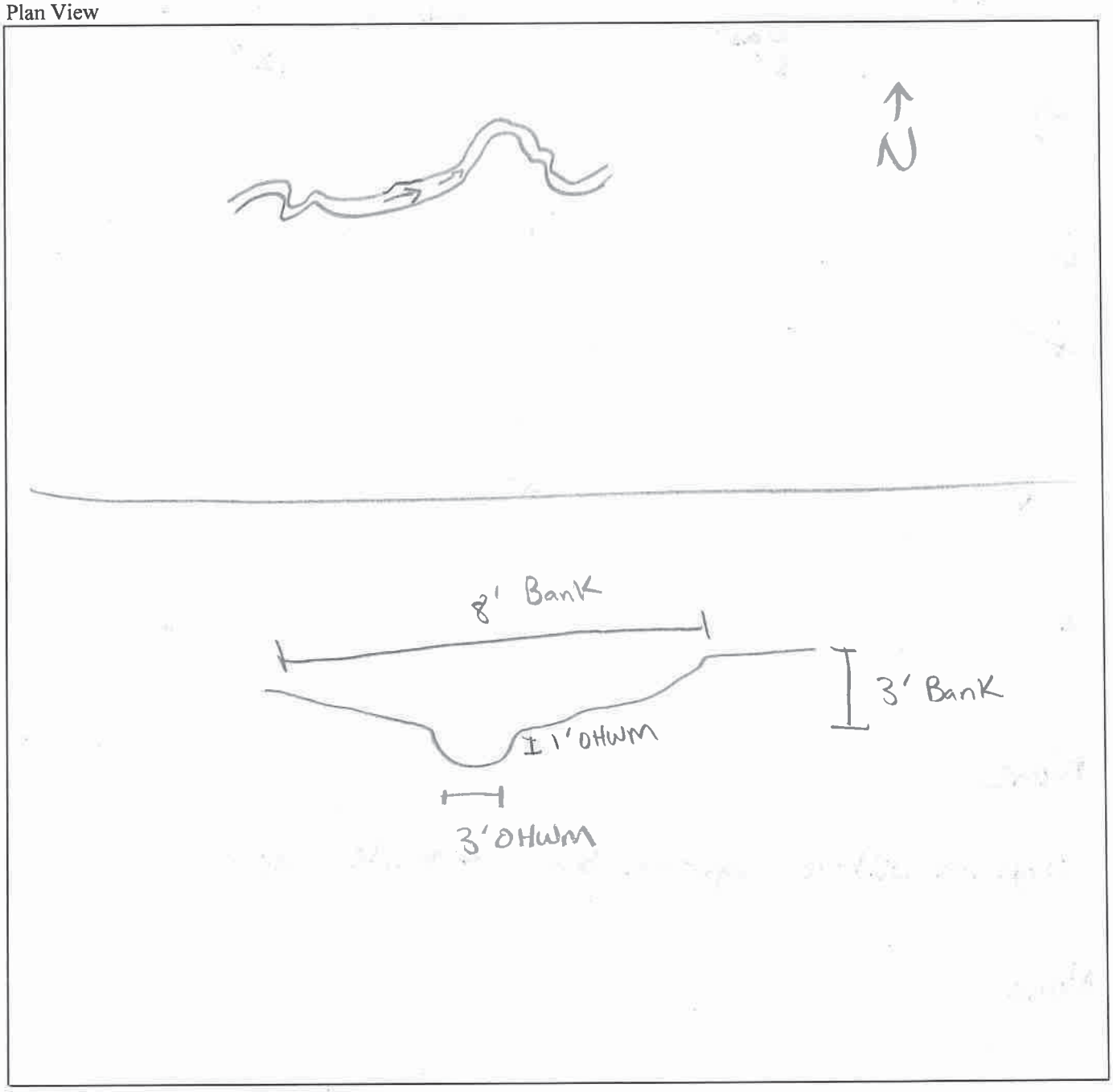
None.

Stream Data Form #: Water Feature 63
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 65
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler, Kelsea Hiebert, Mike Keenan
Date of Field Work: October 13, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 65
Associated Wetland(s): Water Feature 66, 67, 69, and 70
Coordinates: 33°10'25.368"N 96°34'30.759"W

Stream Type: Perennial
Characteristics: Spring-fed stream. Bedrock exposed with high flows recently.
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: Northeast
OHWM Width (ft): 6
OHWM Height (in): 36
Stream Bottom composition:

- ☑ Silts
- ☐ Sands
- ☐ Gravel
- ☐ Cobbles
- ☑ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☑ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear
- ☐ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☐ Other characteristics (pollutants, etc.) Tannin stains in deep pools

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Bugs and frogs.

Riparian Vegetation: List species observed.

Fringed green brier (Smllax bona-nox), poison ivy (Toxicodendron radicans), American elm (Ulmus americana), Shumard oak (Quercus shumardii), pecan (Carya illinoinensis), green ash (Fraxinus pennsylvanica), eastern red cedar (Juniperus virginiana), cedar elm (Ulmus crassifolia), osage-orange (Maclura pomifera)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

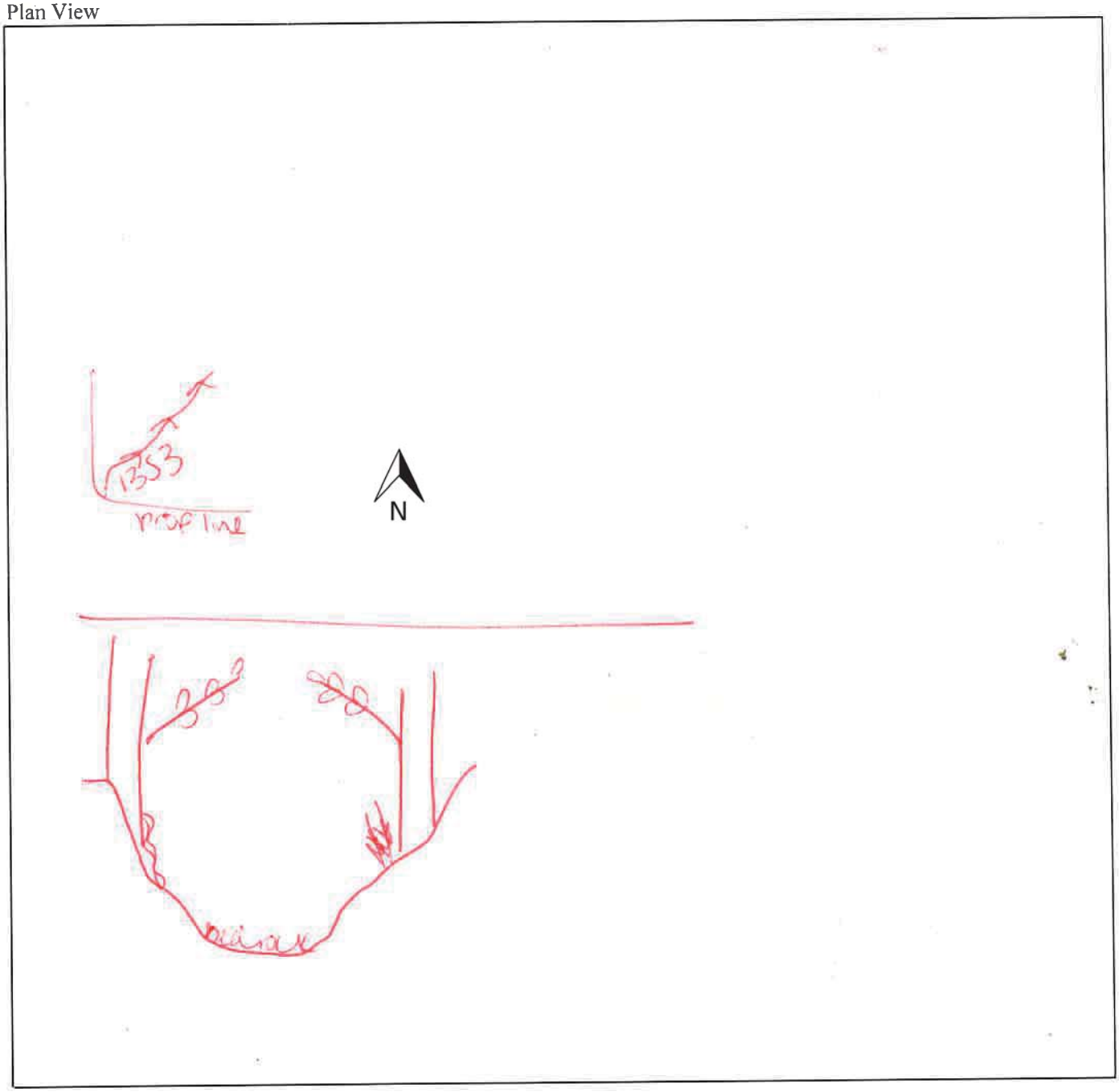
None.

Stream Data Form #: Water Feature 65
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 66
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler, Mike Keenan
Date of Field Work: October 13, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 66
Associated Wetland(s): Water Feature 36
Coordinates: 33.173340 -96.575379

Stream Type: Ephemeral Characteristics:
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Moderately stable banks.
Stream Flow Direction: North
OHWM Width (ft): 3 OHWM Height (in): 6
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☑ Other characteristics (pollutants, etc.) None.

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Texas red oak (Quercus texana), American elm (Ulmus americana), fringed green brier (Smilax bona-nox), eastern poison ivy (Toxicodendron radicans), pecan (Carya illinoinensis)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

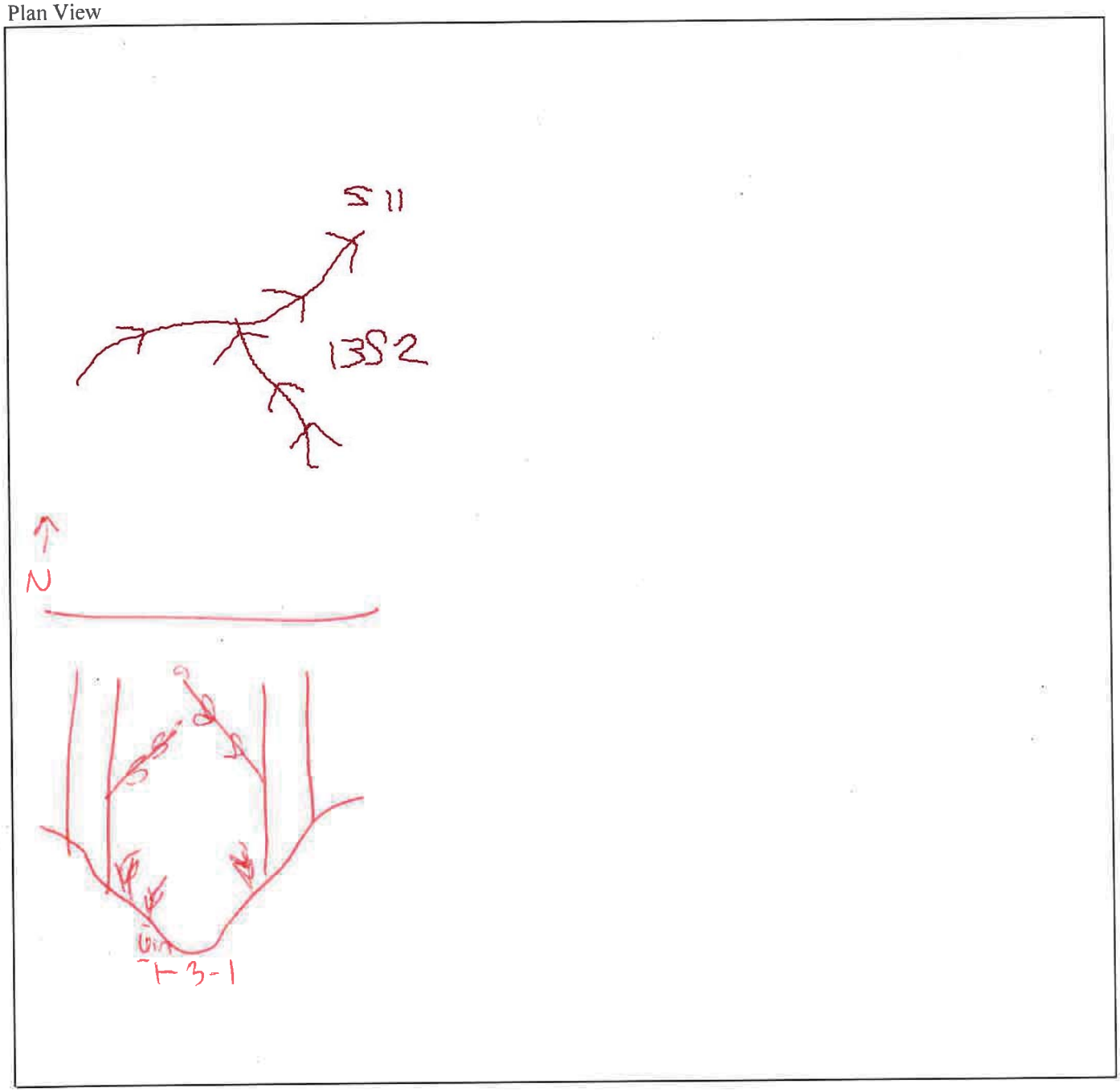
None.

Stream Data Form #: Water Feature 66
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 67
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Ethan Eichler, Mike Keenan
Date of Field Work: October 13, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 67
Associated Wetland(s): Water Feature 65
Coordinates: 33.173507 -96.576291

Stream Type: Ephemeral Characteristics:
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Root bound banks
Stream Flow Direction: Southeast
OHWM Width (ft): 3 OHWM Height (in): 6
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
☑ Other characteristics (pollutants, etc.) None.

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Texas red oak (Quercus texana), American elm (Ulmus americana), fringed green brier (Smilax bona-nox), eastern poison ivy (Toxicodendron radicans), pecan (Carya illinoinensis)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

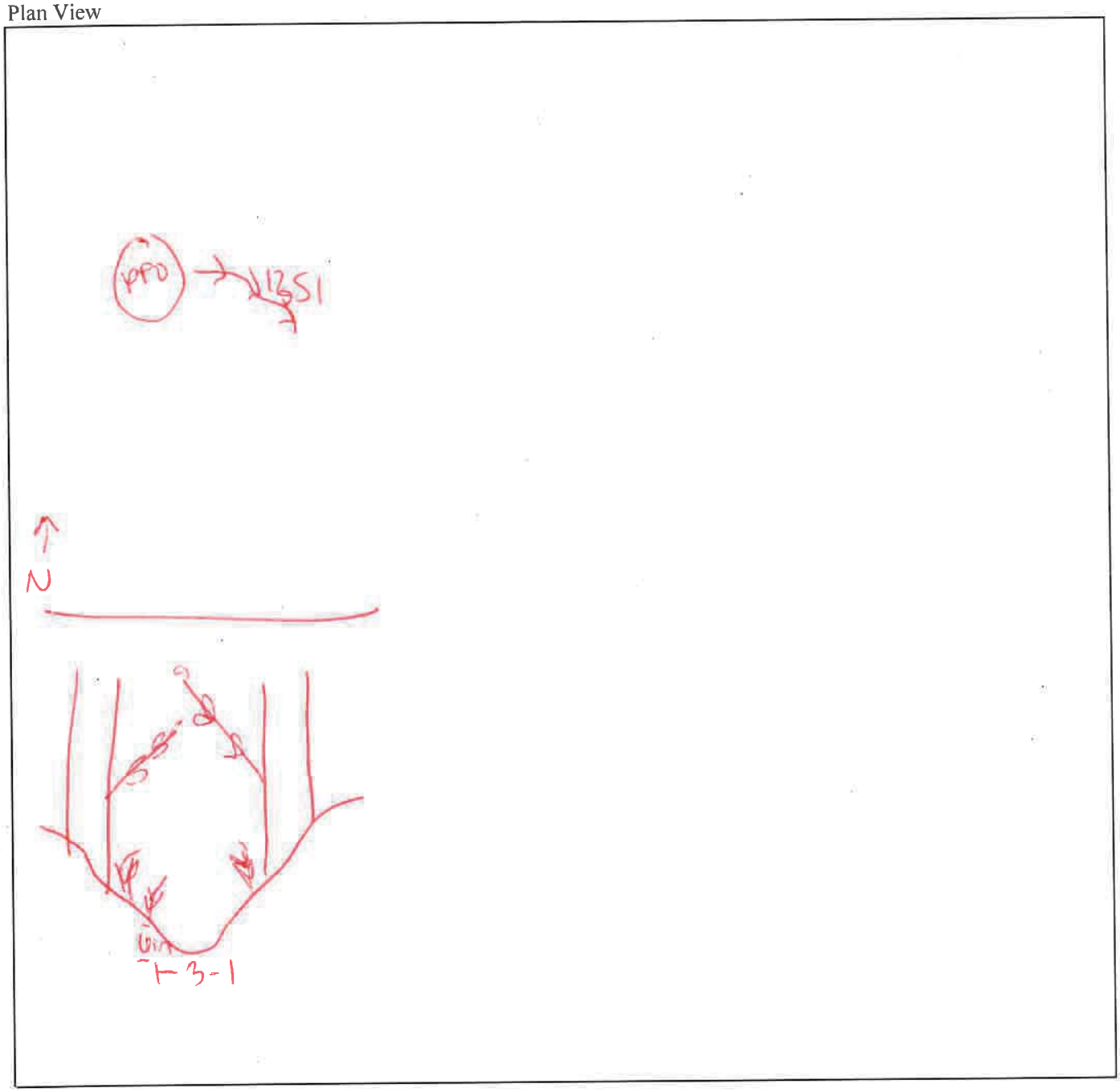
None.

Stream Data Form #: Water Feature 67
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 71
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler, Kelsea Hiebert, Mike Keenan
Date of Field Work: October 12, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 71
Associated Wetland(s): Water Feature 65, 69, and 70
Coordinates: 33°10'41.787"N 96°34'30.946"W

Stream Type: Perennial
Characteristics: Deep channel with gravel riffles
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: Southeast
OHWM Width (ft): 6
OHWM Height (in): 36
Stream Bottom composition:

- ☑ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☑ Sands ☐ Bedrock ☐ Muck
- ☑ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☑ Gravel riffles ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs ☑ Deep pool/ hole/ channel ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☑ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Frogs and small fish species.

Riparian Vegetation: List species observed.

Fringed green brier (Smilax bona-nox), Virginia creeper (Parthenocissus quinquefolia), poison ivy (Toxicodendron radicans), nodding wild rye (Elymus canadensis), sugarberry (Celtis laevigata), American elm (Ulmus americana), cedar elm (Ulmus crassifolia), eastern black walnut (Juglans nigra)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

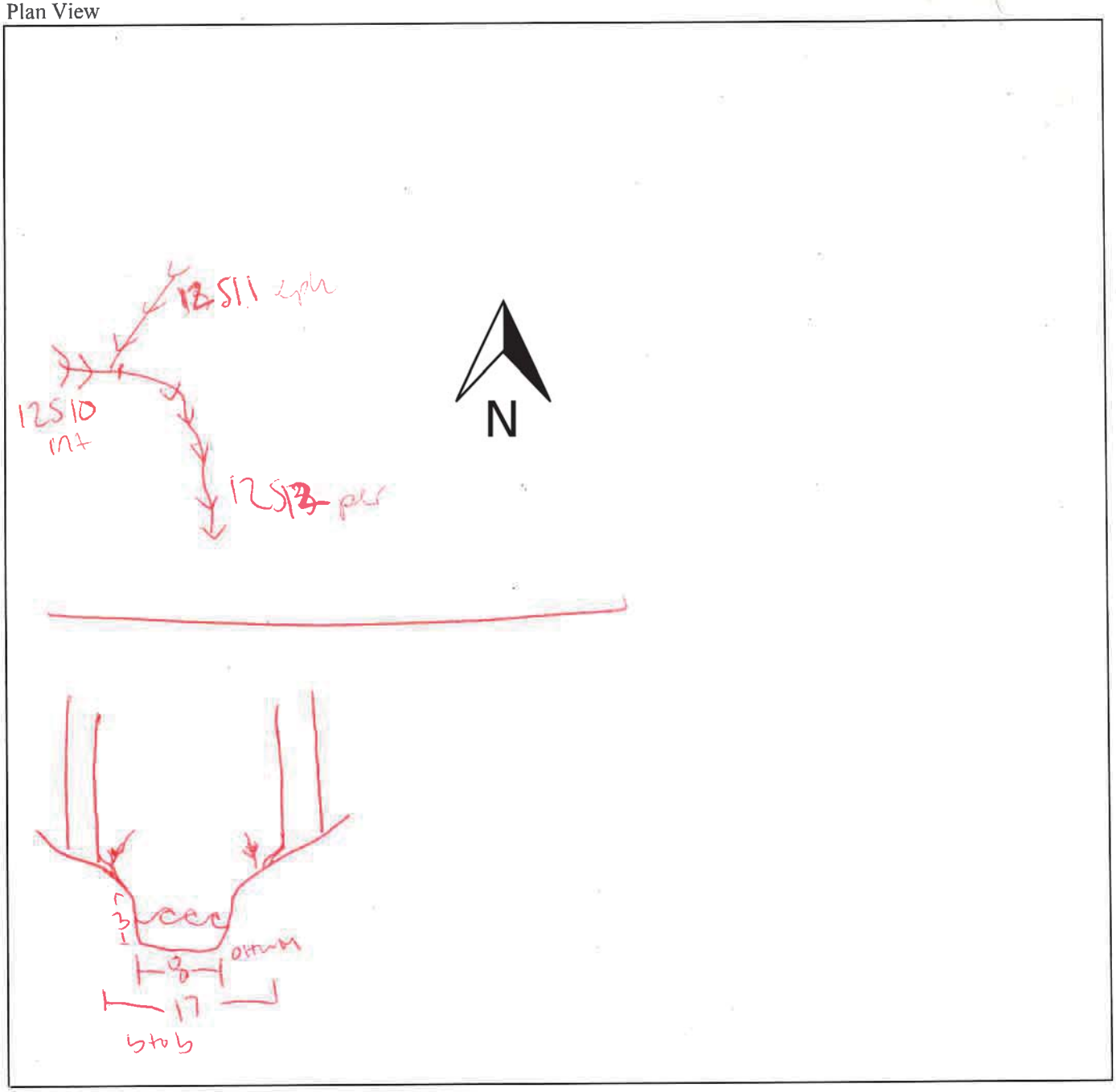
None.

