

# Waters of the U.S. Delineation Report

# Loop 9, Segment B: From IH 35E to IH 45 (CSJ 2964-10-005)

Texas Department of Transportation, Dallas District

April 2020

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 waters of the U.S. (WOTUS) delineation for a proposed road project on Loop 9, Segment B from Interstate Highway IH 35 East (IH 35E) to IH 45 in Dallas and Ellis counties, Texas (CSJ 2964-10-005). The delineation was completed on January 29 and May 1, 2019. Field evaluations occurred in discontinuous months as additional access became available.

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 WOTUS DR 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 (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 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 four (4) attachments:

- Attachment 1 Figures: contains maps of the project area
- Attachment 2 Wetland Determination Data Forms: documents the three (3) criteria for wetlands at all sample points
- Attachment 3 Historical Aerial Photographs: contains historical aerial imagery, starting with the oldest photographs first
- Attachment 4 Site Photographs: contains photographs taken during the site visit(s)

# 2.0 Project Overview

The TxDOT-Dallas District proposes the construction of Loop 9 as a new location frontage road system between IH 35E to IH 45 through Dallas and Ellis Counties, Texas. The length of the project is an approximate ten-mile new location frontage road system. The proposed project would also include the preservation of right-of-way (ROW) for an ultimate access-controlled main lane facility. Construction of the future main lanes would be based on projected traffic and funding and would require additional environmental analysis prior to construction.

This project is going through the planning, specifications, and estimates (PS&E) process. It was determined during the PS&E process that additional ROW must be required for construction of the IH 35E Interchange.

The proposed construction of the IH 35E Interchange will now require an additional approximately 41 acres of new right-of-way (ROW) for the use of staging area(s) along IH 35E for construction of the interchange at the proposed Loop 9, as well as the preservation of the additional ROW for future construction of the ultimate interchange facility (final phase). The proposed ROW located along the west side of IH 35E from north of Travis

Street to south of Parakeet Drive will be needed, to accommodate the proposed interchange improvements of ramps, bridge structures, and frontage roads within the project area. Total project length of the IH 35E interchange at Loop 9 is approximately 0.5 miles in length.

This WOTUS DR only covers the approximately 41 acres of new ROW. Approximately 23 acres of the 41 acre project area (56 percent) have been surveyed. The remainder of the project area could not be field surveyed due to lack of right-of-entry (ROE). Those areas have been desktop delineated using available resources. Resources used to conduct the desktop delineation are described in Section 4.0.

Attachment 1 - Figures contains the following eight (8) maps of the project area:

- Figure 1 Vicinity Map
- Figure 2 Aerial Overview Map
- Figure 3 USGS Topographic Map
- Figure 4 NWI Wetland Map
- Figure 5 NRCS Soils Map
- Figure 6 FEMA Floodplain Map
- Figure 7 LiDAR Map
- Figure 8 Waters of the U.S. Delineation Map

#### **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). Most of this MLRA is characterized by a nearly level to gently sloping, dissected plain. Dissected areas with steeper slopes occur along entrenched river and creek valleys. This area supports mixed tall and mid-grass prairies. Areas along the major rivers and streams support savanna vegetation. Nearly all of this area is improved pasture, cropland, or rangeland. Urban development is rapidly increasing adjacent to the major cities.

The project area consists of existing and proposed ROW. Currently, the project area consists of disturbed land, agricultural land, pastures, shrublands and maintained residential lawns. Additionally, vegetation within existing ROW along IH 35E, within the project area, consists primarily of well maintained, regularly mowed, herbaceous roadside vegetation.

# 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 WOUS within the project area.

#### 4.1.1 USGS Topographic Maps

The United States Geological Survey (USGS) topographic maps illustrate elevation contours, drainage patterns, and hydrography. The Lancaster, Texas, USGS Quadrangle (Quad) map was 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 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 GeoSearch<sup>™</sup> database and 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 Texas Natural Resources Information System (TNRIS) online database for each USGS Quad. LiDAR data was obtained for the Lancaster, Texas, USGS Quad to evaluate elevation changes throughout 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 Regulatory Guidance Letter (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 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 GeoXH 6000 Series Global Positioning System (GPS) with submeter accuracy. All geospatial data was collected in accordance with the April 21, 2016 memorandum from the Galveston District of the USACE entitled, Standard Operating Procedure, Recording Jurisdictional Delineations using GPS.

#### 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 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

The USGS Lancaster, Texas 7.5-minute topographic Quad map from 2019 was reviewed to assess the surface topography within the project area. A review of the topographic map indicates that elevation varies slightly throughout the project area. Topography within the southern half of the project area slopes in a general southern direction within the Headwaters of Red Oak Creek sub watershed. Topography within the northern half of the project area slopes in a general northern direction within the Middle Red Oak Creek sub watershed. Both sub watersheds are within the Red Oak Creek watershed. Refer to Figure 3 in Attachment 1 for an illustration of topography.

#### 5.1.2 USFWS NWI Data

No NWI features were identified within the project area. Refer to Figure 4 in Attachment 1 for an illustration of NWI features surrounding the project area.

#### 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.

Soil Unit	Soil Unit Name	Description	Hydric/Non hydric							
	Dallas County									
5	Austin silty clay, 1 to 3 percent slopes	Found in landform ridges, well drained and high runoff class, farmland of statewide importance	Non-hydric							
44	Houston black clay, 1 to 3 percent slopes	Found in landform ridges, moderately well drained and a very high runoff class, all areas are prime farmland	Non-hydric							
		Ellis County								
AuB	Austin silty clay, 1 to 3 percent slopes	Found in landform ridges, well drained and high runoff class, farmland of statewide importance	Non-hydric							

#### Table 1: NRCS Soil Units

Table 1: NRCS Soil Units

Soil Unit	Soil Unit Name	Description	Hydric/Non hydric
		Ellis County (continued)	
НаВ	Houston Black clay, 1 to 3 percent slopes	Found in landform ridges, moderately well drained and a very high runoff class, all areas are prime farmland	Non-hydric

#### 5.1.4 Aerial Photography

Historic aerial imagery for the project and surrounding areas was evaluated using images provided by GeoSearch<sup>™</sup> and Google Earth. The table below summarizes observations for the project area for each year reviewed. Attachment 3 contains copies of the historic aerial photographs reviewed for the project area.

Table 2: Historic Aerial Photography Observations

Year	Observations
1958	The 1958 aerial photograph depicts the majority of the project area and the surrounding area as predominantly rural and agricultural land use. IH 35E is visible in the photograph.
1968	Residential development began along IH 35E, north of the project area, between 1958 and 1968.
1972	Residential development began within the city of Glenn Heights, northwest of the project area, between 1968 and 1972. Development within the project area along IH 35E began between 1968 and 1972.
1981	Residential development began along Red Oak Creek and Little Creek west of the project area and continued in the surrounding areas. Development within the project area along IH 35E continued between 1972 and 1981.
1995	Residential development continued along IH 35E north and east of the project area as well as within the city of Glenn Heights between 1981 and 1995.
2016	Development has increased steadily from 1958 to present in the areas surrounding the project area, land use within the project area is a mix of rural, residential, and commercial.

#### 5.1.5 FEMA FIRM

A review of FEMA FIRMs indicated that the project area is located outside of the floodplain. Refer to Figure 6 in Attachment 1 for an illustration of the FEMA FIRM data surrounding the project area.

#### 5.1.6 LiDAR

A review of LiDAR data indicated the topography within the southern half of the project area is generally sloping from the north to the south while the topography within the northern half of the project area is generally sloping from the south to the north. Refer to Figure 7 in Attachment 1 for an illustration of LiDAR data within the project area.

#### 5.2 Waters of the U.S. Delineation

The table below summarizes the waterbodies/wetlands identified within the project area. Refer to Figure 8 in Attachment 1 for a depiction of the boundaries of each waterbody/wetland feature, as well as the location within the project area where sample point data were collected. Refer to Attachment 2, Wetland Determination Data Forms, for the completed wetland determination data forms for the project. Refer to Attachment 4, Site Photos, for photographs of the project area.

Waterbody or Wetland Number	Name	Туре	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)?	
Pond 10	Pond	Man- made Pond	32.546524, -96.825042	0.03	NA	No	No	
То	tal			0.03				
NA Not Applicable; used to denote when a feature is not measured in that unit								

Table 3: Summary of Waterbody/Wetland Features

#### 5.2.1 Hydrology

Normal hydrologic circumstances were present within the project area. 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.

