

Waters of the United States Technical Report

North Houston Highway Improvement Project

From US 59/I-69 at Spur 527 to I-45 at Beltway 8 North

CSJ 0912-00-146

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Table of Contents

1.0	Inti	roducti	on	1
2.0	Pro	ject De	escription	1
	2.1	Existi	ng Facility	1
	2	2.1.1	Segment 1: I-45 from Beltway 8 North to north of I-610 (North Loop)	1
	2	2.1.2	Segment 2: I-45 from north of I-610 (North Loop) to I-10	1
	2	2.1.3	Segment 3: Downtown Loop System (I-45, US 59/I-69, and I-10)	1
	2.2	Propo	sed Facility	2
	2	2.2.1	Segment 1: I-45 from Beltway 8 North to north of I-610 (North Loop)	2
	2	2.2.2	Segment 2: I-45 from north of I-610 (North Loop) to I-10 (including the interchange with I-610)	2
	2	2.2.3	Segment 3: Downtown Loop System (I-45, US 59/I-69, and I-10)	2
3.0	Me	thodol	ogy	3
4.0	Inv	estigat	ion Findings	4
	4.1	Wate	rs of the United States	4
	4.2	Interp	pretation of Aerial Photographs and Existing Electronic Data Sources	7
	4.3	Site T	opography	9
	4.4			
	4.5		Maps	
	4.6		Maps	
5.0	Pot	tentiall	y Jurisdictional Waters of the United States	. 11
6.0	Pot	tentiall	y Jurisdictional Waters of the United States within the Existing and Proposed ROW	. 11
7.0			mpacts to Potentially Jurisdictional Waters of the United States within the Existing and ROW	. 11
8.0	Sec	ction 4	08 Coordination	. 13
Tal	bles	;		
Tabl	e 1. F	Potentia	ally Jurisdictional and Non-Jurisdictional Water Bodies	4
			ally Jurisdictional and Non-Jurisdictional Streams	
			ally Jurisdictional Waters of the United States within the Existing and Proposed ROW	
Tabl	e 4. N	NRCS S	oil Map Units within the Project Area	. 10
Tabl	e 5. E	Estimat	ed Possible Impacts to Potentially Jurisdictional Waters of the United States	. 12
Ex	hibit	ts		
Exhi	bit 1	- Vicin	ity Map	
Exhi	bit 2	- Wate	er Bodies in Project Area, Sheets 1 – 4	
Exhi	bit 3	- Histo	orical USGS Quadrangle Maps, Sheets 1 – 5	
Exhi	bit 4	- Flood	dplain, NWI, and Soils, Sheets 1 - 5	
Fxhi	hit 5	- 2008	R HCFCD Digital Flevation Model, Sheets 1 – 4	

Appendices

Appendix A – Site Photographs

Appendix B – Wetland Determination Data Forms

1.0 Introduction

The Texas Department of Transportation (TxDOT) proposes to construct improvements to Interstate Highway 45 (I-45) in the northern portion of the City of Houston. The proposed project, referred to as the North Houston Highway Improvement Project (NHHIP), begins at the interchange of I-45 and Beltway 8 North and continues south along I-45 to Downtown Houston where it terminates at the interchange of United States Highway (US) 59/I-69 and Spur 527 south of Downtown Houston. The project area also includes portions of I-10 and US 59/I-69 near Downtown Houston. The project area is composed of three study segments, Segments 1 through 3 (*Exhibit 1 – Vicinity Map*).

This Waters of the United States (U.S.) Technical Report supports the Final Environmental Impact Statement (Final EIS) that evaluates the social, economic, and environmental impacts potentially resulting from the Preferred Alternative for the proposed project.

2.0 Project Description

2.1 Existing Facility

2.1.1 Segment 1: I-45 from Beltway 8 North to north of I-610 (North Loop)

I-45 within this segment consists of eight general purpose lanes (i.e., mainlanes; four lanes in each direction), four frontage road lanes (two lanes in each direction), and a reversible high occupancy vehicle (HOV) lane in the middle, all within a variable right-of-way (ROW) width of 250 to 300 feet. The existing posted speed limit along the general purpose lanes and reversible HOV lane is 60 miles per hour (mph). The existing posted speed limit for the frontage roads is 45 mph. The length of Segment 1 is approximately 8.8 miles, and the area of the existing ROW is approximately 349 acres.

2.1.2 Segment 2: I-45 from north of I-610 (North Loop) to I-10

I-45 within this segment primarily consists of eight at-grade general purpose lanes (four lanes in each direction), six frontage road lanes (three lanes in each direction), and a reversible HOV lane in the middle, all within a variable ROW width of 300 to 325 feet. Segment 2 also includes a depressed section that consists of eight general purpose lanes (four lanes in each direction) and a reversible HOV lane in the middle, all below grade, within a 245-foot ROW. The six frontage road lanes associated with the depressed section (three lanes in each direction) are located at-grade. The existing posted speed limit is 60 mph along the general purpose lanes, 55 mph along the reversible HOV lane, and 40 mph along the frontage road lanes. The I-45 and I-610 frontage roads are discontinuous at the I-45/I-610 interchange. The length of Segment 2 is approximately 4.5 miles, and the area of the existing ROW is approximately 220 acres.

2.1.3 Segment 3: Downtown Loop System (I-45, US 59/I-69, and I-10)

The Downtown Loop System consists of three interstate highways that create a loop around Downtown Houston. I-45 forms the western and southern boundaries of the loop and is known locally as the Pierce Elevated because it partially follows the alignment of Pierce Street. I-10 forms the northern boundary of the loop, and US 59/I-69 forms the eastern boundary of the loop. The loop includes three major interchanges: I-45 and I-10, I-10 and US 59/I-69, and US 59/I-69 and I-45. The interchange of US 59/I-69 and Spur 527 is located south of Downtown Houston.

I-45 along the west side of Downtown Houston consists of six elevated general purpose lanes (three lanes in each direction) within an existing ROW width of 205 feet. I-45 along the south side of Downtown Houston (the Pierce Elevated) consists of six elevated general purpose lanes (three lanes in each direction). I-10 north of Downtown Houston, between I-45 and US 59/I-69, consists of 10 general purpose lanes (five lanes in each direction) within an existing ROW width of 420 feet. US 59/I-69 along the east side of Downtown Houston consists of six general purpose lanes (three lanes in each direction) within an existing ROW width of 225 feet. Generally, local streets serve as one-way frontage roads within Segment 3, except near the I-10 and US 59/I-69 interchange, where the frontage roads are discontinuous. The length of Segment 3, which includes the Downtown Loop System, is approximately 13.1 miles, and the existing ROW is approximately 638 acres.

2.2 Proposed Facility

The Preferred Alternative for the proposed project is described below, by study segment. The Preferred Alternative includes changes to the Recommended Alternative (for each segment) presented and evaluated in the Draft Environmental Impact Statement. Section 2.0 of the Final EIS discusses the design changes, including proposed storm water detention areas.

2.2.1 Segment 1: I-45 from Beltway 8 North to north of I-610 (North Loop)

The Preferred Alternative would widen the existing I-45 primarily on the west side of the roadway to accommodate four managed express (MaX) lanes. The proposed typical section would include eight to ten general purpose lanes (four to five lanes in each direction), four MaX lanes (two lanes in each direction), and four to six frontage road lanes (two to three lanes in each direction). The general purpose lanes and MaX lanes would be at-grade except at major cross streets, where they would be elevated over the intersecting streets. Approximately 200 to 225 feet of new ROW would be required, mostly to the west of the existing I-45. New ROW would be required to the east of the existing I-45 ROW at intersections with major streets and between Crosstimbers Street and I-610. The new ROW would include several proposed storm water detention areas west of I-45. Approximately 246 acres of new ROW would be required, and the project length would be approximately 8.8 miles.

2.2.2 Segment 2: I-45 from north of I-610 (North Loop) to I-10 (including the interchange with I-610)

The Preferred Alternative would widen the existing I-45 to accommodate four MaX lanes. Within the at-grade section of I-45, the proposed typical section would include eight general purpose lanes (four lanes in each direction), four MaX lanes (two lanes in each direction), and four frontage road lanes (two lanes in each direction), all at-grade. I-45 would be depressed from north of Cottage Street to Norma Street, a distance of approximately 1,800 feet. Within the depressed section of I-45, the proposed typical section would include eight below-grade general purpose lanes (four lanes in each direction) and four below-grade MaX lanes (two lanes in each direction), while the four frontage road lanes (two lanes in each direction) would be at-grade. The proposed I-45 and I-610 frontage roads would be continuous through the I-45/I-610 interchange. New ROW would be required from both the east and west sides of the existing I-45. The new ROW would include proposed storm water detention areas on the east side of I-45, south of Patton Street. Approximately 44 acres of new ROW would be required, and the project length, including interchange improvements, would be approximately 4.5 miles.

The Preferred Alternative provides a structural "cap" over a portion of the depressed lanes of I-45 from north of Cottage Street to south of N. Main Street. Future use of the structural cap area for another purpose would require additional development and funding by entities other than TxDOT.

2.2.3 Segment 3: Downtown Loop System (I-45, US 59/I-69, and I-10)

The Preferred Alternative would reroute I-45 to be parallel with US 59/I-69 on the east side of Downtown Houston. The existing elevated I-45 roadway along the west and south sides of Downtown would be removed and relocated to be parallel to I-10 on the north side of Downtown and parallel to US 59/I-69 on the east side of Downtown. Access to the west side of Downtown would be provided via "Downtown Connectors," which would provide access to and from various Downtown streets. To improve safety and traffic flow in the north and east portions of Segment 3, both I-10 and US 59/I-69 would be realigned to eliminate the current roadway curvature. I-45 and US 59/I-69 would be depressed along a portion of the alignment east of Downtown. South of the George R. Brown Convention Center, I-45 would begin to elevate to the interchange of I-45 and US 59/I-69 southeast of Downtown, while US 59/I-69 would remain depressed as it continues southwest toward Spur 527.

The four proposed I-45 MaX lanes in Segments 1 and 2 would terminate/begin in Segment 3 at Milam Street/Travis Street, respectively. I-10 express lanes (two lanes in each direction) would be located generally in the center of the general purpose lanes within the proposed parallel alignment of I-10 and I-45 on the north side of Downtown. The I-10 express lanes would vary between being elevated and at-grade.

New ROW to the east of the existing US 59/I-69 along the east side of Downtown would be required to accommodate the proposed realigned I-45. The existing Hamilton Street would be realigned to be adjacent to US 59/I-69 to serve as a southbound access road, and the existing St. Emanuel Street would serve as a northbound access road. The project ROW would include areas to be developed as storm water detention. Approximately 160 acres of new ROW would be required, the majority of which would be for the I-10 and US 59/I-69 realignments and to construct the proposed I-45 lanes adjacent to US 59/I-69 along the east side of Downtown. The project length, including interchange improvements, would be approximately 11.9 miles. The length of the proposed project does not include existing roadways that would be removed: I-45 (Pierce Elevated) along the south side of Downtown, and sections of I-10 and US 59/I-69 where the roadways would be straightened.

The Preferred Alternative provides a structural "cap" over the proposed depressed lanes of I-45 and US 59/I-69 from approximately Commerce Street to Lamar Street. Future use of the structural cap area for another purpose would require additional development and funding by entities other than TxDOT.

3.0 Methodology

The project area—which is defined as the existing I-45 ROW and the proposed ROW of the Preferred Alternative—was investigated using a combination of field delineation and interpretation of available rectified aerial photography, high-resolution elevation Light Detection and Ranging (LiDAR) data, and databases: National Hydrography Dataset (NHD), Harris County Flood Control District (HCFCD), and City of Houston ditches. Aerial photographs, historical U.S. Geological Survey (USGS) topographic maps, electronic maps, and electronic databases used to identify areas in the project area exhibiting signatures consistent with aquatic features include the following:

- 2012 True-color aerial photograph, Houston-Galveston Area Council (H-GAC)
- 2014 True-color aerial photograph, H-GAC
- 2016 True-color aerial photograph, H-GAC
- 2017 True-color aerial photograph Environmental Systems Research Institute (ESRI)
- 1916 and 1954 Aldine, Texas USGS 7.5' Quadrangle maps
- 1921 and 1983 Bellaire, Texas USGS 7.5' Quadrangle maps
- 1922 and 1955 Houston Heights, Texas USGS 7.5' Quadrangle maps
- 1922 and 1955 Park Place, Texas USGS 7.5' Quadrangle maps
- 1922 and 1955 Settegast, Texas USGS 7.5' Quadrangle maps
- High-resolution NHD from USGS
- HCFCD Channel Centerlines, downloaded 1/7/15
- H-GAC and HCFCD digital elevation model from 2008 LiDAR data
- Federal Emergency Management Agency (FEMA) National Flood Hazard layer data from FEMA's web portal 11/16/2017

Field delineations were conducted in December 2017 within the existing roadway ROW and on selected parcels within the proposed project ROW where right-of-entry (ROE) authorization was granted. ROE access was authorized for 53 parcels within the proposed project ROW. The delineations followed the June 5, 2007 guidance from the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE), as presented in the U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. Wetlands were identified using the routine determination methodology published in the 1987 Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1 On-Line Edition), as amended by the November 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0).

Soil samples were obtained, and the boundaries of identified aquatic resources were surveyed in areas accessed during the December 2017 field investigations. The locations of representative data points (soil stations) documented within the existing and proposed project ROW are shown in *Exhibit 4 – Floodplain, NWI, and Soils*. The data forms are included in *Appendix B – Wetland Determination Data Forms*.

Several named and un-named water courses and drainage features traverse the existing and proposed project ROW. For those water courses and drainage features where pedestrian access and travel along the channel banks was possible, ordinary high water marks were surveyed using global positioning system (GPS) equipment. For those water courses and drainage features not able to be accessed during the field investigations because of steep, eroded channel banks or other limitations precluding pedestrian travel, the limits of ordinary high water were estimated through the interpretation of remotely-sensed desktop data. Additional investigation of Buffalo Bayou and White Oak Bayou using a boat to mark and survey the ordinary high water mark along the channel banks is anticipated in the future to more accurately define the limits of ordinary high water within the project area.

An estimation of the areal extent of aquatic resources identified within parcels where ROE access was not authorized was made based on interpretation of remotely-sensed desktop data and observations made from adjacent roadway ROW and accessible parcels during the December 2017 field investigations.

Named water courses are identified by name in the tables and exhibits included in this report. Un-named drainage features that are associated with a NHD stream are labelled with the NHD permanent identifier NHD code (e.g., 113251601). Un-named drainage features not associated with a NHD stream were identified as unnamed ditches. The identified water bodies are presented in this report by project segment. The lengths of water bodies exhibiting stream characteristics (i.e., bayous, streams, and drainage channels) are presented in a separate table to indicate the lengths of these water bodies within the existing and proposed project ROW.

4.0 Investigation Findings

4.1 Waters of the United States

Twenty-nine (29) water bodies were identified within the project area that collectively total approximately 26.9 acres (*Table 1; Exhibit 2 – Water Bodies in Project Area*). The section of White Oak Bayou that is in the NHHIP area is part of a federally-funded project, with HCFCD as the local sponsor. Therefore, any activities within the White Oak Bayou federal project area would require Section 408 coordination with the local sponsor, HCFCD, and the USACE per Section 14 of the Rivers and Harbors Act of 1899, as codified in 33 U.S. Code §408. The other 28 water bodies are not within a federally-funded project area and would not require Section 408 coordination. Twenty-one (21) of the 29 water bodies are bayous, streams, or drainage channels that have a total length within the project area of approximately 20,727 linear feet, or approximately 3.93 miles (*Table 2*). Twenty-five (25) of the 29 water bodies are preliminarily identified as potentially jurisdictional waters of the U.S. and would require a Department of the Army permit for any fill activities that may occur within these water bodies. The other four water bodies are potentially non-jurisdictional waters of the U.S. because they are existing detention basins, a water fountain, or a constructed drainage channel conveying ephemeral storm water flows (*Table 1*, and *Appendix A*, *Site Photographs*).

Table 1. Potentially Jurisdictional and Non-Jurisdictional Water Bodies

Segment	Number	Water Body	Acreage in Existing ROW	Acreage in Proposed ROW	Potentially Jurisdictional	Section 408 Coordination
	1	113251601	0.192	0.000	Yes	No
	2	Wetland 1	0.000	0.008	Yes	No
	3	113252111	0.000	0.037	Yes	No
	4	Wetland 2	0.000	0.627	Yes	No
1	5	Halls Bayou	0.212	0.237	Yes	No
	6	Wetland 3	0.000	0.024	Yes	No
	7	113252481	0.107	0.053	Yes	No
	8	113252861	0.000	0.016	No	No
	9	Wetland 4	0.016	0.000	Yes	No

Segment	Number	Water Body	Acreage in Existing ROW	Acreage in Proposed ROW	Potentially Jurisdictional	Section 408 Coordination
	10	Wetland 5	0.009	0.000	Yes	No
	11	113253277	0.039	0.028	Yes	No
	12	113253377	0.083	0.026	Yes	No
	13	113253359	0.000	0.169	Yes	No
1	14	Janowski Ditch	0.000	0.331	Yes	No
-	15*	Little White Oak Bayou 1 in Segment 1	0.401	0.000	Yes	No
	16	Un-named Ditch 1	0.016	0.000	Yes	No
		Segment 1 Subtotal	1.075	1.556		
		Segment 1 Potentially Jurisdictional Subtotal	1.075	1.540		
	15*	Little White Oak Bayou 1 in Segment 2	2.438	0.000	Yes	No
	17	Little White Oak Bayou 2	0.000	0.040	Yes	No
	18	Little White Oak Bayou 3	0.758	0.261	Yes	No
2	19	Un-named Ditch 2	0.145	0.000	Yes	No
	20	Little White Oak Bayou 4	0.510	0.025	Yes	No
	21	Little White Oak Bayou 5	0.331	0.000	Yes	No
		Segment 2 Potentially Jurisdictional Subtotal	4.182	0.326		
	22	Little White Oak Bayou 6	0.342	0.000	Yes	No
	23	White Oak Bayou	3.117	0.000	Yes	Yes
	24	Buffalo Bayou East	4.878	4.505	Yes	No
	25	Buffalo Bayou West 1	1.413	0.043	Yes	No
	26	Buffalo Bayou West 2	2.112	0.105	Yes	No
3	27	Water Fountain	0.115	0.000	No	No
	28	Detention Basin 1	0.336	0.000	No	No
	29	Detention Basin 2	2.809	0.000	No	No
		Segment 3 Subtotal	15.122	4.653		
		Segment 3 Potentially Jurisdictional Subtotal	11.862	4.653		
		Total	20.379	6.535		
		Total Potentially Jurisdictional	17.119	6.519		

^{*}Water Body 15 is located in both Segments 1 and 2

Table 2. Potentially Jurisdictional and Non-Jurisdictional Streams

Stream	Segment	Estimated Linear Feet (Existing ROW)	Estimated Linear Feet (Proposed ROW)	Potentially Jurisdictional
113251601	1	453	0	Yes
113252111	1	0	160	Yes
Halls Bayou	1	339	548	Yes
113252481	1	308	199	Yes
113252861	1	0	15	No
113253277	1	595	373	Yes
113253377	1	264	396	Yes
113253359	1	481	194	Yes
Janowski Ditch	1	0	470	Yes
Little White Oak Bayou 1 - Segment 1*	1	585	0	Yes
Un-named Ditch 1	1	154	0	Yes
Segment 1 Subtotal		3,179	2,355	
Little White Oak Bayou 1 – Segment 2*	2	2,859	0	Yes
Little White Oak Bayou 2	2	0	216	Yes
Little White Oak Bayou 3	2	685	461	Yes
Un-named Ditch 2	2	458	0	Yes
Little White Oak Bayou 4	2	580	23	Yes
Little White Oak Bayou 5	2	264	0	Yes
Segment 2 Subtotal		4,846	700	
Little White Oak Bayou 6	3	545	197	Yes
White Oak Bayou	3	2,607	1,885	Yes
Buffalo Bayou East	3	1,391	1,235	Yes
Buffalo Bayou West 1	3	725	29	Yes
Buffalo Bayou West 2	3	983	50	Yes
Segment 3 Subtotal		6,251	3,396	
Total Linear Feet		14,276	6,451	
Total Miles	3.93			

 $[\]mbox{\ensuremath{^{\star}}}$ Little White Oak Bayou 1 is located in both Segments 1 and 2

Table 3 presents the acreages of all water bodies and total stream linear feet in the project area, and the potentially jurisdictional water bodies and streams in the project area, for the existing ROW and the proposed ROW in each project segment as shown on *Exhibit 2 – Water Bodies in Project Area*.

Table 3. Potentially Jurisdictional Waters of the United States within the Existing and Proposed ROW

Segment	Categories	Total Acres	Total Potentially Jurisdictional Acres	Total Linear Feet of Stream	Total Linear Feet of Potentially Jurisdictional Stream
1	Existing ROW	1.075	1.075	3,179	3,179
_	Proposed ROW	1.556	1.540	2,355	2,340
2	Existing ROW	4.182	4.182	4,846	4,846
2	Proposed ROW	0.326	0.326	700	700
3	Existing ROW	15.122	11.862	6,251	6,251
3	Proposed ROW	4.653	4.653	3,396	3,396
Total		26.914	23.638	20,727	20,712

4.2 Interpretation of Aerial Photographs and Existing Electronic Data Sources

The 1916 and 1954 Aldine, Texas topographic quadrangle maps show that Drainage Ditch 113251601 and Halls Bayou were present in 1916 and 1954 (*Exhibit 3, Sheet 1*). However, Wetlands 1, 2, and 3 are not shown. The aerial photographs and site visit photographs confirm the presence of Drainage Ditch 113251601, Halls Bayou, and Wetlands 1, 2, and 3 (*Exhibit 2, Sheet 1; Appendix A, Exhibit 1, Photos 1, 2, 4*, and 5; *Appendix A, Exhibit 2, Photo 6*). Halls Bayou appears to have been rectified between 1916 and 1954 as indicated by a diversion channel and channel realignment shown on the 1954 Aldine, Texas topographic quadrangle map (*Exhibit 3, Sheet 1*). Wetlands 2 and 3 are adjacent to Halls Bayou.

Wetland 2 is not shown on the 1916 or 1954 Aldine, Texas topographic quadrangle maps, or on the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (*Exhibit 3 Sheet 1; Exhibit 4*, *Sheet 1*). Wetland 2 is a forested wetland situated within the one-percent Annual Exceedance Probability (AEP), or 100-year, Flood Hazard area of Halls Bayou (*Exhibit 4*, *Sheet 1; Appendix A*, *Exhibit 1*, *Photo 4*).