Stream Data Form #: Water Feature 71
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 75
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: October 12, 2020
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 75
Associated Wetland(s): Water Feature 77
Coordinates: 33°11'4.381"N 96°34'43.352"W

Stream Type: Intermittent
Characteristics: Flows into the East Fork Trinity River.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Water seeps from banks. Light erosion along banks.
Stream Flow Direction: East
OHWM Width (ft): 6
OHWM Height (in): 20

Stream Bottom composition:

- ☑ Silts
- ☐ Sands
- ☑ Gravel
- ☐ Cobbles
- ☐ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☑ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☑ Sand/Gravel beach/bar
- ☑ Gravel riffles
- ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☑ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear
- ☑ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Small fish species.

Riparian Vegetation: List species observed.

Green ash (Fraxinus pennsylvanica), osage-orange (Maclura pomifera), river bank grape (Vitis riparia), fringed green brier (Smllax bona-nox), black willow (Salix nigra), and eastern red cedar (Juniperus virginiana)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

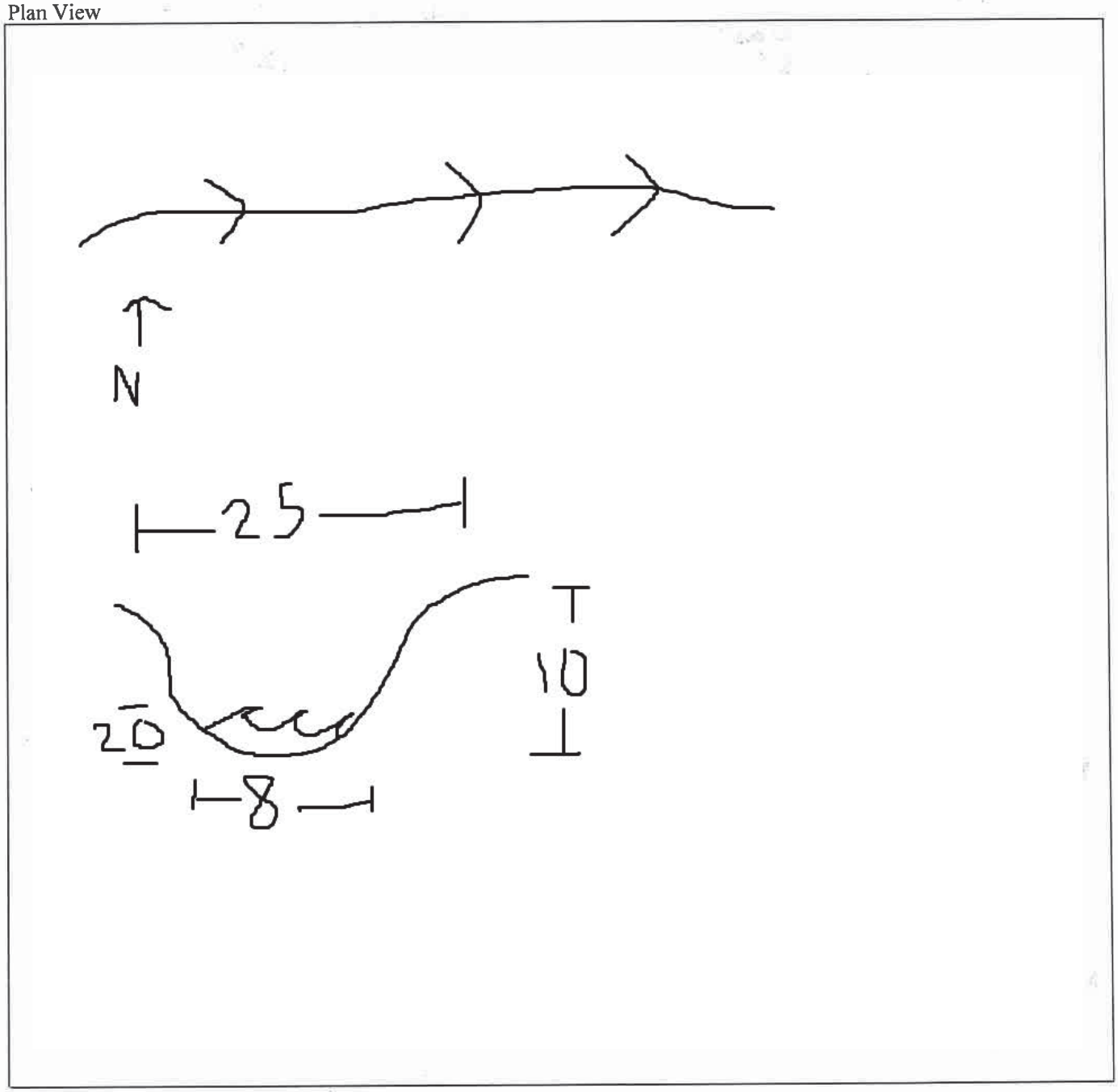
None.

Stream Data Form #: Water Feature 75
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 79
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 8, 2020
USGS Stream Name: East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: Anna
Stream Number: 79
Associated Wetland(s): Water Feature 80, 83, 85, 87, 88, 89, and 91
Coordinates: 33°11'25.83"N 96°34'39.21"W

Stream Type: Perennial
Characteristics: Incised stream banks.
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: South
OHWM Width (ft): 40
OHWM Height (in): 30

Stream Bottom composition:

- [x] Silts
- [ ] Sands
- [ ] Gravel
- [ ] Cobbles
- [ ] Bedrock
- [ ] Vegetation
- [ ] Concrete
- [ ] Muck
- [ ] Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- [ ] Sand bar
- [ ] Sand/Gravel beach/bar
- [ ] Gravel riffles
- [ ] Aquatic vegetation
- [x] Overhanging trees/shrubs
- [x] Deep pool/ hole/ channel
- [ ] Other:

Stream has the following characteristics:

- [x] Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- [ ] Clear
- [ ] Slightly Turbid
- [x] Turbid
- [ ] Very Turbid
- [ ] Oily film
- [ ] High organic content
- [ ] Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

Pecan (Carya illinoinensis), black walnut (Juglans nigra), green ash (Fraxinus pennsylvanica), poison ivy (Toxicodendron radicans), American elm (Ulmus americana), sugarberry (Celtis laevigata), osage-orange (Maclura pomifera), fringed green brier (Smilax bona-nox), Virginia wild rye (Elymus virginicus), river bank grape (Vitis riparia)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

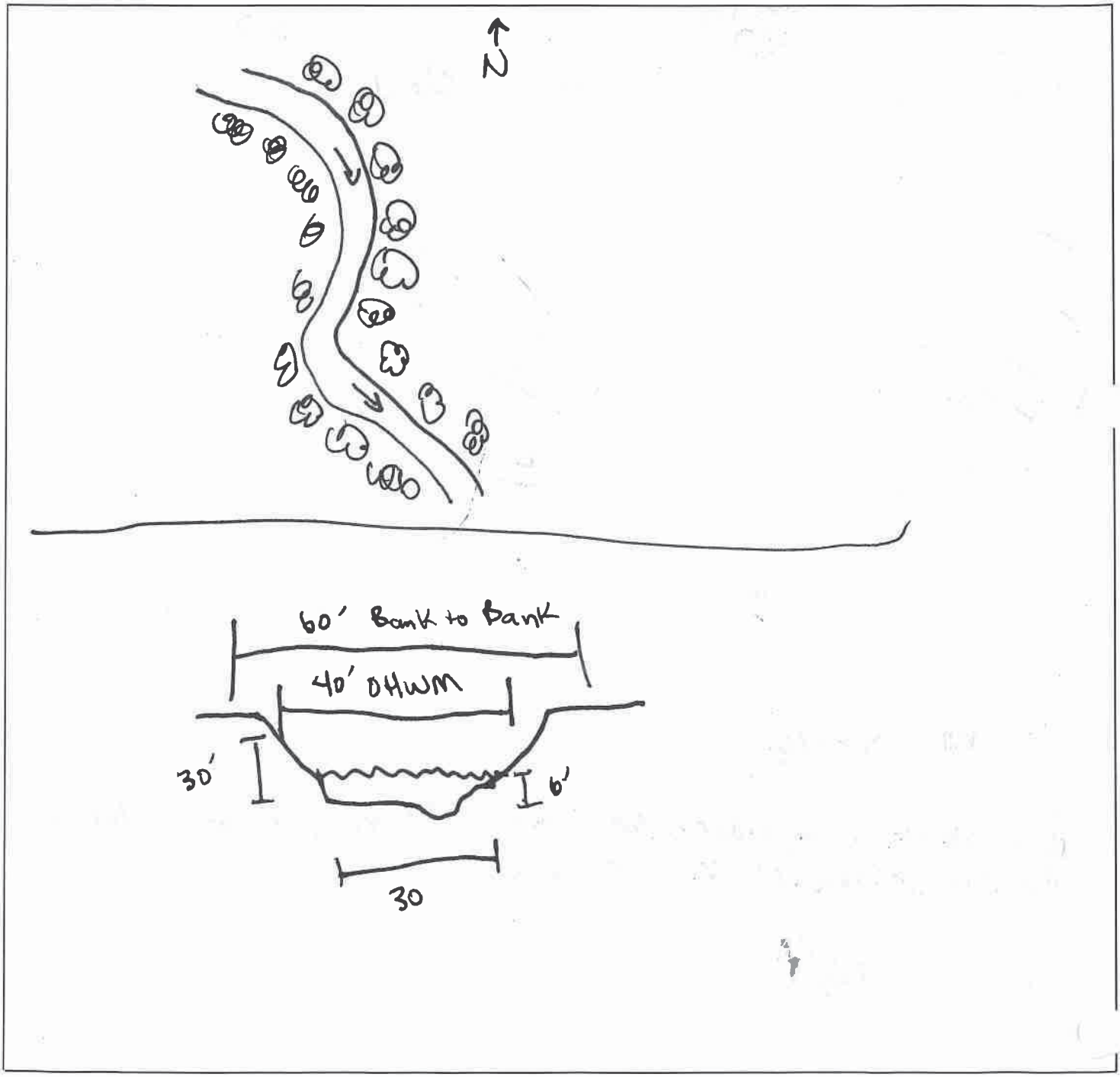
None.

Stream Data Form #: Water Feature 79
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 80
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Ethan Eichler and Mike Keenan
Date of Field Work: September 10, 2020
USGS Stream Name: Tributary of East Fork Trinity River
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 80
Associated Wetland(s): Water Feature 79, 81, and 82
Coordinates: 33°11'26.291"N 96°34'35.882"W

Stream Type: Intermittent
Characteristics: Upper portion of stream historically mowed for agricultural field.

Bank Stability (e.g. highly eroding, sloughing banks, etc.): Highly eroded banks.

Stream Flow Direction: South

OHWM Width (ft): 8
OHWM Height (in): 12

Stream Bottom composition:

- ☑ Silts
- ☑ Sands
- ☑ Gravel
- ☐ Cobbles
- ☐ Bedrock
- ☐ Vegetation
- ☐ Concrete
- ☐ Muck
- ☐ Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar
- ☐ Sand/Gravel beach/bar
- ☐ Gravel riffles
- ☐ Aquatic vegetation
- ☑ Overhanging trees/shrubs
- ☐ Deep pool/ hole/ channel
- ☐ Other:

Stream has the following characteristics:

☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☑ Clear
- ☐ Slightly Turbid
- ☐ Turbid
- ☐ Very Turbid
- ☐ Oily film
- ☐ High organic content
- ☐ Other characteristics (pollutants, etc.)

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

None.

Riparian Vegetation: List species observed.

pecan (Carya illinoinensis), osage-orange (Maclura pomifera), green ash (Fraxinus pennsylvanica), American elm (Ulmus americana)

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

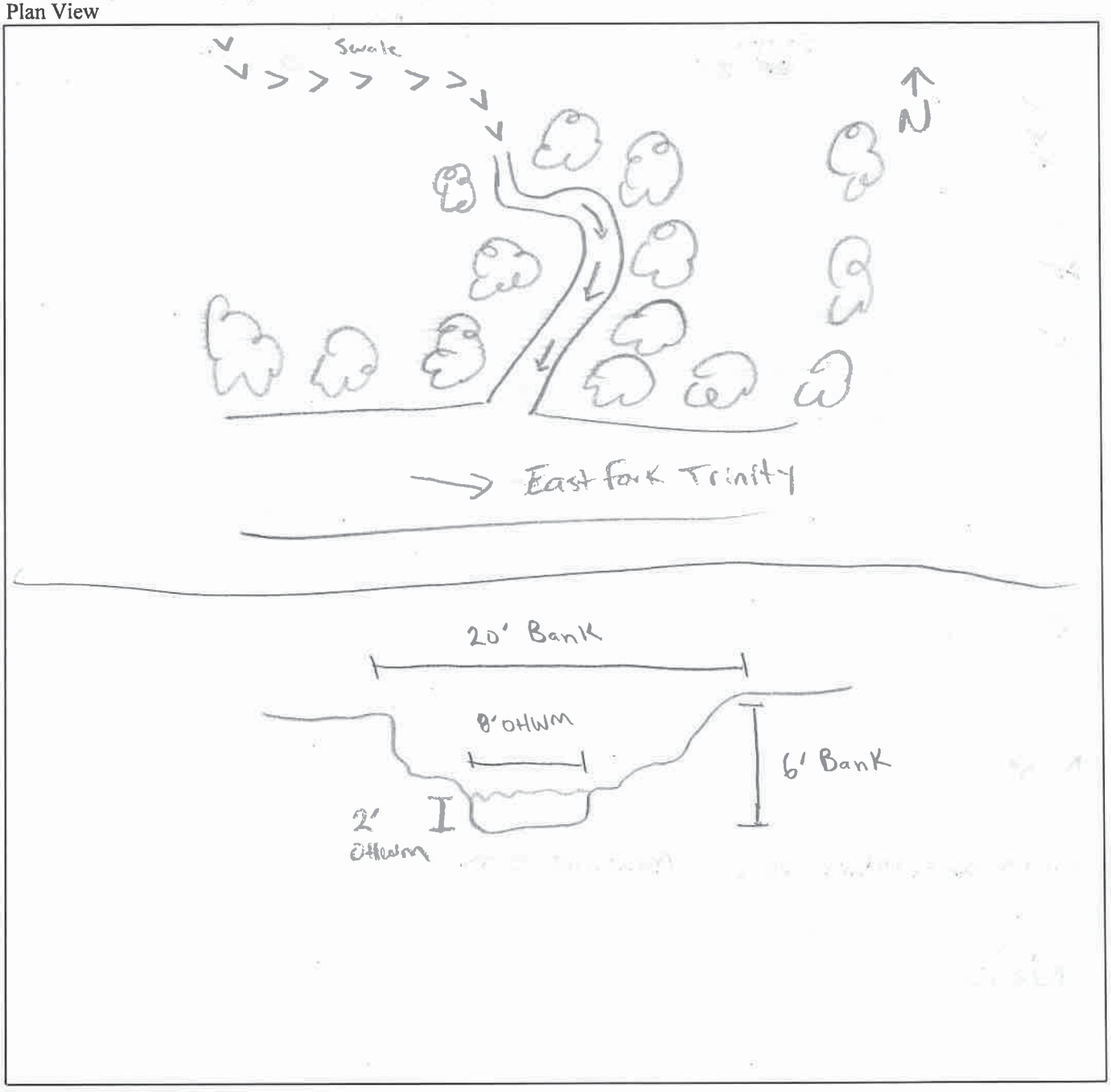
None.

Stream Data Form #: Water Feature 80
Project Name: Spur 399 Extension
CSJ: _____

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 94
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Kelsea Hiebert, Wyatt Wolfenkoehler
Date of Field Work: August 16, 2021
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 94
Associated Wetland(s):
Coordinates: 33.197015 -96.573861

Stream Type: Ephemeral Characteristics: Hydrology from US 380 drainage.
Bank Stability (e.g. highly eroding, sloughing banks, etc.):
Stream Flow Direction: South
OHWM Width (ft): 3 OHWM Height (in): 12
Stream Bottom composition:

- [x] Silts
- [ ] Sands
- [x] Gravel
- [ ] Cobbles
- [x] Bedrock
- [ ] Vegetation
- [ ] Concrete
- [ ] Muck
- [ ] Other:

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- [ ] Sand bar
- [ ] Sand/Gravel beach/bar
- [ ] Gravel riffles
- [ ] Aquatic vegetation
- [x] Overhanging trees/shrubs
- [ ] Deep pool/ hole/ channel
- [ ] Other:

Stream has the following characteristics:

- [x] Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- [ ] Clear
- [ ] Slightly Turbid
- [ ] Turbid
- [ ] Very Turbid
- [ ] Oily film
- [ ] High organic content
- [ ] Other characteristics (pollutants, etc.) none

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

Frogs

Riparian Vegetation: List species observed.

American Elm (Ulmus americana), sugarberry (Celtis laevigata), pecan (Carya illinoinensis), eastern poison ivy (Toxicodendron radicans), fringed green brier (Smilax bona-nox), and johnsongrass (Sorghum halapense).

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

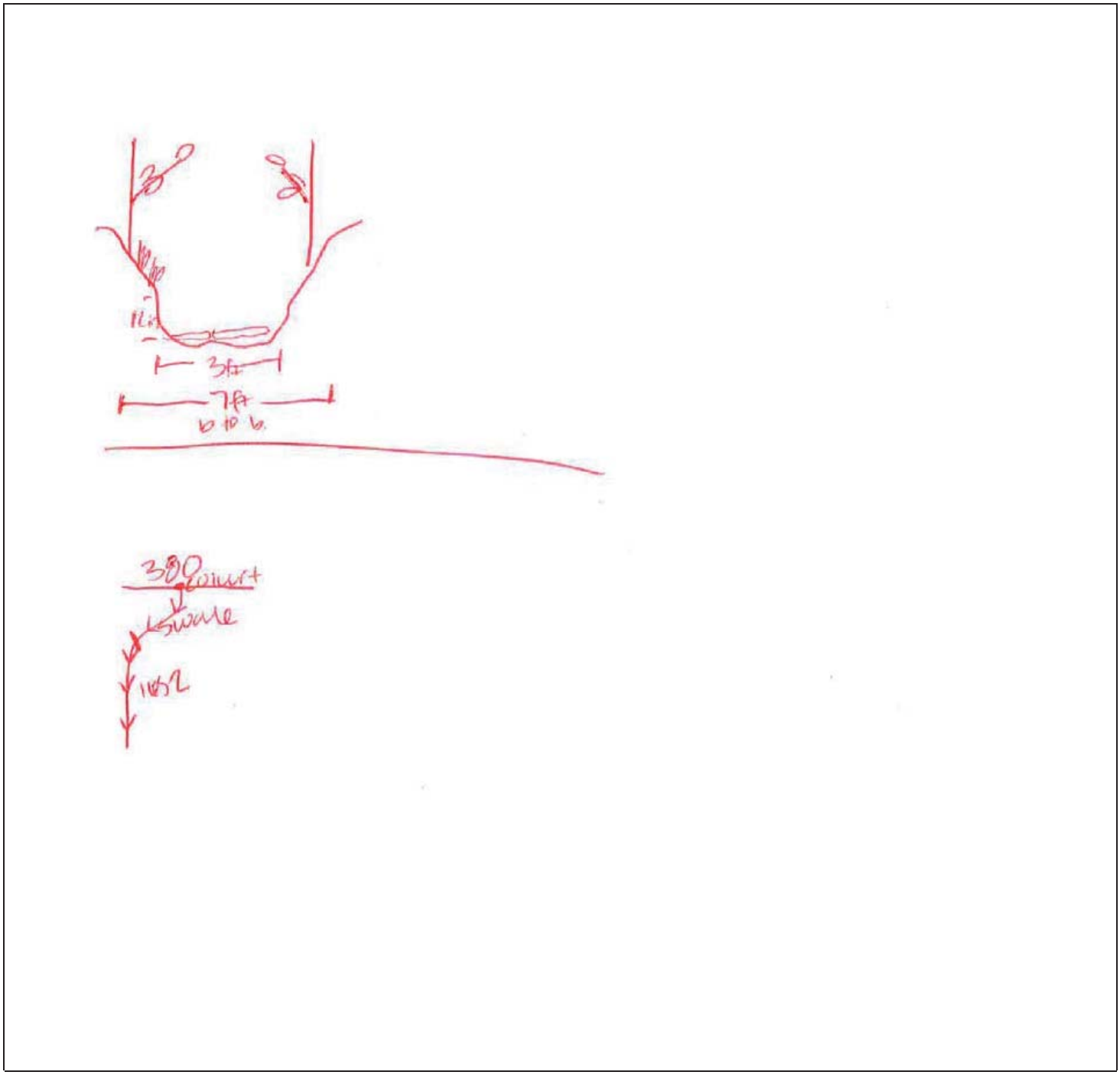
None

Stream Data Form #: Water Feature 94
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

Plan View



Sectional View

Stream Data Form #: Water Feature 104
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form

Surveyor(s): Wyatt Wolfenkoehler and Kelsea Hiebert
Date of Field Work: August 16, 2021
USGS Stream Name:
County/State: Collin County, Texas
USGS Topo Quad Name: McKinney East
Stream Number: 104
Associated Wetland(s):
Coordinates: 33.195442 -96.567532

Stream Type: Ephemeral
Characteristics: Receives flow from adjacent roadway and ditch drainage feature DF-28.
Bank Stability (e.g. highly eroding, sloughing banks, etc.): Vegetated and stabilized banks.
Stream Flow Direction: Southeast
OHWM Width (ft): 2'
OHWM Height (in): 10"

Stream Bottom composition:

- ☐ Silts ☐ Cobbles ☐ Concrete ☐ Other:
- ☐ Sands ☐ Bedrock ☐ Muck
- ☐ Gravel ☐ Vegetation

Aquatic Habitat: Indicate all types present within proposed ROW/project limits.