Table 4: Wetland Hydrological Indicators

Wetland Type	Sample Point	Primary Wetland Hydrological	Secondary Wetland		
	Name(s)	Indicators	Hydrological Indicators		
N/A	DPB060	N/A	Geomorphic Position		

#### 5.2.2 Vegetation

Normal circumstances 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 2016 NWPL.

Strata	Scientific Name	Common Name	NWPL Classification
Sapling/Shrub	Juniperus virginiana	Eastern red cedar	UPL
Sapling/Shrub	Maclura pomifera	Osage orange	FACU
Herb	Cynodon dactylon	Bermuda grass	FACU
Herb	Sorghum halepense	Johnson grass	FACU

Table 5: Disturbed Prairie Dominant Plant Species

#### Table 6: Urban Dominant Plant Species

Strata	Scientific Name	Common Name	NWPL Classification
Herb	Lolium perenne	Ryegrass	FACU
Herb	Cynodon dactylon	Bermuda grass	FACU

#### 5.2.3 Soils

Common soils found within the project area include clay, clay loam, dark matrix color with a chroma of 2 or 3 and low value of 1 or 2. Normal circumstances were present throughout the project area. No sample points exhibited hydric soils within the project area. Refer to the wetland determination data forms in Attachment 2 to see the specific soil data recorded at each sample point.

# 6.0 Conclusion

A WOTUS delineation was conducted for the Loop 9, Segment B from IH 35E to IH 45 in Dallas and Ellis counties, Texas (CSJ 2964-10-005). The field delineation was completed on January 29 and May 1, 2019. Refer to Section 5.2, above, for a table summarizing the aquatic resources (i.e., waterbodies/wetlands) identified within the project area.

Based on observations and data collected in the field, as well as desktop delineations where field access was not available, 0.03 acres of open water features were delineated within the project area. Based on best professional judgment, it was determined that 0.0 acres of open water features delineated within the project area would be considered jurisdictional.

Pond 10 is a man-made feature excavated in an upland area of the proposed project area. Pond 10 is located outside of the 100-year floodplain with no surface water connections observed; therefore, Pond 10 is considered potentially non-jurisdictional.

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 preconstruction notification / permit application.

# 7.0 References

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# 8.0 Attachments

- 1. Figures
- 2. Wetland Determination Data Forms
- 3. Historical Aerial Photographs
- 4. Site Photographs

# Attachment 1 - Figures



Project Alignment Sources: 2020-01-15-LP9 ULT-Alternative 1.kmz (includes IH 35E)















FIGURE 4 Sheet 3

DATE: March 2020

Ν

125

250 Feet

Texas Department of Transportation























# **Attachment 2 - Wetland Determination Data Forms**

#### WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site:	e: Loop 9, Segment B				Cour	nty:	Elli	S	Sampling Date:	Jar	nuary 29, 2019	
Project/Site:     Loop 9, Segment B       Applicant/Owner:     TxDOT-Dallas District       Investigator(s):     Grahme Borchardt     and     Sally Clark       Landform (hillslope, terrace, etc.):     Flat						State:	Texas	Sampling Point:		DPB012		
Investigator(s):	Grahm	ne Borcha	ardt	and S	Sally Clark		Section, Tov	wnship, Ra	ange:		N/A	
Landform (hillslope,	terrace, e	etc.):		Flat			Local relief (	(concave,	convex, none):	None	Slope (%):	00-05
Subregion (LRR):			L	_RR J		Lat:	-96.82	2490	Long:	32.54646	Datum:	NAD 1983 (CONUS)
Soil Map Unit Name	:			Austin silt	y clay, 1 to 3	percent	slopes		NV	VI Classification:		Upland
Are climatic / hydrolo	ogic condi	itions on	the site	e typical for this t	ime of year?		Yes <u>X</u>	No	(if no, e	xplain in Remarks.	)	
Are Vegetation	No	,Soil	No	,or Hydrology	No sig	nificantly	y disturbed?		Are "Normal C	ircumstances" pres	sent? Yes	X No
Are Vegetation	No	,Soil	No	,or Hydrology	No nat	turally pr	oblematic?		(If needed, exp	olain any answers i	n Remarks.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No	x x x	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>	
Remarks: This point was determined not to I	be within a wetla	nd due to the lac	ck of all th	ree wetland criteria.			

#### **VEGETATION - Use scientific names of plants.**

	Absolute Dominant	Indicator	Dominance Test worl	ksheet:			
Tree Stratum (Plot size: 30 ft.)	% cover Species?	Status	Number of Dominant S	Species			
1. None Observed			That Are OBL. FACW.	or FAC:		0	(A)
2			, , ,				_ ` ′
3			Total Number of Domi	nant			
4			Species Across All Str	ata:		1	(B)
т	- Total Covor	·		ala.		•	_ (D)
Conling/Chruh Stratum (Distaire) 15 ft			Dereent of Deminant C	na cico			
Sapiring/Shrub Stratum (Plot size: 15 II.	)		That Are ODL FACIAL	species		•	
			That Are OBL, FACVV,	OFFAC:		U	(A/B)
2			Brovalance Index We	rkahaatu			
3	<u> </u>			KSneet.			
4	<u> </u>		Total % Cov	er of:	Mu	Itiply by:	_
5			OBL species	0	x1=	0	_
	= Total Cover		FACW species	0	x 2 =	0	_
Herb Stratum (Plot size: 5 ft. )			FAC species	0	x 3 =	0	_
1. Sorghum halepense	75 Yes	FACU	FACU species	75	x 4 =	300	
2		. <u> </u>	UPL species	0	x 5 =	0	
3			Column Totals:	75	(A)	300	(B)
4			Prevalence Index = B/	A =	4.00		
5.							
6.			Hydrophytic Vegetati	on Indicato	rs:		
7.			1 - Rapid Test for	Hydrophytic	c Vegetation	n	
8.			2 - Dominance Te	est is >50%	Ū		
9			3 - Prevalence Inc	dex is $\leq 3.0^1$			
10			4 - Morphological	Adaptations	s <sup>1</sup> (Explain)		
10	75 – Total Cover		Problematic Hydr	onhytic Veg	etation <sup>1</sup> (Ex	nlain)	
Weeds Vine Stratum (Dist size: 20 ft							
Woody vine Stratum (Plot size: 30 ft.	_)		he present unless dist	hurbed or pro	na nyarolog oblematic	ly musi	
		·		and a or pro			
2.			Hydrophytic				
	Total Cover		Maria de la				
			Vegetation	-			
% Bare Ground in Herb Stratum 25			Present?	١	/es	No	x
% Bare Ground in Herb Stratum25	= Total Cover		Vegetation Present?	١	/es	No	<u>x</u>

