Project Name: FM 1641

CSJ(s): 1217-01-019 and 2588-01-020

County(ies): **Kaufman**

Date Analysis Completed: **2/24/2020**

Prepared by: **Alma Canning, Civil Associates, 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 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 Special Provision 506-003 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.

Non-reporting NWP no(s): **14**

☐ Some or all regulated activity in jurisdictional waters cannot be authorized under a non-reporting nationwide permit; therefore, a nationwide permit with pre-construction notification, individual permit, letter of permission, or regional general permit will be required.

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.

Provide the date of the Section 303(d) list consulted: **<enter date, for EAs and EISs only>**

Check the appropriate box below (EAs and EISs only):

☐ 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.

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
<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>**
<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 permit, 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, Section 10 of the Rivers and Harbors Act, or the General Bridge Act/Section 9 of the Rivers and Harbors 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, Section 10 of the Rivers and Harbors Act, or the General Bridge Act/Section 9 of the Rivers and Harbors 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 comply with conditions set by TCEQ for projects authorized by certain nationwide permits.

☒ This project will use BMPs required by TCEQ for Tier I projects.

☐ A Tier II Certification Questionnaire and Alternative Analysis Checklist will be submitted to 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:

<enter explanation, if applicable>

Explanation of how the project includes all practicable measures to minimize harm to wetlands:

<enter explanation, if applicable>

For more information regarding Executive Order 11990, Protection of Wetlands, see **ENV's Water Resources Handbook**.

IX. Executive Order 11988, Floodplain Management

No project-specific analysis is required as part of the environmental review process under Executive Order 11988, Floodplain Management for the reasons provided below:

The department implements this Executive Order on a programmatic basis through its Hydraulic Design Manual. Design of this project will be conducted in accordance with the department's Hydraulic Design Manual. Adherence to the TxDOT Hydraulic Design Manual ensures that this project will not result in a "significant encroachment" as defined by FHWA's rules implementing Executive Order 11988 at 23 CFR 650.105(q).

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): 1995-2019

☒ 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):_____

Section 404/10 Impacts Table

Farm-to-Market (FM) Road 1641

1217-01-019 and 2588-01-020

3/27/2020

Waterbody or wetland characteristics							Potentially Jurisdictional?		Total Section 404 impacts for WATERBODY OR WETLAND						Total section 404 impacts for CROSSING						Authorization				
									Temporary			Permanent			Temporary			Permanent							
Crossing number	Waterbody or wetland number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (streams only)	Section 404 (waters of the U.S.)	Section 10 (navigable waters)	Temporary waterbody or wetland impacts (acres)	Temporary stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be temporarily discharged	Permanent waterbody or wetland impacts (acres)	Permanent stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be permanently discharged	Temporary waterbody or wetland impacts (acres)	Temporary stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be temporarily discharged	Permanent waterbody or wetland impacts (acres)	Permanent stream impacts (linear feet/acres)	Cubic yards (CY) of fill material to be permanently discharged	Authorization Type	Number (NWP and RGP only)	Reason (PCN only)	Mitigation Required?	Station No.
1	1	unnamed tributary to Mustang Creek	Ephemeral stream	32.73939 N -96.44901 W	0.01	42	Yes	No	0	0	0	0	42/0.01	290	0	0	0	0	42/0.01	290	NWP - No PCN	14	N/A	No	10+25
2	2	unnamed tributary to Mustang Creek	Intermittent stream	32.73270 N -96.44189 W	0.01	110	Yes	No	0	0	0	0	42/0.01	194	0	0	0	0	42/0.01	194	NWP - No PCN	14	N/A	No	42+50
3	3A	Buffalo Creek	Intermittent stream	32.72044 N -96.42776 W	0.14	628	Yes	No	0	100/0.05	1,353	0	99/0.03	892	0	100/0.05 (I) 34/0.02 (E)	892	0	99/0.03	1,740	NWP - No PCN	14	N/A	No	104+50
3	3B	unnamed tributary to Buffalo Creek	Ephemeral stream	32.71970 N -96.42672 W	0.01	11	Yes	No	0	11/0.01	194	0	0	0											105+00
3	3C	unnamed tributary to Buffalo Creek	Ephemeral stream	32.72026 N -96.42783 W	0.01	23	Yes	No	0	23/0.01	194	0	0	0											109+50
4	4	unnamed tributary to Buffalo Creek	Intermittent stream	32.71306 N -96.41909 W	0.26	425	Yes	No	0	74/0.04	431	0	87/0.02	735	0	74/0.04	431	0	87/0.02	735	NWP - No PCN	14	N/A	No	143+00
5	5	unnamed tributary to Buffalo Creek	Intermittent stream	32.71008 N -96.41607 W	0.06	403	Yes	No	0	68/0.03	874	0	68/0.03	369	0	68/0.03	874	0	68/0.03	369	NWP - No PCN	14	N/A	No	157+50
6	6	unnamed tributary to Buffalo Creek	Intermittent stream	32.70405 N -96.40973 W	0.01	30	Yes	No	0	0	0	0	0	0	0	0	0	0	0	0	NWP - No PCN	14	N/A	No	186+75
7	7A	unnamed tributary to Big Brushy Creek	Intermittent stream	32.68558 N -96.38803 W	0.13	280	Yes	No	0	84/0.02	762	0	122/0.09	3,357	0	84/0.02	762	0	122/0.09 (I) 210/04 (E)	4,101	NWP - No PCN	14	N/A	No	281+50
7	7B	unnamed tributary to Big Brushy Creek	Ephemeral stream	32.68580 N -96.38855 W	0.04	210	Yes	No	0	0	0	0	210/0.04	744											280+00
															I - Intermittent										
															E - Ephemeral										