- ☐ Sand bar ☐ Sand/Gravel beach/bar ☐ Gravel riffles ☐ Aquatic vegetation
- ☐ Overhanging trees/shrubs ☐ Deep pool/ hole/ channel ☐ Other: none

Stream has the following characteristics:

- ☑ Bed and banks

OHWM (check all indicators that apply):

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

Water Quality:

- ☐ Clear ☐ Slightly Turbid ☐ Turbid ☐ Very Turbid ☐ Oily film ☐ High organic content
- ☐ Other characteristics (pollutants, etc.) no water

Aquatic Organisms: List all species observed. This would include waterfowl, fish, snakes, turtles, frogs, invertebrates, etc.

none

Riparian Vegetation: List species observed.

Ulmus crassifolia, Sorghum halapense, and Festuca arundinacea.

T&E Species/Suitable Habitat: List T&E species observed or which species the habitat is suitable for.

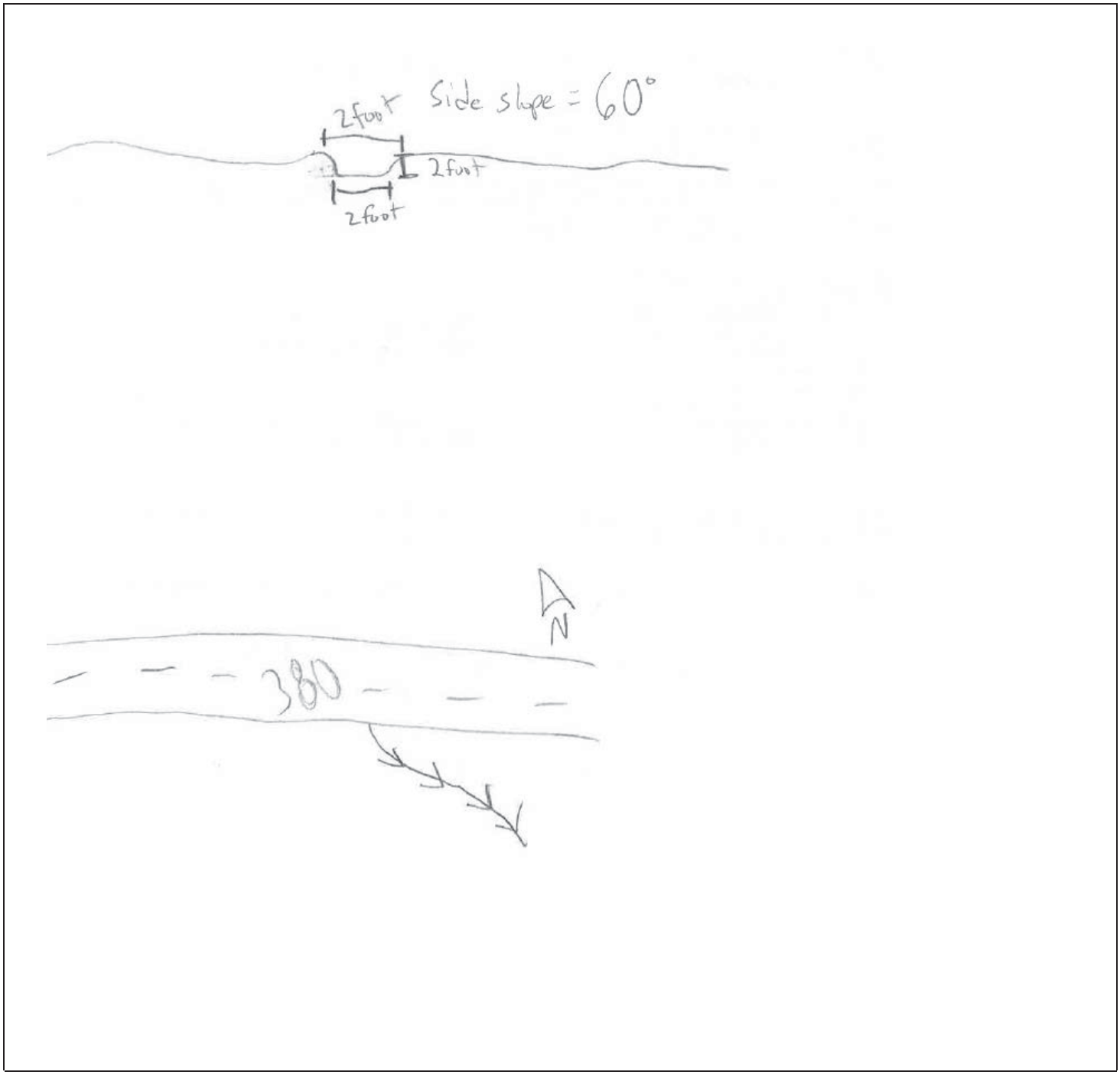
none

Stream Data Form #: Water Feature 104
Project Name: Spur 399 Extension
CSJ: 0047-10-002

Stream Data Form (continued)
Please provide a plan and section view sketch of the stream channel.
Sketch should include:

- Directional arrow;
- Width of channel from top of bank to top of bank;
- Depth of channel,
- Approximate side slope; and,
- Width of stream from water edge to water edge.

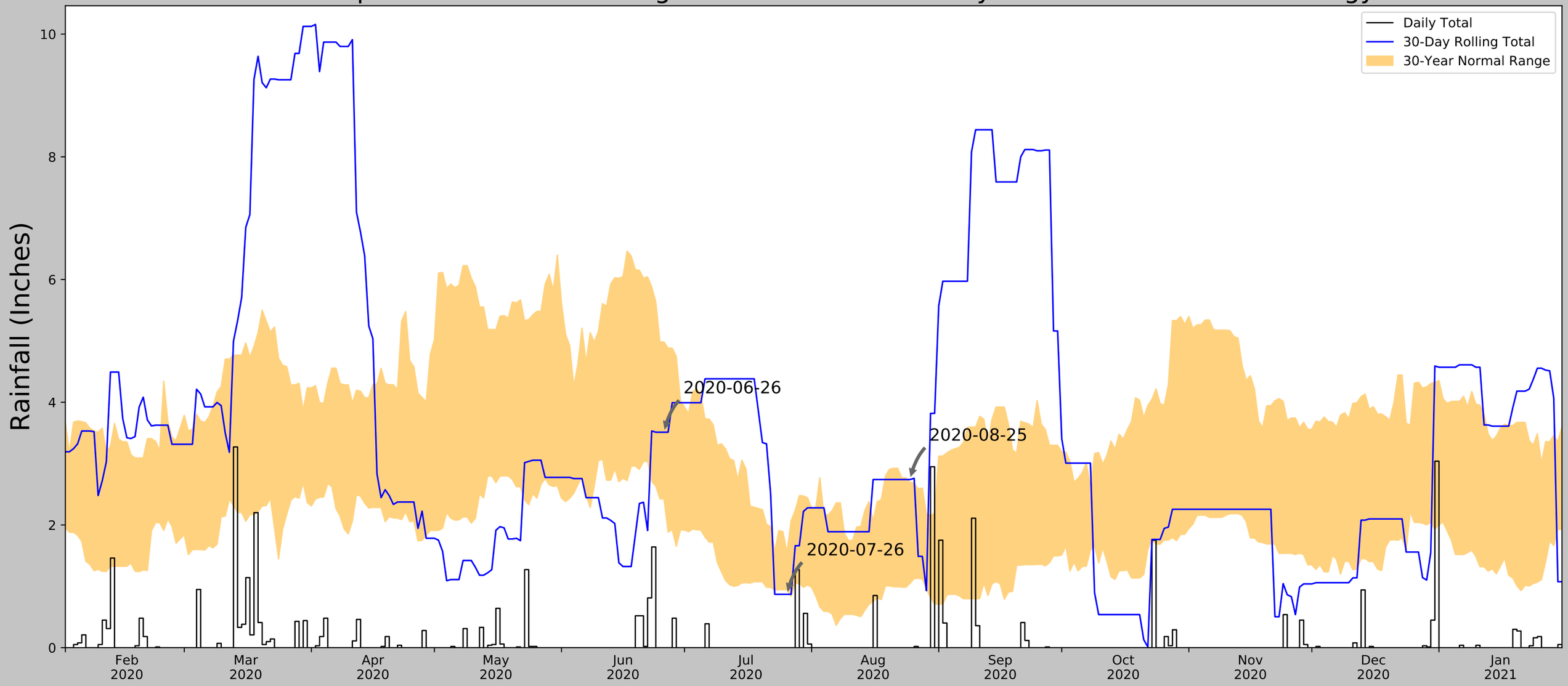
Plan View



Sectional View

Attachment 3 – Antecedent Precipitation Tool for McKinney, Texas

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



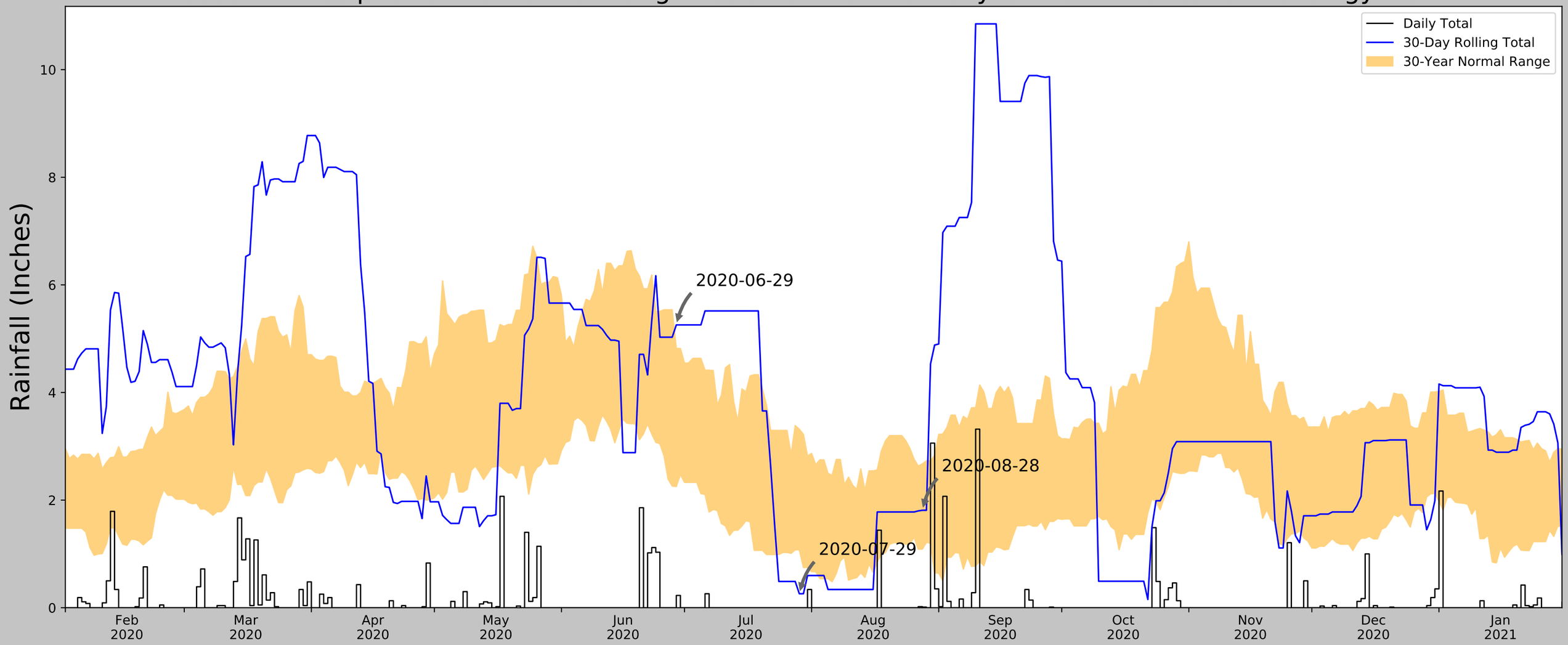
Coordinates	33.160923, -96.592804
Observation Date	2020-08-25
Elevation (ft)	560.97
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-08-25	1.048819	2.694882	2.740158	Wet	3	3	9
2020-07-26	0.944882	1.548819	0.870079	Dry	1	2	2
2020-06-26	2.425197	4.983465	3.511811	Normal	2	1	2
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY MUNI AP	33.1803, -96.5903	580.053	1.347	19.083	0.632	7820	89
MCKINNEY MUNICIPAL AIRPORT	33.1903, -96.5914	585.958	0.694	5.905	0.316	3493	0
MCKINNEY 1.6 ESE	33.1927, -96.6288	604.003	2.385	23.95	1.13	7	1
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.958	35.105	1.435	1	0
LAVON DAM	33.0353, -96.4861	509.843	11.694	70.21	6.083	31	0



Coordinates	33.160923, -96.592804
Observation Date	2020-08-28
Elevation (ft)	560.97
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

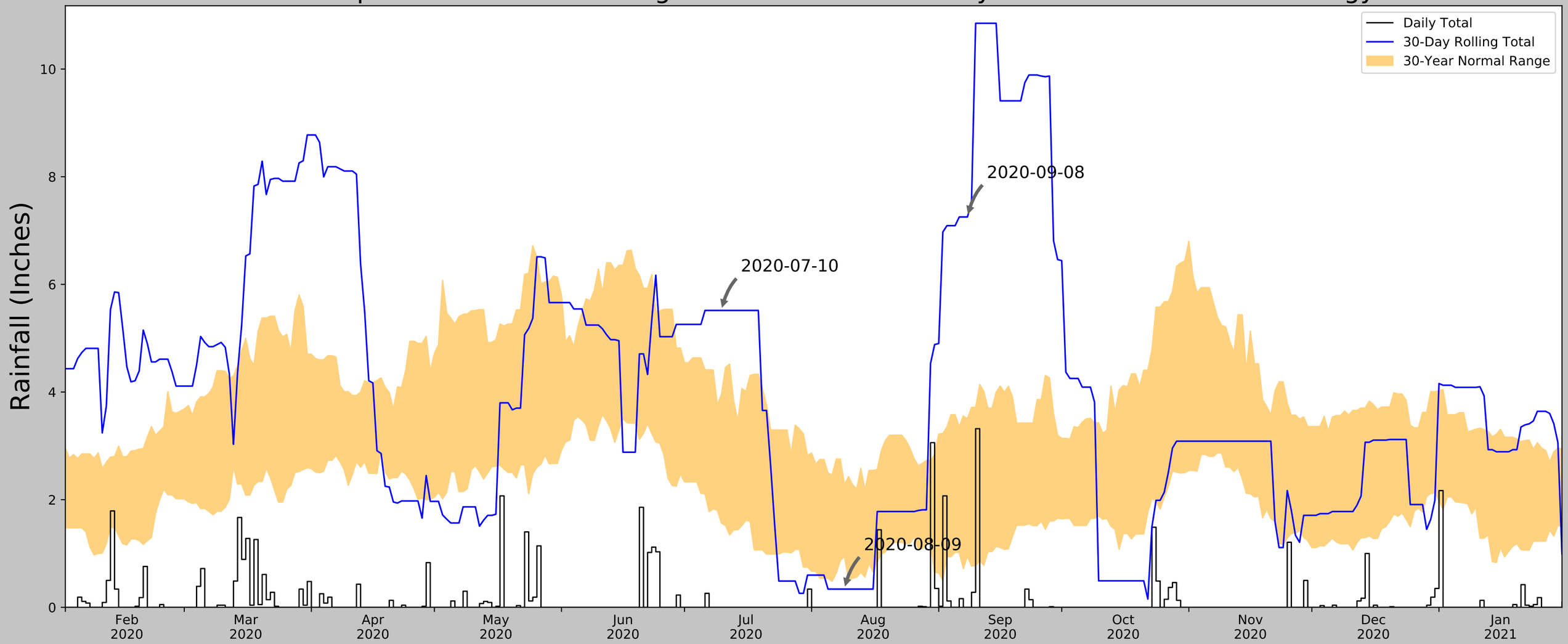
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	1698	75
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	28	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	0	1
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	9	14
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2020-09-08
Elevation (ft)	560.97
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

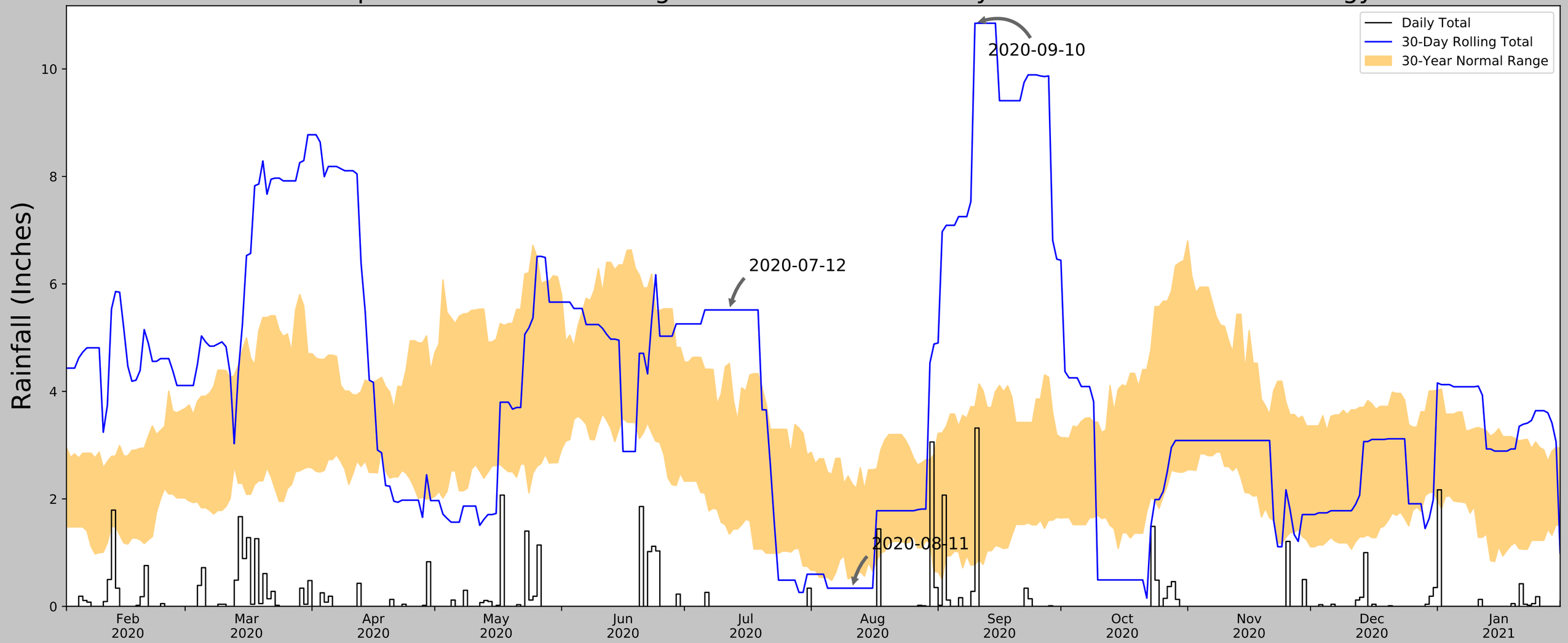
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	1698	75
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	28	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	0	1
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	9	14
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



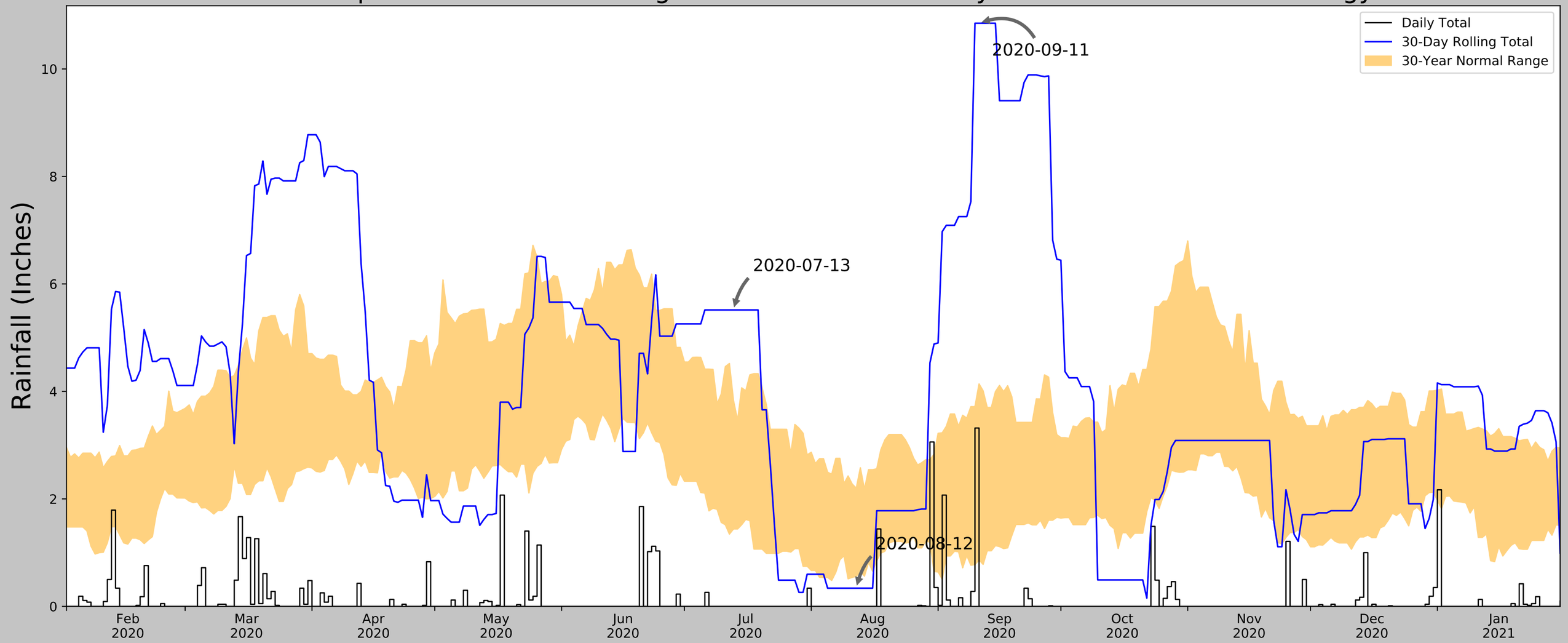
Coordinates	33.160923, -96.592804
Observation Date	2020-09-10
Elevation (ft)	560.97
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	1698	75
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	28	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	0	1
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	9	14
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2020-09-11
Elevation (ft)	560.97
Drought Index (PDSI)	Moderate wetness
WebWIMP H_2O Balance	Dry Season