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

DPB012

epth Matrix			Redox	Features			
nches) Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-20 10YR 2/1	100	None				Clay Loam	
		·			<u> </u>		
						. <u></u>	
	—						
ype: C=Concentration, D=De	oletion, RM=F	Reduced Matrix, CS	S=Covered	or Coated Sand Gr	ains. <sup>2</sup> L	ocation: PL=Pore Lini	ng, M=Matrix.
yune sons mulcators. (App		LKKS, unless our				Indicators for Prot	Diematic Hydric Solis :
Histosol (A1)		Sandy	Gleyed Mat	trix (S4)		1 CM MUCK (AS	
Histic Epipedon (A2)		Sandy	Redox (S5)	)		Coast Prairie F	Redox (A16) <b>(LRR F, G, H)</b>
Black Histic (A3)		Strippe	ed Matrix (S	6)		Dark Surface (	S7) <b>(LRR G)</b>
Hydrogen Sulfide (A4)		Loamy	Mucky Min	eral (F1)		High Plains De	pressions (F16)
Stratified Layers (A5) (LRR	F)	Loamy	Gleyed Ma	ıtrix (F2)		(LRR H o	utside of MLRA 72 & 73)
1 cm Muck (A9) (LRR F, G	, H)	Deplete	ed Matrix (F	-3)		Reduced Verti	c (F18)
Depleted Below Dark Surfa	ce (A11)	Redox	Dark Surfa	ce (F6)		Red Parent Ma	aterial (TF2)
Thick Dark Surface (A12)		Deplete	ed Dark Su	rface (F7)		Very Shallow [	Dark Surface (TF12)
Sandy Mucky Mineral (S1)		Redox	Depression	ns (F8)		Other (Explain	in Remarks)
2.5 cm Muckv Peat or Peat	(S2) (LRR G	,H) High P	lains Depre	ssions (F16)		<sup>3</sup> Indicators of hydro	phytic vegetation and
5 cm Mucky Peat or Peat (	S3) (LRR F)	, , <u> </u>	ILRA 72 &	73 of LRR H)		wetland hydrol	ogy must be present,
	,	(				unless disturbe	ed or problematic.
estrictive Layer (if observed)	:						
Type:							
Depth (inches):					Hydrid	Soil Present?	Ves No X
Deptil (inches).					inyun	5 JOINT RESERVE	
narks. o positive indication of hydric s	oils was obse	erved.					
narks. o positive indication of hydric s	oils was obse	erved.					
PROLOGY	oils was obse	erved.					
PROLOGY	oils was obse	erved.					
PROLOGY iteland hydrology Indicators rimary Indicators (minimum of	oils was obse	erved.	oply)			Secondary Indicator	rs (minimum of two required)
PROLOGY iterand hydrology Indicators rimary Indicators (minimum of 	oils was obse	erved. <u>ed; check all that ap</u> Salt Cr	oply) rust (B11)			Secondary Indicator	rs (minimum of two required) racks (B6)
PROLOGY vertiand hydrology Indicators rimary Indicators (minimum of Surface Water (A1) High Water Table (A2)	oils was obse	erved. d; check all that ap Salt Cr Aquatic	oply) rust (B11) c Invertebra	ites (B13)		Secondary Indicator	rs (minimum of two required) racks (B6) tated Concave Surface (B8)
PROLOGY Vertiand hydrology Indicators rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3)	oils was obse	erved. d; check all that ap Salt Cr Aquatio Hydrog	oply) rust (B11) c Invertebra gen Sulfide (	ttes (B13) Odor (C1)		Secondary Indicator	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10)
PROLOGY Verland hydrology Indicators rimary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	oils was obse	erved. d; check all that ap Salt Cr Aquatio Hydrog Dry-Se	oply) rust (B11) c Invertebra gen Sulfide e ason Wate	ttes (B13) Odor (C1) r Table (C2)		Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) ospheres on Living Roots (C3)
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PROLOGY PROLOGY Privation of hydric s PROLOGY Privation (A1) Privation (A2) Privation (A3) Privation (A2) Priva	oils was obse	erved. ed; check all that ap Salt Cr Aquation Hydrog Dry-Se Oxidize (where Presen Thin M Other (	oply) ust (B11) c Invertebra gen Sulfide ead Rhizosph e not tilled) nce of Redu luck Surfaca Explain in F	ates (B13) Odor (C1) r Table (C2) heres on Living Roc iced Iron (C4) e (C7) Remarks)	ots (C3)	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) ospheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
PROLOGY  PROLOGY  Provide the indication of hydric s  PROLOGY  Provide the indicators (minimum of 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 Water-Stained Leaves (B9	oils was obse	erved. ed; check all that ag Salt Cr Aquatio Hydrog Dry-Se Oxidize (where Presen Thin M Other (	oply) ust (B11) c Invertebra gen Sulfide asson Wate ed Rhizosph e not tilled) ace of Redu uck Surface Explain in F	ates (B13) Odor (C1) r Table (C2) heres on Living Roc iced Iron (C4) e (C7) Remarks)	ots (C3)	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) ospheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
PROLOGY PROLOGY Vetland hydrology Indicators rimary Indicators (minimum of 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 Water-Stained Leaves (B9 eld Observations:	oils was obse	erved. ed; check all that ag Salt Cr Aquatic Hydrog Dry-Se Oxidize (where Presen Thin M Other (	oply) ust (B11) c Invertebra gen Sulfide asson Wate ed Rhizosph e not tilled) ace of Redu luck Surface [Explain in F	ttes (B13) Odor (C1) r Table (C2) heres on Living Roc liced Iron (C4) e (C7) Remarks)	ots (C3)	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) rrns (B10) ospheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
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PROLOGY  Pretland hydrology Indicators  imary Indicators (minimum of	oils was obse	erved.	oply) rust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph ance of Redu luck Surface (Explain in F coth (inches) oth (inches) oth (inches) hotos, previ	ites (B13) Odor (C1) r Table (C2) heres on Living Roc ced Iron (C4) e (C7) Remarks) : <u>N/A</u> : <u>N/A</u> ious inspections), if	ots (C3) Wetla available:	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) spheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) (LRR F)
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PROLOGY  PROLOGY  Provide the indication of hydric s  PROLOGY  Provide the indicators (minimum of marks)  Provide the indication of wetland  Provide the indication of	oils was obse	erved.	oply) rust (B11) c Invertebra gen Sulfide asson Wate ed Rhizosph ance of Redu luck Surface (Explain in F oth (inches) oth (inches) oth (inches) hotos, previ	ates (B13) Odor (C1) r Table (C2) heres on Living Roc ced Iron (C4) e (C7) Remarks) : <u>N/A</u> : <u>N/A</u> ious inspections), if	ots (C3) Wetla available:	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) spheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
PROLOGY  PROLOGY  Provide the indication of hydric s  PROLOGY  Provide the indicators (minimum of marks)  Provide the indication of wetlance  Provide the	oils was obse	erved.	oply) rust (B11) c Invertebra gen Sulfide asson Wate ed Rhizosph <b>a not tilled)</b> nce of Redu luck Surface (Explain in F oth (inches) oth (inches) oth (inches) hotos, previ	ates (B13) Odor (C1) r Table (C2) heres on Living Roc iced Iron (C4) e (C7) Remarks) : <u>N/A</u> : <u>N/A</u> ious inspections), if	ots (C3) Wetla available:	Secondary Indicator Surface Soil C Sparsely Vege Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burro Saturation Visi Geomorphic P FAC-Neutral T Frost-Heave H	rs (minimum of two required) racks (B6) tated Concave Surface (B8) erns (B10) spheres on Living Roots (C3) ws (C8) ble on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>

#### WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site:	Loop 9, Segment B			Cour	nty:	Elli	s	Sampling Date:	Jar	nuary 29, 2019		
Applicant/Owner:	TxDOT-Dallas District					State:	Texas	Sampling Point:		DPB013		
Investigator(s):	Grahm	ne Borcha	ardt	and S	Sally Clark		Section, Tov	vnship, Ra	inge:		N/A	
Landform (hillslope,	terrace, e	etc.):		Flat			Local relief (	concave,	convex, none):	None	Slope (%):	00-05
Subregion (LRR):			L	_RR J		Lat:	-96.82	471	Long:	32.54561	Datum:	NAD 1983 (CONUS)
Soil Map Unit Name	:			Houston bla	ick clay, 1 to	3 perce	nt slopes		NV	VI Classification:		Upland
Are climatic / hydrolo	ogic condi	itions on	the site	e typical for this ti	ime of year?		Yes <u>X</u>	No	(if no, e	xplain in Remarks.	)	
Are Vegetation	No	,Soil	No	,or Hydrology	No sig	nificantly	v disturbed?		Are "Normal C	ircumstances" pres	sent? Yes	X No
Are Vegetation	No	,Soil	No	,or Hydrology	No nat	turally pr	oblematic?		(If needed, exp	olain any answers i	n Remarks.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	X X X	Is the Sampled Area within a Wetland?	Yes	No	X	
Remarks: This point was determined not to b	e within a wetland d	ue to the	lack of all thr	ee wetland criteria.				

#### **VEGETATION - Use scientific names of plants.**

	Absolute	Dominant	Indicator	Dominance Test wor	ksheet:			
Tree Stratum (Plot size: 30 ft. )	% cover	Species?	Status	Number of Dominant S	Species			
1. None Observed		<u> </u>		That Are OBL, FACW	, or FAC:		0	(A)
2.								
3.				Total Number of Domi	nant			
4.				Species Across All Str	rata:		3	(B)
	=	Total Cover						_ ` `
Sapling/Shrub Stratum (Plot size: 15 ft.	)			Percent of Dominant S	Species			
1. Maclura pomifera		Yes	FACU	That Are OBL_EACW_or EAC			0	(A/B)
2 Juniperus virginiana	5	Yes	UPL	,				_ ( ' ' '
3				Prevalence Index Wo	orksheet:			
4				Total % Cov	ver of	Mu	ltiply by:	
5.				OBL species	0	x 1 =	0	_
	8 =	Total Cover		FACW species	0	x 2 =	0	_
Herb Stratum (Plot size: 5 ft. )				FAC species	0	x 3 =	0	_
1. Cvnodon dactvlon	97	Yes	FACU	FACU species	100	x 4 =	400	_
2.				UPL species	5	x 5 =	25	_
3				Column Totals	105	(A)	425	(B)
4.				Prevalence Index = B/	A =	4.05		_ (-/
5					···		<u> </u>	
6				Hydrophytic Vegetati	ion Indicato	·s·		
7				1 - Rapid Test for	r Hydrophytic	Vegetation	<b>.</b>	
8				2 - Dominance Te	est is >50%	vogotatioi		
9				3 - Prevalence In	dex is $\leq 3.0^1$			
10				4 - Morphological	Adaptations	<sup>1</sup> (Explain)		
	97 =	Total Cover		Problematic Hvdr	ophytic Vege	tation <sup>1</sup> (Ex	olain)	
Woody Vine Stratum (Plot size: 30 ft	<u> </u>			<sup>1</sup> Indicators of hydric so	oping and wetlar		v must	
1 None Observed	)			be present, unless dis	turbed or pro	blematic.	ymusi	
2	·	<u> </u>						
2		Total Cover		Hydrophytic				
% Para Ground in Harb Stratum 3		Total Cover		Vegetation	v	06	No	v
				Present?	1		_ 110 _	<u>^</u>
Remarks:				1				
No constation to dispation of boolean boats (199		500/ 61		54011 1: )				