Drainage Ditch 113252111 and Wetland 1 are not shown on the 1916 or 1954 Aldine, Texas topographic quadrangle maps (*Exhibit 3*, *Sheet 1*). However, this drainage ditch is included in the NHD as a canal/ditch, and is included in the HCFCD drainage system database as P118-30-00, which is shown as an open ditch (*Exhibit 2*, *Sheet 1*; *Exhibit 4*, *Sheet 1*; *Exhibit 5*, *Sheet 1*). Review of aerial photographs and site visits to the project area confirm that Drainage Ditch 113252111 is an open drainage ditch, and Wetland 1 is adjacent to Drainage Ditch 113252111 (*Exhibit 2*, *Sheet 1*; *Exhibit 4*, *Sheet 1*; *Appendix A*, *Exhibit 1*, *Photos 2* and 3).

Drainage Ditch 113252481 is not shown on the 1916 Aldine, Texas topographic quadrangle map, but is shown on the 1954 Aldine, Texas topographic quadrangle map (*Exhibit 3*, *Sheet 2*). Drainage Ditch 113252481 is visible in the 2017 aerial photograph and is shown in the site visit photographs, with the majority of this ditch being enclosed within underground storm sewer culverts (*Exhibit 2*, *Sheet 2*; *Exhibit 4*, *Sheet 2*; *Appendix A*, *Exhibit 2*, *Photos 7* and 8).

The 1922 Houston Heights, Texas topographic quadrangle map shows Drainage Ditch 113252861 connecting to a north-south drainage ditch adjacent to Northline Drive. The 1955 Houston Heights, Texas topographic quadrangle map does not show Drainage Ditch 113252861, while the NHD shows Drainage Ditch 113252861 as a canal/ditch that connects to a north-south drainage ditch halfway between I-45 and Northline Drive (Exhibit 2, Sheet 2; Exhibit 3, Sheet 2; Exhibit 4, Sheet 2). Review of aerial photographs and site visits to the project area confirm that Drainage Ditch 113252861 is a concrete-lined drainage within the existing and proposed project ROW (Appendix A, Exhibit 2, Photo 9). The HCFCD drainage system database shows Drainage Ditch 113252861 as E101-18-04, which is identified as an open ditch (Exhibit 5, Sheet 2).

Wetlands 4 and 5 are not shown on the 1922 or 1955 Houston Heights, Texas topographic quadrangle maps (*Exhibit 3*, *Sheet 2*). The NHD indicates that Wetlands 4 and 5 are associated with canal/ditch 113252861, and the HCFCD drainage system database indicates that Wetlands 4 and 5 are associated with a storm sewer unit identified as number E101-18-00 (*Exhibit 2*, *Sheet 2*; *Exhibit 4*, *Sheet 2*; *Exhibit 5*, *Sheet 2*). Wetlands 4 and 5 were identified during the site visits as being areas of minimal wetland vegetation within open ditches (*Appendix A*, *Exhibits 2* and 3, *Photos 10* and 11).

Drainage Ditches 113253277 and 113253377 are shown on the 1922 and 1955 Houston Heights, Texas topographic quadrangle maps; however, both drainages have been rectified and moved from their original locations (*Exhibit 3*, *Sheet 2*). The NHD shows both drainage ditches orientated north-south until reaching the I-45 ROW, then following the I-45 western ROW northward approximately 200 linear feet as open ditches (*Exhibit 2*, *Sheet 2*; *Exhibit 4*, *Sheet 2*). The HCFCD drainage system database shows Drainage Ditch 113253277 as an open ditch south of the I-45 frontage road, and as a historical drainage under and continuing north of I-45 (*Exhibit 5*, *Sheet 2*). The HCFCD drainage system database shows Drainage Ditch 113253377 as an open ditch south of the I-45 frontage road, and under and north of I-45 as a storm sewer to Tidwell Road. Both drainage ditches continue through the eastern portion of the project area as underground storm sewers, as confirmed by review of recent aerial photographs and as shown in site visit photographs (*Exhibit 2*, *Sheet 2*; *Exhibit 4*, *Sheet 2*; *Appendix A*, *Exhibit 3*, *Photos 12* and *13*).

Drainage Ditch 113253359 is shown on the 1922 and 1955 Houston Heights, Texas topographic quadrangle maps, but the existing Drainage Ditch 113253359 has been rectified and moved from its original location (*Exhibit 3*, *Sheet 2*). Approximately 175 linear feet in the downstream portion of this drainage is an open concrete-lined drainage ditch (*Exhibit 2*, *Sheet 3*; *Exhibit 4*, *Sheet 2*; *Appendix A*, *Exhibit 3*, *Photo 14*). The remainder of Drainage Ditch 113253359 is enclosed underground within storm sewers. The NHD shows Drainage Ditch 113253359 crossing I-45 diagonally, whereas the HCFCD shows the drainage (E101-12-00) as an open ditch within the I-45 project area, then crossing perpendicular to I-45 (*Exhibit 4*, *Sheet 2*; *Exhibit 5*, *Sheets 2* and 3). For this report, the location of the underground portion of this ditch is estimated based on the HCFCD drainage system database.

Janowski Ditch is shown on the 1922 and 1955 Houston Heights, Texas topographic quadrangle maps, but is not included in the NHD (*Exhibit 2, Sheet 3; Exhibit 3, Sheet 3; Exhibit 4, Sheet 3*). The HCFCD drainage system database shows Janowski Ditch as historical from the southbound I-45 frontage road outfall and continuing northward. The HCFCD drainage system database identifies Janowski Ditch as E101-11-00, which is an open ditch starting at the southbound frontage road outfall (*Exhibit 5, Sheet 3*). Site visits to the project area indicate that Janowski Ditch is a riprap-lined rectified channel starting at the southbound I-45 frontage road outfall (*Appendix A, Exhibit 3, Photo 15*). From the outfall and continuing northeast, Janowski Ditch is an underground storm sewer (*Exhibit 2, Sheet 3; Exhibit 4, Sheet 3*).

Un-named Ditch 1 is not shown on the 1922 or the 1955 Houston Heights, Texas topographic quadrangle maps (*Exhibit 3*, *Sheet 3*) and is not included in the NHD (*Exhibit 2*, *Sheet 3*; *Exhibit 4*, *Sheet 3*). Based on review of aerial photographs and as observed during the site visits, this drainage ditch extends eastward from the north side of BNSF railroad tracks near Stokes Street to Little White Oak Bayou. Un-named Ditch 1 is identified by the HCFCD drainage system database as open canal/ditch with unit number E101-08-00 (*Exhibit 5*, *Sheet 3*).

Little White Oak Bayou crosses the existing and proposed project ROW at six locations (*Exhibit 2, Sheet 3; Exhibit 4, Sheet 3*). Little White Oak Bayou is shown on the 1922 and 1955 Houston Heights, Texas and on the 1922 and 1955 Settegast, Texas topographic quadrangle maps (*Exhibit 3, Sheet 3*). Little White Oak Bayou has been rectified and enclosed within culverts in portions of the existing and proposed project ROW, including culvert crossings at Stokes Street, I-610, West Cavalcade Street, Coronado Street, Patton Street, and White Oak Drive. Review of recent and historical aerial photographs confirmed that Little White Oak Bayou has been rectified and placed within underground culverts at the road crossings listed above (*Exhibit 2, Sheet 3; Exhibit 4, Sheet 3*). Site visit photographs of Little White Oak Bayou that are not culverted are shown in *Appendix A, Exhibit 4, Photos 16, 17, 18,* and 19).

Un-named Ditch 2 is shown on the 1922 and 1955 Settegast, Texas topographic quadrangle maps as a tributary to Little White Oak Bayou (*Exhibit 3*, *Sheet 3*). However, it is not included in the NHD or HCFCD drainage system database (*Exhibit 2*, *Sheet 3*; *Exhibit 4*, *Sheet 3*; *Exhibit 5*, *Sheet 3*). It is shown as an artificial flowline in the City of Houston database. Within the project area, Un-named Ditch 2 is an underground storm sewer and was confirmed by review of recent aerial photographs and observations during project site visits. The Un-named Ditch 2 outfall is shown at the eastern ROW edge in *Appendix A*, *Exhibit 4*, *Photo 20*.

White Oak Bayou is shown on the 1922 and 1955 Settegast, Texas topographic quadrangle maps (*Exhibit 3*, *Sheets 3* and *4*). Within the existing ROW, White Oak Bayou is a rectified channel. Approximately 1,900 linear feet of the upstream portion of the channel that is within the project area is concrete-lined. The concrete lining is visible in aerial photographs, and was observed during the site visits (*Exhibit 2*, *Sheets 3* and *4*; *Exhibit 4*, *Sheets 3* and *4*; *Appendix A*, *Exhibit 5*, *Photos 21*, *22*, *23*, *24*, and *25*). Within the project area, White Oak Bayou is bridged 11 times, as determined from review of aerial photographs.

Buffalo Bayou is shown on the 1922 and 1955 Settegast, Texas topographic quadrangle maps (*Exhibit 3*, *Sheets 4* and 5). The bayou crosses the project area at three locations (*Appendix A, Exhibits* 6 and 7, *Photos 26, 27, 28, 29, 30, 31, and 32*). Aerial photography shows that Buffalo Bayou is bridged 20 times within the project area.

Ingraham Gully is shown on of the 1922 and 1955 Settegast, Texas topographic quadrangle maps (*Exhibit 3*, *Sheet 5*). It is not included in the NHD and is listed as a historical canal/ditch (G122-00-00) in the HCFCD drainage system database (*Exhibit 2*, *Sheet 4*; *Exhibit 4*, *Sheet 4*; *Exhibit 5*, *Sheet 4*). Review of recent aerial photographs and site visits to the project area indicate that Ingraham Gully is no longer an open ditch south of I-10 and north of Market Street, which is located north of I-10. However, there is an open drainage ditch that flows from an outfall at Market Street into culverts at the ROW boundary of I-10.

The 1921 Bellaire, Texas and 1922 Park Place, Texas topographic quadrangle maps show drainage ditches on both sides of an existing railroad track within the project area near the current interchange of I-69 and State Highway (SH) 288 (*Exhibit 3*, *Sheet 4*). The 1983 Bellaire, Texas and 1955 Park Place, Texas topographic quadrangle maps show that the railroad track and the associated drainage ditches have been removed (*Exhibit 3*, *Sheet 4*). Review of recent aerial photographs confirms the removal of the ditches and the railroad track (*Exhibit 2*, *Sheet 4*; *Exhibit 4*, *Sheet 5*). Detention Basins 1 and 2 are not shown on the 1921 or the 1983 Bellaire, Texas topographic quadrangle maps (*Exhibit 3*, *Sheet 4*); however, the detention basins are visible on aerial photographs (*Exhibit 2*, *Sheet 4*; *Exhibit 4*, *Sheet 5*). Site visits to the project area indicate that both detention basins have become overgrown with voluntary vegetation (*Appendix A*, *Exhibit 7*, *Photo 33*). Access to both basins was not available due to perimeter fencing around the basins.

An ornamental water fountain on the west side of Downtown Houston is located mostly within existing ROW (I-45, Pease Street, and Jefferson Street). The eastern portion of the fountain appears to be outside existing ROW on privately-owned commercial property (*Exhibit 2, Sheet 4; Exhibit 4, Sheet 4*). The water fountain is not shown on the 1922 and 1955 Settegast, Texas topographic quadrangle maps (*Exhibit 3, Sheet 4*). The water fountain is identified as a palustrine unconsolidated bottom semi-permanently flooded excavated (PUBFx) feature in the NWI (*Appendix A, Exhibit 7, Photo 34*).

4.3 Site Topography

Elevations within the project area range from approximately 88 feet North American Datum (NAD) 1983 High Accuracy Reference Network (HARN) near the I-45 and Beltway 8 North interchange to approximately 0 feet NAD 1983 HARN at Buffalo Bayou (*Exhibit 5, 2008 HCFCD Digital Elevation Model*). The southern end of the project area is approximately 48 feet NAD 1983 HARN along US 59/I-69, and 44 feet NAD 1983 HARN along SH 288. The eastern end of the project is approximately 42 feet NAD 1983 HARN at I-10. The project area is relatively level with less than one-percent slope from Beltway 8 North to Buffalo Bayou, and less than one-percent slope southeastward from SH 288 to Brays Bayou, which is south of the project area.

4.4 Soils

According to the Natural Resources Conservation Service (NRCS), the project area is mapped as urban soil mapping units, with the exception of approximately 50.3 acres of the Clodine fine sandy loam mapping unit in the northern portion of the project area (*Table 4*). Urban land consists of soils that have been altered or covered by buildings and other structures, making classification impractical (*Exhibit 4*, *Floodplain, NWI, and Soils*). It was determined from review of aerial photographs and site visits that the approximately 50.3 acres of soils mapped as Clodine fine sandy loam in the project area have been disturbed or developed (*Exhibit 4*, *Sheet 1*).

Table 4. NRCS Soil Map Units within the Project Area

Table 4. NRCS Soil Map Units Within the Project Area						
Map Unit Symbol	Map Unit Name	Acres in Project Area	Percent of Project Area			
Ak	Addicks-Urban land complex	152.6	9.2%			
As	As Aris-Urban land complex		5.6%			
BadA	Bacliff-Urban land complex, 0 to 1 percent slopes	62.2	3.8%			
Bg	Bernard-Urban land complex	115.3	7.0%			
Cd	Cd Clodine fine sandy loam, 0 to 1 percent slopes		3.0%			
Се	Clodine-Urban land complex	241.7	14.6%			
Gu	Gessner occasionally ponded-Urban land complex, 0 to 1 percent slopes	223.8	13.5%			
Mu	Verland-Urban land complex	77.9	4.7%			
TeuB	Texla-Urban land complex, 0 to 2 percent slopes	13.2	0.8%			
URLX	Urban land	545.0	32.9%			
VauA	Vamont-Urban land complex, 0 to 1 percent slopes	74.7	4.5%			
W	Water	7.3	0.4%			
	Total for Project Area	1,656.5	100.0%			

4.5 FEMA Maps

Flood Insurance Rate Maps were used to review the hydrology of the area (GIS Servers\Web Map Service NFHL on hazards.fema.gov). Map numbers, showing effective dates in parentheses, 48201C0460M (10/16/2013), 48201C0470L (6/18/2007), 48201C0660M (6/9/2014), 48201C0680L (6/18/2007), 48201C0670M (6/9/2014), 48201C0690M (6/9/2014), 48201C0860L (6/18/2007), and 48201C0880L (6/18/2007) were reviewed and show that approximately 70 percent of the project area is outside of the one-percent AEP (100-year) floodplain or other flood hazard areas as determined by FEMA (*Exhibit 4, Floodplain, NWI, and Soils*). Areas adjacent to and including parts of Halls Bayou, Wetlands 4 and 5, Drainage Ditches 113253277, 113253377, and 113253359, Janowski Ditch, Un-named Ditches 1 and 2, Little White Oak Bayou, White Oak Bayou, and Buffalo Bayou are within the one-percent AEP floodplain.

4.6 NWI Maps

The USFWS NWI maps (GIS Servers\Web Map Service USFWS_WMS_CONUS_Wetlands on wetlandswms.er.usgs.gov) were used to gather information on the location of potential wetlands within the project area. Only four water resources are mapped by the NWI as being within the limits of the project area (Exhibit 4, Floodplain, NWI, and Soil). Three of the water resources are bayous: Little White Oak Bayou, White

Oak Bayou, and Buffalo Bayou. All three are identified as riverine lower perennial unconsolidated bottom permanently flooded and excavated (R2UBH and R2UBHx) features. The fourth water resource is a water fountain identified as a palustrine unconsolidated bottom semi-permanently flooded excavated (PUBFx) feature.

5.0 Potentially Jurisdictional Waters of the United States

Twenty-nine (29) water bodies were identified within the project area (*Table 1*), of which four water bodies appear to be non-jurisdictional. Two of the water bodies are detention basins (Detention Basins 1 and 2), which are excavated from uplands. One water body is an artificial ornamental feature (water fountain), which is not included in the definition of jurisdictional waters. Drainage Ditch 113252861 is a concrete-lined linear water body that appears to have ephemeral flow and is not identified as a relocated or excavated tributary of a natural water course. Therefore, this water body would likely not be determined by the USACE to be a jurisdictional water of the U.S. The other 25 water bodies meet the regulatory definition of waters of the U.S, and it is expected that the USACE would regulate them as jurisdictional waters of the U.S. However, only the USACE and the EPA can determine the jurisdictional status of aquatic resources identified as waters of the U.S.

6.0 Potentially Jurisdictional Waters of the United States within the Existing and Proposed ROW

The approximate acreage of water bodies and linear feet of streams associated with the identified waters of the U.S. and the potentially jurisdictional waters of the U.S. within the existing and proposed project ROW for the NHHIP are shown in *Table 3*. This assessment is preliminary, as only the USACE and EPA can determine the jurisdictional status of aquatic resources identified as waters of the U.S.

In Segments 1 and 2, all the identified waters, including streams, located within the project ROW were identified as potentially jurisdictional, except for drainage ditch 113252861. In Segment 3, three water bodies were considered to be potentially non-jurisdictional waters: a water fountain, and Detention Basins 1 and 2. These three water bodies are manmade and are typically considered to be non-jurisdictional waters by the USACE.

7.0 Possible Impacts to Potentially Jurisdictional Waters of the United States within the Existing and Proposed ROW

Possible impacts to potentially jurisdictional waters of the U.S. were estimated based on the preliminary assessment of water bodies in the project area and the conceptual design for the project. The proposed project may result in impacts to potentially jurisdictional waters of the U.S. as described in *Table 5*. Reconstruction and/or removal of existing roadways and structures and construction/expansion of new roadway and structures would occur within areas of existing and proposed project ROW, and would be expected to impact some potentially jurisdictional waters of the U.S.

The design of the proposed project is preliminary. Halls Bayou, Janowski Ditch, Little White Oak Bayou 1, Un-named Ditch 1, Little White Oak Bayou 2, Little White Oak Bayou 6, White Oak Bayou, and the three segments of Buffalo Bayou would likely be bridged. Detailed design of each bridge crossing has not been developed, but it is anticipated that existing bridge structures would be removed or modified. Dependent on the bridge designs, existing bridge support columns currently within the channels of the water bodies above may be removed, and new or additional bridge support columns may be required within the channels. A bridge structure that completely spans a stream segment with no discharges of fill material below the plane of ordinary high water or high tide elevation of the water body may have no impact on the water body. Alternatively, the bridge designs could involve impacts associated with removal of existing structures, construction of new structures, and stabilization of channel banks that would require a Department of the Army individual permit. The bridges might be designed such that impacts to jurisdictional waters of the U.S. are minimized, allowing the bridges to be considered for permit authorization by the USACE's nationwide permit program.

Table 5 presents possible impacts to potentially jurisdictional waters of the U.S. Some of the water bodies within the existing ROW are currently bridged or enclosed in culverts. Other water bodies are either located completely outside the existing ROW or are channels extending from the existing ROW into the proposed ROW. For the estimated possible impacts, it was assumed that water bodies that are currently bridged or culverted would remain unchanged from their current condition (i.e., blank areas in the Existing ROW and Proposed ROW columns). However, depending on the design of the proposed improvements within areas of existing ROW, some impacts to these water bodies may occur, such as culvert replacements/expansions, bridge support column construction, bank stabilization, and storm water outfalls.

Drainage Ditches 113251601, 113252111, 113252481, 113252861, 113253277, 113253377, 113253359, and Little White Oak Bayou 4 and 5 may be impacted by the proposed project. Specific impacts to the drainage ditches and the two segments of Little White Oak Bayou would be determined during detailed design. Existing culverts may be extended in areas of new ROW to accommodate the proposed roadway improvements. Appropriate stream mitigation for stream impacts would be determined as detailed design plans are developed. The potential impacts shown in *Table 5* reflect a maximum impact scenario, where these waters would be culverted.

Wetlands 1 through 5 may be avoided, or partially or completely filled, depending on the final design of the proposed improvements. Compensatory mitigation for unavoidable impacts to wetlands would be determined as detailed design plans are developed. Detention Basins 1 and 2 are expected to be avoided. Little White Oak Bayou 3 and Un-named Ditch 2 are completely culverted within the project area and are not expected to be changed. The water fountain is not expected to be impacted.