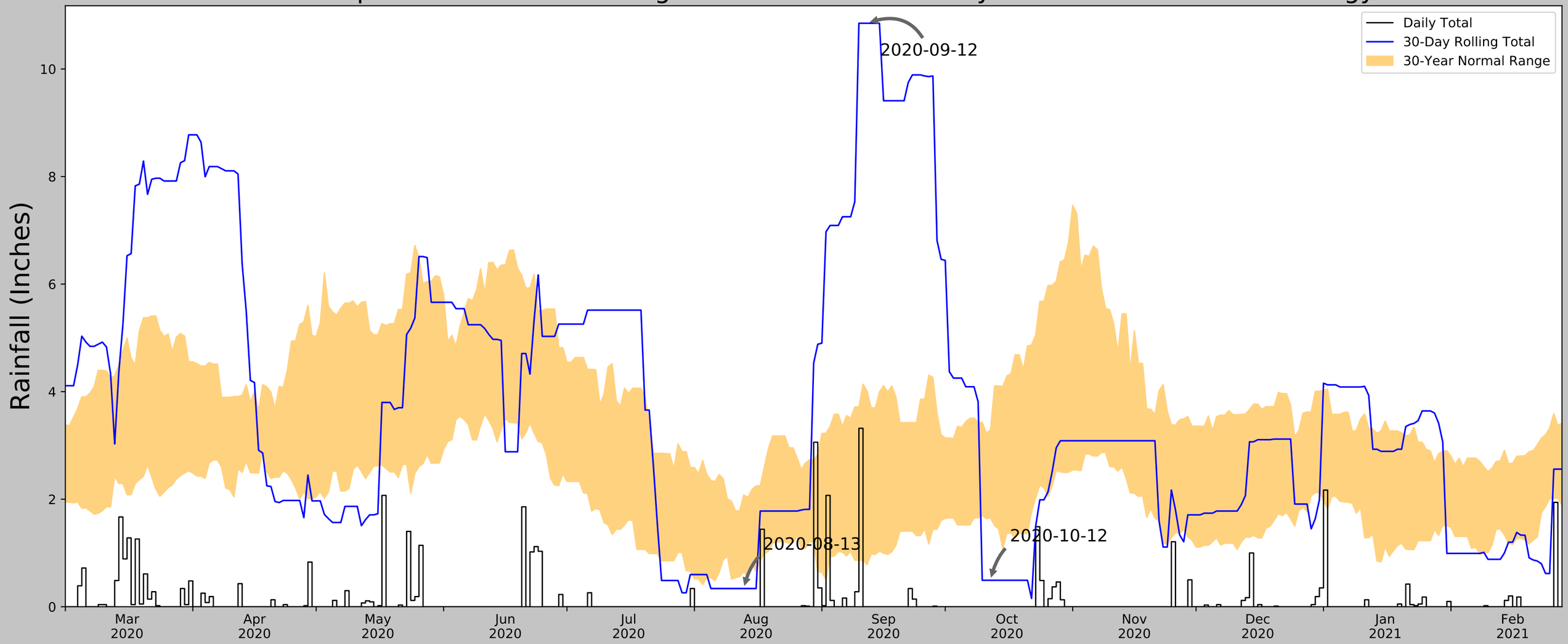
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	1698	76
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	28	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	0	1
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	9	13
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2020-10-12
Elevation (ft)	560.97
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Wet Season

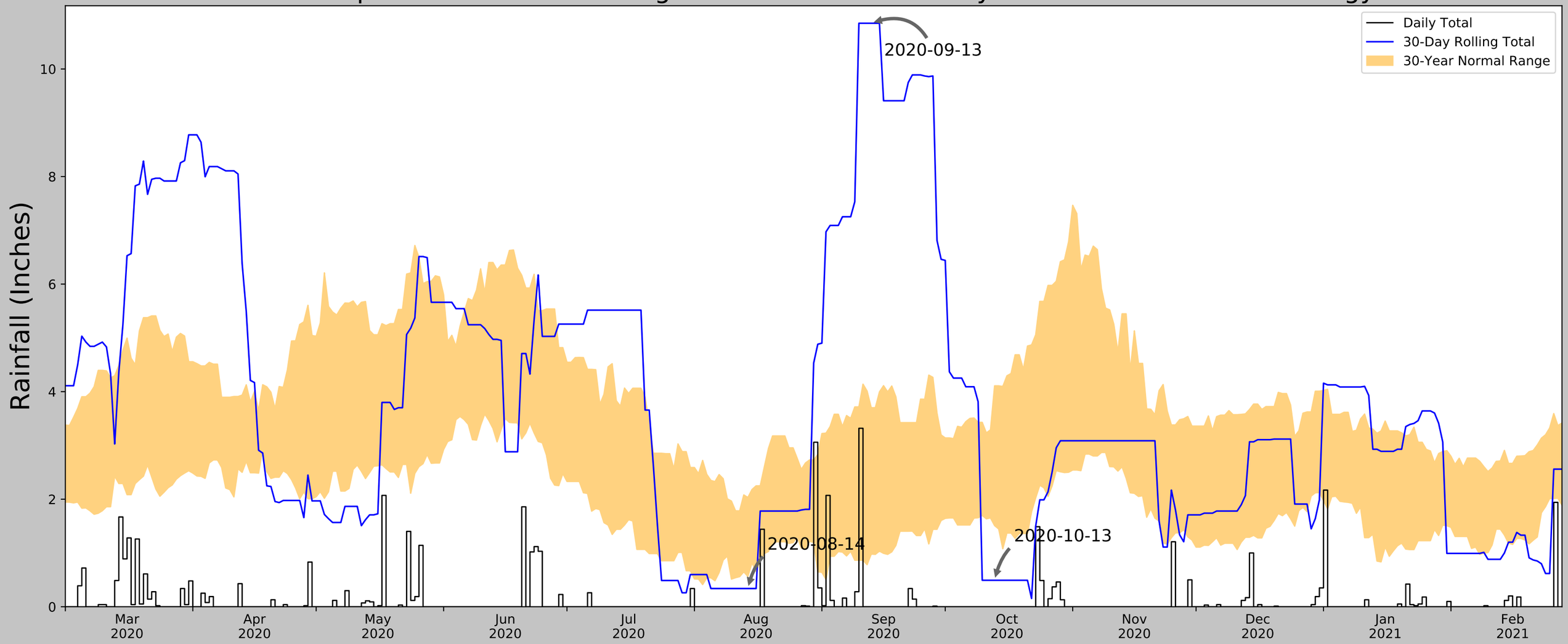
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	86
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	4
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2020-10-13
Elevation (ft)	560.97
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Wet Season

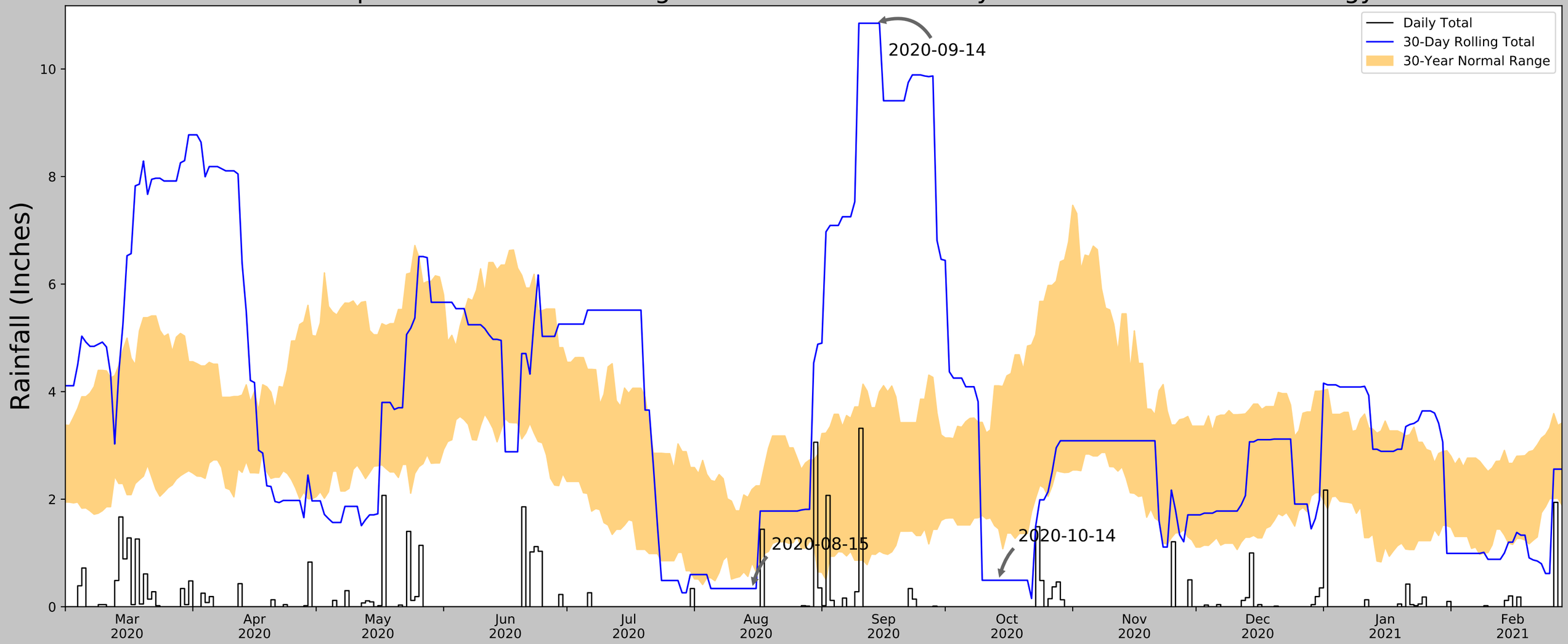
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	86
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	4
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2020-10-14
Elevation (ft)	560.97
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Wet Season

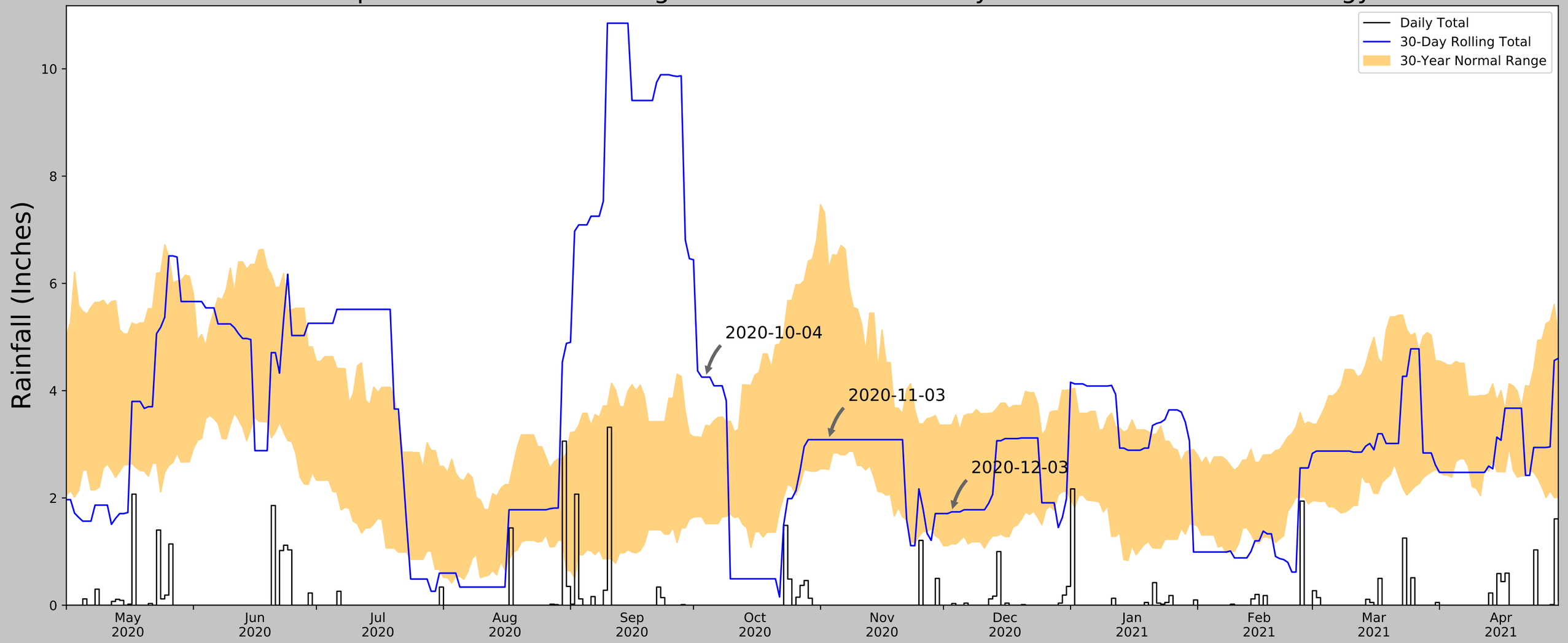
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	86
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	4
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



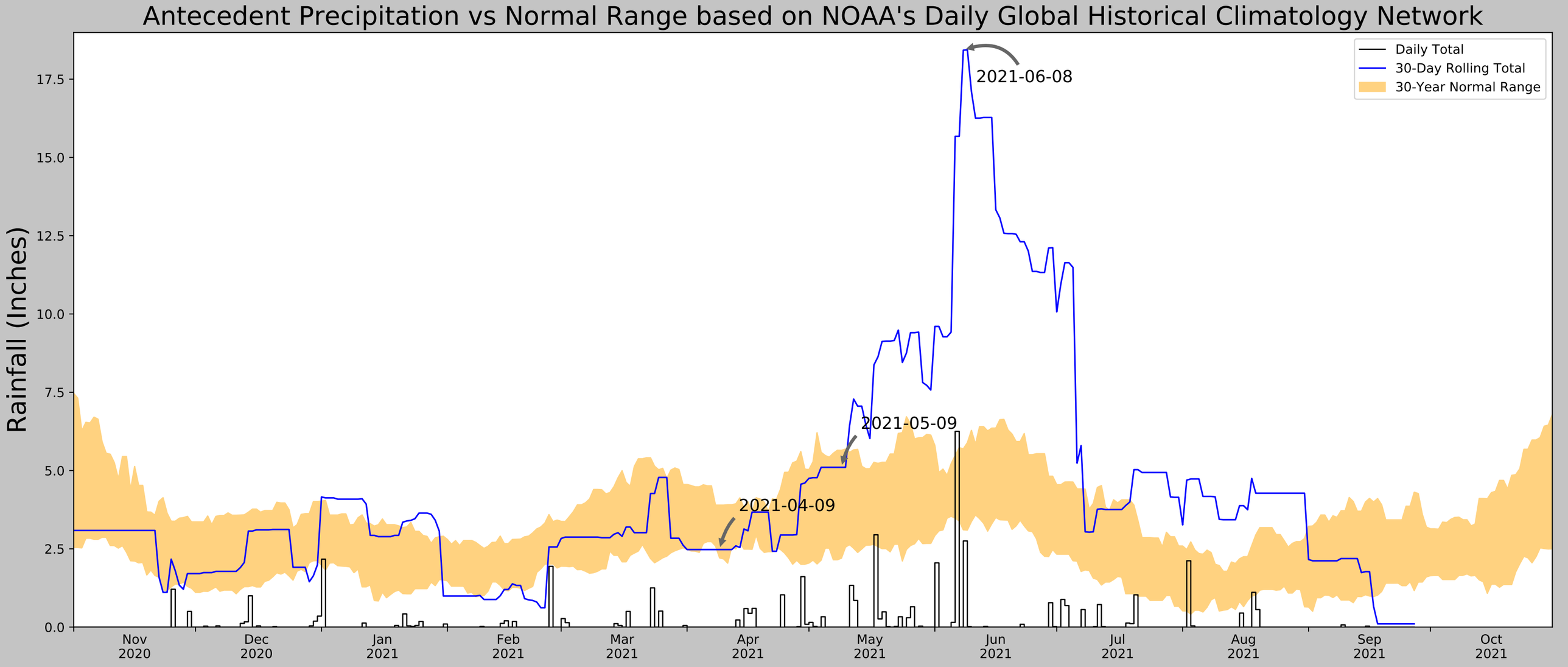
Coordinates	33.160923, -96.592804
Observation Date	2020-12-03
Elevation (ft)	560.97
Drought Index (PDSI)	Incipient drought
WebWIMP H_2O Balance	Wet Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	87
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	3
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0



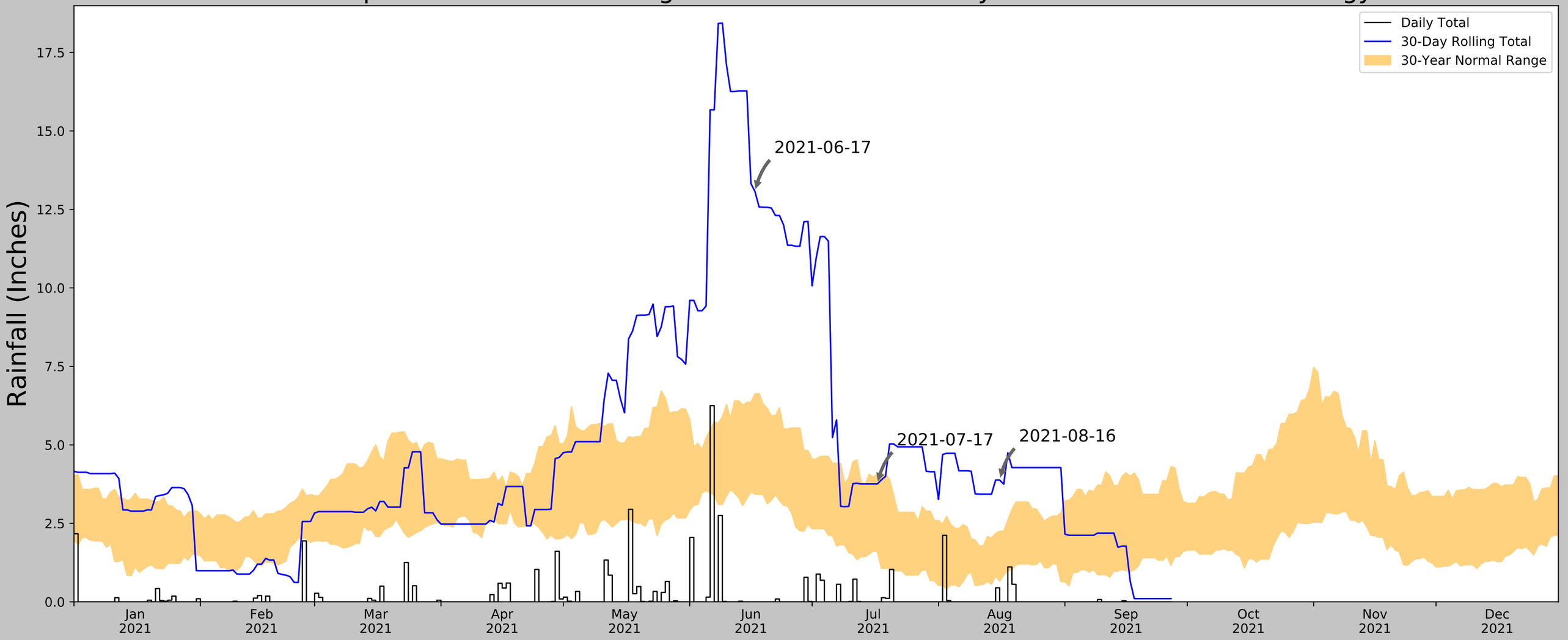
Coordinates	33.160923, -96.592804
Observation Date	2021-06-08
Elevation (ft)	560.97
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	90
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	0
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2021-08-16
Elevation (ft)	560.97
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Dry Season