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

DPB013

eptn	Matrix			Redox	Features	0		
ches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-20	10YR 2/1	100	None				Clay Loam	
					<u> </u>			
ype: C=Conce	entration, D=Depl	etion, RM=I	Reduced Matrix,	CS=Covered	or Coated Sand Gra	ns.	<sup>2</sup> Location: PL=Pore Lining,	M=Matrix.
dric Soils Ind	licators: (Applic	able to all	LRRs, unless o	therwise not	ed.)		Indicators for Proble	matic Hydric Soils <sup>°</sup> :
Histosol (A1	1)		Sano	dy Gleyed Mat	trix (S4)		1 cm Muck (A9) <b>(</b>	LRR I, J)
Histic Epipe	edon (A2)		Sano	dy Redox (S5)			Coast Prairie Rec	lox (A16) <b>(LRR F, G, H)</b>
Black Histic	: (A3)		Strip	ped Matrix (S	6)		Dark Surface (S7	) (LRR G)
Hydrogen S	Sulfide (A4)		Loar	ny Mucky Min	eral (F1)		High Plains Depre	essions (F16)
Stratified La	ayers (A5) <b>(LRR F</b>	-)	Loar	ny Gleyed Ma	trix (F2)		(LRR H outs	side of MLRA 72 & 73)
1 cm Muck	(A9) <b>(LRR F, G, I</b>	H)	Depl	eted Matrix (F	-3)		Reduced Vertic (I	-18)
Depleted Be	elow Dark Surfac	e (A11)	Rede	ox Dark Surfa	ce (F6)		Red Parent Mate	rial (TF2)
Thick Dark	Surface (A12)		Depl	eted Dark Su	rface (F7)		Very Shallow Dar	k Surface (TF12)
Sandy Mucl	ky Mineral (S1)		Rede	ox Depressior	ns (F8)		Other (Explain in	Remarks)
2.5 cm Muc	ky Peat or Peat (	S2) <b>(LRR G</b>	i, <b>H)</b> High	Plains Depre	essions (F16)		<sup>3</sup> Indicators of hydrophy	tic vegetation and
5 cm Mucky	Peat or Peat (S3	B) (LRR F)		(MLRA 72 &	73 of LRR H)		wetland hydrolog	/ must be present,
						1	unless disturbed	or problematic.
strictive Laye	er (if observed):							
Type:								
Depth (inch	es):					Hyd	ric Soil Present?	Yes No X
narks: ) positive indic	ation of hydric so	ils was obse	erved.					
narks: positive indic	ation of hydric so	ils was obse	erved.					
narks: positive indic	ation of hydric so	ils was obse	erved.					
narks: positive indic ROLOGY etland hydrole	ation of hydric so	ils was obse	erved.					
narks: positive indic ROLOGY etland hydrole imary Indicator	ation of hydric so ogy Indicators: rs (minimum of or	ils was obse	erved. ed; check all that	apply)			Secondary Indicators (	minimum of two required)
narks: positive indic ROLOGY etland hydrole imary Indicator Surface Wa	ation of hydric so ogy Indicators: rs (minimum of or ater (A1)	ils was obse	erved. ed; check all that Salt	apply) Crust (B11)			Secondary Indicators	minimum of two required)
narks: positive indic ROLOGY etland hydrolo imary Indicator Surface Wa High Water	ation of hydric so ogy Indicators: rs (minimum of or tter (A1) Table (A2)	ils was obse	erved. ed; check all that Salt Aqua	apply) Crust (B11) atic Invertebra	tes (B13)		Secondary Indicators ( Surface Soil Crac Sparsely Vegetat	minimum of two required) iks (B6) ed Concave Surface (B8)
narks: p positive indic positive indic ROLOGY etland hydrolo imary Indicator Surface Wa High Water Saturation (	ation of hydric so ogy Indicators: rs (minimum of or tter (A1) Table (A2) A3)	ils was obse	erved. ed; check all that Salt Aqua Hydr	apply) Crust (B11) atic Invertebra	tes (B13) Odor (C1)		Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10)
ROLOGY etland hydrolo Surface Wa High Water Saturation ( Water Mark	ation of hydric so ogy Indicators: rs (minimum of or tter (A1) Table (A2) A3) ss (B1)	ils was obse	erved. ed; check all that Salt Aqua Hydr Dry-1	apply) Crust (B11) titc Invertebra ogen Sulfide Season Wate	ttes (B13) Odor (C1) r Table (C2)		Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern Oxidized Rhizosp	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10) heres on Living Roots (C3)
narks: p positive indic positive indic positive indic ROLOGY etland hydrolo imary Indicator Surface Wa Undicator Saturation ( Water Mark Sediment D	ation of hydric so ogy Indicators: rs (minimum of or tter (A1) Table (A2) A3) rs (B1) Deposits (B2)	ils was obse	erved. ed; check all that Salt Aqua — Aqua — Hydr — Dry-: — Oxid	apply) Crust (B11) tic Invertebra ogen Sulfide Season Wate ized Rhizospl	ttes (B13) Odor (C1) r Table (C2) heres on Living Root		Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern Oxidized Rhizosp (where tilled)	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10) heres on Living Roots (C3)
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ROLOGY etland hydrold imary Indicator Surface Wa High Water Saturation ( Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi	ation of hydric so ogy Indicators: rs (minimum of or ater (A1) Table (A2) (A3) rs (B1) Veposits (B2) its (B3) r Crust (B4) ts (B5)	ils was obse	erved. ed; check all that Salt Aqua Hydr Dry-1 Oxid (whe Pres Thin	apply) Crust (B11) atic Invertebra ogen Sulfide Season Wate ized Rhizospl ere not tilled) ence of Redu Muck Surface	ttes (B13) Odor (C1) r Table (C2) heres on Living Root ced Iron (C4) e (C7)	5 (C3)	Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern Oxidized Rhizosp (where tilled) Crayfish Burrows Saturation Visible Geomorphic Posi	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10) heres on Living Roots (C3) (C8) on Aerial Imagery (C9) tion (D2)
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narks: p positive indic positive indic positive indic etland hydrold imary Indicator Surface Wat High Water Saturation ( Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Inundation N Water-Stair eld Observation rface Water P ater Table Pre ater Table Pre ater Table Prese icludes capillar scribe Recorde marks: p positive indic	ation of hydric so ogy Indicators: rs (minimum of or ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A2) (A3) (A3) (A3) (A2) (A3) (A3) (A3) (A2) (A3)	ils was obse	erved. ed; check all that 	apply) Crust (B11) atic Invertebra ogen Sulfide Season Wate ized Rhizospl ere not tilled) ence of Redu Muck Surface r (Explain in F Depth (inches) bepth (inches) photos, previ	ttes (B13) Odor (C1) r Table (C2) heres on Living Root ced Iron (C4) e (C7) Remarks) : <u>N/A</u> : <u>N/A</u> ious inspections), if a	s (C3) Wet	Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern Oxidized Rhizosp (where tilled) Crayfish Burrows Saturation Visible Geomorphic Posi FAC-Neutral Tesi Frost-Heave Hurr Hand Hydrology Present?	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10) heres on Living Roots (C3) (C8) : on Aerial Imagery (C9) tion (D2) : (D5) imocks (D7) (LRR F) Yes NoX
Algal Mat or Drift Deposition Network Mater Saturation ( Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Inundation N Water-Stair eld Observation Mater Table Pre ater Table Pre ater Table Pre cludes capillar cribe Recorde	ation of hydric so ogy Indicators: rs (minimum of or ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A3) (A3) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A3) (A2) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A3) (A2) (A3) (A3) (A2) (A3) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A3) (A2) (A2) (A3) (A2) (A2) (A2) (A2) (A2) (A2) (A2) (A3)	ils was obse	erved. ed; check all that 	apply) Crust (B11) atic Invertebra ogen Sulfide Season Wate ized Rhizospl ere not tilled) ence of Redu Muck Surface r (Explain in f Depth (inches) pepth (inches) photos, previ	ttes (B13) Odor (C1) r Table (C2) neres on Living Root ced Iron (C4) e (C7) Remarks) : <u>N/A</u> : <u>N/A</u> ious inspections), if a	(C3)	Secondary Indicators ( Surface Soil Crac Sparsely Vegetat Drainage Pattern Oxidized Rhizosp (where tilled) Crayfish Burrows Saturation Visible Geomorphic Posi FAC-Neutral Tesi Frost-Heave Hurr	minimum of two required) ks (B6) ed Concave Surface (B8) s (B10) heres on Living Roots (C3) (C8) : on Aerial Imagery (C9) tion (D2) : (D5) imocks (D7) (LRR F) Yes NoX

#### WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site:	Loop 9, Segment B				Cou	nty:	Elli	S	Sampling Date:		<i>l</i> lay 1, 2019		
Applicant/Owner:	TxDOT- Dallas District						State:	ТХ	Sampling Point:		DPB058		
Investigator(s):	Grahm	ne Borch	ardt	_and	ason Voight		Section, Tov	vnship, Ra	ange:		N/A		
Landform (hillslope,	terrace, e	etc.):		Ditch			Local relief (	concave,	convex, none):	Concave	Slope (%):	00-05	
Subregion (LRR):			L	.RR J		Lat:	32.54	658	Long:	-96.83882	Datum:	NAD 1983 (CONUS	)
Soil Map Unit Name	:			Austin silt	ty clay, 1 to 3	3 percent	t slopes		NV	VI Classification:		Upland	
Are climatic / hydrolo	ogic condi	itions on	the site	e typical for this t	ime of year	?	Yes	No	(if no, e	xplain in Remarks.	.)		
Are Vegetation	No	,Soil	Yes	,or Hydrology	No sig	gnificantl	y disturbed?		Are "Normal C	ircumstances" pres	sent? Yes	X No	
Are Vegetation	No	,Soil	No	,or Hydrology	<b>No</b> na	aturally pr	roblematic?		(If needed, exp	olain any answers i	n Remarks.)		

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>		Is the Sampled Area within a Wetland?	Yes	NoX				
Remarks:										
This point was determined not to b	be within a wetland d	ue to the lack	of all thr	ee wetland criteria.						
Entire soil profile consisted of fill material from construcion of the adjacent roadway facility.										

#### **VEGETATION - Use scientific names of plants.**

	Absolute Dominant	Indicator	Dominance Test work	sheet:		
Tree Stratum (Plot size: 30 ft. )	% cover Species?	Status	Number of Dominant Sp	pecies		
1. None Observed			That Are OBL, FACW, o	or FAC:	0	(A)
2.						
3.			Total Number of Domin	ant		
4.			Species Across All Stra	ta:	2	(B)
	= Total Cover					
Sapling/Shrub Stratum (Plot size: 15 ft.	)		Percent of Dominant Sp	oecies		
1. None Observed			That Are OBL, FACW, o	or FAC:	0	(A/B)
2.						
3.			Prevalence Index Wor	ksheet:		
4.			Total % Cove	r of:	Multiply by:	
5.			OBL species	0	x1= 0	
· · · · · · · · · · · · · · · · · · ·	= Total Cover		FACW species	0	x 2 = <b>0</b>	
Herb Stratum (Plot size: 5 ft. )			FAC species	0	x 3 = <b>0</b>	
1. Lolium perenne	45 Yes	FACU	FACU species	90	x 4 = <b>360</b>	
2. Cvnodon dactvlon	45 Yes	FACU	UPL species	0	x 5 = <b>0</b>	
3.			Column Totals:	90	(A) 360	(B)
4.			Prevalence Index = B/A	=	4.00	( )
5						
6.			Hydrophytic Vegetatio	n Indicators		
7.			1 - Rapid Test for I	Hvdrophytic V	/egetation	
8.			2 - Dominance Tes	st is >50%		
9.			3 - Prevalence Inde	ex is $\leq 3.0^1$		
10			4 - Morphological A	Adaptations <sup>1</sup> (	(Explain)	
	90 = Total Cover		Problematic Hydro	phytic Vegeta	ation <sup>1</sup> (Explain)	
Woody Vine Stratum (Plot size: 30 ft	<u> </u>		<sup>1</sup> Indicators of hydric soil	and wetland	hydrology must	
1 None Observed	)		be present, unless distu	irbed or probl	ematic.	
				· · · ·		
£	- Total Cover	······································	Hydrophytic			
% Bare Ground in Herb Stratum 10			Vegetation Present?	Yes	s No_	x
Remarks:			<u> </u>			
No positive indication of hydrophytic vegetation w	as observed (>50% of domin	ant species indexed as	EACLL or drier)			

ositive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

DPB058

Profile Desc	ription: (Describe	o the depth	needed to docu	ment the inc	licator or confirm	the absence	of indicators.)	
Depth	Matrix			Redox	Features			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-20	10YR 3/1	85	None	_			Clay Loam	
0-20	None	15	None	_			Gravel	
·								
17 0						2.		
Hydric Soils	oncentration, D=Depl	etion, RM=Re	educed Matrix, C	S=Covered c	r Coated Sand Gr	ains. <sup>-</sup> L	ocation: PL=Pore Lining	, M=Matrix.
					u.)		Indicators for Proble	
Histoso	I (A1)		Sandy	Gleyed Matr	ix (S4)			
Histic E	pipedon (A2)		Sandy	Redox (S5)				dox (A16) (LRR F, G, H)
Black H	istic (A3)		Strippe	ed Matrix (S6	)		Dark Surface (S7	7) (LRR G)
Hydroge	en Sulfide (A4)		Loamy	Mucky Mine	ral (F1)		High Plains Depr	essions (F16)
Stratifie	d Layers (A5) (LRR F	-)	Loamy	Gleyed Mat	ix (F2)		(LRR H out	side of MLRA 72 & 73)
1 cm M	uck (A9) <b>(LRR F, G,</b> I	H)	Deplet	ed Matrix (F3	3)		Reduced Vertic (	F18)
Deplete	d Below Dark Surfac	e (A11)	Redox	Dark Surfac	e (F6)		Red Parent Mate	rial (TF2)
Thick D	ark Surface (A12)		Deplet	ed Dark Surf	ace (F7)		Very Shallow Da	rk Surface (TF12)
Sandy M	Mucky Mineral (S1)		Redox	Depressions	s (F8)		Other (Explain in	Remarks)
2.5 cm	Mucky Peat or Peat (	S2) (LRR G,	H)High P	lains Depres	sions (F16)		<sup>3</sup> Indicators of hydroph	ytic vegetation and
5 cm M	ucky Peat or Peat (S	B) (LRR F)	(N	/ILRA 72 & 7	3 of LRR H)		wetland hydrolog	y must be present,
							unless disturbed	or problematic.
Restrictive I	Layer (if observed):							
Type:								
Depth (i	inches):					Hydrid	c Soil Present?	Yes No X
	-					_		
	27							
Wetland hyd	trology Indicators:							
Primary Indic	cators (minimum of o	ne is required	; check all that a	oply)			Secondary Indicators	(minimum of two required)
Surface	Water (A1)		Salt Ci	rust (B11)			Surface Soil Cra	cks (B6)
High W	ater Table (A2)		Aquati	c Invertebrat	es (B13)		Sparsely Vegeta	ted Concave Surface (B8)
Saturati	on (A3)		Hydrog	gen Sulfide C	dor (C1)		Drainage Pattern	s (B10)
Water N	/larks (B1)		Dry-Se	ason Water	Table (C2)		Oxidized Rhizos	oheres on Living Roots (C3)
Sedime	nt Deposits (B2)		Oxidize	ed Rhizosphe	eres on Living Roc	ots (C3)	(where tilled)	
Drift De	posits (B3)		(where	e not tilled)			Crayfish Burrows	; (C8)
Algal M	at or Crust (B4)		Preser	nce of Reduc	ed Iron (C4)		Saturation Visible	e on Aerial Imagery (C9)
Iron De	posits (B5)		Thin M	luck Surface	(C7)		Geomorphic Pos	ition (D2)
Inundat	ion Visible on Aerial Ir	nagery (B7)	Other	(Explain in R	emarks)		FAC-Neutral Tes	t (D5)
Water-S	Stained Leaves (B9)						Frost-Heave Hur	nmocks (D7) <b>(LRR F)</b>
Field Obser	vations:							
Surface Wat	er Present? Yes	No	X De	oth (inches):	N/A			
Water Table	Present? Yes	No	X De	oth (inches):	N/A			
Saturation P	resent? Yes	No	X De	oth (inches):	N/A	Wetla	nd Hydrology Present?	Yes No <u>X</u>
(includes cap	oillary fringe)							
Describe Reco	orded Data (stream g	auge, monito	ing well, aerial p	hotos, previo	us inspections), if	available:		
Remarks:								
No positive in	ndication of wetland I	ydrology was	observed.					

#### WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site:			Loop §	9, Segment B		Cou	nty:	Dalla	as	Sampling Date:	Ν	<i>I</i> lay 1, 2019
Applicant/Owner:				TxDOT- Dallas	District			State:	ТХ	Sampling Point:		DPB059
Investigator(s):	Grahm	ne Borcha	ardt	_and	ason Voight		Section, Tov	vnship, Ra	nge:		N/A	
Landform (hillslope,	terrace, e	etc.):		Ditch	1		Local relief (	concave, o	convex, none):	Concave	Slope (%):	00-05
Subregion (LRR):			L	_RR J		Lat:	32.55	136	Long:	-96.82265	Datum:	NAD 1983 (CONUS)
Soil Map Unit Name:	: <u> </u>			Austin sil	ty clay, 1 to 3	percent	t slopes		NV	VI Classification:		Upland
Are climatic / hydrold	ogic condi	itions on	the site	e typical for this	time of year?		Yes	No	(if no, e	xplain in Remarks.	)	
Are Vegetation	No	,Soil	Yes	,or Hydrology	No sig	nificantly	y disturbed?		Are "Normal C	ircumstances" pres	sent? Yes	X No
Are Vegetation	No	,Soil	No	or Hydrology	No na	turally pr	roblematic?		(If needed, exp	olain any answers i	n Remarks.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>		Is the Sampled Area within a Wetland?	Yes	No <u>X</u>	
Remarks:							
This point was determined not to b	be within a wetland d	ue to the lack	of all thr	ee wetland criteria.			
Entire soil profile consisted of fill n	naterial from constru	cion of the ad	jacent ro	adway facility.			

#### **VEGETATION - Use scientific names of plants.**

	Absolute Dominant	Indicator	Dominance Test work	sheet:		
Tree Stratum (Plot size: 30 ft.)	% cover Species?	Status	Number of Dominant St	oecies		
1. None Observed			That Are OBL, FACW, o	or FAC:	0	(A)
2						_ ( )
3			Total Number of Domin	ant		
4			Species Across All Stra	ta:	2	(B)
т	- Total Covor	·				(D)
Conling/Chruh Stratum (Distaire) 15 ft			Demonst of Dominant Cr			
Sapiring/Shrub Stratum (Piot size: 15 it.	_)		That Are ODL FACW		•	
			That Are OBL, FACW, 0	OFFAC:	U	(A/B)
2			Brovalance Index Wor	kahaati		
3				KSHEEL.		
4	<u> </u>		Total % Cove	er of:	Multiply by:	_
5		·	OBL species	0	x 1 = <b>0</b>	
	= Total Cover		FACW species	0	x 2 =0	
Herb Stratum (Plot size: 5 ft. )			FAC species	0	x 3 = <b>0</b>	
1. Cynodon dactylon	60 Yes	FACU	FACU species	90	x 4 = <b>360</b>	
2. Lolium perenne	30 Yes	FACU	UPL species	0	x 5 = <b>0</b>	
3			Column Totals:	90	(A) <b>360</b>	(B)
4			Prevalence Index = B/A	. =	4.00	
5.						
6.			Hydrophytic Vegetatio	on Indicators	5:	
7.			1 - Rapid Test for I	Hydrophytic	Vegetation	
8.			2 - Dominance Tes	st is >50%	0	
9		·	3 - Prevalence Inde	ex is $\leq 3.0^1$		
10			4 - Morphological A	Adaptations <sup>1</sup>	(Explain)	
10	90 – Total Cover		Problematic Hydro	nhvtic Veget	ation <sup>1</sup> (Explain)	
Weeds Vine Stratum (Dist size) 20 ft	<u> </u>					
Woody Vine Stratum (Plot size: 30 It.	_)		be present unless distu	rbed or prob	lematic	
2		·	Hydrophytic			
	= 1 otal Cover		Vegetation			
% Bare Ground in Herb Stratum 10			Present?	Ye	sNo	X
Demerica						
Remarks.						

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

Profile Description	h: (Describe to tr					ii tile absence t	of indicators.)	
Depth	Matrix			Redox I	Features			
(inches) Co	olor (moist)	% Color	(moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	None	100 No	one				Fill Material	
<u> </u>								
<u> </u>		<u> </u>						
<sup>1</sup> Type: C=Concentr	ration, D=Depletio	n, RM=Reduce	d Matrix, CS	=Covered o	r Coated Sand G	rains. <sup>2</sup> L	ocation: PL=Pore Lining	, M=Matrix.
Hydric Solls Indica	ators: (Applicabl	le to all LRRS, I	uniess other	rwise noted	d.)		Indicators for Proble	ematic Hydric Soils':
Histosol (A1)		-	Sandy G	Bleyed Matri	ix (S4)		1 cm Muck (A9)	(LRR I, J)
Histic Epipedo	on (A2)	-	Sandy R	Redox (S5)			Coast Prairie Re	dox (A16) (LRR F, G, H)
Black Histic (A	(3)	-	Stripped	Matrix (S6)	)		Dark Surface (S	7) (LRR G)
Hydrogen Sulfi	ide (A4)	-	Loamy N	Mucky Mine	ral (F1)		High Plains Dep	ressions (F16)
Stratified Laye	ers (A5) <b>(LRR F)</b>	-	Loamy C	Gleyed Matr	ix (F2)		(LRR H out	side of MLRA 72 & 73)
1 cm Muck (A9	9) (LRR F, G, H)		Depleted	d Matrix (F3	3) (To)		Reduced Vertic	(F18)
Depleted Below	w Dark Surface (A	.11)	Redox D	Dark Surface	e (F6)		Red Parent Mate	erial (TF2)
Thick Dark Su	rtace (A12)	-	Depleted	d Dark Surfa	ace (F7)		Very Shallow Da	Irk Surface (TF12)
Sandy Mucky	Mineral (S1)	(IDD C !!)	Redox D	epressions	s (F8)		Other (Explain in	n Kemarks)
2.5 cm Mucky	Peat or Peat (S2)		High Pla	ains Depres	sions (F16)		Indicators of hydroph	lytic vegetation and
	eat of Peat (53) (L	_RR F)	(ML	LRA /2 & /	3 OF LRR H)			or problematic
Restrictive Laver (	(if observed):							
Type:								
Depth (inches)	).					Hydric	Soil Present?	Ves No X
Deptil (inches)						Tiyane	John resents	
				aujacontito	adway facility.			
					adway facility.			
HYDROLOGY					adway facility.			
HYDROLOGY Wetland hydrology	y Indicators:				adway facility.			
HYDROLOGY Wetland hydrology Primary Indicators (	y Indicators: (minimum of one is	s required; chec	k all that app	bly)	adway facility.		Secondary Indicators	(minimum of two required)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water	y Indicators: (minimum of one is r (A1)	s required; chec	k all that app Salt Cru	bly) st (B11)	adway facility.		Secondary Indicators	(minimum of two required) cks (B6)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water High Water Ta	y Indicators: (minimum of one is r (A1) able (A2)	s required; chec	<u>k all that app</u> Salt Cru Aquatic	bly) st (B11) Invertebrate	adway facility.		<u>Secondary Indicators</u> Surface Soil Cra Sparsely Vegeta	(minimum of two required) cks (B6) ted Concave Surface (B8)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water High Water Ta Saturation (A3	y Indicators: (minimum of one is r (A1) able (A2)	s required; chec - - -	k all that app Salt Cru Aquatic Hydroge	oly) st (B11) Invertebrate en Sulfide O	adway facility.		Secondary Indicators Surface Soil Cra Sparsely Vegeta Drainage Patterr	(minimum of two required) cks (B6) ted Concave Surface (B8) ns (B10)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water High Water Ta Saturation (A3 Water Marks (I	y Indicators: (minimum of one is r (A1) able (A2) able (B1)	s required; chec - - - -	<u>k all that app</u> Salt Cru Aquatic Hydroge Dry-Sea	bly) st (B11) Invertebrate on Sulfide O son Water	adway facility. es (B13) idor (C1) Table (C2)		Secondary Indicators Surface Soil Cra Sparsely Vegeta Drainage Patterr Oxidized Rhizos	(minimum of two required) cks (B6) ted Concave Surface (B8) ns (B10) pheres on Living Roots (C3)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water High Water Ta Saturation (A3 Water Marks (I Sediment Dep	y Indicators: (minimum of one is r (A1) able (A2) i) B1) osits (B2)	s required; chec - - - - -	<u>k all that app</u> Salt Cru Aquatic Dry-Sea Ory-Sea	bly) st (B11) Invertebrate son Sulfide O son Water	adway facility. es (B13) idor (C1) Table (C2) eres on Living Ro	ots (C3)	Secondary Indicators Surface Soil Cra Sparsely Vegeta Drainage Patterr Oxidized Rhizos (where tilled)	(minimum of two required) cks (B6) ted Concave Surface (B8) ns (B10) pheres on Living Roots (C3)
HYDROLOGY Wetland hydrology Primary Indicators ( Surface Water High Water Ta Saturation (A3) Water Marks (I Sediment Depo	y Indicators: (minimum of one is r (A1) able (A2) ;) B1) iosits (B2) (B3)	s required; chec - - - - - -	k all that app Salt Cru Aquatic Hydroge Dry-Sea Oxidizec (where i	bly) st (B11) Invertebrate n Sulfide O son Water	adway facility. es (B13) idor (C1) Table (C2) eres on Living Ro	ots (C3)	Secondary Indicators Surface Soil Cra Sparsely Vegeta Drainage Patterr Oxidized Rhizos (where tilled) Crayfish Burrows	(minimum of two required) cks (B6) ted Concave Surface (B8) ns (B10) pheres on Living Roots (C3) s (C8)
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#### WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site:			Loop 9	9, Segment B		Cour	nty:	EII	is	Sampling Date:	Ν	<i>l</i> lay 1, 2019
Applicant/Owner:				TxDOT- Dallas	District			State:	тх	Sampling Point:		DPB060
Investigator(s):	Grahm	ne Borch	ardt	and Ja	ison Voight		Section, Tov	vnship, Ra	ange:		N/A	
Landform (hillslope,	terrace, e	etc.):		Ditch			Local relief (	concave,	convex, none):	Concave	Slope (%):	00-05
Subregion (LRR):			L	.RR J		Lat:	32.542	207	Long:	-96.82244	Datum:	NAD 1983 (CONUS)
Soil Map Unit Name	:			Houston Bla	ack clay, 1 to	o 3 perce	nt slopes		NV	VI Classification:		Upland
Are climatic / hydrolo	ogic condi	itions on	the site	e typical for this t	ime of year	?	Yes <u>X</u>	No	(if no, e	xplain in Remarks.	)	
Are Vegetation	No	,Soil	Yes	or Hydrology	No sig	gnificantly	/ disturbed?		Are "Normal C	ircumstances" pres	sent? Yes	<b>X</b> No
Are Vegetation	No	,Soil	No	,or Hydrology	<b>No</b> na	aturally pr	oblematic?		(If needed, exp	olain any answers i	n Remarks.)	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	x x x	Is the Sampled Area within a Wetland?	Yes	No	<u>x</u>	
Remarks: This point was determined not to b	be within a wetland c	ue to the	lack of all th	ree wetland criteria.				
Entire soil profile consisted of fill n	naterial from constru	ction of th	e adjacent ro	oadway facility				