Table 5. Estimated Possible Impacts to Potentially Jurisdictional Waters of the United States

	Number	nber Water Body	Acres	Possible Impacts		
	Number	water body	Acres	Existing ROW	Proposed ROW	
	1	113251601	0.192			
	2	Wetland 1	0.008		160-foot culvert extension westward	
	3	1113252111	0.037		160-foot culvert extension westward	
	4	Wetland 2	0.627		Fill	
	5	Halls Bayou	0.449		Bridge	
ਜ	6	Wetland 3	0.024		Bridge or Fill	
Segment 1	7	1113252481	0.16		31-foot culvert extension westward	
Se	8	1113252861	0.016			
	9	Wetland 4	0.016	Culvert		
	10	Wetland 5	0.009	Culvert		
	11	1113253277	0.067	245-foot culvert extension southward	350-foot culvert extension southward	
	12	1113253377	0.109	230-foot culvert extension southward	385-foot culvert extension southward	
	13	1113253359	0.169		180-foot culvert extension westward	

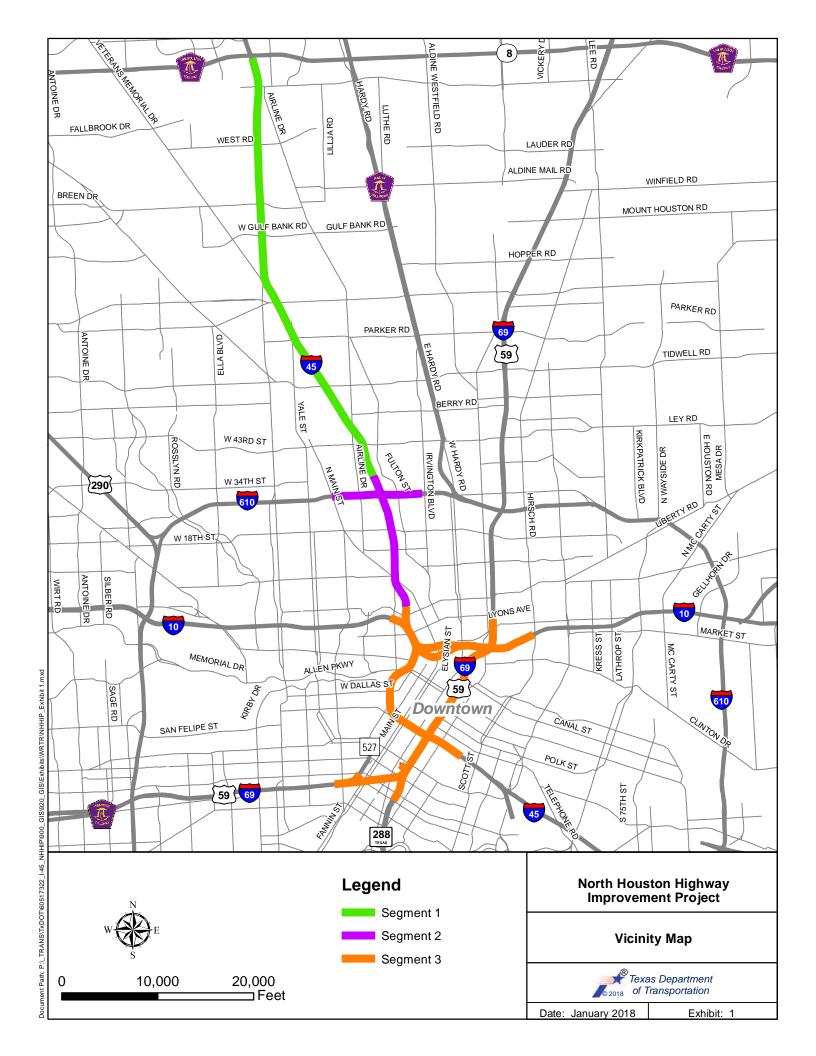
	Niverban	Water Darks	•	Possible Impacts		
	Number	Water Body	Acres	Existing ROW	Proposed ROW	
4	14	Janowski Ditch	0.331		Bridge or Culvert	
Segment 1	15*	Little White Oak Bayou 1 in Segment 1*	0.401	Bridge		
Š	16	Un-named Ditch 1	0.016	Bridge		
	15*	Little White Oak Bayou 1 in Segment 2*	2.438	Bridge		
	17	Little White Oak Bayou 2	0.040		Bridge	
ent 2	18	Little White Oak Bayou 3	1.019			
Segment 2	19	Un-named Ditch 2	0.145			
0,	20	Little White Oak Bayou 4	0.535	40-foot culvert extension northward		
	21	Little White Oak Bayou 5	0.331			
	22	Little White Oak Bayou 6	0. 342	Bridge	Bridge	
	23	White Oak Bayou	3.117	Bridge	Bridge	
	24	Buffalo Bayou East	9.383	Bridge	Bridge	
Segment 3	25	Buffalo Bayou West 1	1.456	Bridge	Bridge	
Segm	26	Buffalo Bayou West 2	2.217	Bridge	Bridge	
	27	Water Fountain	0.115			
	28	Detention Basin 1	0.336			
	29	Detention Basin 2	2.809			

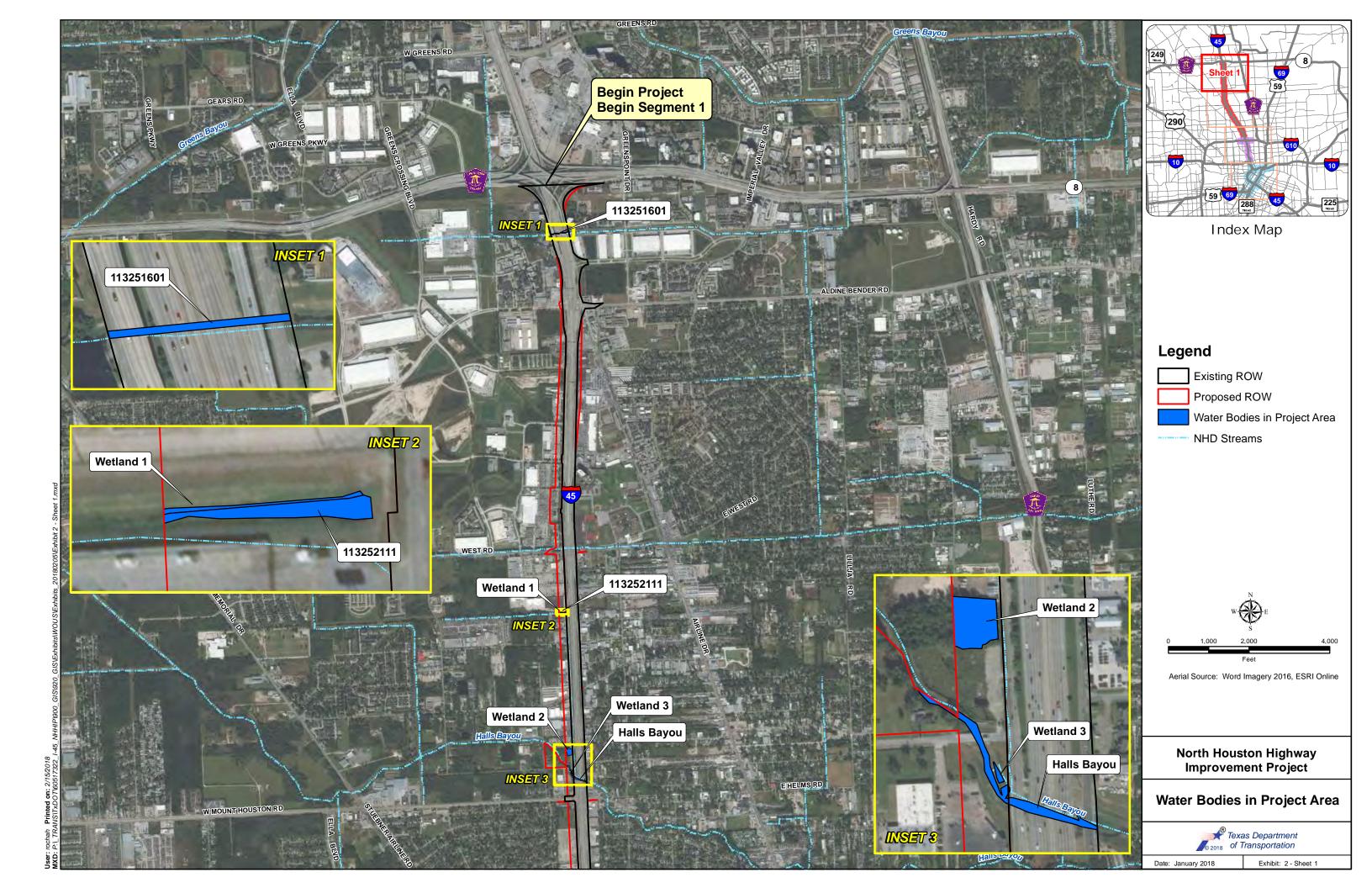
^{*} Little White Oak Bayou 1 is located in both Segments 1 and 2

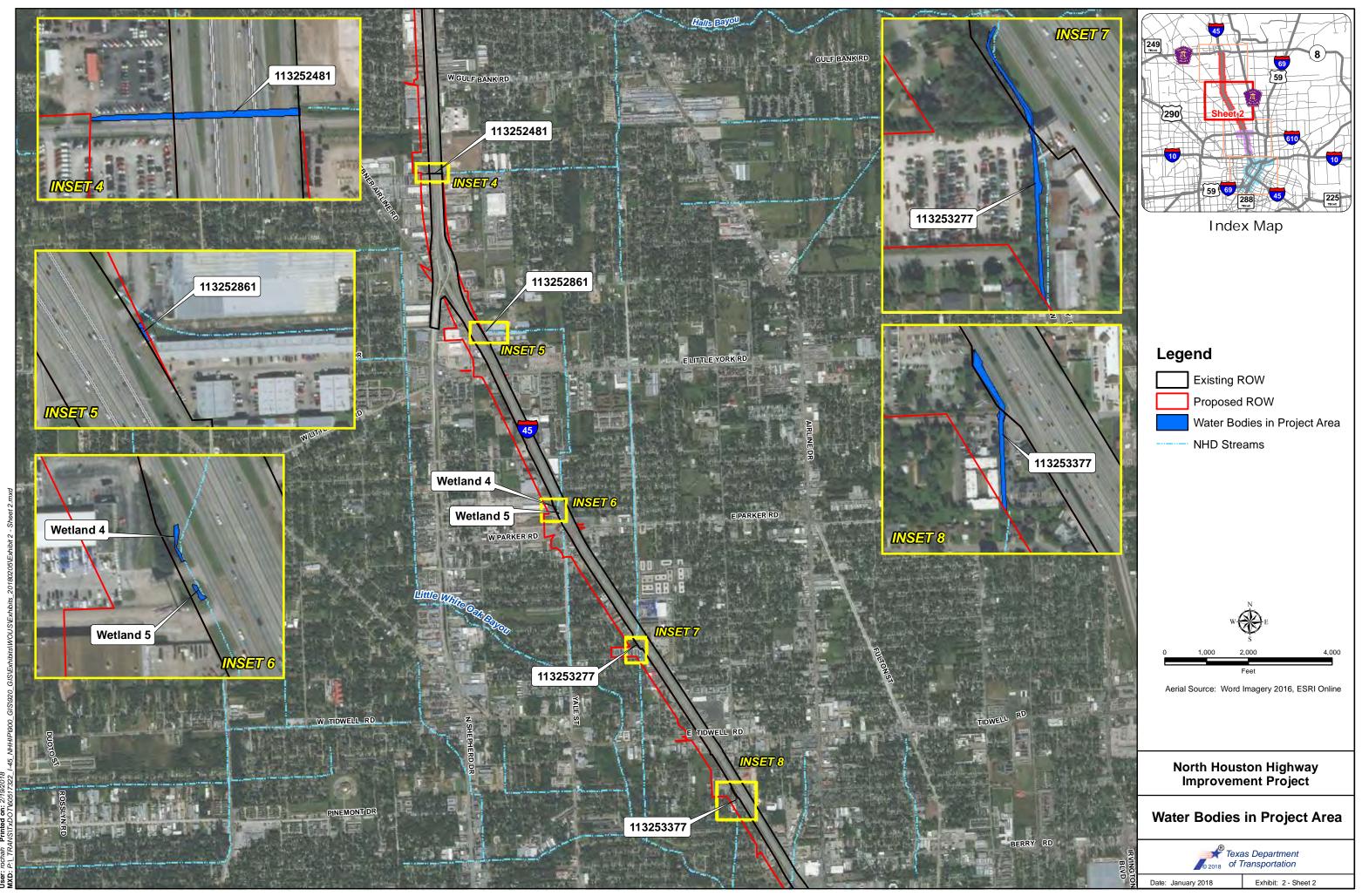
8.0 Section 408 Coordination

Section 408 coordination is required for NHHIP activities that would alter, occupy, or use any USACE civil works project, per Section 14 of the Rivers and Harbors Act of 1899, as codified in 33 U.S. Code §408. The Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission to temporarily or permanently occupy, use, or alter work that was federally funded, provided that such occupation, use, or alteration is not injurious to the public interest and will not impair the usefulness of the existing federal project. Department of the Army Engineer Circular No. 1165-2-216 states the policy and procedural guidance for processing requests to occupy, use, or alter federally-authorized USACE civil works projects.

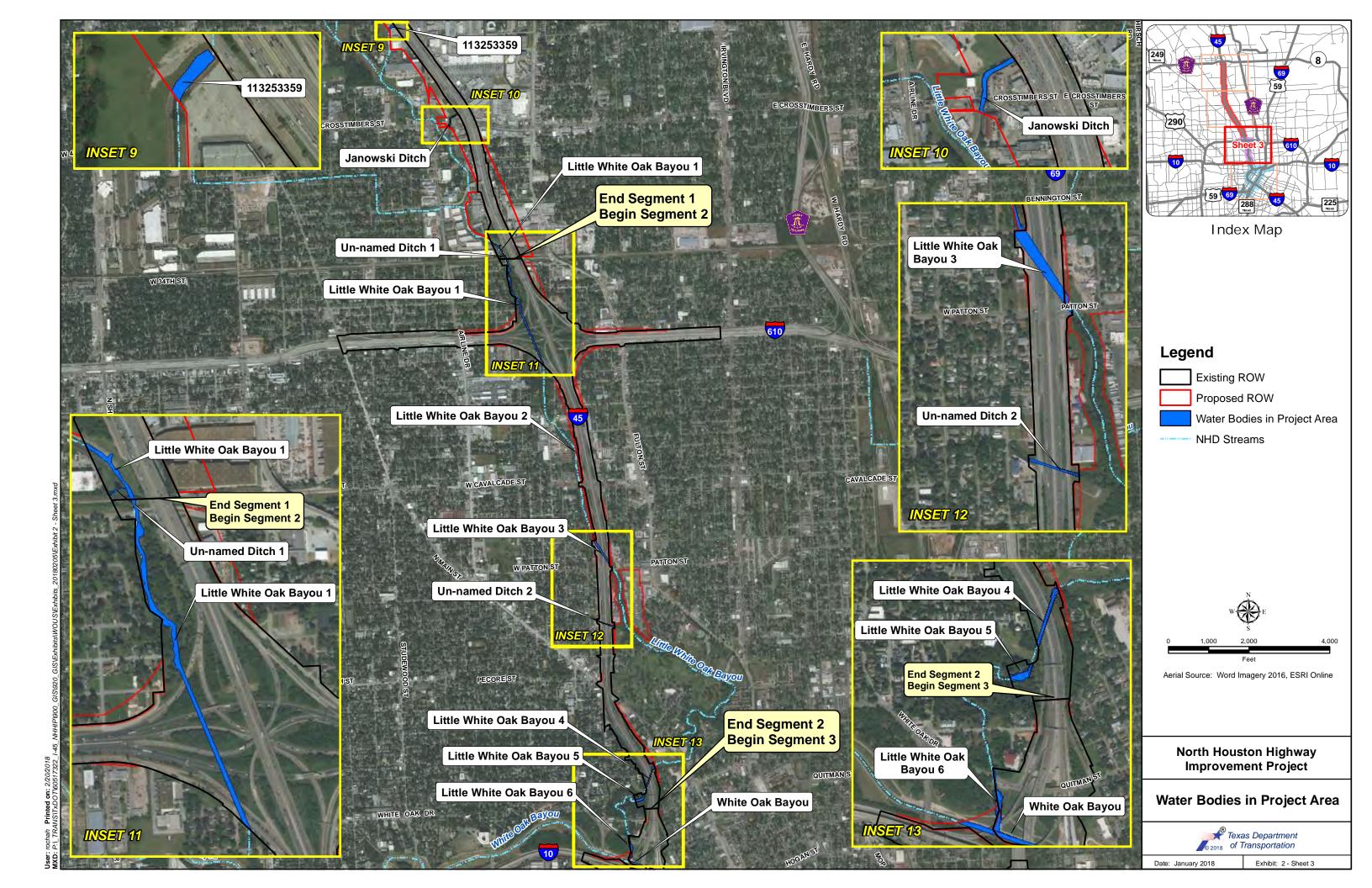
The section of White Oak Bayou that is within the NHHIP area is part of a federally-funded project, with HCFCD as the local sponsor. TxDOT would be required to coordinate with the USACE and HCFCD to determine if the occupation or alteration of the White Oak Bayou federal project by the proposed NHHIP would be injurious to the public interest or impair the usefulness of the federal project.