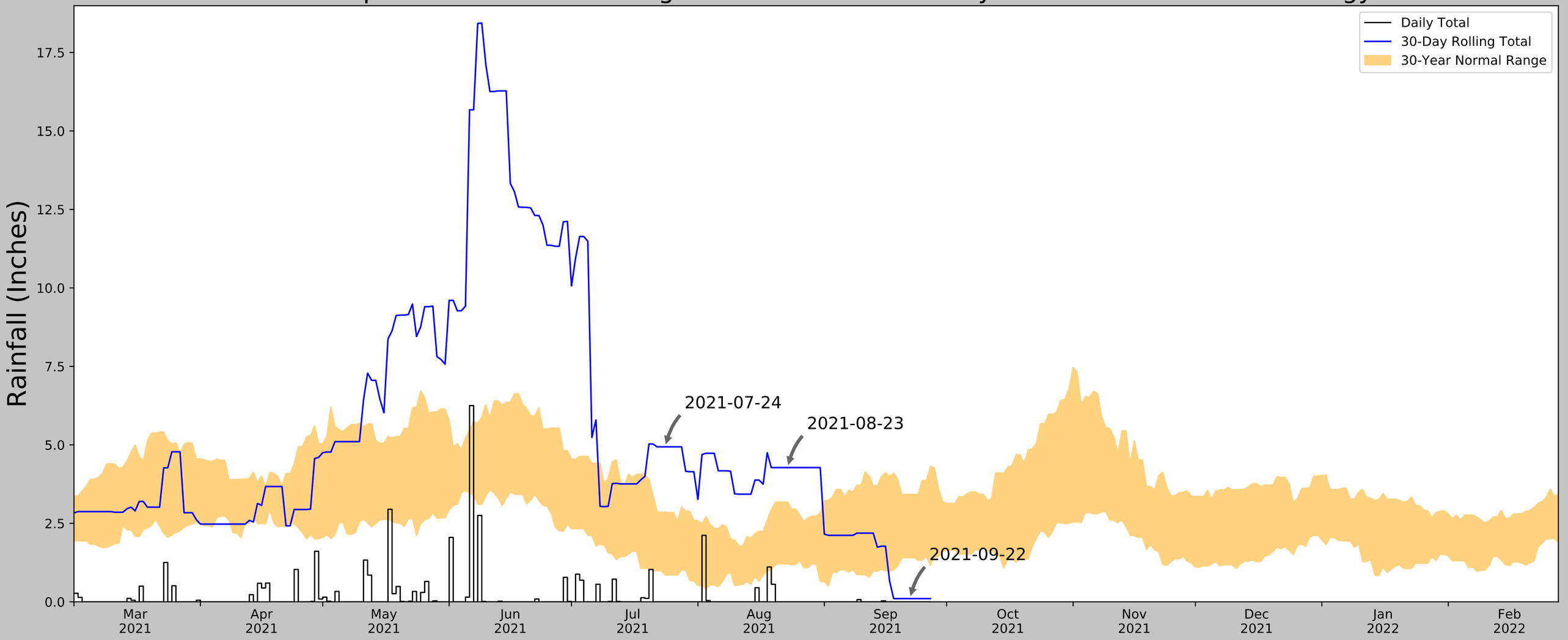
Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	89
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	1
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	33.160923, -96.592804
Observation Date	2021-09-22
Elevation (ft)	560.97
Drought Index (PDSI)	Severe wetness (2021-08)
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MCKINNEY 2.8 SW	33.168, -96.6841	702.1	5.303	141.13	3.135	174	0
PLANO 1.8 SE	33.0306, -96.7211	643.045	11.672	82.075	6.21	575	0
WYLIE 2.6 SW	33.0171, -96.5463	550.853	10.295	10.117	4.737	458	0
CELINA 7.3 NE	33.3962, -96.6967	796.916	17.328	235.946	11.886	1648	0
PLANO 4.6 NW	33.0849, -96.7147	666.011	8.795	105.041	4.882	36	0
PLANO 2.4 WSW	33.028, -96.783	742.126	14.337	181.156	9.049	2038	90
MCKINNEY 3.1 SW	33.1685, -96.693	726.05	5.819	165.08	3.579	37	0
PLANO 2.5 WSW	33.0275, -96.7846	732.94	14.43	171.97	8.975	1	0
PLANO 5.3 W	33.0539, -96.8371	674.869	15.956	113.899	8.998	6	0
LOWRY CROSSING 0.3 SSE	33.1636, -96.5432	544.948	2.875	16.022	1.34	1	0
FAIRVIEW 1.5 ESE	33.1334, -96.6003	613.845	1.95	52.875	0.981	25	0
ANNA 3.7 SSW	33.3127, -96.5827	580.053	10.503	19.083	4.927	1	0
RICHARDSON 2.2 NW	32.9921, -96.7397	666.995	14.436	106.025	8.027	1	0
PROSPER 1.0 ENE	33.2476, -96.7713	764.108	11.931	203.138	7.793	1	0
DALLAS 3.7 E	32.7998, -96.7012	532.152	25.73	28.818	12.32	380	0
ROWLETT 2.3 NW	32.9321, -96.5769	541.011	15.837	19.959	7.443	1	0
UNIVERSITY PARK 3.1 WNW	32.863, -96.845	521.982	25.243	38.988	12.344	333	0
SHADY SHORES 3.9 N	33.2191, -97.0532	553.15	26.923	7.82	12.326	1	0

Attachment 4 – Site Photographs

Site Photographs
Water Features Delineation
TxDOT, Spur 399 Extension
Photographs Taken August 28; September 8, 10, 11, 24, 25; October 12, 13, 15; December 1 and 3, 2020; and June 8, August 16, and September 22, 2021.

Photo 1. Photograph of ephemeral stream **Water Feature 5** in the southwestern portion of the study area. Note that the water in the channel is in direct response to heavy rains and not an indicator of seasonal flow. Photo was taken June 8, 2021.

Photo 2. Representative aerial photo (Pictometry 12/27/2019) of perennial stream **Water Feature 10A and 10B**. Note the armoring and manipulated nature of the stream and the maintained riparian area.

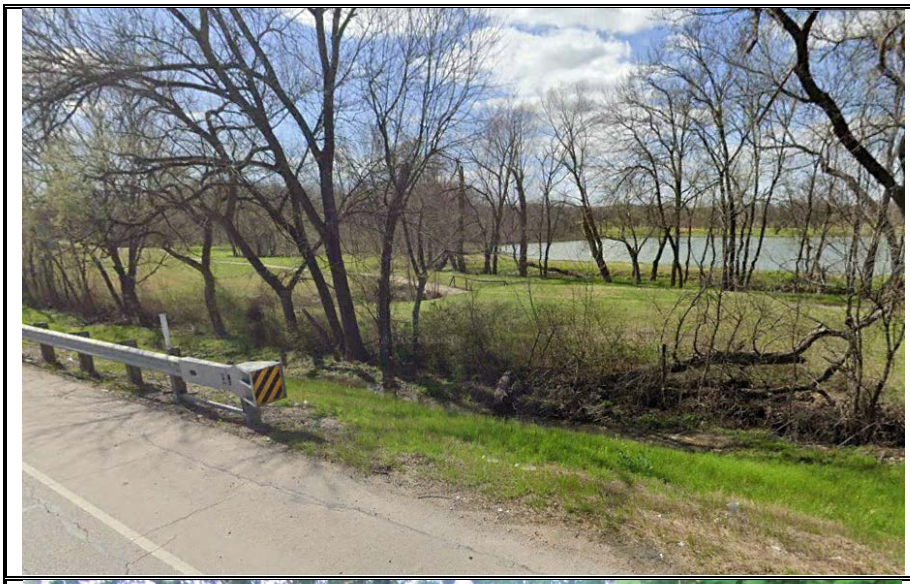
	**Photo 3.** Representative photo of swale **Water Feature 11** within the right-of-way in the western portion of the study area. Swale was not associated with a native stream channel. Photo from Google Earth, January 2021.
	**Photo 4.** Representative photo of perennial stream **Water Feature 14**, Wilson Creek. **Water Feature 15** is an intermittent overflow channel of this stream. Note steep, vegetated banks, clay and silt substrate, and waterflow covering channel bottom. Photo was taken to the northwest on September 25, 2020.

Photo 5. Representative photo of **Water Feature 16** that abuts Forested Wetland **Water Feature 17** in the southwestern portion of the study area. **Water Feature 16** is a palustrine emergent wetland dominated by swamp smartweed (*Persicaria hydropiperoides*) and sparse green ash (*Fraxinus pennsylvanica*). Photo was taken to the north on June 8, 2021.

Photo 6. Representative photo of **Water Feature 17** that abuts Emergent Wetland **Water Feature 16** in the southwestern portion of the study area. **Water Feature 17** is a palustrine forested wetland dominated by green ash, American elm (*Ulmus americana*), black willow (*Salix nigra*), and rice cut grass (*Leersia oryzoides*). Photo was taken to the south on August 28, 2020.

Photo 7. Photograph of intermittent stream **Water Feature 18** in the southwest portion of the study area. Photo was taken August 28, 2020.

Photo 8. Representative photo of ephemeral stream **Water Feature 20** (Google Street View October 2018). This stream functions like a ditch (only flowing as water sheds off the roadway); however, this feature appears to be a realignment of a natural ephemeral stream channel.

	**Photo 9.** Representative photo of intermittent stream **Water Feature 21** in the western portion of the study area. Photo was taken to the west on December 3, 2020.
	**Photo 10.** Representative photo of constructed ditch **Water Feature 23** in the western portion of the study area. Note the anthropogenic symmetry of the excavated ditch between developed areas. Ditch was not associated with a native stream channel. Photo was taken to the east of the study area on December 3, 2020.

	**Photo 11.** Photo of constructed swale **Water Feature 24** in the western portion of the study area. Photo was taken to the east of the study area on December 3, 2020.
	**Photo 12.** Representative photo of intermittent stream **Water Feature 25** in the northwest portion of the study area. Note that this photo was taken during the wet season; however, APT indicates incipient drought conditions at the time of the delineation. Normal conditions for this stream would include season flow and access to groundwater. Photo was taken to the west of the study area on December 1, 2020.

Photo 13. Representative photo of the East Fork Trinity River in the east portion of the study area. The East Fork makes up perennial streams **Water Feature 26**, **Water Feature 40**, and **Water Feature 79**. Note the turbulent water, large tree cover in riparian zone, and steep banks. Photo was taken on the **Water Feature 79** portion in the northeast side of the study area on October 12, 2020.

Photo 14. Representative photo of the East Fork Trinity River in the northwest portion of the study area. The East Fork makes up perennial streams **Water Feature 26**, **Water Feature 40**, and **Water Feature 79**. Note the turbulent water, large tree cover in riparian zone, and steep banks. Photo was taken on the **Water Feature 40** portion in the northwest side of the study area on September 24, 2020.

Photo 15. Photo of swale drainage features **Water Feature 28** and representative of swale drainage feature **Water Feature 31**. **Water Feature 28** and **Water Feature 31** are hydrologically connected to **Water Feature 29**, **Water Feature 32**, and **Water Feature 34**. Photo was taken on September 22, 2021.

Photo 16. Photograph of upland pond **Water Feature 29**. Photo was taken September 22, 2021.

Photo 17. Representative photograph of ephemeral steam **Water Feature 30** in the northeast portion of the study area. Note the clear natural line impressed on the bank, the presence of litter/debris, and lack of surface water present within the defined channel. Riparian vegetation was dominated by sugar hackberry (*Celtis laevigata*), American elm, Virginia wild rye (*Elymus* virgincus), and narrow-leaf primrose-willow (*Ludwigia linearis*). Photo was taken on September 22, 2021.

Photo 18. Representative photo of ephemeral stream **Water Feature 33** in the western portion of the study area. Note the lack of surface water and leaf litter/vegetation present within the hydrological flow path. Photo was taken September 22, 2021.

Photo 19. Representative photo of **Water Feature 32** in the eastern portion of the study area. **Water Feature 32** is a palustrine forested wetland dominated by mature black willow, as well as green ash, boxelder (*Acer negundo*), and sugar hackberry saplings. Note the water marks on trees and drift deposits. Photo was taken on September 22, 2021.

Photo 20. Representative photo of **Water Feature 34** in the eastern portion of the study area. **Water Feature 34** is a palustrine forested wetland dominated by black willow and American elm. Note the water marks on trees and sparsely vegetated concave surface. Photo was taken on September 22, 2021.

Photo 21. Representative photo of intermittent stream **Water Feature 36** in the northwest portion of the study area. Note the gradual stream banks, large tree cover, and flowing water covering a clay and silt stream bottom. Photo was taken looking into the study area from the west on September 10, 2020.

Photo 22. Representative photo of perennial stream **Water Feature 39** in the northwest portion of the study area. Note turbulent water and steep banks. Photo was taken looking to the northeast on September 10, 2020.

Photo 23.
Photo of Intermittent Stream **Water Feature 41**. **Water Feature 41** was located in the northern portion of the study area north of US-380 and had artificially stabilized banks, overhanging vegetation, gravel bars, aquatic vegetation, and matted vegetation. Dominant vegetation included johnsongrass (*Sorghum halepense*), great ragweed (*Ambrosia trifida*), and black willow. Photo was taken on August 16, 2021.

Photo 24.
Representative photo of intermittent stream **Water Feature 47** in the northern portion of the study area. Photo was taken to the south on September 10, 2020.

Photo 25. Photograph of ephemeral stream **Water Feature 49** in the northern portion of the study area. Note that the water in the channel is in direct response to heavy rains and not an indicator of seasonal flow. This photo is also representative of **Water Feature 12**. Photo was taken September 10, 2020 after a very heavy local rainfall event.

Photo 26. Representative photo of intermittent stream **Water Feature 51** in the northeastern portion of the study area. Photo was taken to the east on October 14, 2020.

	**Photo 27.** Representative aerial photo (Pictometry 1/15/2019) of isolated forested wetland **Water Feature 53**, the lacustrine fringe associated with **Water Feature 54**.
	**Photo 28.** Photo of swale **Water Feature 55** in the southern portion of the study area. **Water Feature 55** connects **Water Feature 54** and **Water Feature 56**. Photo from Google Earth Aerial Imagery dated March 20, 2018.

Photo 29. Representative photo of ephemeral stream **Water Feature 57** in the southeastern portion of the study area. Note the lack of surface water, leaf litter covering the channel, and cobble/gravel substrate. Photo was taken to the north on October 12, 2020**.**

Photo 30. Representative photo of ephemeral stream **Water Feature 59** in the southeastern portion of the study area with lack of surface water or indicators of seasonal flow. Photo was taken to the east of the study area on October 12, 2020.

	**Photo 31.** Photograph of upland pond **Water Feature 61** and is representative of isolated pond **Water Feature 54**. Photo was taken October 15, 2020.
	**Photo 32.** Representative photo of ephemeral stream **Water Feature 62** in the eastern portion of the study area. This photo is also representative of the condition of **Water Feature 63**, a small, ephemeral tributary to **Water Feature 62**. Both lack indicators of seasonal flow. Photo was taken on October 13, 2020.

Photo 33.
Photo of culvert construction activity south of **Water Feature 62**. Photo was taken to the east on September 25, 2020.

Photo 34.
Representative photo of swale **Water Feature 64** in the southeastern portion of the study area. Notice the lack of a defined channel and vegetation growing within the path of overland flow. Photo was taken October 13, 2020.

Photo 35. Representative photo of perennial stream **Water Feature 65** in the eastern portion of the study area. This stream has year-round access to ground water. Note the root stabilization along the banks. Photo was taken to the southwest on October 13, 2020.

Photo 36. Representative photo of ephemeral stream **Water Feature 66** in the eastern portion of the study area. Note the defined, highly eroded channel, lack of surface water, and leaf litter/vegetation present within the hydrological flow path. Photo was taken October 13, 2020.

Photo 37. Representative photo of ephemeral stream **Water Feature 67** in the east portion of the study area. Note the defined channel and the dry condition of the stream bed. Photo was taken October 13, 2020.

Photo 38. Photograph is of upland pond **Water Feature 68**. Photo was taken October 13, 2020.

Photo 39. Representative photo of **Water Feature 69** in the eastern portion of the study area. **Water Feature 69** is a palustrine emergent wetland dominated by common spike-rush (*Eleocharis palustris),* Torrey's Rush *(Juncus torreyi),* and green ash saplings. Photo was taken on June 8, 2021.

Photo 40. Representative photo of **Water Feature 70** in the eastern portion of the study area. **Water Feature 70** is a palustrine forested wetland dominated by sugar hackberry, green ash, sapling American elm, rice cut grass, and nodding wild rye *(Elymus canadensis).* Photo was taken to the east of the study area on October 13, 2020.

	**Photo 41.** Representative photo of perennial stream **Water Feature 71** in the eastern portion of the study area. This stream has year-round access to groundwater; thus, it is perennial. Note the incised banks, cobble/gravel substrate, and root stabilization of the channel. Photo was taken to the east on October 12, 2020.
	**Photo 42.** Representative photo of swale **Water Feature 72**. Note the lack of a defined channel and vegetation growing within the path of overland water flow. Photo was taken October 12, 2020.

Photo 43. Photograph is of upland pond **Water Feature 73**. **Water Feature 73** typical of excavated ponds in the study area and this photo is representative of upland ponds **Water Feature 22, Water Feature 42, Water Feature 43, Water Feature 44, Water Feature 45, Water Feature 48* Water Feature 74, Water Feature 92**, and **Water Feature 93**. Photo was taken October 12, 2020.

Photo 44. Representative photo of intermittent stream **Water Feature 75** in the eastern portion of the study area. This stream is characterized by perennial pools with seasonal surface connection; thus, it is intermittent. Cattle on the property have access to this stream. Photo was taken to the east on October 12, 2020.

Photo 45. Representative photo of swale **Water Feature 76** in the eastern portion of the study area. Drainage through cultivated field is subject to regular migration, with no defined channel. Photo was taken to the south on October 12, 2020.

Photo 46. Representative photo of **Water Feature 77** in the eastern portion of the study area. **Water Feature 77** is a palustrine emergent wetland dominated by common spike-rush and annual marsh-elder (*Iva annua*). **Water Feature 76** is surrounded by a cultivated field currently planted with winter wheat. This feature is within the flood plain of **Water Feature 78**. Photo was taken to the north northwest on June 8, 2021.

Photo 47. Representative photo of swale **Water Feature 78** in the eastern portion of the study area. Drainage through cultivated field is subject to regular migration, with no defined channel. Photo was taken to the north on October 12, 2020.

Photo 48. Representative aerial photo (Pictometry 4/27/17) of intermittent stream **Water Feature 80** and swale **Water Feature 81**. Note the sharp shift from vegetated, pasture swale to channelized, water-filled stream channel. This is the result of a ditch constructed upstream that modified hydrology. Only channel scars (**Water Feature 81, Water Feature 82, Water Feature 83, Water Feature 84, Water Feature 85**, and **Water Feature 86**) remain.

Photo 49.
Photograph of swale **Water Feature 84** in the northeastern portion of the study area. Photograph is representative of swales **Water Feature 81, Water Feature 82, Water Feature 86**, and **Water Feature 90**. Note that the water in the swale is in direct response to heavy rains and not an indicator of seasonal flow. Photograph was taken on June 8, 2021 after an extremely heavy local rainfall event.

Photo 50.
Photograph of on-channel pond **Water Feature 85** in the northeastern portion of the study area. Photo is also representative of on-channel pond **Water Feature 83**, which is part of the same former channel described on Photo 22. Also representative of **Water Feature 13** which is conditionally and visually like **Water Feature 85**; however, it is an oxbow of a natural channel migration rather than manmade. Photo was taken on June 8, 2021 after an extremely heavy local rainfall event.

Photo 51. Representative photo of on-channel pond **Water Feature 87. Water Feature 87** abuts forested wetland **Water Feature 88** and is approximately 100 feet northeast of the East Fork Trinity River in the northeastern portion of the study area. Photo was taken to the east on September 10, 2020.

Photo 52. Representative photo of **Water Feature 88** in the northeastern portion of the study area. **Water Feature 88** is a palustrine forested wetland and is dominated by boxelder trees and saplings, green ash, rice cut grass, swamp smartweed, and rough cocklebur (*Xanthium strumarium).* Photo was taken to the north of the study area on September 10, 2020.

	**Photo 53.** Photograph is of on-channel pond **Water Feature 91** in the northeastern portion of the study area. Photo is representative of on-channel pond **Water Feature 89** and was taken September 9, 2020.
	**Photo 54.** Representative photo of intermittent stream **Water Feature 51** in the northeastern portion of the study area. Photo was taken to the east on October 14, 2020.

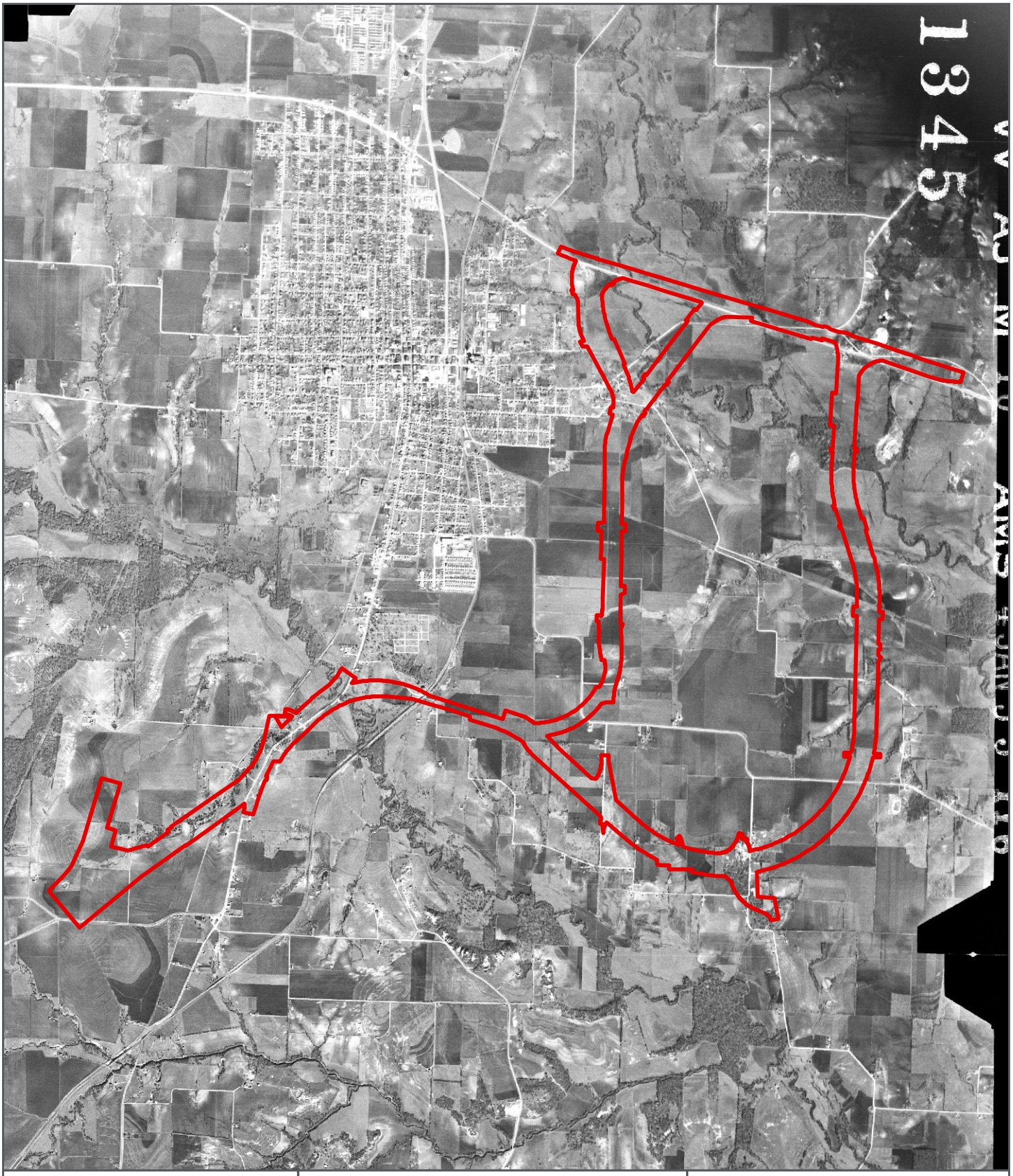
Photo 55.
Photo of Ephemeral Stream **Water Feature 94. Water Feature 94** was located in the northern portion of the study area and receives runoff from US-380. Bedrock was visible and litter and debris was within the steam channel. Dominant vegetation included sugar hackberry, pecan (*Carya illinoinensis*), and eastern poison ivy (*Toxicodendron radicans*). Photo was taken on August 16, 2021.