Waters of the U.S. Delineation Report

FM 1641
From FM 548 to FM 148 and FM 548 from FM 1641 US 80

CSJs 1217-01-019 and 2588-01-020

Texas Department of Transportation, Dallas District

February 2020

Table of Contents

List of Tables

1.0 Introduction

The Texas Department of Transportation (TxDOT) conducted a waters of the U.S. (WOTUS) delineation for a proposed road project on Farm-to-Market (FM) 1641 from FM 548 to FM 148 and FM 548 from FM 1641 to United States (US) 80 in Forney and Talty, Kaufman County, Texas (CSJs 1217-01-019 and 2588-01-020). The delineation was completed on February, 17, 2020.

The delineation was performed to evaluate the presence of jurisdictional WOTUS and identify their boundaries within the project area. It is anticipated that this waters of the U.S. delineation report (WOTUS DR) will be used in support of the jurisdictional determination process for on-site aquatic resources. If it is determined that jurisdictional resources will be impacted, this WOTUSDR will also support applications for regulatory permits that may be required from the United States Army Corps of Engineers (USACE) for proposed construction activities.

Waterbodies were delineated according to USACE Regulatory Guidance Letter (RGL) 05-05 Ordinary High Water Mark (OHWM) Identification for non-tidal waters and the Mean High Tide (MHT) line for 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) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (March 2010 Regional Supplement). 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 March 2010 Regional Supplement. The March 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 four (4) attachments:

- Attachment 1 – Figures: contains maps of the project area
- Attachment 2 – Historical Aerial Photographs: contains historical aerial imagery, starting with the oldest photographs first
- Attachment 3 - Site Photographs: contains photographs taken during the site visit(s)
- Attachment 4 – Stream Data Forms

2.0 Project Overview

The proposed project is the widening of FM 1641 and FM 548. The proposed project includes widening approximately 0.2 miles of FM 548 and approximately 5.4 miles of FM 1641. Approximately 20.3 acres of new ROW and 3.0 acres of proposed permanent drainage easements would be required to accommodate the proposed improvements.

Attachment 1 - Figures contains seven maps of the project area. Figure 1 provides a vicinity map that depicts the location of the project area, Figure 2 is a 7.5-minute series United States Geological Survey (USGS) topographic overview map, Figure 3 is an aerial overview map of the project area, Figure 4 is the NWI overview map, Figure 5 is the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil overview map of the project area, Figure 6 is the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM) overview map of the project area, and Figure 7 provides the project layout of the proposed project in relation to the potential jurisdictional WOTUS.

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).