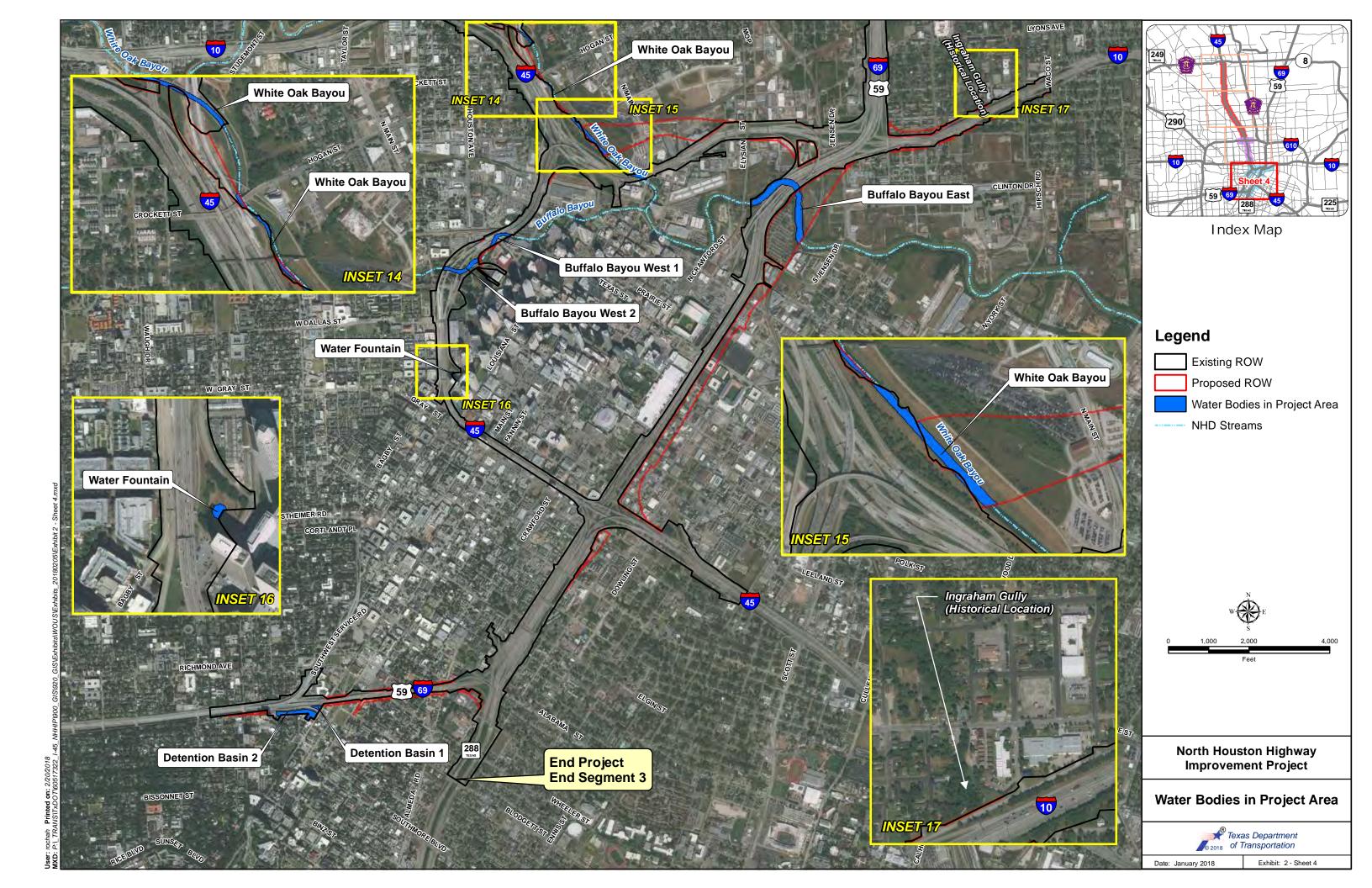


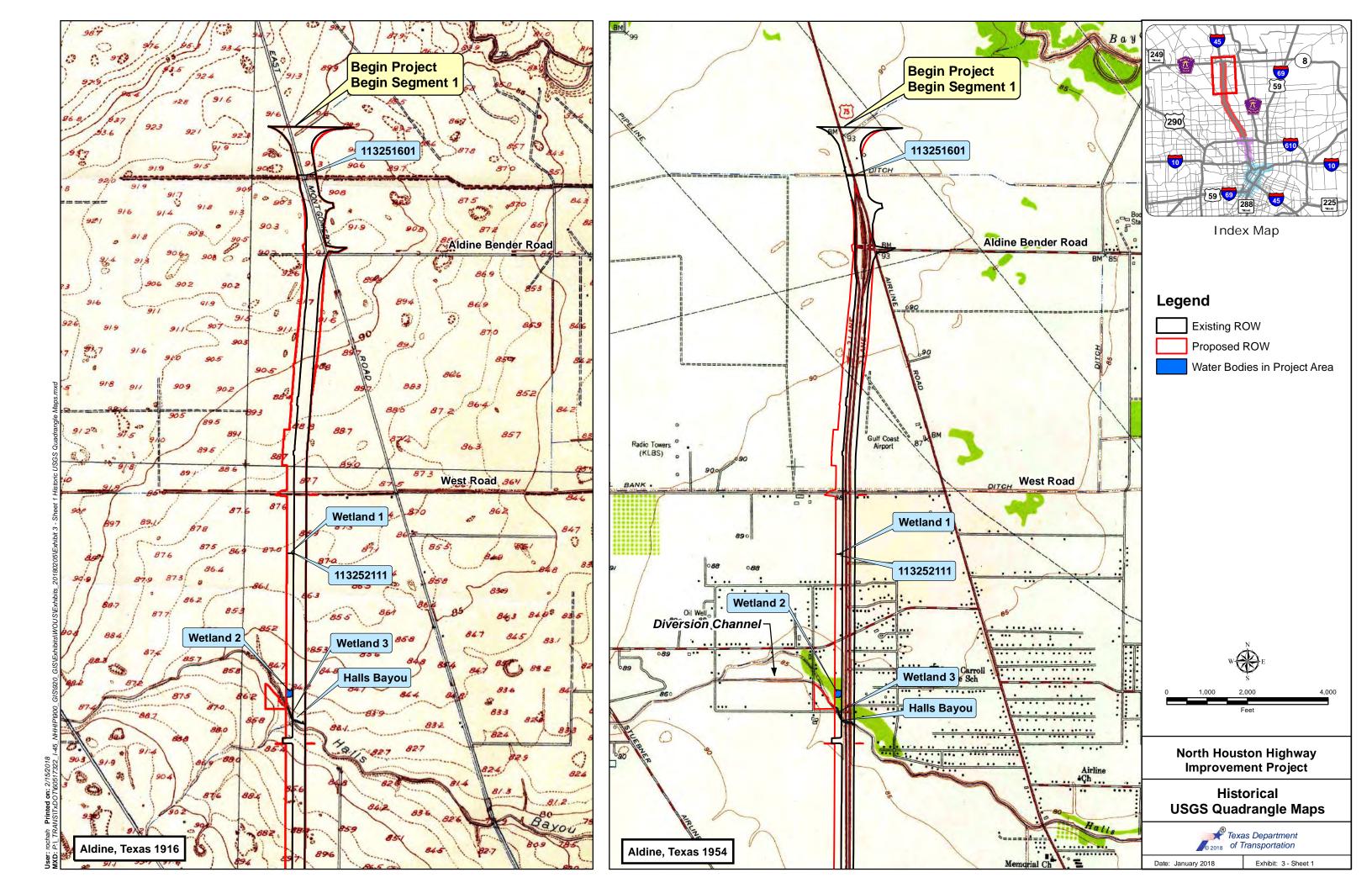


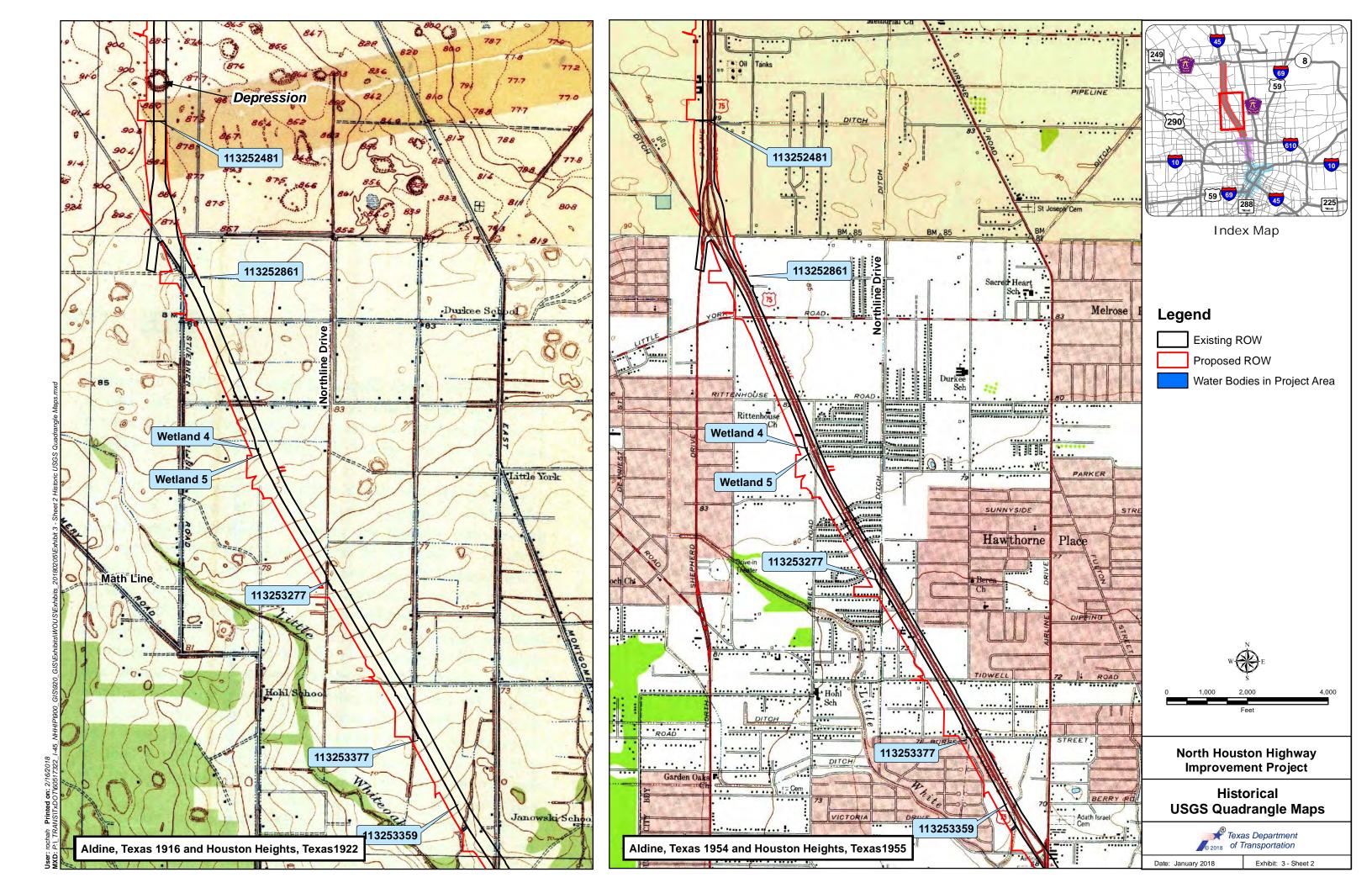


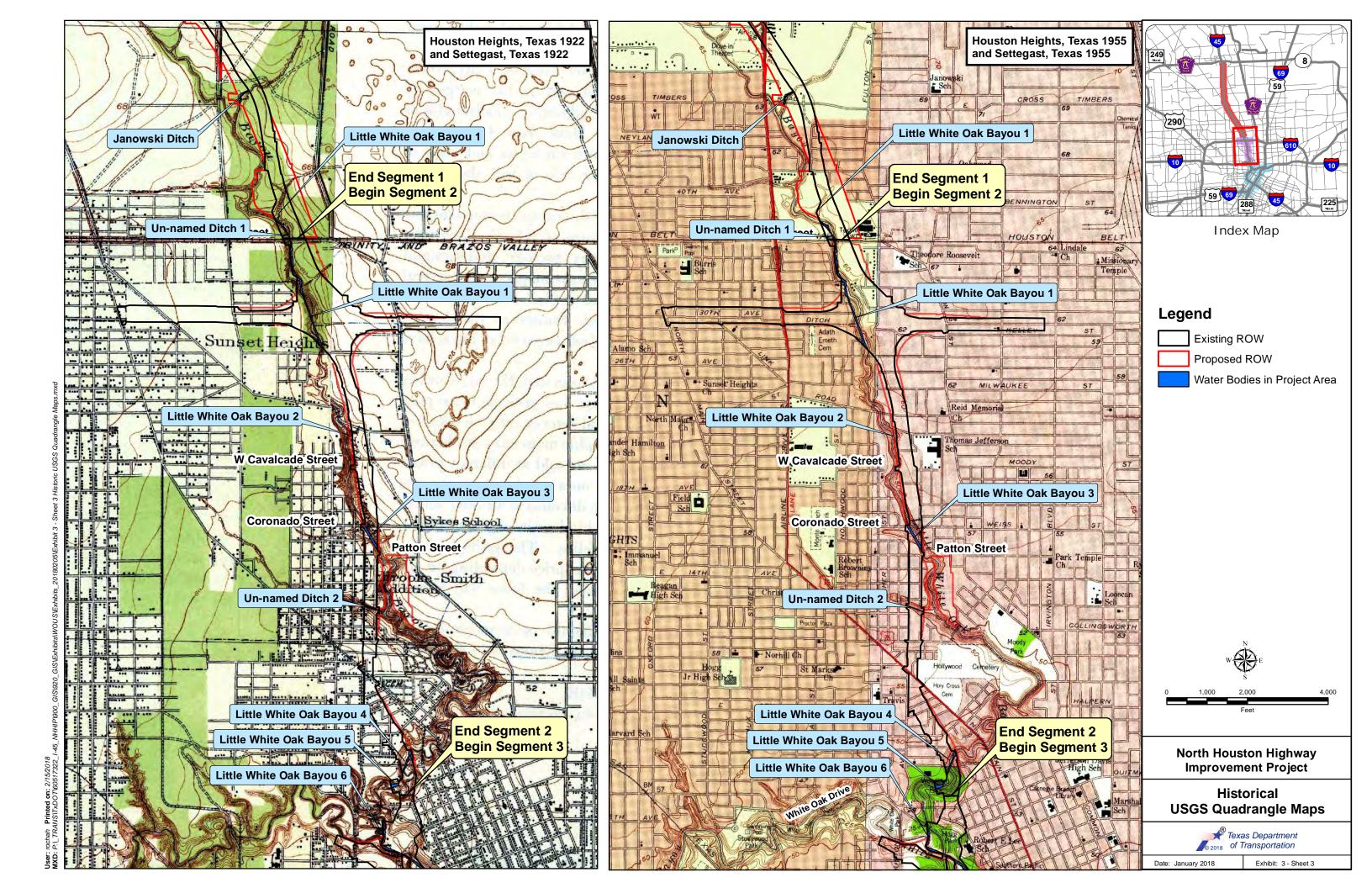
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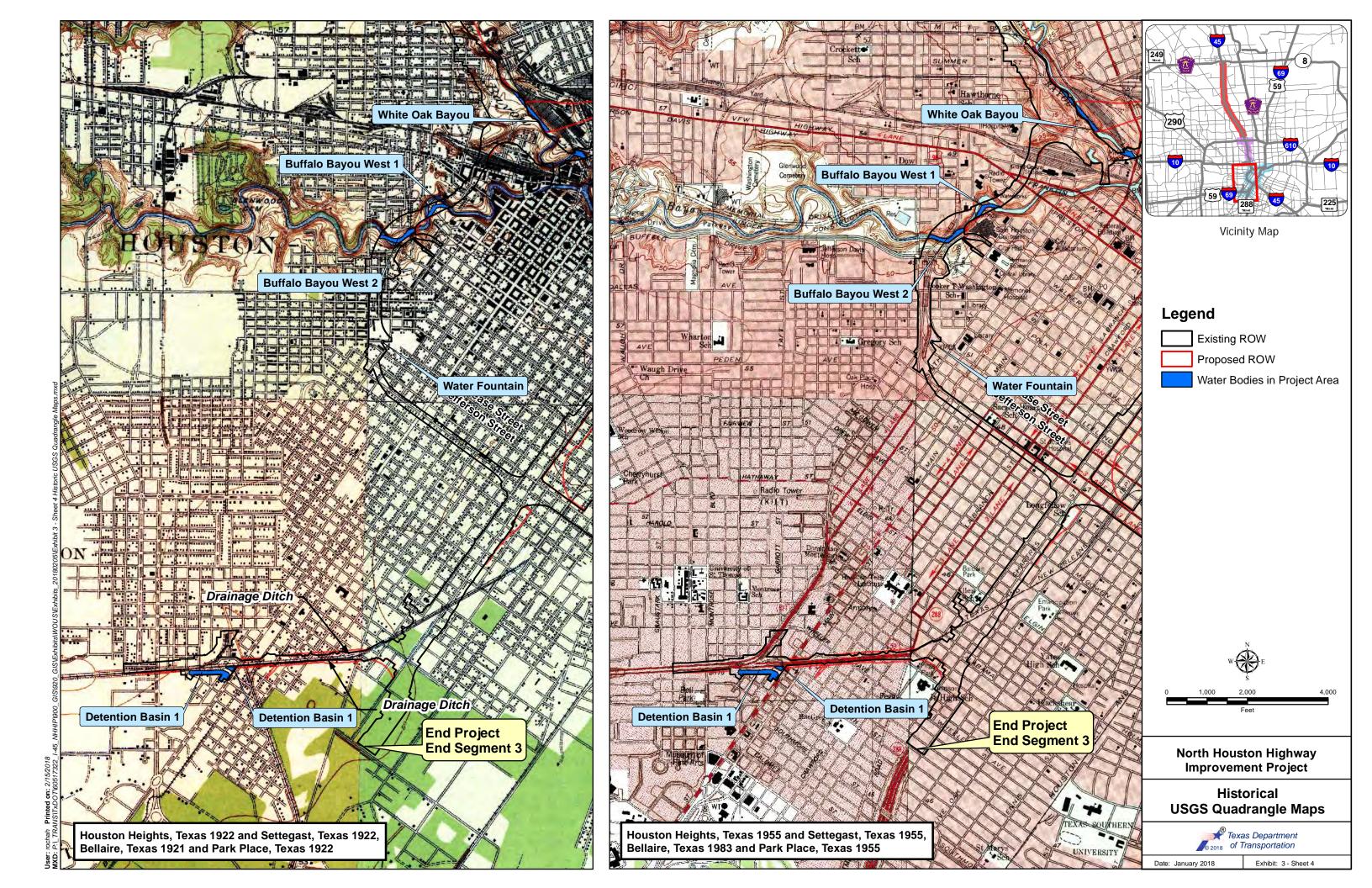