#### **VEGETATION - Use scientific names of plants.**

	Absolute	Dominant	Indicator	Dominance Test wor	ksheet:			
Tree Stratum (Plot size: 30 ft.)	% cover	Species?	Status	Number of Dominant S	Species			
1. None Observed				That Are OBL, FACW,	or FAC:		1	(A)
2.								
3.				Total Number of Domi	nant			
4.				Species Across All Str	ata:		3	(B)
	=	Total Cover						_ ` `
Sapling/Shrub Stratum (Plot size: 15 ft.	)			Percent of Dominant S	species			
1. Celtis laevigata		Yes	FAC	That Are OBL, FACW,	or FAC:		33%	(A/B)
2. Juniperus virginiana	20	Yes	UPL	, ,				_ ` `
3				Prevalence Index Wo	rksheet:			
4				Total % Cov	er of	Mu	ltiply by:	
5			·	OBL species	0	x 1 =	0	_
···	40 =	Total Cover	·	FACW species	0		0	_
Herb Stratum (Plot size: 5 ft )				FAC species	20	x 3 =	60	_
1 Lolium perenne	60	Yes	FACU	FACU species	60	x 4 =	240	
2					20		100	
3			·	Column Totals:	100	(A)	400	(B)
4				Prevalence Index = B/	A =	4 00		_ (2)
5			·			4.00		
5			·	Hydronhytic Vegetati	on Indicato	· ·		
7		·	·	1 - Rapid Test for	Hydrophytic	Vegetation	<b>`</b>	
8		·	·	2 - Dominance Te	50%	vegetation		
9			·	3 - Prevalence Inc	$dex is < 3.0^{1}$			
10			·	4 - Morphological	Adaptations	<sup>1</sup> (Explain)		
10		Total Cover	·	Problematic Hydr	onhytic Vege	tation <sup>1</sup> (Ex	nlain)	
Weady Vina Stratum (Plat aiza: 20 ft	<u> </u>	Total Cover		<sup>1</sup> Indiactors of hydria as	il and watter			
<u>woody vine Stratum</u> (Piot size: <u>30 ft.</u>	)			be present, unless dist	urbed or pro	blematic.	y musi	
			<u> </u>					
Ζ		Total Cover	<u> </u>	Hydrophytic				
% Para Cround in Harb Stratum 40	=	Total Cover		Vegetation	v	~~	No	v
				Present?	r			<u>^</u>
Remarks:								
	,							