The dominant soil orders in this MLRA are Entisols, Mollisols, and Vertisols. The soils are well drained or moderately well drained and fine textured or medium textured. They have a thermic soil temperature regime, an ustic soil moisture regime, and smectitic, carbonatic, or mixed mineralogy. Moderately deep to very deep, nearly level to gently sloping Haplusterts (Branyon, Burleson, Heiden, Houston Black, Dalco, Leson, and Fairlie series) formed on uplands and stream terraces. Deep and very deep, gently sloping to strongly sloping Haplusterts (Ellis, Ferris, and Vertel series) formed on hillsides. Moderately deep to very deep, gently sloping to moderately sloping Haplustolls (Austin, Krum, Lott, and Stephen series) formed on side slopes and stream terraces. Very deep, gently sloping Calciustolls (Lewisville and Venus series) formed on stream terraces and footslopes below hills and ridges. Shallow, gently sloping to strongly sloping Ustorthents (Eddy series) formed on hillsides and breaks. Very deep, nearly level to gently sloping Haplustalfs (Wilson series) and Paleustalfs (Crockett and Mabank series) formed on ancient stream terraces. Very deep, nearly level Haplustolls (Gowen series) and Hapluderts (Kaufman, Tinn, and Trinity series) formed on flood plains.

This area supports mixed tall and mid prairie grasses. Little bluestem is the dominant species. Indiangrass, big bluestem, switchgrass, tall dropseed, silver bluestem, sideoats grama, eastern gamagrass, and vine mesquite are the major herbaceous species. The plant community has many forbs, such as prairie clover, western ragweed, Maximilian sunflower, gayfeather, rattlesnake master, and Indian plantain. Areas along the major rivers and streams support savanna vegetation. Oak, elm, cottonwood, hackberry, and pecan trees produce a canopy cover of about 30 percent.

The average annual precipitation is 30 to 46 inches (760 to 1,170 millimeters) in most of this area, but it is less than 30 inches in the southern tip. Most of the rainfall occurs in spring and fall. The average precipitation during the freeze-free period is about 24 to 26 inches (610 to 660 millimeters). The average annual temperature is 63 to 69 degrees F (17 to 21 degrees C). The freeze-free period averages about 280 days and ranges from 250 to 310 days. Average annual temperatures and the length of the freeze-free period increase to the south.

The project site is an urban area which consists primarily of existing roadways (FM 1641 and FM 548), surrounded by single-family residential neighborhoods, areas of commercial and industrial use, and undeveloped and agricultural lands. This proposed project area is characterized by mostly Urban ecological system. Land use changes would result in Disturbed Prairie, Agriculture, Riparian, and Open Water ecological systems being converted to Urban (proposed roadway).

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 potential waters of the U.S. within the project area.

4.1.1 USGS Topographic Maps

USGS topographic maps illustrate elevation contours, drainage patterns, and hydrography. The Forney North, Forney South, and Terrell South Texas, USGS Quad maps were reviewed to determine the likelihood of the project area containing jurisdictional waterbodies.

4.1.2 USFWS NWI Data

NWI data were 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) Natural Resources Conservation Service (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.

4.1.5 FEMA FIRM

The Federal Emergency Management Agency (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 jurisdiction of aquatic features. FEMA FIRM data was reviewed to evaluate the location of any mapped floodplain in relation to aquatic resources 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 information is provided by the TNRIS online database for each USGS Quad. LiDAR data was not available for the project area.

4.2 Waters of the U.S. Delineation

With respect to any non-tidal waterbodies located within the project area, biologists followed the methodology outlined in RGL 05-05. With respect to any tidal waterbodies located within the site, biologists identified the MHT line by observing changes in vegetation, drift deposits of shells and debris, and physical markings or characteristics along the shoreline that may indicate the general height reached by a rising tide.

Data collected for any waterbodies includes average water depth, average width per waterbody, 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 March 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 Pathfinder Pro XH Global Positioning System (GPS) receiver and Ranger data logger 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 March 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 prevalent where more than 50% 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 wetlands 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 to 5 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 to reveal soil profiles and to determine whether or not 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

A review of the 1972 Forney South, Texas topographic map showed the proposed project is located in the northwest area of Kaufman County. Tributary to Mustang Creek, Buffalo Creek and its tributaries, and tributaries to Big Brushy Creek cross the proposed project. The elevation varies in the project area from 455 to 500 feet above sea level (Attachment 1, Figure 2).