Photo 56.
Photo of ditch drainage feature **Water Feature 95**. Dominant vegetation was bermudagrass (*Cynodon dactylon*) and Water Feature 95 drains southwest into Water Feature 94. Photo was taken on August 16, 2021.

	**Photo 57.** Photo of ditch drainage feature **Water Feature 102**. Representative photo of ditch drainage features adjacent to US 380, **Water Feature 96, Water Feature 97, Water Feature 98, Water Feature 101, Water Feature 103, Water Feature 105**, and **Water Feature 106**. Dominant vegetation was bermudagrass. Photo was taken on August 16, 2021.
	**Photo 58.** Photo of ditch drainage feature **Water Feature 100. Water Feature 100** is concrete reinforced and drains south into Water Feature 99*. Photo was taken on August 16, 2021.

Photo 59.
Photo of Ephemeral Stream **Water Feature 104.** **Water Feature 104** was located in the northern portion of the study area and has destroyed vegetation and litter and debris within the stream channel. Hydrology is received from US-380 runoff. Dominant vegetation includes tall false rye grass (*Schedonorus arundinaceus*), johnson grass, and cedar elm (*Ulmus crassifolia*). Photo was taken on August 16, 2021.

Attachment 5 – Historical Aerial Photographs



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LEGEND

PROJECT AREA

Texas Department of Transportation

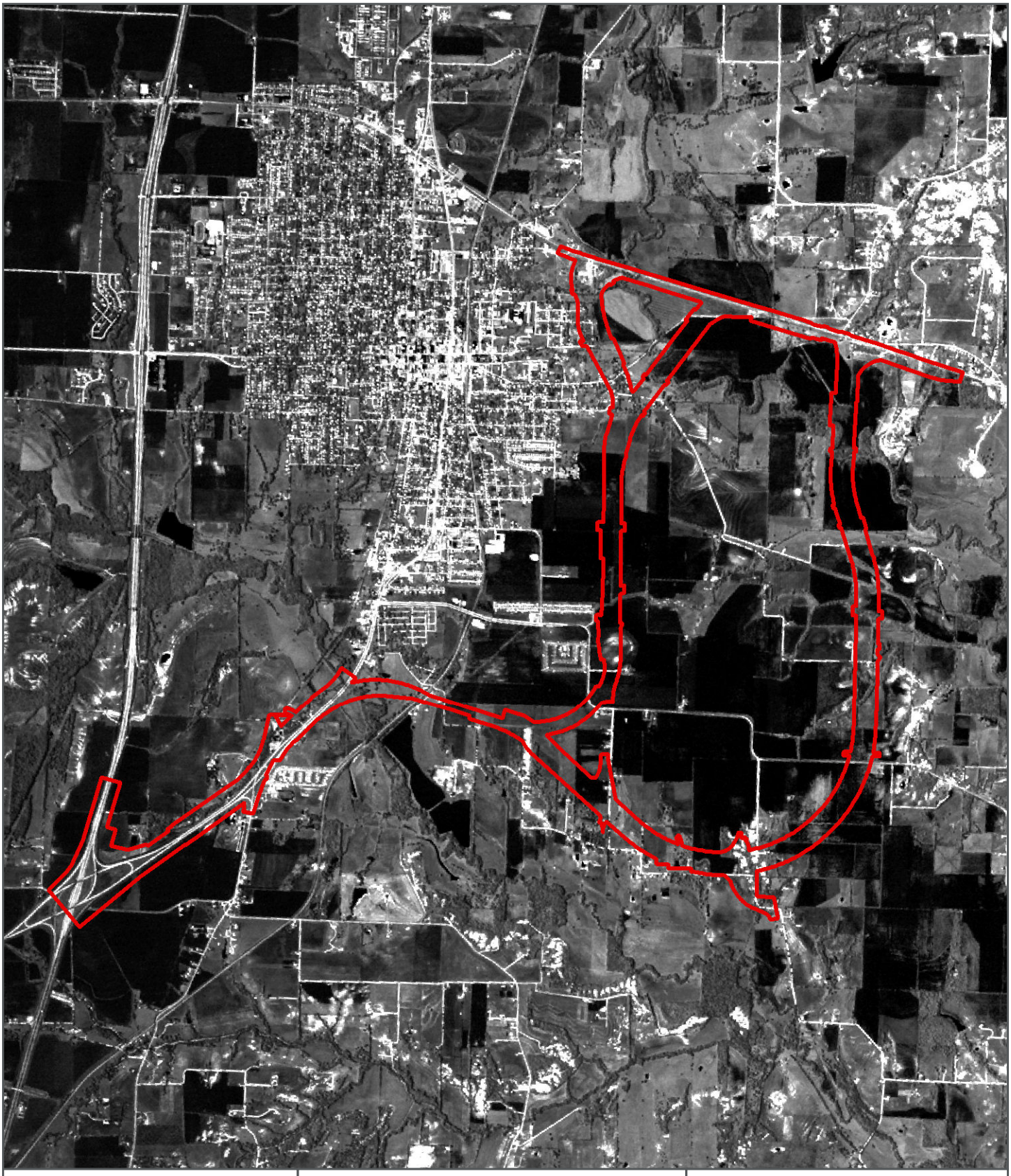
PROJECT AREA ON 1952 AERIAL

SPUR 399 EXTENSION

MAR 2022

FIGURE 1

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG1_1952_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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LEGEND

PROJECT AREA

PROJECT AREA ON 1972 AERIAL

SPUR 399 EXTENSION

MAR 2022

FIGURE 2

Texas Department of Transportation

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG2_1972_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

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LEGEND

PROJECT AREA

PROJECT AREA ON 1985 AERIAL

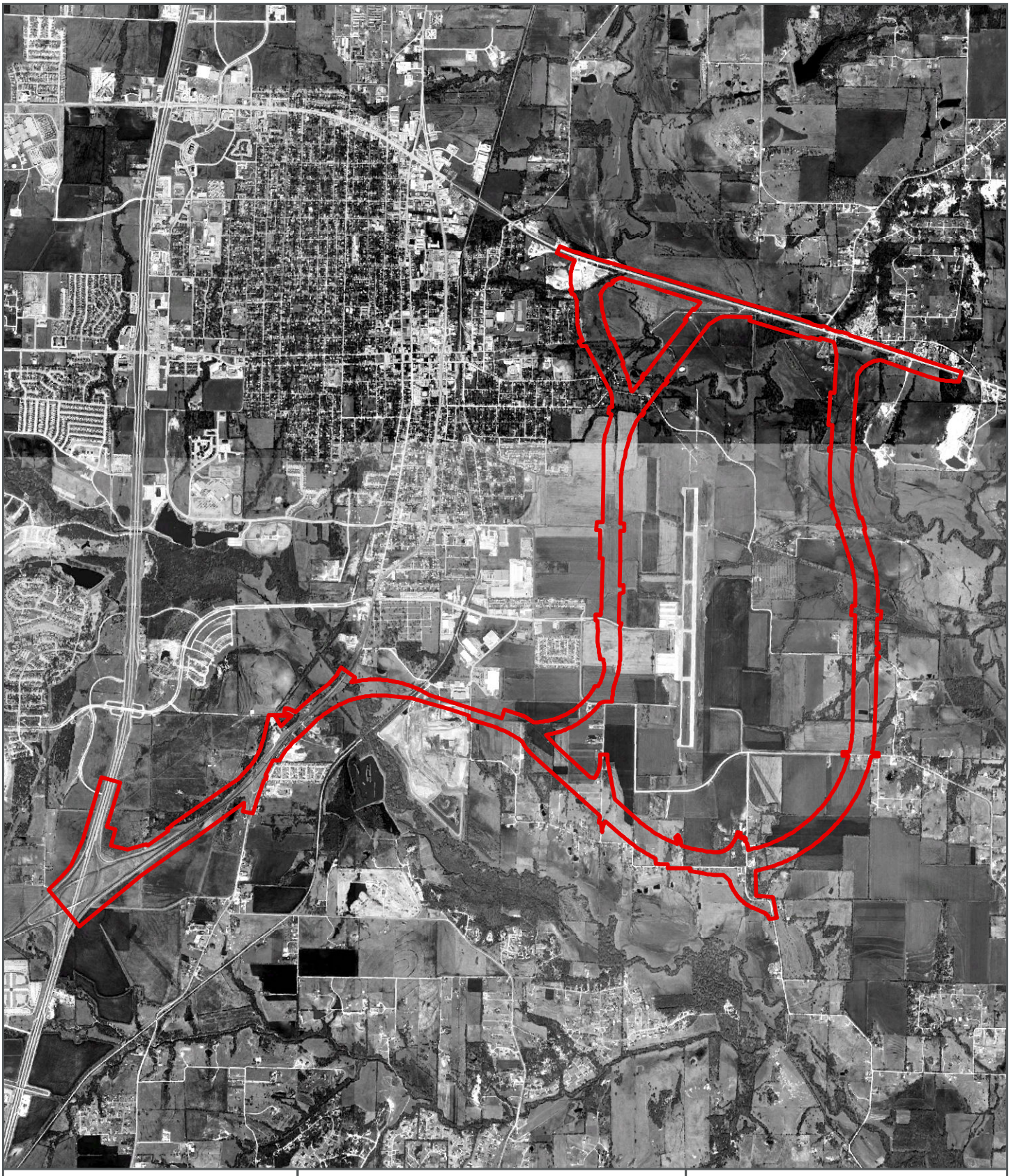
SPUR 399 EXTENSION

Texas Department of Transportation

MAR 2022

FIGURE 3

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG3_1985_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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LEGEND

PROJECT AREA

PROJECT AREA ON 1995 AERIAL

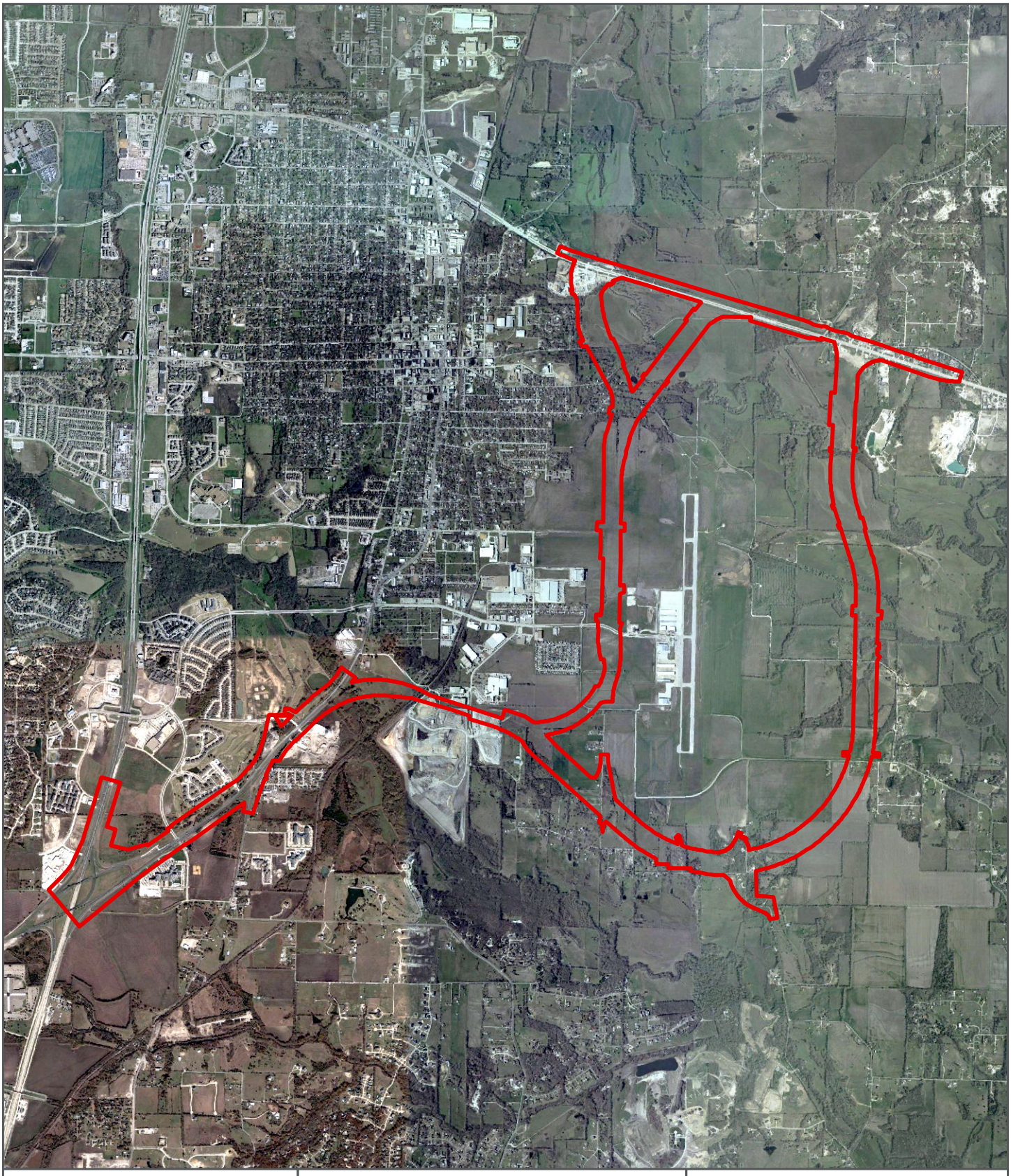
SPUR 399 EXTENSION

Texas Department of Transportation

MAR 2022

FIGURE 4

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENTS\SPUR399_ATTACH5_FIG4_1995_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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LEGEND

PROJECT AREA

Texas Department of Transportation

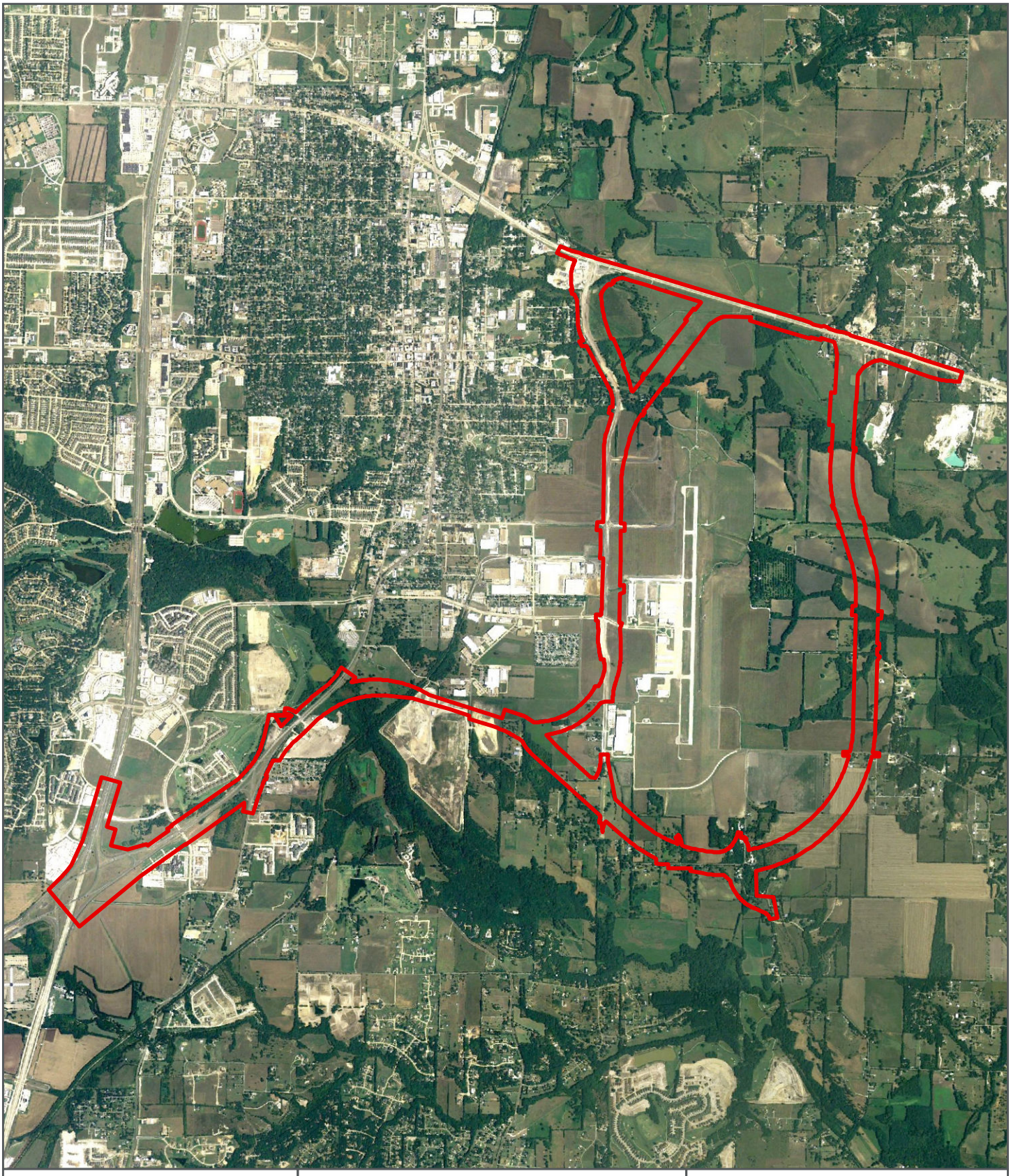
PROJECT AREA ON 2003 AERIAL

SPUR 399 EXTENSION

MAR 2022

FIGURE 5

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG5_2003_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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FEET

LEGEND

PROJECT AREA

Texas Department of Transportation

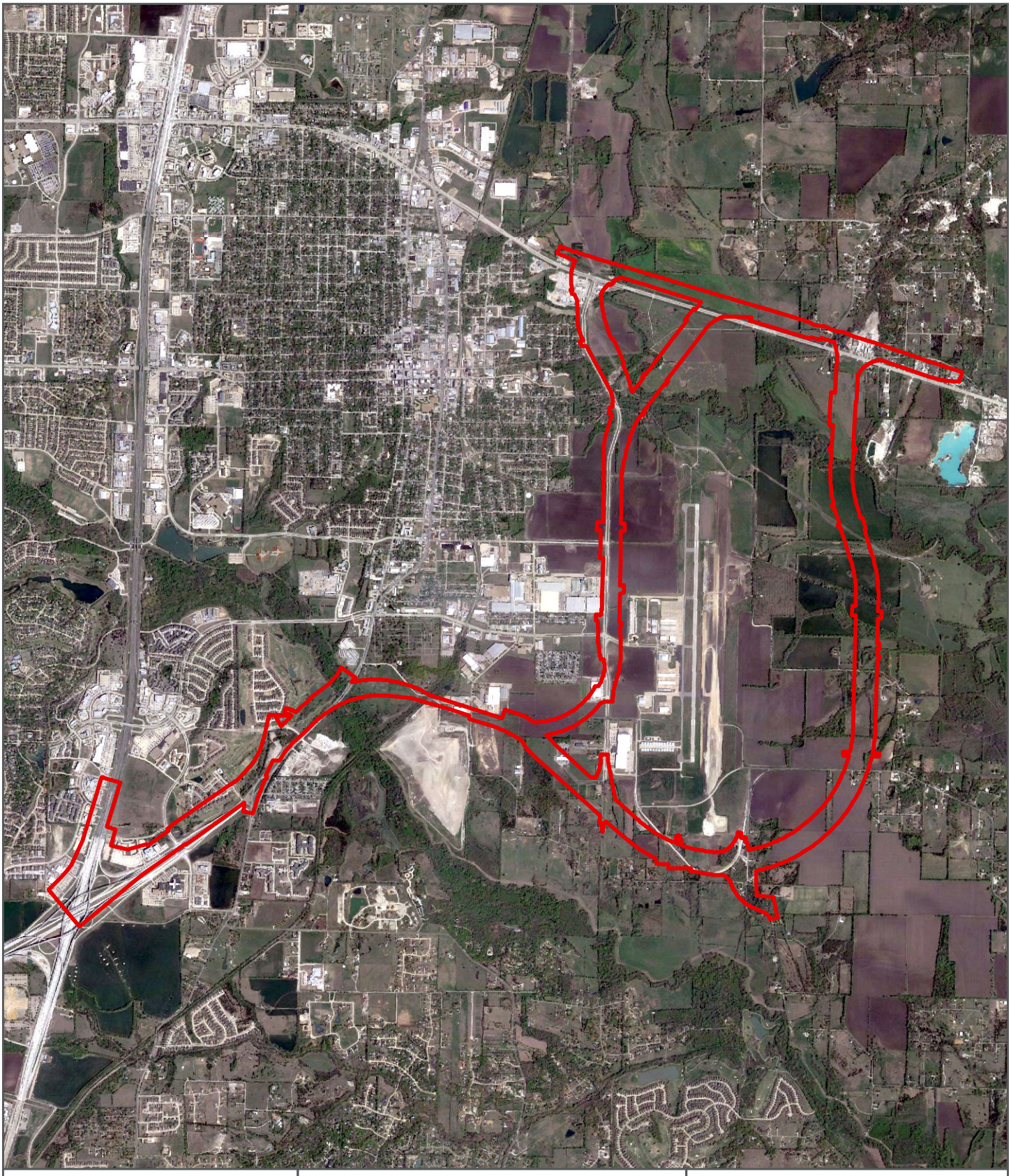
PROJECT AREA ON 2005 AERIAL

SPUR 399 EXTENSION

MAR 2022

FIGURE 6

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG6_2005_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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FEET