No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

epth	Motrix			Dodo	Features			
epin			<u> </u>	Redox		1 2	<b>-</b> .	
icries)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type	Loc	lexture	Remarks
0-16	None	100	None				Fill Material	
ype: C=Cc	ncentration, D=Dep	etion, RM=R	educed Matrix, CS	S=Covered	or Coated Sand Grai	1S. 2	Location: PL=Pore Linin	ig, M=Matrix.
ydric Soils	Indicators: (Applie	able to all L	RRs, unless othe	erwise note	ed.)		Indicators for Prob	lematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy	Gleyed Mat	trix (S4)		1 cm Muck (A9)	) (LRR I, J)
Histic Ep	pipedon (A2)		Sandy	Redox (S5)	)		Coast Prairie R	edox (A16) <b>(LRR F, G, H)</b>
Black Hi	stic (A3)		Strippe	d Matrix (S	6)		Dark Surface (S	67) <b>(LRR G)</b>
Hydroge	n Sulfide (A4)		Loamv	Mucky Min	eral (F1)		High Plains De	pressions (F16)
Stratified	Lavers (A5) (LRR I	-)	Loamy	Gleved Ma	trix (F2)		(I RR H o	Itside of MI BA 72 & 73)
1 cm Mi		, H)	Doplot	od Motrix (E	(1 Z)		Poducod Vortio	
Depleter		- (A 1 1)	Depiet		3) 22 (FC)		Reduced Vehic	
		6 (ATT)		Dark Sulla	υσ (ΓΟ) πίσος (ΓΖ)			
	ark Surrace (A12)		Deplete	ea Dark Su	(F0)		very Shallow D	
Sandy M	iucky Mineral (S1)	00) (1 == -	Redox	Depression	15 (F8)		Other (Explain i	in Kemarks)
2.5 cm M	lucky Peat or Peat (	S2) (LRR G,	H)High P	lains Depre	ssions (F16)		Indicators of hydrop	hytic vegetation and
5 cm Mu	icky Peat or Peat (S	3) (LRR F)	(N	ILRA 72 &	73 of LRR H)		wetland hydroid	ogy must be present,
4-1 - 41 I						1	uniess disturbe	d of problematic.
estrictive L	ayer (if observed):							
Type:								
Depth (ii	1 \					Hvdr	ic Soil Present?	Yes No X
marks: o positive ir ntire soil pro	dication of hydric so	ils was obser naterial from	ved. the construction o	of the the ad	djacent roadway facili	y		
marks: o positive ir ntire soil pro	idication of hydric so ofile consisted of fill r	ils was obser naterial from	ved. the construction o	of the the ac	djacent roadway facili	y		
marks: o positive ir ntire soil pro PROLOG	inches): dication of hydric so file consisted of fill n file consisted of fill n	ils was obser naterial from	ved. the construction o	of the the ad	djacent roadway facili	y		
marks: o positive ir ntire soil pro PROLOG	inches): dication of hydric so file consisted of fill n Y rology Indicators:	ils was obser naterial from	ved. the construction o	of the the ad	djacent roadway facili	y		
marks: o positive ir ntire soil pro PROLOG /etland hyd rimary Indic	Inches): Idication of hydric so file consisted of fill r Y rology Indicators: ators (minimum of o	ils was obser naterial from	ved. the construction o	of the the ad	djacent roadway facili	y	Secondary Indicators	s (minimum of two required)
marks: o positive ir ntire soil pro PROLOG /etland hyd rimary Indic Surface	Inches): Idication of hydric so file consisted of fill r Y rology Indicators: ators (minimum of o Water (A1)	ils was obser naterial from	ved. the construction o d; check all that ap Salt Cr	of the the ac oply) ust (B11)	djacent roadway facili	y	Secondary Indicator	s (minimum of two required) acks (B6)
marks: o positive ir ntire soil pro PROLOG Vetland hyd rimary Indic Surface High Wa	Andres): dication of hydric so ofile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2)	ils was obser naterial from	ved. the construction o d; check all that ap Salt Cr Salt Cr	of the the ac oply) rust (B11) c Invertebra	djacent roadway facili	y	<u>Secondary Indicator</u> Surface Soil Cr Sparsely Veget	s (minimum of two required) acks (B6) ated Concave Surface (B8)
marks: o positive ir ntire soil pro PROLOG Vetland hyd rimary Indic Surface High Wa Saturatio	Andres): dication of hydric so ofile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3)	ils was obser naterial from	ved. the construction of t; check all that ap Salt Cr Aquatio Hydrog	of the the ad oply) rust (B11) c Invertebra gen Sulfide (	djacent roadway facili tes (B13) Odor (C1)	y	Secondary Indicators	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10)
marks: o positive ir ntire soil pro PROLOG /etland hyd mimary Indic Surface High Wa Saturatic Water M	Andres): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1)	ils was obser naterial from	ved. the construction of d; check all that ap Salt Cr Aquatio Hydrog Dry-Se	of the the ad oply) rust (B11) c Invertebra gen Sulfide ( ason Wate	djacent roadway facili tes (B13) Odor (C1) r Table (C2)	y	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3)
marks: o positive ir ntire soil pro PROLOG /etland hyd rimary Indic 	Andres): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2)	ils was obser naterial from	ved. the construction of d; check all that ap Salt Cr Aquation Hydrog Dry-Se Oxidize	of the the ad oply) rust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph	djacent roadway facili tes (B13) Odor (C1) r Table (C2) neres on Living Roots	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled)	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3)
marks: o positive ir ntire soil pro PROLOG PROLOG Vetland hyd rimary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep	Anches): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3)	ils was obser naterial from	ved. the construction of d; check all that ap Salt Cr Aquation Ury-Se Oxidize (where	of the the ad oply) rust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph a not tilled)	djacent roadway facili tes (B13) Odor (C1) r Table (C2) heres on Living Roots	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burrov	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) <i>v</i> s (C8)
marks: o positive ir ntire soil pro PROLOG /etland hyd /etland hyd /etland hyd /surface 	rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) tt or Crust (B4)	ils was obser naterial from	ved. the construction of d; check all that ap Salt Cr Aquation Dry-Se Oxidize (where Presen	of the the ac oply) rust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph a not tilled) nce of Redu	djacent roadway facili tes (B13) Odor (C1) r Table (C2) heres on Living Roots ced Iron (C4)	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burrov Saturation Visit	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) vs (C8) ole on Aerial Imagery (C9)
marks: o positive ir ntire soil pro PROLOG /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd Saturatic 	rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) tt or Crust (B4) posits (B5)	ils was obser naterial from	ved. the construction of d; check all that ap Salt Cr Aquation Ury-Se Oxidize (where Presen Thin M	of the the ac oply) ust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph a not tilled) nce of Redu luck Surface	djacent roadway facili tes (B13) Odor (C1) r Table (C2) heres on Living Roots ced Iron (C4) e (C7)	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burrov Saturation Visit X Geomorphic Po	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) vs (C8) ole on Aerial Imagery (C9) usition (D2)
marks: o positive ir ntire soil pro PROLOG /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd //etland hyd //etlan	Anches): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) tt or Crust (B4) posits (B5) on Visible on Aerial In	ils was obser naterial from ne is required	the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the construction of the co	of the the ac oply) ust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph anot tilled) nce of Redu luck Surface (Explain in F	djacent roadway facili ttes (B13) Odor (C1) r Table (C2) neres on Living Roots ced Iron (C4) e (C7) Remarks)	y (C3)	Secondary Indicator: Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo: (where tilled) Crayfish Burrov Saturation Visit X Geomorphic Po FAC-Neutral Te	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) vs (C8) ole on Aerial Imagery (C9) osition (D2) est (D5)
marks: o positive ir ntire soil pro PROLOG /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd /etland hyd Saturatic 	roles): dication of hydric so ofile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) tt or Crust (B4) posits (B5) on Visible on Aerial In tained Leaves (B9)	ils was obser naterial from ne is required	ved. the construction of d; check all that ap Salt Cr Aquatio Hydrog Dry-Se Ory-Se Ory-Se Ory-Se Presen Thin M Other (	of the the ac oply) ust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph anot tilled) nce of Redu luck Surface (Explain in F	djacent roadway facili ttes (B13) Odor (C1) r Table (C2) neres on Living Roots ced Iron (C4) e (C7) Remarks)	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burrov Saturation Visit X Geomorphic Po FAC-Neutral Te Frost-Heave Hu	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) vs (C8) ole on Aerial Imagery (C9) usition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
marks: o positive ir ntire soil pro PROLOG Vetland hyd rimary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatio Water-S	Andres): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aerial In tained Leaves (B9)	ils was obser naterial from ne is required	ved. the construction of d; check all that ap Salt Cr Aquatio Hydrog Dry-Se Oxidze (where Presen Thin M Other (	of the the ad oply) rust (B11) c Invertebra gen Sulfide ( ason Wate e d Rhizosph e not tilled) ince of Redu luck Surface (Explain in F	djacent roadway facili ntes (B13) Odor (C1) r Table (C2) neres on Living Roots ced Iron (C4) e (C7) Remarks)	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo <b>(where tilled)</b> Crayfish Burrov Saturation Visit X Geomorphic Po FAC-Neutral Te Frost-Heave Hu	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) vs (C8) ble on Aerial Imagery (C9) vsition (D2) vst (D5) ummocks (D7) <b>(LRR F)</b>
marks: o positive ir ntire soil pro PROLOG Vetland hyd rimary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundatic Water-S	Andres): dication of hydric so offile consisted of fill r Y rology Indicators: ators (minimum of o Water (A1) tter Table (A2) on (A3) larks (B1) at Deposits (B2) posits (B3) at or Crust (B4) osits (B5) on Visible on Aerial Ir tained Leaves (B9) rations:	ils was obser naterial from ne is required	ved. the construction of d; check all that ap Salt Cr Aquatio Hydrog Dry-Se Oxidize (where Presen Thin M Other (	of the the ad oply) rust (B11) c Invertebra gen Sulfide ason Wate ed Rhizosph e not tilled) ince of Redu luck Surface (Explain in F	djacent roadway facili Ites (B13) Odor (C1) r Table (C2) neres on Living Roots ced Iron (C4) e (C7) Remarks)	y (C3)	Secondary Indicators Surface Soil Cr Sparsely Veget Drainage Patte Oxidized Rhizo (where tilled) Crayfish Burrov Saturation Visit X Geomorphic Po FAC-Neutral Te Frost-Heave Hu	s (minimum of two required) acks (B6) ated Concave Surface (B8) rns (B10) spheres on Living Roots (C3) ws (C8) ole on Aerial Imagery (C9) osition (D2) est (D5) ummocks (D7) <b>(LRR F)</b>
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# Attachment 3 – Historical Aerial Photographs













































# Attachment 4 - Site Photographs



Photo 1: Pond 10 within an overgrown field in the middle of the project area near DPB012. Photo taken April 2020. (32.546454°, -96.824894°)

![](_page_67_Picture_2.jpeg)

Photo 2: Photo looking into an open field in the middle of the project area near DPB059. Photo facing west. Photo taken April 2020. (32.547815°, -96.822577°)

![](_page_68_Picture_0.jpeg)

Photo 3: Photo of maintained urban vegetation along IH 35E. Photo facing northwest. Photo taken May 2019. (32.549558°, -96.822612°)

![](_page_68_Picture_2.jpeg)

Photo 4: Photo looking into an agricultural field in the southern portion of the project. Photo facing west. Photo taken in April 2020. (32.544749°, -96.822585°)