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
PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated	Freshwater Pond
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	Riverine
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	Riverine

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/Non-hydric
HeC	Heiden clay, 3 to 5 percent slopes	This gently sloping soil is on upland areas that slope to natural drainageways. Runoff is rapid and the hazard of erosion is moderate. The soil series consists of deep, calcareous, clayey soils on uplands. Heiden soils are well drained.	Non-hydric
HoA	Houston Black clay, 0 to 1 percent slopes	This nearly level soil is on broad ridgetops. Runoff is slow and the hazard of erosion is slight. The soil series consists of deep, calcareous clayey soils on uplands. Houston Black soils are moderately well drained. Water intake is rapid when the soil	Non-hydric

Table 2: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non-hydric
		is dry and cracked, but the soils have very slow permeability when wet. Available water capacity is high.	
HoB	Houston Black clay, 1 to 3 percent slopes	This gently sloping soil is on broad watershed divides. Runoff is medium and the hazard of erosion is moderate. The soil series consists of deep, calcareous clayey soils on uplands. Houston Black soils are moderately well drained. Water intake is rapid when the soil is dry and cracked, but the soils have very slow permeability when wet. Available water capacity is high.	Non-hydric
WsA	Wilson silt loam, 0 to 1 percent slopes	This nearly level to slightly depressional soil is on broad upland plains. Runoff is slow and water is ponded in some areas during wet season. The soil series consists of deep, noncalcareous loamy soils on uplands. It is somewhat poorly drained, have very slow permeability and high available water capacity.	Non-hydric
WsC2	Wilson clay loam, 2 to 5 percent slopes, eroded	This gently sloping soil is on broad, low, slightly convex ridges and die slopes. Runoff is medium and the hazard of erosion is moderate. The soil series consists of deep, noncalcareous loamy soils on uplands. It is somewhat poorly drained, have very slow permeability and high available water capacity.	Non-hydric

5.1.4 Aerial Photography

Historic aerial imagery for the project and surrounding areas was evaluated using images provided by Google Earth. The table below summarizes observations for the project area for each year reviewed. Attachment 2 contains copies of the historic aerial photographs reviewed for the project area.

Table 3: Historic Aerial Photography Observations

Year	Observations
1995	FM1641 in its present location. Majority of the adjacent properties consists of vacant lands with some single-family homes. Commercial buildings were located at the northern end of the proposed project.
1996	Additional commercial buildings were observed at the northern end of the proposed project.
2001	The addition of several residential subdivision adjacent to the proposed project was observed throughout the project limits.
2004	No change.
2005	Expansion of adjacent residential subdivisions throughout the project limits. Additional commercial buildings were under construction north of the project limits. Henderson Elementary School, located adjacent to the proposed project (northern section) was constructed.
2008	Expansion of adjacent residential subdivisions throughout the project limits. The Forney Community Park, located on the northern section of the project, was under construction.
2009	No change.
2010	No change.
2011	No change.
2012	Connecting access road and power substation was under construction (mid-section of FM 1641).
2013	No change.
2014	No change.
2015	Connecting CR 212 was under construction.
2016	Gateway Boulevard was completed and adjacent subdivision construction had started.
2017	New development with connecting road Gateway Boulevard under construction.
2018	Adjacent subdivision expansion with connecting road Gateway Boulevard was observed.
2019	No change.

5.1.5 FEMA FIRM

A review of FEMA FIRM Panels 48257C0155D and 48257C0175D (effective 7/3/2012) indicate that the majority of the project area is outside the 100-year floodplain. A small portion along the intermittent tributary to Buffalo Creek is situated within Zone A (areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply). Refer to Figures 3 and 6 in Attachment 1 for an illustration of the FEMA FIRM data within and surrounding the project area.

5.1.6 LiDAR

LiDAR data was not available for the project area.

5.2 Waters of the U.S. Delineation

The table below summarizes the waterbodies identified within the project area. No wetland data points were collected. Refer to Attachment 4, Stream Data Forms for information on each crossing. Along the proposed project. Refer to Figure 7 in Attachment 1 for a depiction of the boundaries of each waterbody as well as the location within the project area. Refer to Attachment 3, Site Photographs, for additional photographs of each waterbody feature observed within the project area.