LEGEND

PROJECT AREA

PROJECT AREA ON 2011 AERIAL

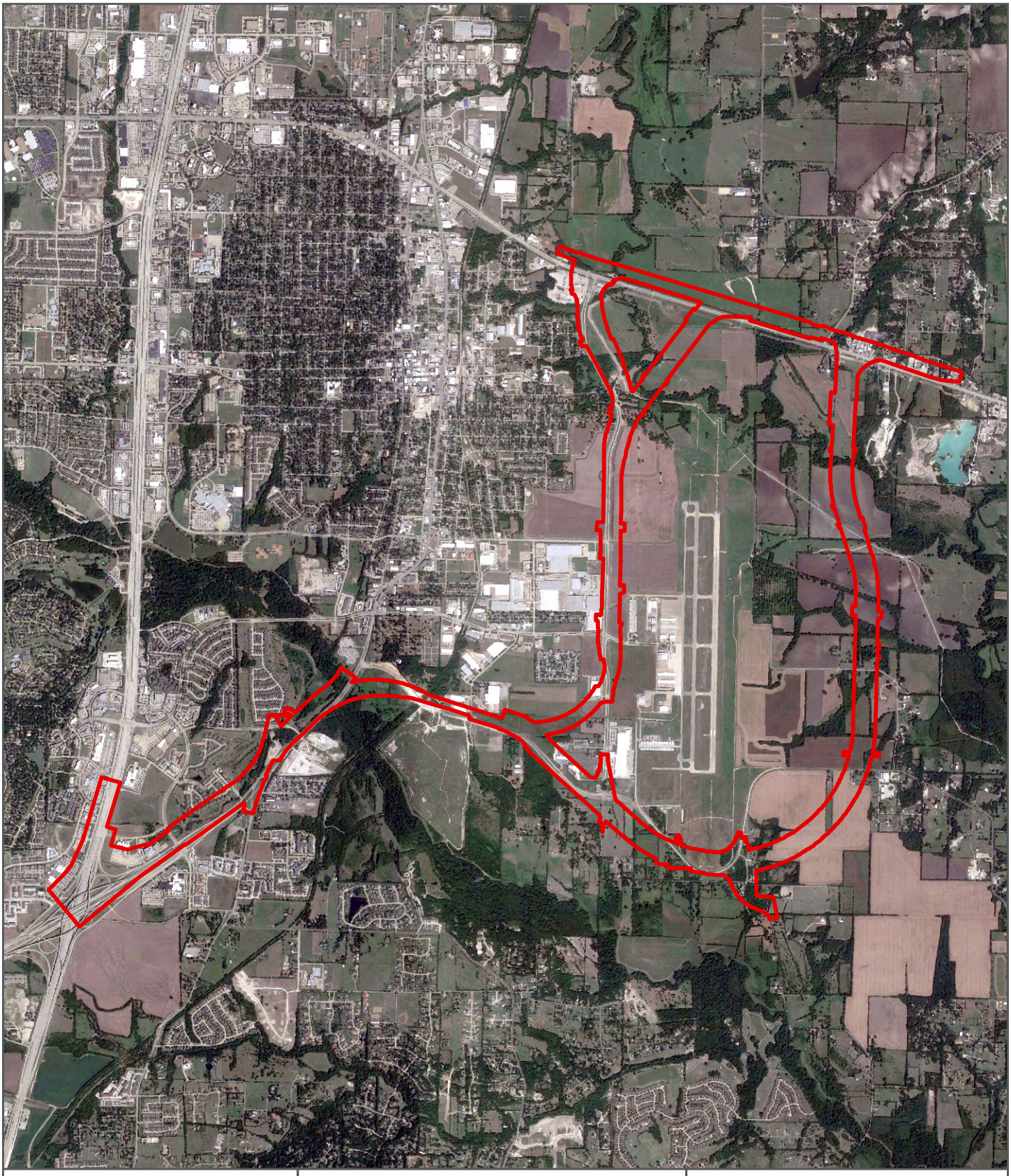
SPUR 399 EXTENSION

Texas Department of Transportation

MAR 2022

FIGURE 7

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG7_2011_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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LEGEND

PROJECT AREA

PROJECT AREA ON 2017 AERIAL

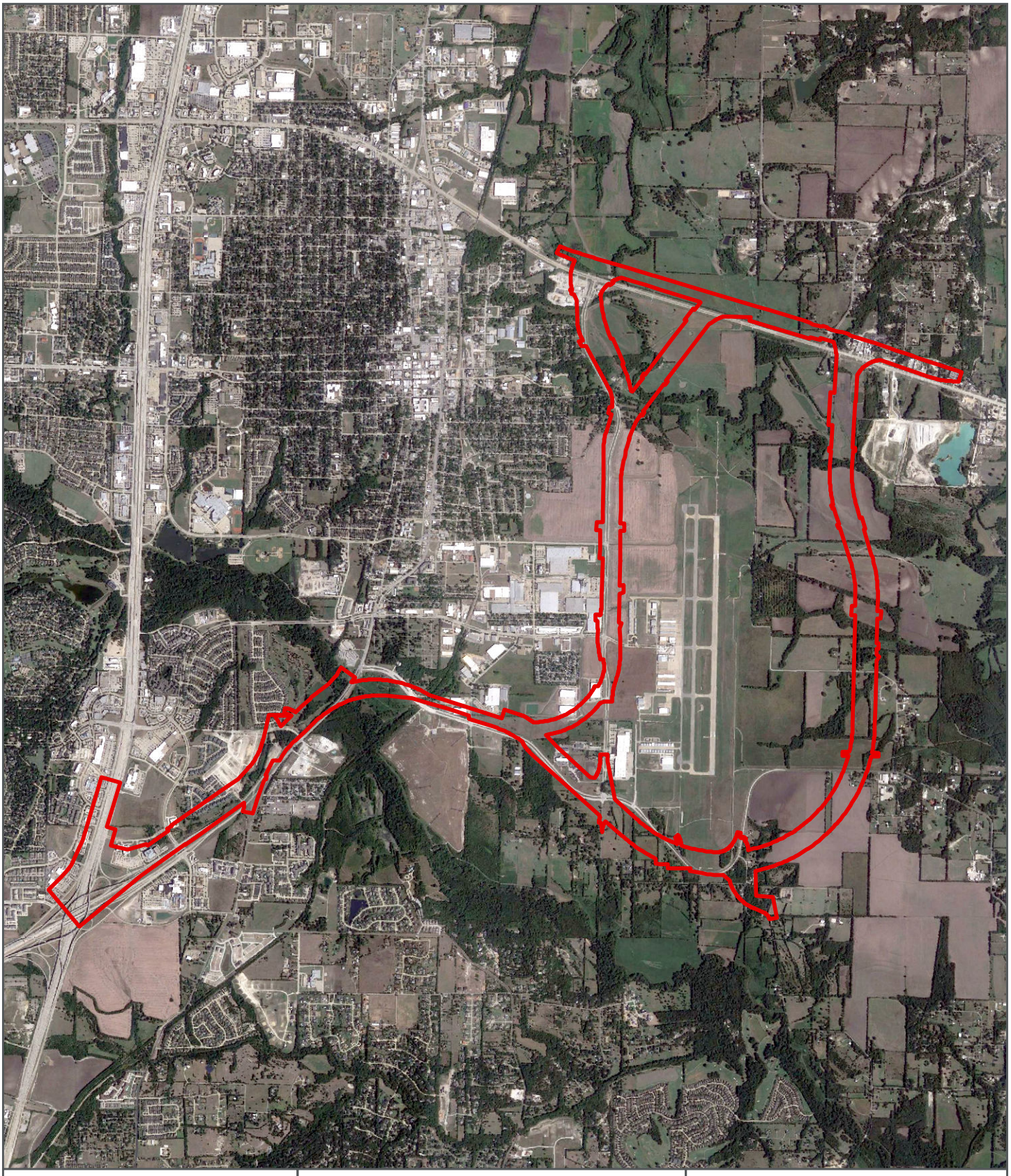
SPUR 399 EXTENSION

Texas Department of Transportation

MAR 2022

FIGURE 8

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG8_2017_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022



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LEGEND

PROJECT AREA

PROJECT AREA ON 2019 AERIAL

SPUR 399 EXTENSION

Texas Department of Transportation

MAR 2022

FIGURE 9

PATH: O:\10226441_10189_BMCD_US380_SPUR399_SCH_ENV\MAP_DOCS\FIGURES\399_DELINEATION\ATTACHMENT5\SPUR399_ATTACH5_FIG9_2019_8X11.MXD - USER: MCOWLING - DATE: 3/18/2022

Form
Surface Water Analysis

Project Name: **Spur 399 Extension from US 75 to US 380**

CSJ(s): **0364-04-051, 0047-05-058, and 0047-10-002**

County(ies): **Collin**

Date Analysis Completed: **22-MARCH-2022**

Prepared by: **HDR Engineering, Inc.**

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

I. Section 402 of the Clean Water Act

No project-specific analysis is required as part of the environmental review process under Section 402 of the Clean Water Act for the reasons provided below:

> Since TPDES Construction General Permit (CGP) authorization and compliance (and the associated documentation) occur outside of the environmental clearance process, compliance is ensured by the policies and procedures that govern the design and construction phases of the project. The Project Development Process Manual and the Plans, Specifications, and Estimates (PS&E) Preparation Manual require a storm water pollution prevention plan (SWP3) be included in the plans of all projects that disturb one or more acres. The Construction Contract Administration Manual requires that the appropriate CGP authorization documents (notice of intent or site notice) be completed, posted, and submitted, when required by the CGP, to Texas Commission on Environmental Quality (TCEQ) and the municipal separate storm sewer system (MS4) operator. It also requires that projects be inspected to ensure compliance with the CGP.
>
> The PS&E Preparation Manual requires that all projects include Standard Specification Item 506 (Temporary Erosion, Sedimentation, and Environmental Controls), and the "Required Specification Checklists" require the current version of Special Provision 506 on all projects that need authorization under the CGP. These documents require the project contractor to comply with the CGP and SWP3, and to complete the appropriate authorization documents.

For more information regarding Section 402 of the Clean Water Act, see **ENV's Water Resources Handbook**.

II. Section 404 of the Clean Water Act

Select the appropriate statement(s) below:

☐ This project will not involve any regulated activity in any jurisdictional waters and therefore does not require a United States Army Corps of Engineers (USACE) "dredge and fill" permit under Section 404 of the Clean Water Act.

☐ Some or all regulated activity in jurisdictional waters will be authorized under a non-reporting nationwide permit (i.e., no pre-construction notification required). If this statement applies, indicate which non-reporting nationwide permit(s) will be used below.

(In the unusual situation in which NWP 16 will be used, select the third checkbox below instead of this one.)

Non-reporting NWP no(s): **<enter non-reporting NWP no(s)>**

☒ Some or all regulated activity in jurisdictional waters cannot or may not be able to be authorized under a non-reporting nationwide permit; therefore, a nationwide permit with pre-construction notification, individual standard permit, letter of permission, or regional general permit will or may be required.

(In the unusual situation in which NWP 16 will be used, select this third checkbox, even if the project qualifies for a non-reporting NWP 16.)

For more information regarding Section 404 of the Clean Water Act, see **ENV's Water Resources Handbook**.

III. Section 14 of the Rivers and Harbors Act (33 USC 408)

No project-specific analysis is required as part of the environmental review process under Section 14 of the Rivers and Harbors Act (33 USC 408) ("Section 408") for the reasons provided below:

> Any project that involves alterations to, or will temporarily or permanently occupy or use, a USACE federally authorized civil works project (e.g., sea walls, bulkheads, reservoirs, levees, wharfs, or other federal civil works projects, or associated federal land (fee simple) or easements) will require USACE authorization under Section 408 prior to construction of the project. Obtaining any required authorization under Section 408 from the USACE is generally handled by hydraulic and/or design engineers. For any project that requires authorization under both Section 404 and Section 408, the Section 404 authorization cannot be issued until the Section 408 authorization is issued.

For more information regarding Section 408, see **ENV's Water Resources Handbook**.

IV. Section 303(d) of the Clean Water Act

For a CE project, no project-specific analysis is required as part of the environmental review process under Section 303(d) of the Clean Water Act for the reasons provided below:

> To date, TCEQ has not identified (through either a total maximum daily load (TMDL) or the review of projects under the TCEQ MOU) a need to implement control measures beyond those required by the construction general permit (CGP) on road construction projects. Therefore, compliance with the project's CGP, along with coordination under the TCEQ MOU for certain transportation projects, collectively meets the need to address impaired waters during the environmental review process. As required by the CGP, the project and associated activities will be implemented, operated, and maintained using best management practices to control the discharge of pollutants from the project site.

For an EA or EIS project, further analysis regarding impaired waters is required under TxDOT's MOU with TCEQ for inclusion in the body of the environmental assessment or environmental impact statement. To do this further analysis, determine whether the project is located within five linear miles (not stream miles) of, is within the watershed of, and drains to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.

For an EA or EIS project only, provide the date of the Section 303(d) list consulted: **10 JUNE 2021**

For an EA or EIS project only, check the appropriate box below:

☐ This project is not located within five linear miles (not stream miles) of, is not within the watershed of, or does not drain to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.

☒ This project is located within five linear miles (not stream miles) of, is within the watershed of, and drains to, an impaired assessment unit under Section 303(d) of the federal Clean Water Act.

For an EA or EIS project only, if the second box is checked, fill-in the table below for any impaired assessment units within five miles of the project and within the same watershed as the project:

Watershed	Segment name	Segment number	Assessment unit number
East Fork Trinity River-Lavon Lake	**East Fork Trinity River Above Lavon Lake**	**0821D**	**0821D_01**
East Fork Trinity River-Lavon Lake	**Wilson Creek**	**0821C**	**0821C_01**
<enter text>	**<enter text>**	**<enter text>**	**<enter text>**
<enter text>	**<enter text>**	**<enter text>**	**<enter text>**
<enter text>	**<enter text>**	**<enter text>**	**<enter text>**
<enter text>	**<enter text>**	**<enter text>**	**<enter text>**

For more information regarding Section 303(d) of the Clean Water Act, see **ENV's Water Resources Handbook**.

V. General Bridge Act/Section 9 of the Rivers and Harbors Act

Select the appropriate statement below:

☒ This project will not require a permit, bridge lighting authorization, or exemption from the United States Coast Guard under Section 9 of the Rivers and Harbors Act, which outlines the requirements for approval to construct dams, dikes, bridges, or causeways in or over a navigable waterway.

☐ This project will require a permit, bridge lighting authorization, or exemption from the United States Coast Guard under Section 9 of the Rivers and Harbors Act, which outlines

the requirements for approval to construct dams, dikes, bridges, or causeways in or over a navigable waterway.

For more information regarding the General Bridge Act/Section 9 of the Rivers and Harbors Act, see **ENV's Water Resources Handbook**.

VI. Section 10 of the Rivers and Harbors Act

Select the appropriate statement(s) below:

☒ This project does not require authorization from the USACE under Section 10 of the Rivers and Harbors Act, which outlines the requirements for approval to construct smaller structures in a navigable waterway.

☐ This project does require authorization from the USACE under Section 10 of the Rivers and Harbors Act. Some or all regulated activity in a navigable waterway will be authorized under a non-reporting nationwide permit (i.e., no pre-construction notification required). If this statement applies, indicate which non-reporting nationwide permit(s) will be used below.

Non-reporting NWP no(s): **<enter number or numbers of any non-reporting NWPs used>**

☐ This project does require authorization from the USACE under Section 10 of the Rivers and Harbors Act. Some or all regulated activity in a navigable waterway cannot be authorized under a non-reporting nationwide permit; therefore, a nationwide permit with pre-construction notification, individual standard permit under Section 404/10, letter of permission, regional general permit, or individual Section 10 permit will be required.

For more information regarding Section 10 of the Rivers and Harbors Act, see **ENV's Water Resources Handbook**.

VII. Section 401 of the Clean Water Act

Select the appropriate statement below:

☐ This project will not require authorization under Section 404 of the federal Clean Water Act. Therefore, this project is not required to comply with TCEQ's Water Quality Certification Program, established under Section 401 of the Clean Water Act.

☒ This project will require authorization under Section 404 of the federal Clean Water Act. Therefore, this project is required to comply with TCEQ's Water Quality Certification Program, established under Section 401 of the Clean Water Act.

If the project is required to comply with TCEQ's Water Quality Certification Program, established under Section 401 of the Clean Water Act, then select the appropriate statement below:

☒ This project will require a NWP under Section 404 that is covered by TCEQ's blanket 401 water quality certification (i.e., all NWPs other than NWP 16) and therefore will comply with Section 401 of the Clean Water Act by implementing TCEQ conditions for NWPs.

☐ This project will require authorization under a NWP under Section 404 that is not covered by TCEQ's blanket 401 water quality certification (i.e., NWP 16), or under an Individual Standard Permit, Letter of Permission, or Regional General Permit under Section 404; therefore, TxDOT will coordinate a Section 401 water quality certification with TCEQ.

For more information regarding Section 401 of the Clean Water Act, see **ENV's Water Resources Handbook**.

VIII. Executive Order 11990, Protection of Wetlands

Select the appropriate statement below:

☐ This project is not federally funded and therefore is not subject to Executive Order 11990, Protection of Wetlands.

☐ This project is federally funded and therefore is subject to Executive Order 11990, Protection of Wetlands, and will not involve construction in any wetlands.

☒ This project is federally funded and therefore is subject to Executive Order 11990, Protection of Wetlands, and will involve construction in one or more wetlands. Explanation of how the project will comply with Executive Order 11990 is provided below.

Explanation of why there is no practicable alternative to such construction:

The build alternatives are constrained by residential neighborhoods, parklands, an airport, an expansive floodplain, and USACE-managed lands surrounding Lavon Lake.

Explanation of how the project includes all practicable measures to minimize harm to wetlands:

Both alternatives include bridges to span wetland areas to minimize impacts where feasible. As the schematic design evolves and the hydraulic analysis is completed, additional design improvements will be made to avoid and minimize impacts on wetlands where feasible. Based on the presence of wetlands in relation to the existing transportation system and adjacent constraints in this highly populated area, there are no practicable alternatives that would completely avoid impacts on wetlands.

For more information regarding Executive Order 11990, Protection of Wetlands, see **ENV's Water Resources Handbook**.

IX. Executive Order 11988, Floodplain Management

Select the appropriate statement below:

☐ This project is not federally funded and therefore is not subject to Executive Order 11988, Floodplain Management.

☐ This project is federally funded and therefore is subject to Executive Order 11988, Floodplain Management, and will not involve construction in the floodplain.

☐ This project is federally funded and therefore is subject to Executive Order 11988, Floodplain Management. However, the project will not involve a significant encroachment in the floodplain.

"Significant encroachment" means "a highway encroachment and any direct support of likely base flood-plain development that would involve one or more of the following construction-or flood-related impacts:

(1) A significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.
(2) A significant risk, or
(3) A significant adverse impact on natural and beneficial flood-plain values." 23 CFR 650.105(q)

In the above definition, "risk" means "the consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the highway." 23 CFR 650.105(o).

☒ This project is federally funded and therefore is subject to Executive Order 11988, Floodplain Management, and will involve a significant encroachment in the floodplain. Explanation of how the project will comply with Executive Order 11988 is provided below.

Explanation of how the project has been designed or modified, or will be designed or modified, to minimize potential harm to or within the floodplain:[1]

Both alternatives include extensive bridging in floodplain areas to minimize impacts where feasible. Based on the presence of floodplain in relation to the existing transportation system and adjacent constraints in this highly populated area, there are no practicable alternatives that would completely avoid construction in floodplain.

Reasons why the proposed action must be located in the floodplain:[2]

The build alternatives are constrained by residential neighborhoods, parklands, an airport, an expansive floodplain, and USACE-managed lands surrounding Lavon

[1] EO 11988, Section 2.(a)(2).
[2] 23 CFR 650.113(a)(1).

Lake. While floodplain was avoided to the greatest extent practicable, other constraints made it impossible to completely avoid crossing floodplain.

Alternatives considered and why they were not practicable (i.e., capable of being done within reasonable natural, social, or economic constraints):[3]

One alternative route with a larger footprint in floodplain was eliminated during the alternative analysis process. Alternative route options are constrained by social aspects such as impacts to residential neighborhoods, parklands, and an airport. Additionally, alternatives are constrained by the need to tie into the existing transportation system.

Statement indicating whether the action conforms to applicable State or local floodplain protection standards:[4]

The project will comply with the standards in the TxDOT Hydraulic Design Manual.

For more information regarding Executive Order 11988, Floodplain Management, see **ENV's Water Resources Handbook**.

X. Drinking Water Systems

No project-specific analysis is required as part of the environmental review process for drinking water systems for the reasons provided below:

In accordance with TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (Item 103, Disposal of Wells), any drinking water wells would need to be properly removed and disposed of during construction of the project.