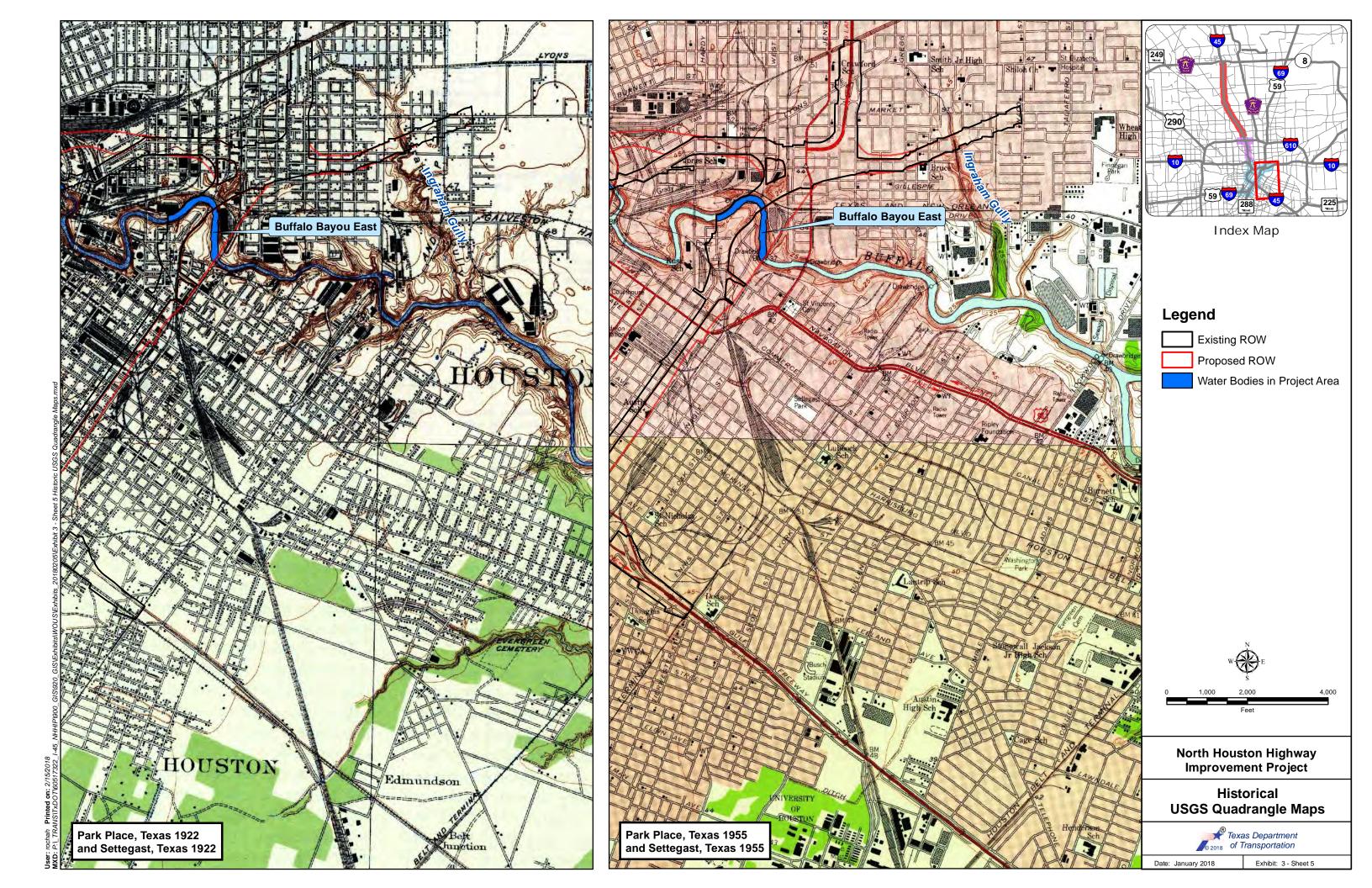


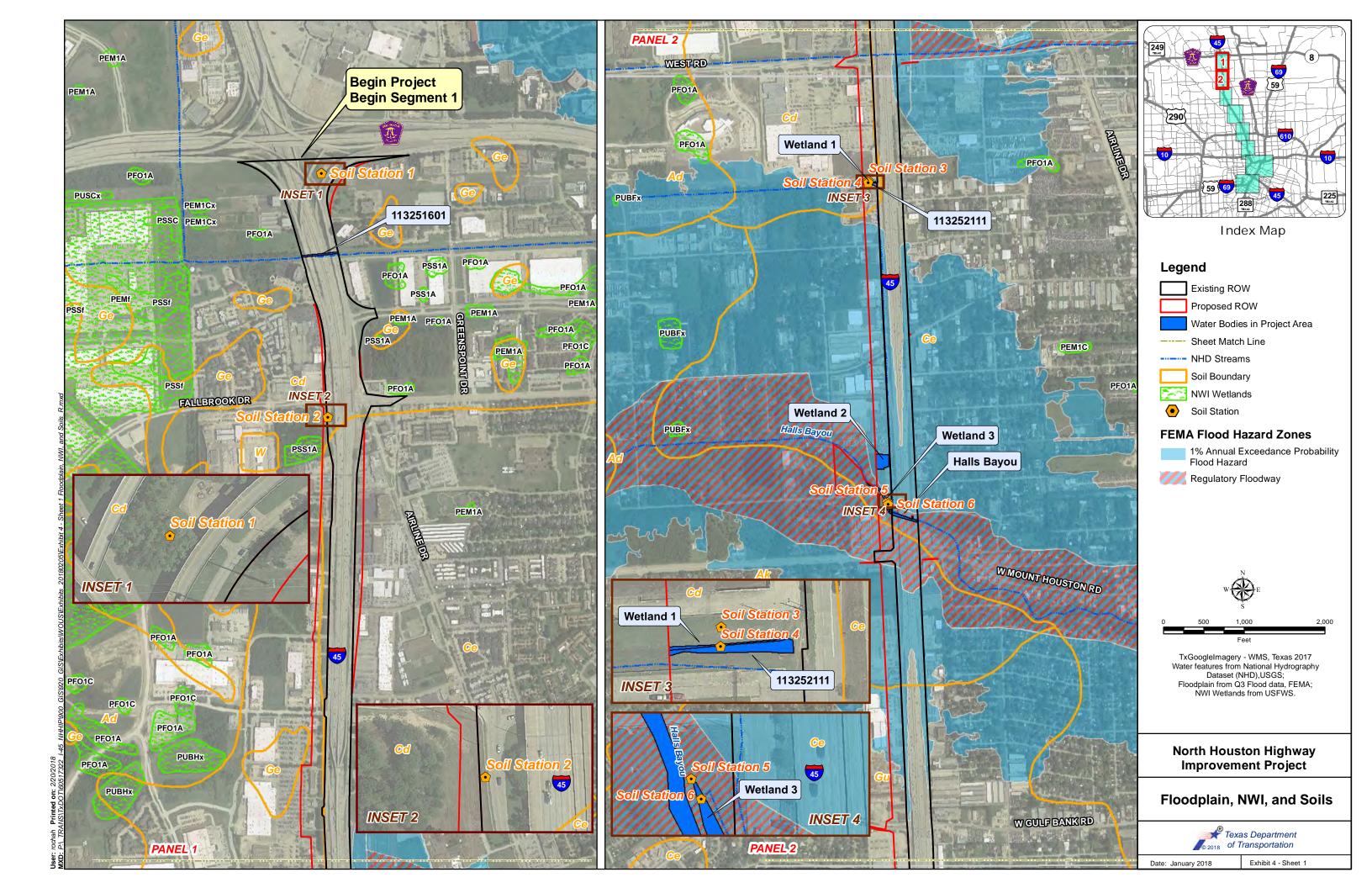


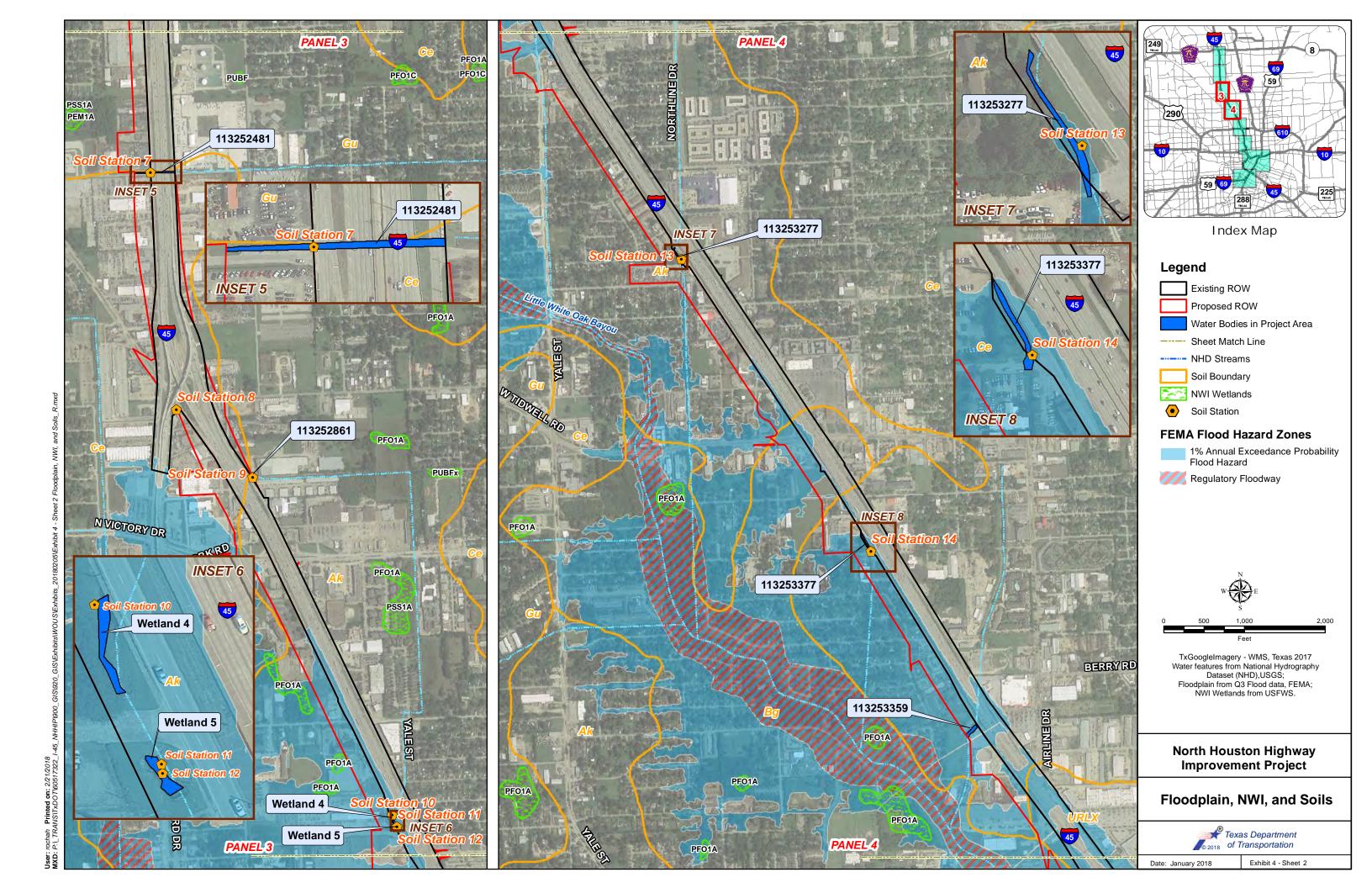


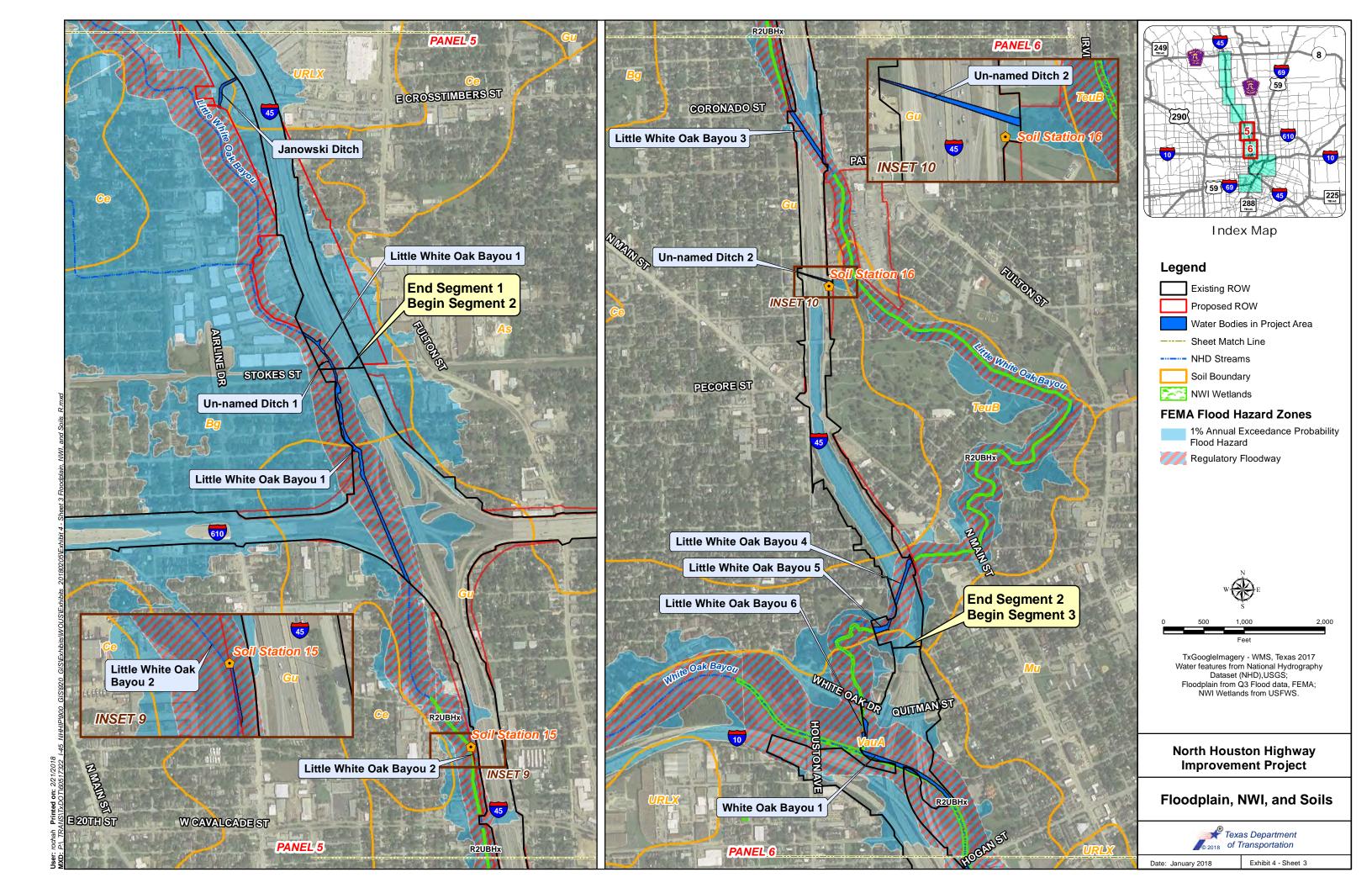


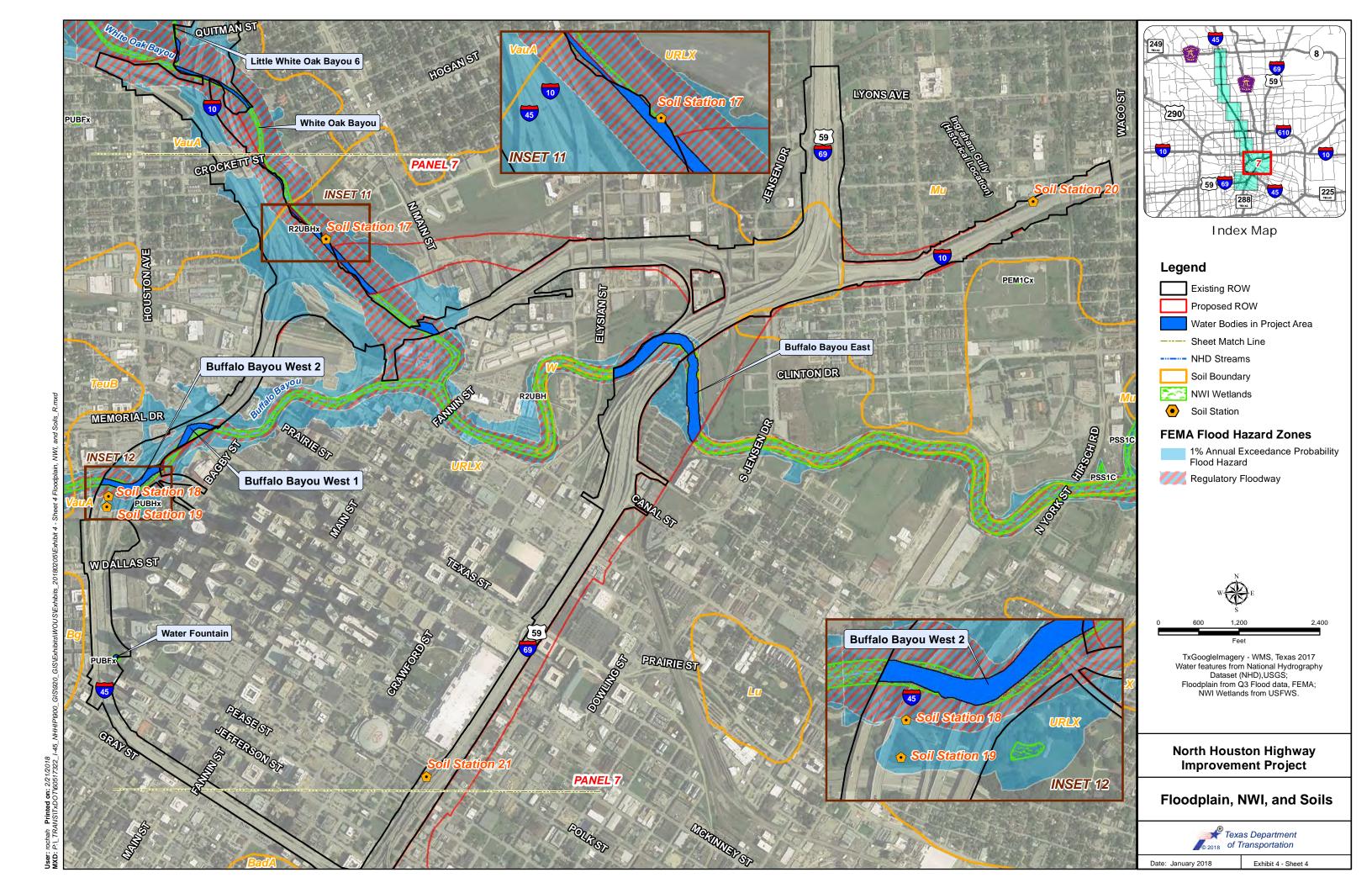




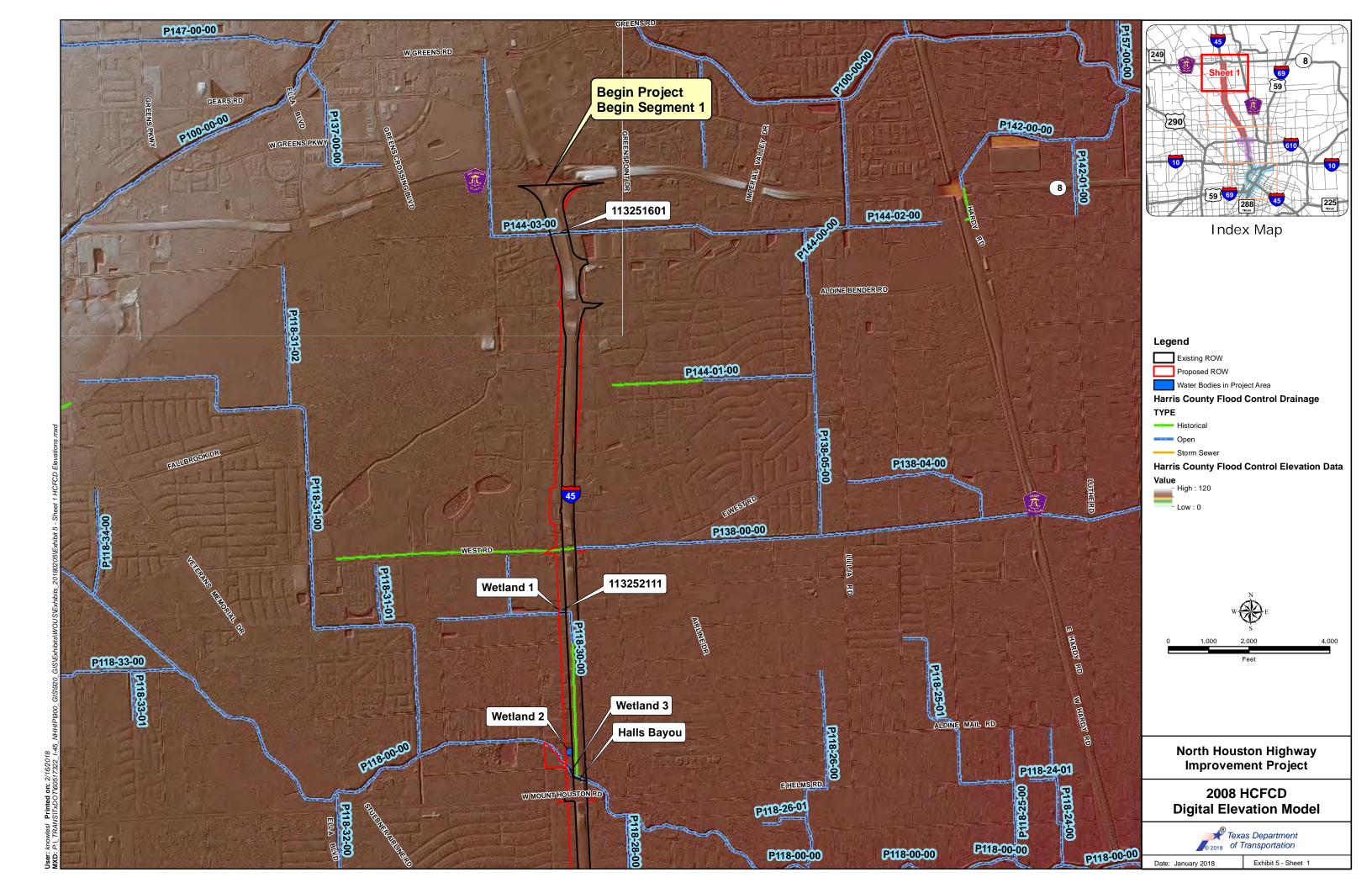


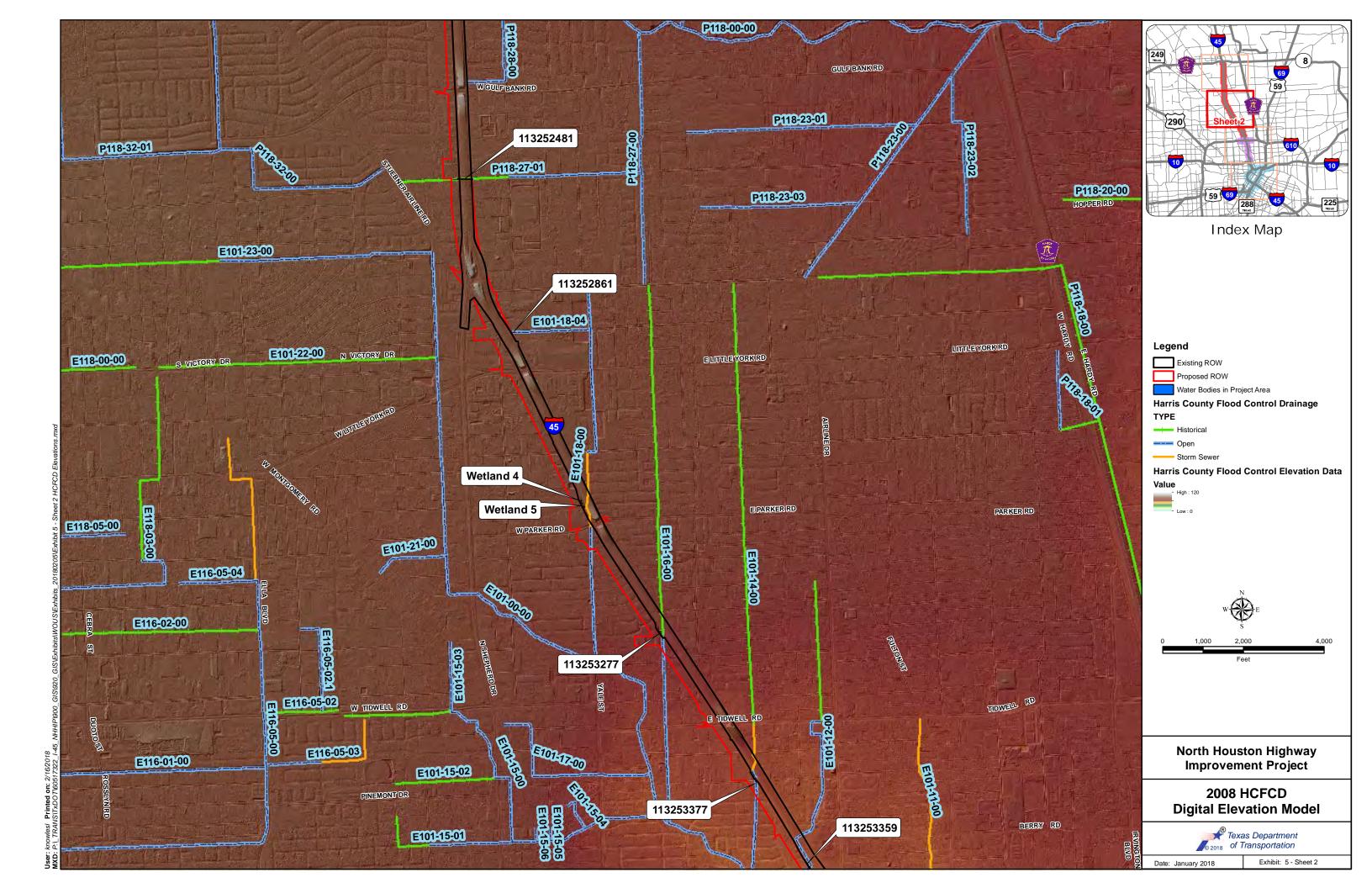


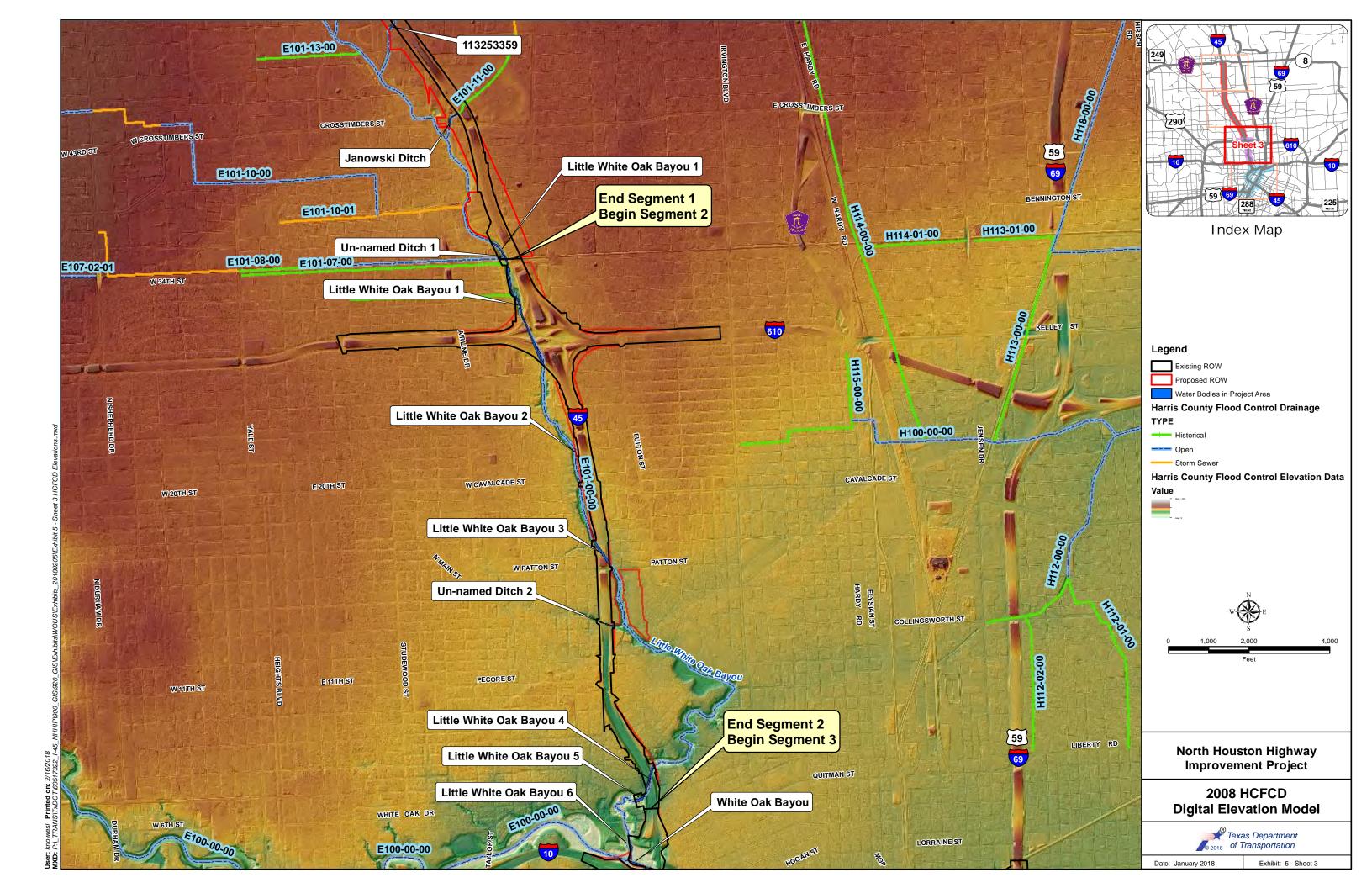


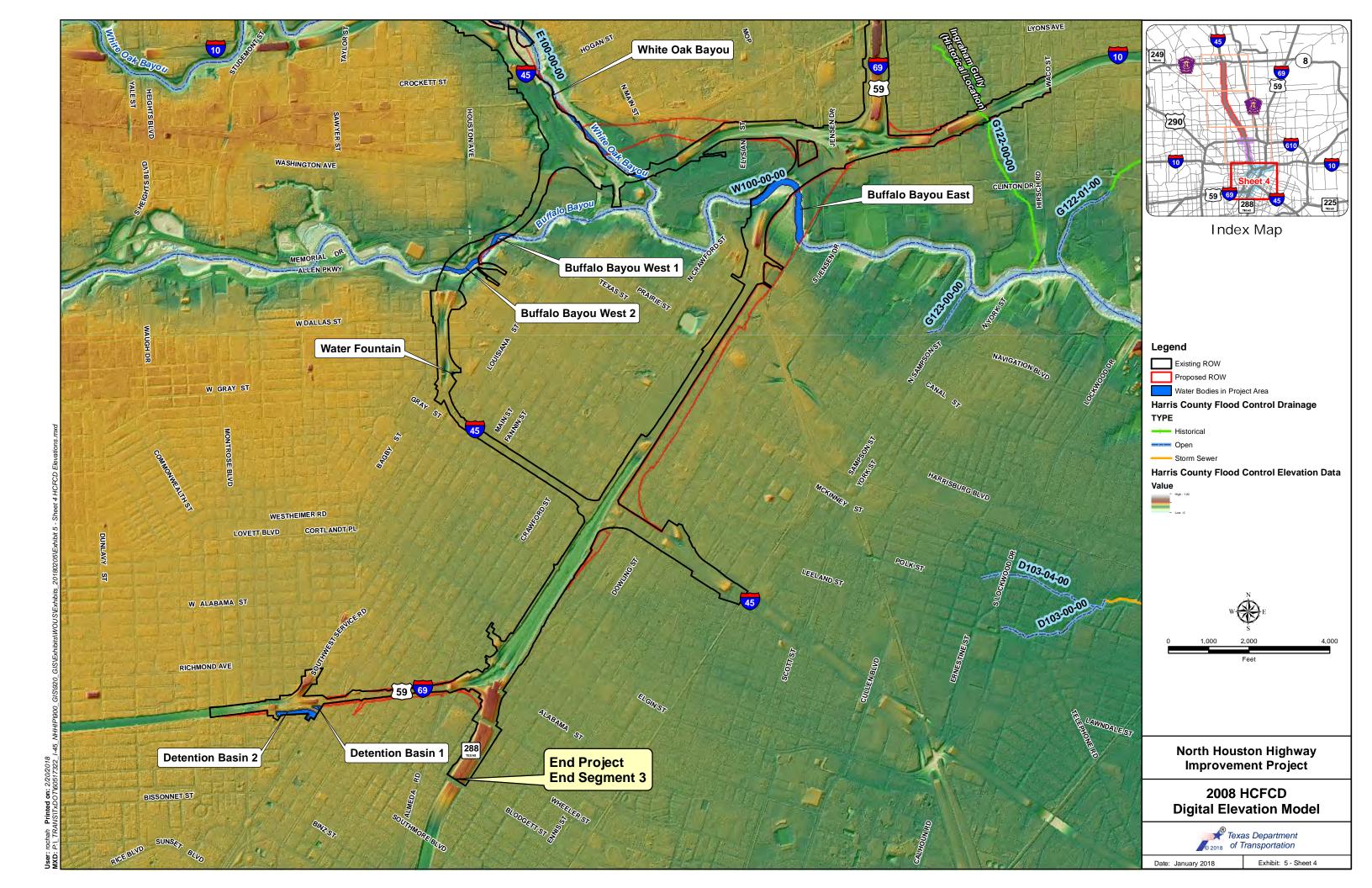












Appendix A

Site Photographs



Photo 1 - Looking west at culverts of Drainage Ditch 113251601 at eastern boundary of ROW



Photo 2 - Looking west at Drainage Ditch 113252111 and Wetland 1



Photo 3 - Looking east at Drainage Ditch 113252111



Photo 4 - Looking west within Wetland 2



Photo 5 - Looking southeast at Halls Bayou and Wetland 3 west of existing I-45 frontage road