Table 4: Summary of Waterbody/Wetland Features

Waterbody or Wetland Number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (waterbodies only)	Potentially Jurisdictional (Section 404)?	Potentially Navigable (Section 10)?
1	Unnamed tributary to Mustang Creek	Ephemeral stream	32.73939 N -96.44901 W	0.01	41	Yes	No
2	Unnamed tributary to Mustang Creek	Intermittent stream	32.73270 N -96.44189 W	0.01	110	Yes	No
3A	Buffalo Creek	Intermittent stream	32.72044 N -96.42776 W	0.14	628	Yes	No
3B	Unnamed tributary to Buffalo Creek	Ephemeral stream	32.71970 N -96.42672 W	0.01	11	Yes	No
3C	Unnamed tributary to Buffalo Creek	Ephemeral stream	32.72026 N -96.42783 W	0.01	23	Yes	No

Waterbody or Wetland Number	Name	Type	Latitude, Longitude	Acres within project area (all waterbodies and wetlands)	Linear feet within project area (waterbodies only)	Potentially Jurisdictional (Section 404)?	Potentially Navigable (Section 10)?
4	Unnamed tributary to Buffalo Creek	Intermittent stream	32.71306 N -96.41909 W	0.26	425	Yes	No
5	Unnamed tributary to Buffalo Creek	Intermittent stream	32.71008 N -96.41607 W	0.06	403	Yes	No
6	Unnamed tributary to Buffalo Creek	Intermittent stream	32.70405 N -96.40973 W	0.01	30	Yes	No
7A	Unnamed tributary to Big Brushy Creek	Intermittent stream	32.68558 N -96.38803 W	0.13	280	Yes	No
7B	Unnamed tributary to Big Brushy Creek	Ephemeral stream	32.68580 N -96.38855 W	0.04	210	Yes	No

5.2.1 Hydrology

No wetlands were identified.

5.2.2 Vegetation

Normal circumstances conditions were present within the project area. 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 current NWPL.

Table 5: Upland Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	*Celtis laevigata*	Sugar-Berry	FAC
Tree	*Juniperus virginiana*	Eastern Red-Cedar	FACU
Tree	*Gleditsia triacanthos*	Honey-Locust	FACU
Sapling/Shrub	*Celtis laevigata*	Sugar-Berry	FAC
Sapling/Shrub	*Juniperus virginiana*	Eastern Red-Cedar	FACU

Strata	Scientific Name	Common Name	NWPL Classification
Herb	*Sorghum halepense*	Johnson grass	FACU
Herb	*Ambrosia trifida*	Great Ragweed	FAC
Woody Vine	*Smilax bona-nox*	Fringed Greenbrier	FACU
Woody Vine	*Toxicodendron radicans*	Eastern Poison Ivy	FAC

Table 6: Riverine Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Tree	*Populus deltoides*	Eastern Cottonwood	FACW
Tree	*Salix nigra*	Black Willow	FACW
Tree	*Fraxinus pennsylvanica*	Green Ash	FACW
Sapling	*Salix nigra*	Black Willow	FACW
Herb	*Andropogon glomeratus*	Bushy bluestem	FACW
Herb	*Ambrosia trifida*	Great Ragweed	FAC

5.2.3 Soils

No wetlands identified.

6.0 Conclusion

A WOTUS delineation was conducted for the FM 1641 and FM 548 from FM 1641 and FM 548 to FM 148 and US 80 in Forney and Talty, Kaufman County, Texas (CSJs 1217-01-019 and 2588-01-020). Refer to Section 5.2, above, for a table summarizing the aquatic resources (i.e., waterbodies/wetlands) identified within the project area.

Crossings 1 to 7 are relatively permanent waters (RPWs) that exhibit a direct downstream connection to a TNW. Due to Crossing 1 to 7's continuous surface connection to a TNW, the USACE will likely assert jurisdiction over these features.

The professional opinion offered in this report is based on best professional judgement. It should be noted that the USACE makes the final determination on the location of waterbody and wetland boundaries and their jurisdictional status. To obtain an official jurisdictional determination (JD) from the USACE, this report must be submitted to the USACE Fort Worth District Office, along with a JD request form and, if appropriate, a pre-construction notification / permit application.

7.0 References

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8.0 Attachments

1. Figures
2. Historical Aerial Photographs
3. Site Photographs

Attachment 1 - Figures

Attachment 2 - Historical Aerial Photographs

Attachment 3 - Site Photographs

Attachment 4 – Stream Data Forms