XI. Resources Consulted

Indicate which resources were consulted/actions were taken to make the surface water determinations recorded in this form (DO NOT ATTACH TO THIS FORM OR UPLOAD TO ECOS ANY RESOURCES CONSULTED – JUST CHECK THE APPROPRIATE BOX(ES)):

☐ Aerial Photography (list dates mm/yyyy): 12/1985, 3/1995, 2/2001, 12/2003, 3/2005, 10/2005, 7/2008, 12/2009, 3/2011, 4/2012, 8/2012, 10/2013, 11/2014, 3/2015, 7/2015, 12/2015, 4/2016, 1/2017, 2/2017, 9/2017, 12/2017, 3/2018, 11/2018, 9/2019, 12/2019, 11/2020

☒ Topographic Maps	☒ Floodplain Maps	
☒ Site Visit	☒ USFWS NWI Maps	☒ NRCS Soil Survey
☒ NHD	☒ TCEQ Streams/Waterbodies	☐ LIDAR
☐ USACE Approved JDs	☒ USACE Section 10 waters	☒ USACE 408 data

☒ TCEQ 303(d) Impaired Waters

☐ Contacted resource agency (list agency and reason):_____

☐ Other (list):_____

[3] 23 CFR 650.105(k), 650.113(a)(2).
[4] 23 CFR 650.113(a)(3).

Section 404/10 Impacts Table

Version 4, November 2021

Spur 399 Ext - Purple Alternative Route

CSJ 0364-04-051, 0047-05-058, 0047-10-002

SWF-2020-00340

2/6/2023

Water Feature Characteristics							Potentially Jurisdictional?		Total Section 404 impacts for WATER FEATURE						Total section 404 impacts for CROSSING						Authorization			
									Temporary			Permanent			Temporary			Permanent						
Crossing number	Water feature number	Name	Type	Latitude, Longitude	Acres within project area (all water features, including streams)	Linear feet within project area (streams only)	Section 404 (waters of the U.S.)	Section 10 (navigable waters)	Acres of temporary impact (all water features, including streams)	Linear feet of temporary impact (streams only)	Cubic yards (CY) of fill material to be temporarily discharged (all water features, including streams)	Acres of permanent impact (all water features, including streams)	Linear feet of permanent impact (streams only)	Cubic yards (CY) of fill material to be permanently discharged (all water features, including streams)	Acres of temporary impact (all water features, including streams)	Linear feet of temporary impact (streams only)	Cubic yards (CY) of fill material to be temporarily discharged (all water features, including streams)	Acres of permanent impact (all water features, including streams)	Linear feet of permanent impact (streams only)	Cubic yards (CY) of fill material to be permanently discharged (all water features, including streams)	Authorization Type	Number (NWP and RGP only)	Reason (PCN only)	Mitigation Required?
	1*	Isolated Unnamed Wetland	Palustrine emergent	33.160187, -96.643283	0.87	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2*	Isolated Unnamed Wetland	Palustrine emergent	33.161304, -96.642664	0.34	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1A	3*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.161168, -96.641351	0.01	138	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
1B	4*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.166914, -96.630355	0.08	587	Yes	No	0	0	0	0	0	0										
2	5	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.164526, -96.642213	0.00	34	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
3A	6A*	Unnamed Tributary to Wilson Creek	Intermittent stream	33.166753, -96.630500	0.16	1,717	Yes	No	0	0	0	0	0	0	0	0	0	0.00	27	Unknown	NWP - Non-reporting	14	N/A	No
3B	7*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.170044, -96.628353	0.03	417	Yes	No	0	0	0	0.00	27	Unknown										
4A	6B*	Unnamed Tributary to Wilson Creek	Intermittent stream	33.164761, -96.631175	0.08	880	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
4B	8*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.165944, -96.626335	0.14	1,977	Yes	No	0	0	0	0	0	0										
4C	9*	Unnamed Tributary to Wilson Creek	Perennial stream	33.170896, -96.626128	0.05	250	Yes	No	0	0	0	0	0	0										
4D	10A	Unnamed Tributary to Wilson Creek	Perennial stream	33.171331, -96.625606	0.03	117	Yes	No	0	0	0	0	0	0										
	11	Swale	Other non-stream, non-wetland waterbody	33.173781, -96.622437	N/A	296	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5A	12	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.172715, -96.622777	0.02	167	Yes	No	0.02	163	Unknown	0.00	4	Unknown	0.05	163	Unknown	0.00	4	Unknown	NWP - Non-reporting	14	N/A	No
5B	13	Unnamed Pond	Pond/Impoundment	33.172422, -96.622261	0.09	N/A	Yes	No	0.03	0	Unknown	0	0	0										
6A	10B	Unnamed Tributary to Wilson Creek	Perennial stream	33.172031, -96.622076	0.01	45	Yes	No	0	0	0	0	0	0	0.19	276	Unknown	0	0	0	NWP - Non-reporting	14	N/A	No
6B	14	Wilson Creek	Perennial stream	33.173425, -96.621130	0.78	1,139	Yes	No	0.19	276	Unknown	0	0	0										
6C	15	Unnamed Tributary to Wilson Creek	Intermittent stream	33.172391, -96.620405	0.03	63	Yes	No	0	0	0	0	0	0										
7A	16	Unnamed Wetland	Palustrine emergent	33.172524, 33.172524	0.57	N/A	Yes	No	0.37	0	Unknown	0.00	0	0	0.41	255	Unknown	0.03	0	0	NWP - PCN	14	Discharge into a special aquatic site	No
7B	17	Unnamed Wetland	Palustrine forested	33.172524, -96.617385	0.20	N/A	Yes	No	0	0	0	0.03	0	Unknown										
7C	18	Unnamed Tributary to Wilson Creek	Intermittent stream	33.172691, -96.615773	0.07	411	Yes	No	0.04	255	Unknown	0	0	0										
	19*	Isolated Unnamed Wetland	Palustrine emergent	33.172141, -96.614265	0.95	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	20	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.170985, -96.610544	0.01	69	Yes	No	0.00	52	Unknown	0	0	0	0.00	52	Unknown	0	0	0	NWP - Non-reporting	14	N/A	No
9	21	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.179995, -96.597478	0.06	501	Yes	No	0	0	0	0.03	276	Unknown	0	0	0	0.03	276	Unknown	NWP - Non-reporting	14	N/A	No
	22	Isolated Unnamed Pond	Pond/Impoundment	33.182848, -96.598656	0.26	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	23	Ditch	Drainage ditch	33.184729, -96.597270	0.19	417	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	24	Ditch	Drainage ditch	33.189701, -96.597077	0.13	380	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	25	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.193435, -96.596189	0.21	916	Yes	No	0	0	0	0.06	262	Unknown	0	0	0	0.06	262	Unknown	NWP - Non-reporting	14	N/A	Yes
11	26	East Fork Trinity River	Perennial stream	33.195836, -96.593573	0.56	820	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
12	27*	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.196549, -96.597218	0.04	333	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	28	Swale	Other non-stream, non-wetland waterbody	33.197474, -96.597721	N/A	52	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	29	Isolated Unnamed Pond	Pond/Impoundment	33.197545, -96.597430	0.09	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13A	30	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.197814, -96.597755	0.02	217	Yes	No	0.02	217	Unknown	0.00	2	Unknown	0.26	361	Unknown	0.22	2	Unknown	NWP - PCN	14	Multiple	Yes
	31	Swale	Other non-stream, non-wetland waterbody	33.197709, -96.597613	N/A	44	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13B	32	Unnamed Wetland	Palustrine forested	33.197805, -96.597506	0.22	N/A	Yes	No	0	0	0	0.22	0	Unknown										
13C	33	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.198135, -96.597761	0.01	99	Yes	No	0.01	99	Unknown	0	0	0										
13D	34	Unnamed Wetland	Palustrine forested	33.198125, -96.597553	0.01	N/A	Yes	No	0.01	0	Unknown	0	0	0										
13E	35*	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.198151, -96.597863	0.00	45	Yes	No	0.00	45	Unknown	0	0	0										
14A	36	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.198516, -96.598396	0.08	556	Yes	No	0.06	426	Unknown	0	0	0	0.06	426	Unknown	0	0	0	NWP - Non-reporting	14	N/A	No
14B	37*	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.198439, -96.599698	0.03	208	Yes	No	0	0	0	0	0	0										
15A	38*	Unnamed Tributary to East Fork Trinity River	Perennial stream	33.202213, -96.600338	0.17	334	Yes	No	0	0	0	0.01	16	Unknown	0	0	0	0.11	223	Unknown	NWP - PCN	14	Loss of waters of the U.S. exceeds 1/10 acre	Yes
15B	39	Unnamed Tributary to East Fork Trinity River	Perennial stream	33.202817, -96.598338	0.42	839	Yes	No	0	0	0	0.10	207	Unknown										
15C	40	East Fork Trinity River	Perennial stream	33.203347, -96.596554	0.87	754	Yes	No	0	0	0	0	0	0										
16	41	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.204744, -96.598906	0.01	79	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	42	Isolated Unnamed Pond	Pond/Impoundment	33.202124, -96.592053	0.33	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	43	Isolated Unnamed Pond	Pond/Impoundment	33.200242, -96.590364	0.32	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	44	Isolated Unnamed Pond	Pond/Impoundment	33.196839, -96.591423	0.03	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	45	Isolated Unnamed Pond	Pond/Impoundment	33.200091, -96.584822	0.23	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17A	46*	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.200781, -96.584406	0.02	53	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
17B	47	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.199761, -96.584386	0.30	875	Yes	No	0	0	0	0	0	0										
	48*	Isolated Unnamed Pond	Pond/Impoundment	33.197562, -96.597549	0.22	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17C	49	Unnamed Stream to East Fork Trinity River	Ephemeral stream	33.199615, -96.583051	0.03	261	Yes	No	0	0	0	0	0	0										
18A	50*	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.198593, -96.579630	0.12	645	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
18B	51	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.199136, -96.578274	0.01	35	Yes	No	0	0	0	0	0	0										
	*Photo interpreted																							

Section 404/10 Impacts Table

Version 4, November 2021

Spur 399 Ext - Orange Alternative Route

CSJ 0364-04-051, 0047-05-058, 0047-10-002

SWF-2020-00340

2/6/2023

Water Feature Characteristics							Potentially Jurisdictional?		Total Section 404 impacts for WATER FEATURE						Total section 404 impacts for CROSSING						Authorization			
									Temporary			Permanent			Temporary			Permanent						
Crossing number	Water feature number	Name	Type	Latitude, Longitude	Acres within project area (all water features, including streams)	Linear feet within project area (streams only)	Section 404 (waters of the U.S.)	Section 10 (navigable waters)	Acres of temporary impact (all water features, including streams)	Linear feet of temporary impact (streams only)	Cubic yards (CY) of fill material to be temporarily discharged (all water features, including streams)	Acres of permanent impact (all water features, including streams)	Linear feet of permanent impact (streams only)	Cubic yards (CY) of fill material to be permanently discharged (all water features, including streams)	Acres of temporary impact (all water features, including streams)	Linear feet of temporary impact (streams only)	Cubic yards (CY) of fill material to be temporarily discharged (all water features, including streams)	Acres of permanent impact (all water features, including streams)	Linear feet of permanent impact (streams only)	Cubic yards (CY) of fill material to be permanently discharged (all water features, including streams)	Authorization Type	Number (NWP and RGP only)	Reason (PCN only)	Mitigation Required?
	1*	Isolated Unnamed Wetland	Palustrine emergent	33.160187, -96.643283	0.87	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2*	Isolated Unnamed Wetland	Palustrine emergent	33.161304, -96.642664	0.34	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1A	3*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.161168, -96.641351	0.01	138	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
1B	4*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.166914, -96.630355	0.08	587	Yes	No	0	0	0	0	0	0										
2	5	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.164526, -96.642213	0.00	34	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
3A	6A*	Unnamed Tributary to Wilson Creek	Intermittent stream	33.166753, -96.630500	0.16	1,717	Yes	No	0	0	0	0	0	0	0	0	0	0.00	27	Unknown	NWP - Non-reporting	14	N/A	No
3B	7*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.170044, -96.628353	0.03	417	Yes	No	0	0	0.00	27	Unknown											
4A	6B*	Unnamed Tributary to Wilson Creek	Intermittent stream	33.164761, -96.631175	0.08	880	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
4B	8*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.165944, -96.626335	0.14	1,977	Yes	No	0	0	0	0	0	0										
4C	9*	Unnamed Tributary to Wilson Creek	Perennial stream	33.170896, -96.626128	0.05	250	Yes	No	0	0	0	0	0	0										
4D	10A	Unnamed Tributary to Wilson Creek	Perennial stream	33.171331, -96.625606	0.03	117	Yes	No	0	0	0	0	0	0										
	11	Swale	Other non-stream, non-wetland waterbody	33.173781, -96.622437	N/A	296	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5A	12	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.172715, -96.622777	0.02	167	Yes	No	0.02	163	Unknown	0.00	4	Unknown	0.05	163	Unknown	0.00	4	Unknown	NWP - Non-reporting	14	N/A	No
5B	13	Unnamed Pond	Pond/Impoundment	33.172422, -96.622261	0.09	N/A	Yes	No	0.03	0	Unknown	0	0	0										
6A	10B	Unnamed Tributary to Wilson Creek	Perennial stream	33.172031, -96.622076	0.01	45	Yes	No	0	0	0	0	0	0	0.19	276	Unknown	0	0	0	NWP - Non-reporting	14	N/A	No
6B	14	Wilson Creek	Perennial stream	33.173425, -96.621130	0.78	1,139	Yes	No	0.19	276	Unknown	0	0	0										
6C	15	Unnamed Tributary to Wilson Creek	Intermittent stream	33.172391, -96.620405	0.03	63	Yes	No	0	0	0	0	0	0										
7A	16	Unnamed Wetland	Palustrine emergent	33.172524, 33.172524	0.57	N/A	Yes	No	0.37	0	Unknown	0.00	0	0	0.41	255	Unknown	0.03	0	0	NWP - PCN	14	Discharge into a special aquatic site	No
7B	17	Unnamed Wetland	Palustrine forested	33.172524, -96.617385	0.20	N/A	Yes	No	0	0	0	0.03	0	Unknown										
7C	18	Unnamed Tributary to Wilson Creek	Intermittent stream	33.172691, -96.615773	0.07	411	Yes	No	0.04	255	Unknown	0	0	0										
	19*	Isolated Unnamed Wetland	Palustrine emergent	33.172141, -96.614265	0.95	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	20	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.170985, -96.610544	0.01	69	Yes	No	0.00	52	Unknown	0	0	0	0.00	52	Unknown	0	0	0	NWP - Non-reporting	14	N/A	No
9	52*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.164171, -96.598187	0.13	1,108	Yes	No	0.02	181	Unknown	0.11	927	Unknown	0.02	181	Unknown	0.11	927	Unknown	NWP - PCN	14	Loss of waters of the U.S. exceeds 1/10 acre	Yes
	53	Unnamed Wetland	Palustrine forested	33.160887, -96.592964	0.34	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	54	Unnamed Pond	Pond/Impoundment	33.160121, -96.593174	0.89	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	55	Swale	Other non-stream, non-wetland waterbody	33.159884, -96.592759	N/A	28	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	56	Unnamed Stream Not Connected to Wilson Creek	Intermittent stream	33.159687, -96.592967	0.03	291	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10A	57	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.158742, -96.586122	0.29	1,791	Yes	No	0.08	529	Unknown	0.00	8	Unknown	0.09	585	Unknown	0.00	33	Unknown	NWP - Non-reporting	14	N/A	No
10B	58*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.158099, -96.586518	0.02	107	Yes	No	0.01	56	Unknown	0	0	0										
10C	59	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.157379, -96.585613	0.01	143	Yes	No	0	0	0	0	0	0										
10D	60*	Unnamed Tributary to Wilson Creek	Ephemeral stream	33.156620, -96.586265	0.04	274	Yes	No	0	0	0	0.00	25	Unknown										
	61	Isolated Unnamed Pond	Pond/Impoundment	33.160371, -96.584148	0.35	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11A	62	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.168470, -96.575379	0.09	677	Yes	No	0.00	23	Unknown	0.08	614	Unknown	0.00	23	Unknown	0.09	677	Unknown	NWP - Non-reporting	14	N/A	Yes
11B	63	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.168889, -96.575029	0.02	226	Yes	No	0	0	0	0.01	63	Unknown										
	64	Swale	Other non-stream, non-wetland waterbody	33.172187, -96.575119	N/A	750	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12A	65	Unnamed Tributary to East Fork Trinity River	Perennial stream	33.173965, -96.575261	0.21	1,521	Yes	No	0	0	0	0.12	894	Unknown	0.01	114	Unknown	0.13	950	Unknown	NWP - PCN	14	Loss of waters of the U.S. exceeds 1/10 acre	Yes
12B	66	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.173355, -96.575367	0.01	118	Yes	No	0.01	114	Unknown	0.00	4	Unknown										
12C	67	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.173500, -96.576277	0.01	176	Yes	No	0	0	0	0.01	52	Unknown										
	68	Isolated Unnamed Pond	Pond/Impoundment	33.176258, -96.574621	0.17	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13A	69	Unnamed Wetland	Palustrine emergent	33.177019, -96.574545	0.25	N/A	Yes	No	0.01	0	Unknown	0	0	Unknown	0.07	420	Unknown	0	0	Unknown	NWP - PCN	14	Discharge into a special aquatic site	No
13B	70	Unnamed Wetland	Palustrine forested	33.177301, -96.574543	0.03	N/A	Yes	No	0	0	0	0	0	0										
13C	71	Unnamed Tributary to East Fork Trinity River	Perennial stream	33.178192, -96.575152	0.11	803	Yes	No	0.06	420	Unknown	0	0	Unknown										
	72	Swale	Other non-stream, non-wetland waterbody	33.180202, -96.575108	N/A	550	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	73	Isolated Unnamed Pond	Pond/Impoundment	33.182042, -96.576591	0.08	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	74	Isolated Unnamed Pond	Pond/Impoundment	33.182216, -96.576698	0.03	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	75	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.184532, -96.576455	0.10	761	Yes	No	0.06	431	Unknown	0	0	Unknown	0.06	431	Unknown	0	0	Unknown	NWP - Non-reporting	14	N/A	No
	76	Swale	Other non-stream, non-wetland waterbody	33.185640, -96.576338	N/A	773	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	77	Unnamed Wetland	Palustrine emergent	33.185750, -96.577583	0.47	N/A	Yes	No	0.03	0	Unknown	0	0	Unknown	0.03	0	Unknown	0	0	Unknown	NWP - PCN	14	Discharge into a special aquatic site	No
	78	Swale	Other non-stream, non-wetland waterbody	33.187465, -96.577711	N/A	362	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16A	79	East Fork Trinity River	Perennial stream	33.190432, -96.577086	0.61	664	Yes	No	0.46	406	Unknown	0	0	Unknown	0.84	626	Unknown	0.00	0	Unknown	NWP - Non-reporting	14	N/A	No
16B	80	Unnamed Tributary to East Fork Trinity River	Intermittent stream	33.190741, -96.576669	0.04	220	Yes	No	0.04	220	Unknown	0	0	Unknown										
	81	Swale	Other non-stream, non-wetland waterbody	33.191062, -96.576944	N/A	262	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	82	Swale	Other non-stream, non-wetland waterbody	33.191515, -96.577212	N/A	379	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16C	83	Unnamed Pond	Pond/Impoundment	33.191981, -96.576895	0.07	N/A	Yes	No	0.07	0	Unknown	0.00	0	Unknown										
	84	Swale	Other non-stream, non-wetland waterbody	33.192316, -96.576886	N/A	101	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16D	85	Unnamed Pond	Pond/Impoundment	33.192739, -96.577013	0.20	N/A	Yes	No	0.27	0	Unknown	0.00	0	Unknown										
	86	Swale	Other non-stream, non-wetland waterbody	33.193388, -96.577320	N/A	170	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16E	87	Unnamed Pond	Pond/Impoundment	33.192350, -96.578094	0.21	N/A	Yes	No	0	0	0	0	0	0										
16F	88	Unnamed Wetland	Palustrine forested	33.193188, -96.578276	0.15	N/A	Yes	No	0	0	0	0	0	0										
16G	89	Unnamed Pond	Pond/Impoundment	33.193789, -96.578028	0.05	N/A	Yes	No	0	0	0	0	0	0										
	90	Swale	Other non-stream, non-wetland waterbody	33.193874, -96.577993	N/A	41	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16H	91	Unnamed Pond	Pond/Impoundment	33.194060, -96.578004	0.10	N/A	Yes	No	0	0	0	0	0	0										
	92	Isolated Unnamed Pond	Pond/Impoundment	33.195270, -96.576019	1.22	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	93	Isolated Unnamed Pond	Pond/Impoundment	33.196064, -96.577033	0.47	N/A	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	94	Unnamed Stream Not Connected to East Fork Trinity River	Ephemeral stream	33.197015, -96.573861	0.01	133	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	95	Ditch	Drainage ditch	33.197244, -96.573647	0.01	85	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	96	Ditch	Drainage ditch	33.197244, -96.573647	0.01	52	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	97	Ditch	Drainage ditch	33.196927, -96.572034	0.02	207	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	98	Ditch	Drainage ditch	33.197413, -96.572278	0.04	386	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	99*	Unnamed Tributary to East Fork Trinity River	Ephemeral stream	33.196049, -96.570272	0.01	148	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A
	100	Ditch	Drainage ditch	33.196269, -96.570130	0.01	59	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	101	Ditch	Drainage ditch	33.196138, -96.569053	0.05	440	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	102	Ditch	Drainage ditch	33.196209, -96.568093	0.01	90	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	103	Ditch	Drainage ditch	33.196209, -96.568093	0.00	43	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	104	Unnamed Stream Not Connected to East Fork Trinity River	Ephemeral stream	33.195442, -96.567532	0.01	140	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	105	Ditch	Drainage ditch	33.195561, -96.567351	0.02	209	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	106	Ditch	Drainage ditch	33.195904, -96.567046	0.02	136	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Photo interpreted																							