North Houston Highway Improvement Project

Site Photographs



Date: January 2018

Appendix A, Exhibit 1



Photo 6 - Looking east under the I-45 roadway at Halls Bayou



Photo 7 - Looking west at Drainage Ditch 113252481 (grass-lined) in the proposed ROW



Photo 8 - Looking east at Drainage Ditch 113252481 west of the existing I-45 frontage road

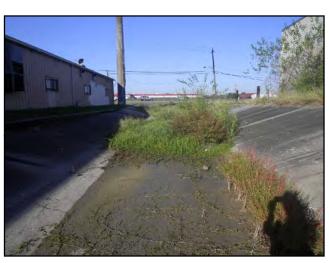


Photo 9 - Looking west at Drainage Ditch 113252861 (concrete-lined)



Photo 10 - Looking south at Wetland 4 (culverts and sediment deposits in channel)

Site Photographs



Date: January 2018



Photo 11 - Looking north at Wetland 5 (culverts and wetland vegetation)



Photo 12 - Looking southeast at Drainage Ditch 113253277



Photo 13 - Looking northwest at Drainage Ditch 113253377 (grass-lined channel) from East Burress Street



Photo 14 - Looking southwest at Drainage Ditch 113253359 (concrete-lined) from I-45 frontage road outfall



Photo 15 - Looking east at Janowski Ditch (riprap in channel bottom)

l Path: P:\ TRANS\TxDOT\60517322 I-45 NHHIP\400 Technica\\430 Work\432 Technical Reports\WOUS\

North Houston Highway Improvement Project

Site Photographs



Date: January 2018



Photo 16 - Looking south from Stokes Road bridge at Little White Oak Bayou 1



Photo 17 - Looking south at Little White Oak Bayou 2



Photo 18 - Looking west at outfall of Un-named Ditch 2



Photo 19 - Looking west at Little Oak Bayou 4 from outfall west of I-45 frontage road



Photo 20 - Looking south at Little White Oak Bayou 5 from White Oak Drive bridge

Site Photographs



Date: January 2018



Photo 21 - Looking east at White Oak Bayou (concrete-lined) upstream of the confluence with Little White Oak Bayou 6



Photo 22 - Looking north from bicycle path bridge at White Oak Bayou (riprap-lined banks in foreground to concrete-lined banks in background)



Photo 23 - Looking southeast at I-10 crossing of White Oak Bayou (riprap along banks)



Photo 24 - Looking northwest at I-10 crossing of White Oak Bayou



Photo 25 - Looking northwest at rail crossing of White Oak Bayou; I-45 and I-10 in background

Site Photographs



Date: January 2018

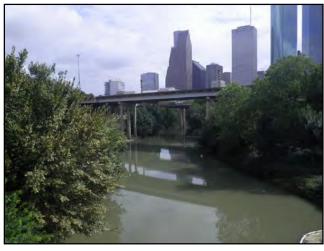


Photo 26 - Looking east at I-45 crossing of Buffalo Bayou West 2 from Sabine Street bridge



Photo 27 - Looking southwest from pedestrian bridge at I-45 crossing of Buffalo Bayou West 2

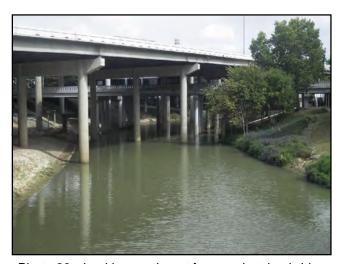


Photo 28 - Looking northeast from pedestrian bridge at I-45 Crossing of Buffalo Bayou West 1



Photo 29 - Looking east at I-45 crossing of Buffalo Bayou West 1 near Rusk Street and Memorial Drive intersection



Photo 30 - Looking north at Buffalo Bayou East from under US 59/I-69 bridges

Site Photographs



Date: January 2018



Photo 31 - Looking northeast at Buffalo Bayou East from under US 59/I-69 bridges



Photo 32 - Looking north at Buffalo Bayou East underneath US 59/I-69 bridges



Photo 33 - Looking northwest at Detention Basin 2 from Main Street



Photo 34 - Looking northeast at water fountain

Site Photographs



Date: January 2018

Appendix B

Wetland Determination Data Forms

Project/Site: No	orth Houston	Highway Improvem	ent Project	_ County:	Harris		Sampling	Date: [December 14, 2017
Applicant/Owner:	Texas D	epartment of Transp	ortation - Houston	District S	tate:	Texas	Sample F	Point:	SS01
Investigator(s):	T. Love	and	P. Frasier	_ Section, Towns	hip, Range: _			N/A	
Landform (hillslope, terrac	e, etc.):	Plai	n	_ Local relief (co	ncave, convex	, none):	None	_ Slope (%	h):1
Subregion (LRR or MLRA)):	LRR	Т	Lat:2	9.939511	Long:	-95.41242	7 Datu	m: NAD 83
Soil Map Unit Name:		Clodine fine	e sandy loam, 0 to	1 percent slopes		NWI C	lassification:		Upland
Are climatic / hydrologic co	onditions on	the site typical for th	is time of year?	(Yes / No)	Yes	(if no, e	explain in Rei	marks.)	
Are Vegetation No.	<u>o</u> ,Soil	No ,or Hydroloς	gy <u>No</u> sigr	nificantly disturbed	? Are "Norm	al Circumsta	ances" presei	nt? Yes _	X No
Are Vegetation No.	<u>o</u> ,Soil	No ,or Hydrolog	gy No nati	urally problematic?		(If needed, e	explain any ai	nswers in Re	emarks.)
SUMMARY OF FIN	IDINGS -	Attach site m	ap showing s	sampling poi	nt location	s, transe	ects, imp	ortant fe	atures, etc.
Hydrophytic Vegetation P	resent?	YesX	No						
Hydric Soil Present?		Yes	No <u>X</u>	_ Is the San	npled Area				
Wetland Hydrology Prese	∍nt?	Yes	No <u>X</u>	_ within a V	letland?	Ye	es	_ No_	<u> </u>
Remarks:				<u>'</u>					
HYDROLOGY									
Wetland hydrology	Indicators:					Second	dary Indicator	s (minimum	of two required)
Primary Indicators (m	ninimum of o	ne is required; chec	k all that apply)				Surface Soil (Cracks (B6)	
Surface Water	(A1)	_	Aquatic Faur	na (B13)			Sparsely Veg	etated Conc	ave Surface (B8)
High Water Ta	ble (A2)	_	Marl Deposit	s (B15) (LRR U)			Drainage Pat	terns (B10)	
Saturation (A3))	_	Hydrogen Sເ	ılfide Odor (C1)			Moss Trim Li	nes (B16)	
Water Marks (B1)	_	Oxidized Rhi	zospheres on Livir	g Roots(C3)	[Ory-Season V	Vater Table	(C2)
Sediment Depo	osits (B2)	_	Presence of	Reduced Iron (C4)		(Crayfish Burr	ows (C8)	
Drift Deposits	(B3)	_	Recent Iron	Reduction in Tilled	Soils (C6)		Saturation Vis	sible on Aeria	al Imagery (C9)
Algal Mat or C	rust (B4)	_	Thin Muck S	urface (C7)			Geomorphic I	Position (D2))
Iron Deposits (` ,	_		in in Remarks)			Shallow Aquit	` '	
Inundation Visi	` ,	ul Imagery (B7)		,			AC-Neutral	` ,	
Water-Stained		. ,					Sphagnum m	, ,	RR T. UI)
Water Stanled	Loavos (Do	,				`	opnagnam m	000 (D0) (L i	((\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Field Observations:									
Surface Water Present?	Yes	No X	Depth (inc	ches): N/A					
Water Table Present?	Yes	NoX	 · · ·	·					
Saturation Present?	Yes	No X		, <u> </u>	Wetland I	Hydrology F	Present?	Yes	No X
(includes capillary fringe)		NO	Depti (inc		Wetiand	i iyarology i	resent:		NO
Describe Recorded D		gauge, monitoring v	vell, aerial photos,	previous inspectio	ns), if available	9 :			
Remarks:									
No positive indication	of wetland	hydrology was obser	ved.						

VEGETATION (Five Stra	ata) - Use scienti	fic name	es of plants.		Sa	ampling Point: _		SS01	
		Absolute	Dominant	Indicator	Dominance Test we	orksheet:			
Tree Stratum (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominan	t Species			
1. Pinus taeda		60	Yes	FAC	That Are OBL, FAC		2		(A)
2. 3.			<u> </u>		Total Number of Dor	minant			
4 5.					Species Across All S	Strata:	2		(B)
6					Percent of Dominant	Species			
	50% of total cover:	60	= Total Cover 20% of total cover:	12	That Are OBL, FAC	V, or FAC:	100.0	0%	(A/B)
Sapling Stratum (Plot size:	30 ft.)		2070 01 10101 00101.		Prevalence Index V	Vorksheet:			
1. None Observed	,				Total % C	over of:	N	fultiply by:	
2.					OBL species	0	x 1 =	0	
3.			·		FACW species	0	x 2 =	0	
4.			· ————		FAC species	165	x 3 =	495	
5.			·		FACU species	0	x 4 =	0	
6.					UPL species	0	x 5 =	0	
		0	= Total Cover		Column Totals:	165	(A)	495	— (B)
	50% of total cover:	: 0	20% of total cover:	0			_		
Shrub Stratum (Plot size: 1. None Observed	30 ft.)				Prevalence	Index = B/A =		3.000	
2.					Hydrophytic Vegeta	ation Indicator	's:		
3.						est for Hydroph		ation	
4.					X 2 - Domina				
5.					X 3 - Prevale		4		
6.						c Hydrophytic V		(Explain)	
		0	= Total Cover			, , ,	Ü	` ' /	
	50% of total cover:	: 0	20% of total cover:	0	¹ Indicators of hydric	soil and wetland	d hydrology	/ must	
Herb Stratum (Plot size:	30 ft.)		•		be present, unless d	isturbed or prob	olematic.		
1. Stenotaphrum secundatum	<u> </u>	90	Yes	FAC	Definitions of Five				

FAC

Tree - Woody plants, excluding woody vines,

approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less

Shrub - Woody plants, excluding woody vines,

Herb - All herbaceous (non-woody) plants, including

plants, except woody vines, less than approximately

Woody vine - All woody vines, regardless of height.

Yes X No ____

herbaceous vines, regardless of size, and woody

approximately 3 to 20 ft (1 to 6 m) in height.

than 3 in. (7.6 cm) DBH.

3 ft (1 m) in height.

Hydrophytic

Vegetation

Present?

15

No

52.5 20% of total cover: 21

105 = Total Cover

= Total Cover

0

20% of total cover:

Remarks: (if observed, list morphological adaptations below).

50% of total cover:

30 ft.)

50% of total cover:

2. Paspalum dilatatum

(Plot size:

A positive indication of hydrophytic vegetation was observed.

10.

Woody Vine Stratum

1. None Observed

SOIL	

Sampling Point: SS01

epth	Matrix			Redox F	eatures			
nches)	Color (moist)	% C	olor (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	7.5YR 2.5/1	100			<u> </u>		Loam	
4-11	7.5YR 4/2	70					Clay	Triple Matrix
	7.5YR 2.5/1	25					Clay	<u> </u>
	2.5YR 4/6	5					Clay	Shovel Restriction
	2.011(7/0							<u> </u>
								
	oncentration, D=Depl	etion RM-Redu	ced Matrix MG	S=Masked 9	Sand Grains	² l ocation: DI	Pore Lining, M=N	
						Location. 1 L		Problematic Hydric Soils ³ :
	Indicators: (Applic	cable to all LRR				D C T II)		
Histosol	` ,				Surface (S8) (LF			(A9) (LRR O)
	pipedon (A2)				e (S9) (LRR S, 1			(A10) (LRR S)
	istic (A3)				eral (F1) (LRR	O)		ertic (F18) (outside MLRA 150A,B
Hydroge	en Sulfide (A4)		Loamy	Gleyed Ma	trix (F2)		Piedmont F	Floodplain Soils (F19) (LRR P, S, T)
Stratifie	d Layers (A5)		Deplet	ed Matrix (F	- 3)		Anomalous	Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR P	P, T, U)	Redox	Dark Surfa	ce (F6)		(MLRA 153	BB)
5 cm Mu	ucky Mineral (A7) (Ll	RR P, T, U)		ed Dark Su			Red Parent	t Material (TF2)
	resence (A8) (LRR U			Depression	. ,			ow Dark Surface (TF12)
	uck (A9) (LRR P, T)	•		10) (LRR (. ,			lain in Remarks)
	d Below Dark Surfac	e (A11)			5) F11) (MLRA 15	1)	כנוסו (באף	
	ark Surface (A12)	·• (/ · · · / /			Masses (F12) (I		³ Indicator	s of hydrophytic vegetation and
	, ,	MI DA 150A\		_				ydrology must be present, unless
	rairie Redox (A16) (I				F13) (LRR P, T,	J)	· ·	or problematic.
	Mucky Mineral (S1) (I	LKK U, S)) (MLRA 151)	A 4505'	5.5.6.000	- I
	Gleyed Matrix (S4)			•	(18) (MLRA 150	· ·		
	Redox (S5)			-	ain Soils (F19) (-		
	d Matrix (S6)		Anoma	alous Bright	Loamy Soils (F	20) (MLRA 149 <i>A</i>	A, 153C, 153D)	
Dark Su	ırface (S7) (LRR P, S	S, T, U)						
	anan /if al anan P					ı		
	.ayer (if observed):							
Type:	Rock/Gravel							
Depth (in	ches): 11					Hydrid	Soil Present?	Yes NoX
o positive ir	ndication of hydric so	ıls was observed	1.					

Project/Site:	North Housto	n Highway Improvemen	t Project	County:	Harris	<u> </u>	Sampling Date:	Dec	ember 14, 2017
Applicant/Owner:	Texas	Department of Transport	ation - Houstor	n District	_State:	Texas	Sample Point:		SS02
Investigator(s):	T. Love	and	P. Frasier	Section, Tow	nship, Range:		N	/A	
Landform (hillslope,					concave, convex	 (, none):	None Slo	pe (%):	0
Subregion (LRR or M	_	LRR T		 Lat:	29.931212	Long:	-95.412489	Datum:	NAD 83
Soil Map Unit Name:	•			1 percent slopes			lassification:		 Upland
•	•	n the site typical for this			Yes		xplain in Remarks		<u>- </u>
Are Vegetation	_	No ,or Hydrology	-	,		`	•	•	Y No
Are Vegetation		No ,or Hydrology		urally problemati			xplain any answers		
						•			•
SUMMARY OF	FINDINGS	 Attach site map 	showing	sampling po	oint location	າຣ, transe	ects, importai	nt featu	ıres, etc.
Hydrophytic Vegeta Hydric Soil Present Wetland Hydrology Remarks:	?	Yes Yes Yes	No X No X No X		ampled Area ı Wetland?	Υє	es	No	X
HYDROLOGY									
	ology Indicators	<u> </u>				Second	lary Indicators (min	imum of t	wo required)
-		one is required; check a	II that apply)			' <u>'</u>	Surface Soil Cracks		wo required)
	•	one is required, check a		no (P12)				` ,	Surface (PO)
	Water (A1)		_ Aquatic Fau	` '			Sparsely Vegetated Drainage Patterns (Surface (Bo)
	ter Table (A2)		_	ts (B15) (LRR U)				` '	
Saturatio	` ,			ulfide Odor (C1)	ing Doots(C2)		Moss Trim Lines (B		۸
	arks (B1)		_	izospheres on Li			Ory-Season Water	,)
	t Deposits (B2)		_	Reduced Iron (C	•		Crayfish Burrows (C	•	4.5.0
	osits (B3)		_	Reduction in Tille	ed Soils (C6)		Saturation Visible o		nagery (C9)
Algal Ma	t or Crust (B4)		_ Thin Muck S	Surface (C7)			Seomorphic Position	n (D2)	
Iron Dep	osits (B5)		_ Other (Expla	ain in Remarks)		\$	Shallow Aquitard (D)3)	
Inundation	on Visible on Aer	al Imagery (B7)				F	FAC-Neutral Test (I	D5)	
Water-St	tained Leaves (B	9)				\$	Sphagnum moss (D)8) (LRR ⁻	Γ, U)
Field Observations	s:								
Surface Water Pres	sent? Yes	No X	Depth (in	ches): N/A	_				
Water Table Presei	nt? Yes	No X	 Depth (in	ches): >20	-				
Saturation Present?	? Yes	No X	_	<u></u>	Wetland	Hydrology P	Present? Yes		No X
(includes capillary f	_		_		-	,	•		-
Describe Recor	rded Data (strear	n gauge, monitoring wel	l. aerial photos.	previous inspec	tions), if available	 e:			
		gaage,ege.	, c.c., p.,.c.c.,	, p	,,				
Remarks:									
No positive indi	cation of wetland	l hydrology was observe	d.						
•		,							

(A) (B)	
(B)	
(B)	
% (A/B)	
% (A/B)	
% (A/B)	
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Remarks: (if observed, list morphological adaptations below).

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

C	^	П	ı
	. ,		

Sampling Point: SS02

Profile Description: (Describe to the depth nee		e absence of indicators.)	
DepthMatrix	Redox Features		
•	olor (moist) % Type ¹ L	oc ² Texture	Remarks
0-7 10YR 2/1 100		Clay Loam	
7-12 10YR 4/1 90		Clay Loam	Dual Matrix
10YR 8/4 10		Clay Loam	
			
¹ Type: C=Concentration, D=Depletion, RM=Reduc	ced Matrix, MS=Masked Sand Grains. ² Loc	ation: PL=Pore Lining, M=Ma	trix.
Hydric Soils Indicators: (Applicable to all LRR		-	oblematic Hydric Soils ³ :
Histosol (A1)	Polyvalue Below Surface (S8) (LRR S, T		•
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR S, T, U)	2 cm Muck (A	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR O)		tic (F18) (outside MLRA 150A,B)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)		odplain Soils (F19) (LRR P, S, T)
Stratified Layers (A5)	Depleted Matrix (F3)		right Loamy Soils (F20)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Surface (F6)	(MLRA 153B	
		•	•
5 cm Mucky Mineral (A7) (LRR P, T, U)	Depleted Dark Surface (F7)	Red Parent N	·
Muck Presence (A8) (LRR U)	Redox Depressions (F8)		Dark Surface (TF12)
1 cm Muck (A9) (LRR P, T)	Marl (F10) (LRR U)	Other (Explai	n in Remarks)
Depleted Below Dark Surface (A11)	Depleted Ochric (F11) (MLRA 151)	D T\ 3:	d books who discours to d
Thick Dark Surface (A12)	Iron-Manganese Masses (F12) (LRR O,		of hydrophytic vegetation and rology must be present, unless
Coast Prairie Redox (A16) (MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)	•	problematic.
Sandy Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 151)		F
Sandy Gleyed Matrix (S4)	Reduced Vertic (F18) (MLRA 150A, 150	•	
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA	•	
Stripped Matrix (S6)	Anomalous Bright Loamy Soils (F20) (M	LRA 149A, 153C, 153D)	
Dark Surface (S7) (LRR P, S, T, U)			
		1	
Restrictive Layer (if observed):			
Туре:			
Depth (inches):		Hydric Soil Present? Ye	s NoX
Remarks:			
No positive indication of hydric soils was observed			

Project/Site:	North Housto	n Highway Improvemen	t Project	County: _	Harris	3	Sampling Date:	: <u>De</u>	cember 14, 2017
Applicant/Owner:	Texas [Department of Transpor	tation - Housto	n District	State:	Texas	Sample Point:		SS03
Investigator(s):	T. Love	and	P. Frasier	Section,	Township, Range:		N	I/A	
Landform (hillslope, t	terrace, etc.):	Plain		Local rel	ief (concave, convex	k, none):	None SI	ope (%):	0
Subregion (LRR or M	/ILRA):	LRR T		Lat: _	29.911038	Long:	-95.413316	_ Datum:	: <u>NAD 83</u>
Soil Map Unit Name:	·	Clodine fine s	andy loam, 0 to	o 1 percent slo	pes	NWI C	lassification:		Upland
Are climatic / hydrolo	ogic conditions or	n the site typical for this	time of year?	(Yes / N	o) Yes	(if no, e	explain in Remarks	3.)	
Are Vegetation	No ,Soil	No ,or Hydrology	No sig	gnificantly dist	urbed? Are "Norm	nal Circumsta	ances" present?	Yes	X No
Are Vegetation	No ,Soil	No ,or Hydrology	No na	turally probler	natic?	(If needed, e	explain any answer	s in Rem	arks.)
						•			•
SUMMART OF	LINDINGS	- Attach site map	snowing	sampling	point location	is, transe	ects, importa	nt reat	ures, etc.
Hydrophytic Vegeta Hydric Soil Present' Wetland Hydrology	?	Yes Yes Yes	No X No X No X		e Sampled Area in a Wetland?	Ye	es	No	X
Remarks:									
·	e upland compler	ment to Wetland 1 (SS0	4).						
HYDROLOGY Wetland hydro	ology Indicators	•				Casana	low the disease to the in-		i tuun maanimaal\
			III that are to A			•	dary Indicators (mi		two requirea)
	•	one is required; check a		(D40)			Surface Soil Crack	` ,	Of (DO)
	Water (A1)		_ Aquatic Fau	` ,	5 LIX		Sparsely Vegetated		re Surface (B8)
	ter Table (A2)		_	sits (B15) (LRF			Drainage Patterns		
Saturatio	` '		_	Sulfide Odor (0	•	<u></u> -	Moss Trim Lines (E		
	arks (B1)		_	•	n Living Roots(C3)		Dry-Season Water	,	52)
	t Deposits (B2)		_	f Reduced Iro	• •		Crayfish Burrows (•	
Drift Dep	osits (B3)		Recent Iron	Reduction in	Tilled Soils (C6)	\$	Saturation Visible o	on Aerial	Imagery (C9)
Algal Mat	t or Crust (B4)		_ Thin Muck \$	Surface (C7)		(Geomorphic Position	on (D2)	
Iron Depo	osits (B5)		Other (Expl	ain in Remark	s)	8	Shallow Aquitard (I	D3)	
Inundatio	on Visible on Aeri	al Imagery (B7)				F	FAC-Neutral Test ((D5)	
—— Water-St	tained Leaves (B	9)					Sphagnum moss (I	D8) (LRR	? T, U)
	`	,						, (,
Field Observations	s:								
Surface Water Pres	sent? Yes	No X	Depth (in	nches): N/	A				
Water Table Preser	_	No X	_ Depth (ir	, <u> </u>					
Saturation Present?	_	No X	_ Depth (ir			Hydrology F	Present? Yes		No X
(includes capillary fi				.eee,: <u></u>		,			
		n gauge, monitoring we	l, aerial photos	s, previous ins	pections), if available	e:			
Remarks:									
No positive indi	cation of wetland	l hydrology was observe	d.						

		Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species	
1. None Observed					That Are OBL, FACW, or FAC:	(A)
2						
3					Total Number of Dominant	
4			<u> </u>		Species Across All Strata: 2	(B)
5			<u> </u>			
6			. <u> </u>		Percent of Dominant Species	
		0	= Total Cover		That Are OBL, FACW, or FAC: 0.0%	(A/B)
	50% of total cover:	0	20% of total cover:	0		
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Worksheet:	
1. None Observed					Total % Cover of: Multi	iply by:
2.					OBL species 0 x 1 =	0
3.					FACW species 0 x 2 =	0
4.					FAC species 10 x 3 =	30
5.					FACU species 65 x 4 =	260
6.			·		UPL species 60 x 5 =	300
		0	= Total Cover		Column Totals: 135 (A)	590 (B)
	50% of total cover:		•	0		、 /
Shrub Stratum (Plot size:	30 ft.)				Prevalence Index = $B/A =$ 4.	370
1. None Observed	,					
2.					Hydrophytic Vegetation Indicators:	
3.					1 - Rapid Test for Hydrophytic Vegetation	n
4					2 - Dominance Test is >50%	•
4 5.					3 - Prevalence Index is ≤ 3.0 ¹	
6.					Problematic Hydrophytic Vegetation ¹ (Ex	nlain)
o		0	= Total Cover		1 Toblematic Hydrophytic Vegetation (Ex	piairi)
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric soil and wetland hydrology m	uet
Herb Stratum (Plot size:	30 ft.)		20% of total cover.		be present, unless disturbed or problematic.	331
1. Bothriochloa ischaemum	30 it.)	60	Yes	UPL	Definitions of Five Vegetation Strata:	
		50	Yes	FACU	Tree - Woody plants, excluding woody vines,	
Cynodon dactylon Ambrosia pollostachya		10		FACO FAC		2
3. Ambrosia psilostachya			No No		approximately 20 ft (6m) or more in height and 3 in	
4. Plantago virginica		15	<u>No</u>	<u>FACU</u>	(7.6 cm) or larger in diameter at breast height (DB	[,] ⊓).
5			·		Sapling - Woody plants, excluding woody vines,	
6			·		approximately 20 ft (6 m) or more in height and les	88
7			·		than 3 in. (7.6 cm) DBH.	33
8			·		than 3 in. (7.0 cm) DBH.	
9			·		Shrub Woody plants avaluding woody vines	
10					Shrub - Woody plants, excluding woody vines,	
11			<u> </u>		approximately 3 to 20 ft (1 to 6 m) in height.	
			= Total Cover		Had Alle de la companya de la compan	
	50% of total cover:	67.5	20% of total cover:	27	Herb - All herbaceous (non-woody) plants, includi	ng
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of size, and woody	
1. None Observed					plants, except woody vines, less than approximate	яy
2					3 ft (1 m) in height.	
3						
4					Woody vine - All woody vines, regardless of heigh	nt.
5						
		0	= Total Cover		Hydrophytic	
	50% of total cover:	0	20% of total cover:	0	Vegetation	
					Present? Yes NoX	_
Remarks: (if observed, list mo		•				
No positive indication of hydrop	ohytic vegetation was	observed.				

SOIL	Sampling Point:	SS03

epth nches) 0-12	Color (moist) 10YR 3/1	<u>%</u> 100	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture Clay Loam	Remarks
 Type: C=Cor	ncentration, D=Dep	letion, RM=	Reduced Matrix, MS	 S=Masked	Sand Grains.	² Location: Pl	 _=Pore Lining, M=Matri	X.
			LRRs, unless other					lematic Hydric Soils ³ :
Histosol (Surface (S8) (LF	RR S, T, U)	1 cm Muck (A9	•
Histic Ep	ipedon (A2)		Thin D	ark Surfac	ce (S9) (LRR S, 1	Γ, U)	2 cm Muck (A1	0) (LRR S)
Black His	stic (A3)		Loamy	Mucky Mi	neral (F1) (LRR	O)	Reduced Vertice	(F18) (outside MLRA 150A ,I
 Hydroger	n Sulfide (A4)		Loamy	Gleyed M	atrix (F2)		Piedmont Floor	dplain Soils (F19) (LRR P, S, 1
Stratified	Layers (A5)		Deplet	ed Matrix ((F3)		Anomalous Bri	ght Loamy Soils (F20)
Organic f	Bodies (A6) (LRR F	P, T, U)	Redox	Dark Surf	ace (F6)		(MLRA 153B)	
5 cm Mud	cky Mineral (A7) (L	.RR P, T, U)	Deplet	ed Dark S	urface (F7)		Red Parent Ma	terial (TF2)
Muck Pre	esence (A8) (LRR I	U)	Redox	Depression	ons (F8)		Very Shallow D	ark Surface (TF12)
1 cm Mud	ck (A9) (LRR P, T)		Marl (F	10) (LRR	U)		Other (Explain	n Remarks)
Depleted	Below Dark Surfac	ce (A11)	Deplet	ed Ochric	(F11) (MLRA 15	1)		
	rk Surface (A12)			_	Masses (F12) (I	· · · · · · · · · · · ·		hydrophytic vegetation and
	airie Redox (A16) (•			(F13) (LRR P, T,	U)	wetland hydro disturbed or p	logy must be present, unless
	ucky Mineral (S1) (LRR O, S)		•	7) (MLRA 151)		disturbed or p	iobiematic.
	leyed Matrix (S4)			•	F18) (MLRA 150	· ·		
	edox (S5)			-	olain Soils (F19) (-		
	Matrix (S6)	C T II)	Anoma	alous Brign	nt Loamy Soils (F	20) (MLRA 149 /	A, 153C, 153D)	
Bark Gur	face (S7) (LRR P,	o, i, o,						
estrictive L :								
	ayer (if observed):	:						
Type:						Livelei	Soil Broomt? Voc	No. V
						Hydrid	Soil Present? Yes	NoX
Type: Depth (inc						Hydrid	Soil Present? Yes	NoX
Type: Depth (inc						Hydrid	Soil Present? Yes	NoX
Type: Depth (inc						Hydrid	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydrid	c Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	NoX
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydrid	Soil Present? Yes	No X
Type: Depth (inc	ches):					Hydric	Soil Present? Yes	No X

Project/Site: Nort	th Houstor	n Highway Improvement	Project	County:	Harri	S	Sampling D)ate:D	ecember 14, 2017
Applicant/Owner:						Texas		oint:	SS04
Investigator(s):		and			 ownship, Range:			N/A	
Landform (hillslope, terrace,					f (concave, conve): O
Subregion (LRR or MLRA):	· · · · · · · · · · · · · · · · · · ·						-95.413320		n: NAD 83
		Clodine fine sa							
Are climatic / hydrologic con									
Are Vegetation No									X No
Are Vegetation No							explain any ans	· · · · · · · · · · · · · · · · · · ·	<u> </u>
						•			•
SUMMARY OF FINE	JINGS -	Attach site map	snowing	sampling p	point locatio	ns, trans	ects, impo	rtant tea	itures, etc.
Hydrophytic Vegetation Pre Hydric Soil Present? Wetland Hydrology Presen		Yes X Yes X Yes X	No No No	_ Is the	Sampled Area	Y	es X	No	
, 3,									
Remarks:				<u>.</u>					
	taken with	in a drainage channel.	Water was flow	ring eastward.					
HYDROLOGY Wetland hydrology In	dicators:					0	-1	(of two no mains all
			II (I - 4 1)					`	of two required)
		one is required; check a		(D42)			Surface Soil C	` ,	ove Curtons (DO)
X Surface Water (A	•		_ Aquatic Faur	` ,	111		. , ,		ave Surface (B8)
X High Water Tabl	le (A2)		_	s (B15) (LRR)	•		Drainage Patte	` ,	
Saturation (A3)				ulfide Odor (C1	•		Moss Trim Line	` ,	
Water Marks (B ^r	•		_	•	Living Roots(C3)		Dry-Season W		C2)
Sediment Depos	sits (B2)		Presence of	Reduced Iron	(C4)		Crayfish Burro	ws (C8)	
Drift Deposits (B	33)		Recent Iron	Reduction in Ti	illed Soils (C6)		Saturation Visi	ble on Aeria	ıl Imagery (C9)
Algal Mat or Cru	st (B4)		_ Thin Muck S	urface (C7)			Geomorphic Po	osition (D2)	
Iron Deposits (B	5)		Other (Expla	in in Remarks)		:	Shallow Aquita	rd (D3)	
Inundation Visible	le on Aeria	al Imagery (B7)					FAC-Neutral T	est (D5)	
Water-Stained L	eaves (B9	∂)					Sphagnum mo	ss (D8) (LR	R T, U)
	•							. , , .	
Field Observations:									
Surface Water Present?	Yes	X No	Depth (inc	ches): 2					
Water Table Present?	Yes	X No	 '	ches): 0					
Saturation Present?	Yes	No X		ches): >20	 Wetland	Hydrology I	Present?	Yes X	No
(includes capillary fringe)				,					<u> </u>
Describe Recorded Da	ta (stream	n gauge, monitoring well	, aerial photos,	previous inspe	ections), if availab	le:			
	•		•		,				
Remarks:									
A positive indication of	wetland h	ydrology was observed.							
•									

/EGETATION (Five Strata							
		Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species		
1. None Observed	,				That Are OBL, FACW, or FAC:	1	(A)
2.							_ (* ')
3.					Total Number of Dominant		
4					Species Across All Strata:	1	(B)
5.					Opedies / toross / tir otrata.		_ (D)
6					Percent of Dominant Species		
o		0	= Total Cover		That Are OBL, FACW, or FAC:	100.0%	(A/B)
	50% of total cover:	 	20% of total cover:	0	mat Are OBE, I AGW, OF I AG.	100.070	_ (//,'D)
Sapling Stratum (Plot size:	30 ft.)		20 % Of total cover.	0	Prevalence Index Worksheet:		
<u> </u>	30 II.)					Multiply by	
1. None Observed					Total % Cover of:	Multiply by	
2					OBL species 105	x 1 = 105	
3					FACW species0	x 2 = 0	
4					FAC species0	x 3 = 0	
5					FACU species0	x 4 =	
6					UPL species0	x 5 = 0	
			= Total Cover		Column Totals: 105	(A) <u>105</u>	5 (B)
	50% of total cover:	0	20% of total cover:	0			
Shrub Stratum (Plot size: 1. None Observed	30 ft.)				Prevalence Index = B/A =	1.000	
2.					Hydrophytic Vegetation Indicato	rs:	
3.	_				1 - Rapid Test for Hydrop		
1					X 2 - Dominance Test is >50		
5.					X 3 - Prevalence Index is ≤		
6.					Problematic Hydrophytic \)
o		0	= Total Cover			regetation (=/ipiani,	,
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric soil and wetlar	nd hydrology must	
Herb Stratum (Plot size:	30 ft.)		20 % of total cover.		be present, unless disturbed or pro		
	30 II.)	85	Yes	OBL			
Persicaria hydropiperoides Ludwigia paplaidas		20			Definitions of Five Vegetation St		
2. <u>Ludwigia peploides</u>			No	OBL	Tree - Woody plants, excluding wo		
3.					approximately 20 ft (6m) or more in	_	
4					(7.6 cm) or larger in diameter at bre	east neight (DBH).	
5					Capling Mandy plants avaluating	aaduudaa	
6					Sapling - Woody plants, excluding	-	
7					approximately 20 ft (6 m) or more in	n neight and less	
8					than 3 in. (7.6 cm) DBH.		
9							
10					Shrub - Woody plants, excluding w	-	
11					approximately 3 to 20 ft (1 to 6 m) i	n height.	
		105	= Total Cover				
	50% of total cover:	52.5	20% of total cover:	21	Herb - All herbaceous (non-woody)) plants, including	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of size	ze, <u>and</u> woody	
1. None Observed					plants, except woody vines, less the	an approximately	
2.	_			_	3 ft (1 m) in height.		
3.	_						
4.					Woody vine - All woody vines, reg	ardless of height.	
5.							
		0	= Total Cover		Hydrophytic		
	50% of total cover:		20% of total cover:	0	Vegetation		
					Present? Yes X	No	

SOIL	Sampling Point:	SS04
Profile Description: (Describe to the depth needed to document the indicator or conf	irm the absence of indicators.)	

yee C=Concentration D=Depleton RIM=Reduced Matrix, MS=flasted Sand Grains.	epth nches)	Matrix Color (moist)	%	Color (moist)	Redox F %	Type ¹	Loc ²	Texture	Remarks
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Junction Colls Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvatue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Bilack Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (MLRA 150A) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Peleted Orbit (F17) (MLRA 153B) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Pepleted Dark Surface (F7) (MLRA 153B) To my Mucky Mineral (A7) (LRR P, T, U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Delta Orbric (F17) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 149A) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Type: Deptit (inches): Hydric Soil Present? Yes No X **Marks:**									
Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 3 educed Vertic (F18) (outside MLRA 150A, 150B) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 4 educed Vertic (F18) (outside MLRA 150A, 150B) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 5 educed Vertic (F18) (outside MLRA 150A, 150B) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) 5 educed Vertic (F18) (outside MLRA 150A, 150B) Black Histic (A3) Loamy Mucky Mineral (A7) (LRR P, T, U) 5 educed Vertic (F18) (outside MLRA 150A, 150B) Brack Histic (A8) (LRR P, T, U) 7 educed Vertic (F18) (MLRA 151A) 8 educed Vertic (F18) (MLRA 150B) 9 educed Vertic (F18) (MLRA 150B) 9 educed Vertic (F18) (MLRA 150A, 150B) 9 educed Vertic (F18) (MLRA 150B) 9 educed Vertic (F									
Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150B) Stratified Layers (A5) Depleted Matrix (F2) Polyvalue (F6) (MLRA 153B) Stratified Layers (A6) (LRR P, T, U) Polyeled Dark Surface (F6) (MLRA 153B) Thin Dark Surface (F6) (MLRA 153B) Semarks: Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) 1 cm Muck (A9) (LRR P, T, U) Polyeled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Anomalous Bright Loamy Soils (F20) (MLRA 153B) Reduced Vertic (F18) (Outside MLRA 150A) Reduced Vertic (F18) (MLRA 151) Thick Dark Surface (A8) (LRR U) Polyeled Dark Surface (F7) Red Parent Material (TF2) Mari (F10) (LRR U) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Below Dark Surface (A11) Thick Dark Surface (A12) Polyeled Dark Surface (F11) (MLRA 151) Thick Dark Surface (A12) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Below Dark Surface (A11) Thick Dark Surface (A12) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Dark Surface (F13) (MLRA 150A) Polyeled Dark Surface (F13)									
Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150B) Stratified Layers (A5) Depleted Matrix (F2) Polyvalue (F6) (MLRA 153B) Stratified Layers (A6) (LRR P, T, U) Polyeled Dark Surface (F6) (MLRA 153B) To m Muck (A9) (LRR P, T, U) Polyeled Dark Surface (F7) Redox Dark Surface (F7) Redox Dark Surface (F8) Very Shallow Dark Surface (TF12) To m Muck (A9) (LRR P, T) Marl (F10) (LRR U) Polyeleted Dark Surface (F7) Polyeleted Dark Surface (F8) Very Shallow Dark Surface (TF12) To m Muck (A9) (LRR P, T) Depleted Oark Surface (F7) Redox Oark Surface (F8) Very Shallow Dark Surface (TF12) To m Muck (A9) (LRR P, T) Depleted Oark Surface (F11) (MLRA 151) Thick Dark Surface (A11) Depleted Oark Surface (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Warliare Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Depth (inches): Hydric Soil Present? Yes No X Entrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X									
Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150B) Stratified Layers (A5) Depleted Matrix (F2) Polyvalue (F6) (MLRA 153B) Stratified Layers (A6) (LRR P, T, U) Polyeled Dark Surface (F6) (MLRA 153B) Thin Dark Surface (F6) (MLRA 153B) Semarks: Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) 1 cm Muck (A9) (LRR P, T, U) Polyeled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Anomalous Bright Loamy Soils (F20) (MLRA 153B) Reduced Vertic (F18) (Outside MLRA 150A) Reduced Vertic (F18) (MLRA 151) Thick Dark Surface (A8) (LRR U) Polyeled Dark Surface (F7) Red Parent Material (TF2) Mari (F10) (LRR U) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Below Dark Surface (A11) Thick Dark Surface (A12) Polyeled Dark Surface (F11) (MLRA 151) Thick Dark Surface (A12) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Below Dark Surface (A11) Thick Dark Surface (A12) Polyeled Dark Surface (F13) (LRR O, P, T) Polyeled Dark Surface (F13) (MLRA 150A) Polyeled Dark Surface (F13)									
Addric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) (MLRA 153B) S cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Redox Dark Surface (F7) How Kersence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Orbric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S4) Reduced Vertic (F18) (MLRA 150A), Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A), 153C, 153D) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and									
Arric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)						-			
Addric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) (MLRA 153B) S cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Redox Dark Surface (F7) How Kersence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Orbric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S4) Reduced Vertic (F18) (MLRA 150A), Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A), 153C, 153D) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and a high water table, and location withing the surface water and			Lation DM F	Paduand Matrix MC		Cond Croins	21 anotion. Di	Doro Lining M. Mote	· · · · · · · · · · · · · · · · · · ·
Histosol (A1)		-					Location: Pi		
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR Q) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Stratified Layers (A5) Depleted Matrix (F3) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) Redox Depressions (F8) 1 cm Muck (A9) (LRR P, T) 1 cm Muck (A12) Depleted Dark Surface (F11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within			cable to all			-			-
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Scommon Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Redox Depressions (F8) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 150A) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X									
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Scr Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Derive Surface (F11) (MLRA 151) Thick Dark Surface (A12) Depleted Below Dark Surface (A13) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Prestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X water table, and location within						. , .	•		
Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Delvinc (F11) (MLRA 151) Thick Dark Surface (A11) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F18) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within	Black His	stic (A3)		Loamy	Mucky Min	eral (F1) (LRR (0)	Reduced Vertice	(F18) (outside MLRA 150A ,
Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Derived Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Despleted Oberic (F13) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Despleted Oberic (F10) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Despleted Oberic (F10) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Marl (F12) Marl (F12) Other (Explain in Remarks) Other (Explai	Hydrogen	n Sulfide (A4)		Loamy	Gleyed Ma	trix (F2)		Piedmont Floor	dplain Soils (F19) (LRR P, S, 1
S cm Mucky Mineral (A7) (LRR P, T, U)	Stratified	Layers (A5)		Deplete	ed Matrix (F	⁻ 3)		Anomalous Bri	ght Loamy Soils (F20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sardy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No Xard (PT2) Other (Explain in Remarks) Pledled Ochric (F11) (MLRA 151) January Soil (LRR O, P, T) Betrictive Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Martical (F12) Hydric Soil Present? Yes No X	Organic E	Bodies (A6) (LRR F	P, T, U)	Redox	Dark Surfa	ce (F6)		(MLRA 153B)	
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sardy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No Xard (PT2) Other (Explain in Remarks) Pledled Ochric (F11) (MLRA 151) January Soil (LRR O, P, T) Betrictive Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Martical (F12) Hydric Soil Present? Yes No X	 5 cm Mud	cky Mineral (A7) (L	RR P, T, U)	 Deplete	ed Dark Su	rface (F7)		Red Parent Ma	terial (TF2)
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Marl (F10) (LRR U) Other (Explain in Remarks) Other (F13) (LRR P, T, U) Other (Explain in Section in the Soil (RR P, T, U) Other (Explain in the Soil (RR P, T, U) Other (Explain in the Soil (RR P, T, U) Other (Explain in the Soil (RR P, T, U) Other (Explain in the Soil (RR P, T, U) Other (Explain in the So	— Muck Pre	esence (A8) (LRR I	U)	Redox	Depression	ns (F8)		Very Shallow D	ark Surface (TF12)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Lron-Manganese Masses (F12) (LRR O, P, T) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Depth (inches): Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Mischard 151) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A, 150B) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Depth (inches): Type: Depth (inches): Depth (inches): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X			-						· · ·
Thick Dark Surface (A12)							1)		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within			00 (/ 1.1.)					³ Indicators of	hydrophytic vegetation and
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within		, ,	ΜΙ ΒΔ 150Δ		_	. , .			
Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within					•	, -	0,		
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within			LKK 0, 3)				A 150D)	·	
Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within		• , ,			•	, -			
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within		, ,			-	, , ,	-	A 4500 450D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within		, ,	a =	Anoma	alous Bright	Loamy Soils (F.	20) (WILKA 149)	A, 153C, 153D)	
Type: Depth (inches): Hydric Soil Present? Yes No X emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within	Dark Suri	face (S7) (LRR P,	S, I, U)						
though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of surface water and a high water table, and location within	Type:						Hydrid	c Soil Present? Yes	NoX
	Type: Depth (incl						Hydrid	Soil Present? Yes	NoX
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleanable) Permarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	
	Type: Depth (incleadable) Pemarks: though no re	ehes): edoximorphic featur	res were obs	erved in the soil, th		-	presence of sur	face water and a high v	

Project/Site:	North Housto	n Highway Improvemer	t Project	County:	Harris	S	Sampling D)ate:	December 15, 2017
Applicant/Owner:	Texas I	Department of Transpor	tation - Houston	District	State:	Texas	Sample Po	oint:	SS05
Investigator(s):	T. Love	e and	P. Frasier	_ Section, Towr	iship, Range:			N/A	
Landform (hillslope,	terrace, etc.):	Plain		_ Local relief (c	oncave, conve	x, none):	None	Slope (%	b): 0
Subregion (LRR or N	ИLRA):	LRR T		Lat:	29.900097	Long:	-95.412965	Datu	ım: NAD 83
Soil Map Unit Name:	:	Clod	ne-Urban land	complex		NWI C	Classification: _		Upland
Are climatic / hydrolo	ogic conditions or	n the site typical for this	-	· · · · ·	Yes		explain in Rem	,	
Are Vegetation	No ,Soil_	Yes ,or Hydrology	No sign	nificantly disturbed	d? Are "Norm	nal Circumsta	ances" present	? Yes _	X No
Are Vegetation	No ,Soil_	No , or Hydrology	No nat	urally problematic	?	(If needed, e	explain any ans	swers in Re	emarks.)
SUMMARY OF	FINDINGS	- Attach site ma _l	showing	sampling po	int locatio	ns, trans	ects, impo	rtant fe	atures, etc.
Hydrophytic Vegeta Hydric Soil Present Wetland Hydrology	:?	Yes YesX Yes	No	-	mpled Area Wetland?	Y	es	No_	X
Remarks:									
Data point is the	e upland comple	ment for Wetland 3 (SS	07).						
HYDROLOGY Wetland hydro	ology Indicators	:				Secon	dary Indicators	(minimum	of two required)
		one is required; check a	all that apply)			·	Surface Soil Ci		
	Water (A1)	,	Aquatic Faur	na (B13)					ave Surface (B8)
	iter Table (A2)		-	s (B15) (LRR U)		<u> </u>	Drainage Patte		,
Saturatio	. ,			ulfide Odor (C1)			Moss Trim Line	` ,	
	arks (B1)			zospheres on Liv	ng Roots(C3)		Dry-Season W	` ,	(C2)
 Sedimen	nt Deposits (B2)			Reduced Iron (C4	. ,		Crayfish Burrov		
	posits (B3)		_	Reduction in Tille	•		•	` ,	al Imagery (C9)
Algal Ma	it or Crust (B4)		Thin Muck S		, ,	-	Geomorphic Po		
	osits (B5)			in in Remarks)			Shallow Aquita	•	'
	on Visible on Aeri	al Imagery (B7)	_	,			FAC-Neutral T	` ,	
	tained Leaves (B	• • • • • • • • • • • • • • • • • • • •					Sphagnum mo	` ,	RR T, U)
	(-	-,						(/ (, -,
Field Observation	s:								
Surface Water Pres	sent? Yes	No X	Depth (inc	ches): N/A					
Water Table Prese	nt? Yes	No X	_						
Saturation Present?	? Yes	No X	_		Wetland	Hydrology I	Present? `	Yes	No X
(includes capillary f	ringe)		_ · ·	·					
Describe Reco	rded Data (strear	n gauge, monitoring we	I, aerial photos,	previous inspecti	ons), if availabl	e:			
Domonto.									
Remarks:									
No positive indi	ication of wetland	l hydrology was observe	d.						

VEGETATION (Five Stra	ta) - Use scientif	fic name	s of plants.		Sa	ampling Point:		SS05	
		Absolute	Dominant	Indicator	Dominance Test we	orksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominan	t Species			
1. None Observed	<u>, </u>				That Are OBL, FACV	V, or FAC:	()	(A)
2.									
3.					Total Number of Dor	ninant			
4.					Species Across All S	Strata:	1	<u> </u>	(B)
5.								_	
6.					Percent of Dominant	Species			
		0	= Total Cover		That Are OBL, FACV	V, or FAC:	0.0)%	(A/B)
	50% of total cover:	0	20% of total cover:	0					
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index W	orksheet:			
1. None Observed					Total % C	over of:		Multiply by:	
2					OBL species _	2	x 1 =	2	
3					FACW species _	0	x 2 =	0	
4					FAC species _	5	x 3 =	15	
5					FACU species _	100	x 4 =	400	
6					UPL species	15	x 5 =	75	
		0	= Total Cover		Column Totals: _	122	(A)	492	(B
	50% of total cover:	0	20% of total cover:	0					
Shrub Stratum (Plot size: 1. None Observed	30 ft.)				Prevalence	Index = B/A =		4.033	
2					Hydrophytic Vegeta	ation Indicato	re•		
3.						est for Hydrop		tation	
Δ						nce Test is >50		lation	
5.						nce rest is >50 nce Index is ≤			
6.						C Hydrophytic \		¹ (Explain)	
o		0	= Total Cover			5ya. opya.	· ogotation	(Explain)	
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric	soil and wetlar	nd hydrolog	nv must	
Herb Stratum (Plot size:	30 ft.)		2070 01 10101 001011		be present, unless d			,,	
1. Cynodon dactylon	<u> </u>	100	Yes	FACU	Definitions of Five				
Bothriochloa ischaemum		15	No	UPL	Tree - Woody plants	_			
3. Rumex crispus		5	No	FAC	approximately 20 ft (_	-		
4. Persicaria hydropiperoides		2	No	OBL	(7.6 cm) or larger in		_		
5.	_						J	,	
6.					Sapling - Woody pla	nts, excluding	woody vin	es,	
7.	<u>.</u>				approximately 20 ft (6 m) or more i	n height an	nd less	
8.					than 3 in. (7.6 cm) D	BH.			
9.									
10.					Shrub - Woody plan	ts, excluding w	oody vines	5,	
11.					approximately 3 to 2	0 ft (1 to 6 m) i	n height.		
		122	= Total Cover						
	50% of total cover:	61	20% of total cover:	24.4	Herb - All herbaceou	ıs (non-woody)	plants, ind	cluding	
Woody Vine Stratum (Plot size	e: 30 ft.)				herbaceous vines, re	gardless of size	ze, <u>and</u> wo	ody	
1. None Observed	,				plants, except woody	vines, less th	an approxii	mately	
2.					3 ft (1 m) in height.				
3.									
4.					Woody vine - All wo	ody vines, reg	ardless of l	height.	
5.									
		0	= Total Cover		Hydrophytic				
	50% of total cover:	0	20% of total cover:	0	Vegetation				
		-			Present?	'es	No >	(

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed.

C		ı	

Sampling Point: SS05

Profile Descr	ription: (Describe	to the depth	needed to docur	nent the in	dicator or con	firm the absen	ce of indicators.)	
Depth	Matrix			Redox F	eatures			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 4/2	85	10YR 5/3	15	С	M	Loam	Disturbed
2-16	10YR 3/2						Sand	
			_					
			_			<u> </u>		
¹ Type: C=Co	ncentration, D=Depl	etion, RM=Re	educed Matrix, MS	S=Masked S	Sand Grains.	² Location: P	L=Pore Lining, M=M	atrix.
Hydric Soils	Indicators: (Applic	cable to all L	RRs, unless othe	erwise note	ed.)		Indicators for Pi	oblematic Hydric Soils³:
Histosol	(A1)		Polyva	lue Below S	Surface (S8) (LF	RR S, T, U)	1 cm Muck	(A9) (LRR O)
Histic Ep	pipedon (A2)		Thin Da	ark Surface	(S9) (LRR S, 1	Γ, U)	2 cm Muck	(A10) (LRR S)
Black Hi	stic (A3)		Loamy	Mucky Min	eral (F1) (LRR	O)	Reduced Ve	ertic (F18) (outside MLRA 150A,B)
Hydroge	n Sulfide (A4)		Loamy	Gleyed Ma	trix (F2)		Piedmont F	oodplain Soils (F19) (LRR P, S, T)
Stratified	l Layers (A5)		X Deplete	ed Matrix (F	⁻ 3)		Anomalous	Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR P	P, T, U)	Redox	Dark Surfa	ce (F6)		(MLRA 153	В)
5 cm Mu	cky Mineral (A7) (L l	RR P, T, U)	Deplete	ed Dark Su	rface (F7)		Red Parent	Material (TF2)
Muck Pr	esence (A8) (LRR L	J)	Redox	Depression	ns (F8)		Very Shallo	w Dark Surface (TF12)
1 cm Mu	ck (A9) (LRR P, T)		Marl (F	10) (LRR L	J)		Other (Expla	ain in Remarks)
Depleted	d Below Dark Surfac	e (A11)			F11) (MLRA 15			
	ark Surface (A12)			anganese M	/lasses (F12) (I	_RR O, P, T)		of hydrophytic vegetation and
Coast Pr	airie Redox (A16) (I	MLRA 150A)			13) (LRR P, T,	U)		drology must be present, unless
Sandy M	lucky Mineral (S1) (I	LRR O, S)	Delta C	Ochric (F17)	(MLRA 151)		disturbed (or problematic.
	leyed Matrix (S4)			•	18) (MLRA 150	•		
	edox (S5)			-	ain Soils (F19) (
	Matrix (S6)		Anoma	lous Bright	Loamy Soils (F	20) (MLRA 149	A, 153C, 153D)	
Dark Su	rface (S7) (LRR P, S	S, T, U)						
Destrictive								
	ayer (if observed):							
Type:						l		
Depth (inc	cnes):					Hydri	c Soil Present? Y	es <u> </u>
Damanla								
Remarks:								
A positive indi	cation of hydric soils	s was observ	ed.					

Project/Site:	North Housto	n Highway Improvemer	t Project	County:	Harris	S	Sampling Date	e:Dece	mber 15, 2017
Applicant/Owner: _	Texas D	Department of Transpor	tation - Houston	District	State:	Texas	Sample Point	:	SS06
Investigator(s):	T. Love	and	P. Frasier	Section, Tow	nship, Range:		1	N/A	
Landform (hillslope, to	errace, etc.): _	Plain		Local relief (d	concave, convex	k, none):	None S	lope (%): _	0
Subregion (LRR or M	ILRA):	LRR T			29.900022	Long:	-95.412922	_ Datum: _	NAD 83
Soil Map Unit Name:	•		ne-Urban land c				Classification:		pland
	_	the site typical for this	-	(Yes / No)			explain in Remark	•	
Are Vegetation _		No ,or Hydrology		-			ances" present?		
Are Vegetation _	No ,Soil	No ,or Hydrology	No natu	rally problemation	?	(If needed, e	explain any answe	rs in Remark	is.)
SUMMARY OF	FINDINGS	- Attach site map	showing s	ampling po	int location	ns, trans	ects, importa	nt featui	es, etc.
Hydrophytic Vegetat Hydric Soil Present?		Yes X Yes X	No	. la the St	ampled Area				
Wetland Hydrology		Yes X	No	-	Wetland?	Υ	es X	No	
Remarks:									
Wetland 3.									
HYDROLOGY									
	logy Indicators:	<u> </u>				Second	dary Indicators (m	inimum of tw	o required)
Primary Indicato	ors (minimum of	one is required; check a	all that apply)				Surface Soil Crack		
	Vater (A1)	<u>, , , , , , , , , , , , , , , , , , , </u>	Aquatic Fauna	a (B13)			Sparsely Vegetate		Surface (B8)
High Wat	er Table (A2)		_ Marl Deposits	(B15) (LRR U)		X	Drainage Patterns	(B10)	
Saturation	n (A3)		_ Hydrogen Sul	fide Odor (C1)			Moss Trim Lines (B16)	
Water Ma	arks (B1)	<u> </u>	Oxidized Rhiz	ospheres on Liv	ring Roots(C3)		Dry-Season Wate	r Table (C2)	
Sediment	Deposits (B2)		Presence of F	Reduced Iron (C	4)		Crayfish Burrows	(C8)	
Drift Depo	osits (B3)		Recent Iron R	deduction in Tille	d Soils (C6)		Saturation Visible	on Aerial Ima	agery (C9)
	or Crust (B4)		_ Thin Muck Su	` ,			Geomorphic Posit	` ,	
Iron Depo	, ,		_ Other (Explain	n in Remarks)			Shallow Aquitard (•	
	n Visible on Aeri	• • • •					FAC-Neutral Test	, ,	
Water-Sta	ained Leaves (B	9)					Sphagnum moss (D8) (LRR T ,	U)
Field Observations	·•								
Surface Water Pres		No X	Depth (inch	nes): N/A					
Water Table Presen	_	NoX	_ Depth (incl						
Saturation Present?	_	NoX	_ Depth (incl		Wetland	Hydrology I	Present? Yes	X	No
(includes capillary fr									
Describe Record	ded Data (strean	n gauge, monitoring we	l, aerial photos, μ	orevious inspect	ions), if availabl	e:			
Remarks:									
rtomarko.									
A positive indica	ation of wetland h	nydrology was observed							

VEGETATION (Five Strata	,		,			Sampling Point:		SS06	
		Absolute	Dominant	Indicator	Dominance Test	t worksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Domir	nant Species			
1. None Observed					That Are OBL, FA	ACW, or FAC:	1	1	(A)
2									
3					Total Number of	Dominant			
4					Species Across A	All Strata:	1	1	(B)
5									
6			T		Percent of Domin		400		(A (D)
	500/ of total account		= Total Cover	0	That Are OBL, FA	ACVV, or FAC:	100	.0%	(A/B)
Sapling Stratum (Plot size:	50% of total cover: 30 ft.	0	20% of total cover:	0	Prevalence Inde	x Worksheet			
1. None Observed	30 II.)					% Cover of:	,	Multiply by:	
2.					OBL species	100	x 1 =	100	
3.					FACW species		x 2 =	0	
4.					FAC species	0	x 3 =	0	
5.					FACU species		x 4 =	0	
6.					UPL species	0	x 5 =	0	
		0	= Total Cover		Column Totals:	100	(A)	100	— (B)
	50% of total cover:	0	20% of total cover:	0					
Shrub Stratum (Plot size:	30 ft.)			_	Prevale	nce Index = B/A =		1.000	
1. None Observed									
2					Hydrophytic Veg	getation Indicato	rs:		
3						d Test for Hydroph		tation	
4						inance Test is >50			
5						alence Index is ≤ 3		1 /	
6			T. (1.1.0)		Problem	natic Hydrophytic \	egetation	(Explain)	
	EOO/ of total covers		= Total Cover	0	¹ Indicators of byo	tric soil and wattan	d bydrolog	av muct	
Harb Stratum (Diet size)	50% of total cover:	0	20% of total cover:	0	•	dric soil and wetlan		gy must	
Herb Stratum (Plot size: 1. Persicaria hydropiperoides	30 ft.)	100	Yes	OBL	·	s disturbed or proleve Vegetation St			
		100	165	OBL		ants, excluding wo			
3						ft (6m) or more in	_		
1	_					r in diameter at bre	_		
5.			<u> </u>		(7.0 om) or larger	in diamotor at bro	act noight	(5511).	
6.	<u> </u>				Sapling - Woody	plants, excluding	woody vin	es,	
7.					approximately 20	ft (6 m) or more ir	n height an	nd less	
8.					than 3 in. (7.6 cm	n) DBH.			
9.									
10						plants, excluding w	•	S,	
11					approximately 3 t	o 20 ft (1 to 6 m) ii	n height.		
			= Total Cover			,			
	50% of total cover:	50	20% of total cover:	20		eous (non-woody)	•	_	
Woody Vine Stratum (Plot size:	30 ft.)					s, regardless of siz		-	
1. None Observed						ody vines, less tha	an approxii	mately	
2					3 ft (1 m) in heigh	II.			
3					Woody vine - All	woody vines, rega	ardless of l	height	
4					vvoody ville - All	woody villes, rega		rieigrit.	
5		0	= Total Cover		Hydrophytic				
	50% of total cover:		20% of total cover:	0	Vegetation				
	0070 01 10101 001011		2070 01 10101 001011		Present?	Yes X	No		
					110001111				
Remarks: (if observed, list mo	rphological adaptatio	ns below).							
,		•							
A positive indication of hydroph	iyiic vegetation was (ooserved.							

SOIL	Sampling Point:	SS06

Profile Desc	 Matrix	•		Redox F			,	
Depth inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	7.5YR 4/1	100			. , , , ,		Clay	
			 .			2		
-	oncentration, D=Dep					Location: PL:	=Pore Lining, M=Matrix	•
-	s Indicators: (Appli	cable to all L			-			ematic Hydric Soils ³ :
Histoso	` ,				Surface (S8) (Li		1 cm Muck (A9)	` '
	Epipedon (A2)				e (S9) (LRR S , ⁻	•	2 cm Muck (A10	, ,
	listic (A3)			-	eral (F1) (LRR	0)		(F18) (outside MLRA 150A,B
	en Sulfide (A4)			/ Gleyed Ma				olain Soils (F19) (LRR P, S, T)
	ed Layers (A5) c Bodies (A6) (LRR F) T II\		ted Matrix (F Dark Surfa			(MLRA 153B)	nt Loamy Soils (F20)
	lucky Mineral (A7) (L			ted Dark Suna	` '		Red Parent Mate	orial (TE2)
	Presence (A8) (LRR I	· · · · · · · · ·		Depression	` ,			irk Surface (TF12)
	luck (A9) (LRR P, T)	-		F10) (LRR U	` ,		Other (Explain in	, ,
	ed Below Dark Surface			, -	F11) (MLRA 15	1)	Other (Explain ii	rremarks
	Dark Surface (A12)	, (, (, 1, 1,)		•	//asses (F12) (I	•	³ Indicators of h	ydrophytic vegetation and
	Prairie Redox (A16) (MLRA 150A)		_	13) (LRR P, T,			ogy must be present, unless
-	Mucky Mineral (S1) (-		•	(MLRA 151)	-,	disturbed or pro	
	Gleyed Matrix (S4)	,,		` '	18) (MLRA 15 0	A. 150B)		
	Redox (S5)			•	ain Soils (F19) (- ·		
	d Matrix (S6)			-	, ,	20) (MLRA 149A	, 153C, 153D)	
	urface (S7) (LRR P,	S, T, U)		· ·	` `	, ,		
		-						
Restrictive	Layer (if observed):							
Type:								
Depth (ii	nches):					Hydric	Soil Present? Yes _	X No
Remarks:								
lthough no	redoximorphic featur	es were obse	erved in the soil, th	ne dominant	vegetation, oxi	dized rhizosphere	es observed on living ro	ots, and depressed
-	-				-	•	hydric soil parameter.	o.o., oa. a.opoooa.

Project/Site:	North Houston	Highway Improven	nent Project	Cou	ınty:	Harris		Sampling	Date:	December 19, 2017
Applicant/Owner:	Texas De	epartment of Trans	<u>portation - Houst</u>	on Distric	ctState): _	Texas	Sample I	Point:	SS07
Investigator(s):	S. Arnold	and _	P. Frasier	Se	ction, Township	Range:			N/A	
Landform (hillslope, terr	race, etc.):		сор	Lo	cal relief (conca	ve, convex	, none): _	Convex	_ Slope (9	%): <u> </u>
Subregion (LRR or MLR	₹A):	LRF	₹ T		Lat: 29.88	3122	Long: _	-95.41225	9 Dat	tum: NAD 83
Soil Map Unit Name:		C	lodine-Urban lan	d comple	X		NWI (Classification:		Upland
Are climatic / hydrologic		• •	•	•	es / No)			explain in Rei	•	
		No ,or Hydrolo			-			-		
Are Vegetation	No ,Soil	No ,or Hydrolo	igy <u>No</u> n	aturally p	roblematic?		(If needed,	explain any a	nswers in R	lemarks.)
SUMMARY OF F	INDINGS -	Attach site m	າap showinເ	g samp	oling point	location	s, trans	ects, imp	ortant fe	eatures, etc.
Hydrophytic Vegetation	n Present?	Yes	No X							
Hydric Soil Present?		Yes			Is the Sample	ed Area				
Wetland Hydrology Pre	esent?	Yes	No X		within a Wetl		`	⁄es	No	X
									_	
Remarks:										
HYDROLOGY Wetland hydrolog	av Indicators:						Casan	alom (lo dio oto)	o (mainima)	os of two required)
			al all that anniv				Secon			n of two required)
•	,	ne is required; ched			D)			Surface Soil (` '	,
High Water		-	Aquatic Fa Marl Depo	,	•			Drainage Pat		cave Surface (B8)
Saturation (-	Wan Depo Hydrogen	•				Moss Trim Li	` ,	
Water Mark	,	-			eres on Living R	oots(C3)		Dry-Season \	` '	a (C2)
	eposits (B2)	-		•	ed Iron (C4)	0013(03)		Crayfish Burr		<i>y</i> (02)
		-			,	lc (C6)		-		rial Imagary (CO)
Drift Deposi	` ,	-	Thin Muck		tion in Tilled Soi	is (Co)		Geomorphic		rial Imagery (C9)
Algal Mat or	` ,	-			` '			•	`	۷)
Iron Deposit	` ,	- Lles o ero er (/ D.7)	Other (Exp	Diain in K	emarks)			Shallow Aquit	` ,	
	Visible on Aeria	. ,						FAC-Neutral	` ,	DD T U
Water-Stain	ned Leaves (B9))						Sphagnum m	oss (D8) (L	.RR 1, U)
Field Observations:										
Surface Water Present	nt? Yes	No X	Depth (inches):	N/A					
Water Table Present?			 Depth (inches):	>20					
Saturation Present?	Yes			inches):		Wetland I	Hydrology	Present?	Yes	No X
(includes capillary fring				,			, 0,			
Describe Recorded	d Data (stream	gauge, monitoring	well, aerial photo	os, previo	us inspections)	if available	e:			
Remarks:										
No positive indicat	ion of wetland h	hydrology was obse	rved.							

/EGETATION (Five Strata	a) - Use scientif	ic name	es of plants.		Sampling F	oint:	SS07	
		Absolute	Dominant	Indicator	Dominance Test worksheet			
Tree Stratum (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Observed	<u> </u>	70 00 70.	Ороспост.	<u> Ctatuo</u>	That Are OBL, FACW, or FAC		0	(A)
2.					, , , , , , , , , , , , , , , , , , , ,			(* ')
3.			·		Total Number of Dominant			
4.					Species Across All Strata:		4	(B)
5.			·			-		(-)
6.					Percent of Dominant Species			
		0	= Total Cover		That Are OBL, FACW, or FAC): 0 .	.0%	(A/B)
	50% of total cover:	0	20% of total cover:	0				(/
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Workshee	t:		
1. None Observed	<u> </u>				Total % Cover of:		Multiply by:	
2.					OBL species 0	x 1 =	0	_
3.					FACW species 0	x 2 =	0	
4.					FAC species 15	x 3 =	45	
5.					FACU species 65	x 4 =	260	
6.					UPL species 50	x 5 =	250	
o			= Total Cover		Column Totals: 130	— (A)	555	—— (B
	50% of total cover:		20% of total cover:	0	Totals. 100			(D
Shrub Stratum (Plot size:	30 ft.)		2070 01 total 00 01.		Prevalence Index = I	R/Δ —	4.269	
1. None Observed	30 It.)				Trevalence mack = 1		7.203	
2					Hydrophytic Vegetation Ind	icators:		
3.					1 - Rapid Test for Hy		etation	
4					2 - Dominance Test		station	
5.					3 - Prevalence Index			
6.					Problematic Hydroph		n ¹ (Explain)	
0		0	= Total Cover		Troblematic Hydropi	iyilo vegetatioi	i (Explair)	
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric soil and v	vetland hydrolo	av must	
Herb Stratum (Plot size:	30 ft.)		. 20% of total cover.		be present, unless disturbed of	-	gy mast	
1. Cynodon dactylon	30 II.)	35	Yes	FACU	Definitions of Five Vegetation			
Geranium carolinianum		25	Yes	UPL	Tree - Woody plants, excludi		2	
3. Ambrosia psilostachya		10	No	FAC	approximately 20 ft (6m) or m			
4. Rumex crispus		5	No No	FAC	(7.6 cm) or larger in diameter	_		
5. Bothriochloa ischaemum		<u>5</u> 25	Yes	UPL	(7.0 cm) of larger in diameter	at breast rieigi	п (ооп).	
6. Paspalum notatum		30	Yes	FACU	Sapling - Woody plants, exclu	ıdina woody vii	nes	
7.			165	FACO	approximately 20 ft (6 m) or m			
8.					than 3 in. (7.6 cm) DBH.	ioro irrinoigni a		
9.					(7.6 om) 22m			
10					Shrub - Woody plants, exclud	ling woody vine	26	
11.					approximately 3 to 20 ft (1 to 6		,	
11.		130	= Total Cover			o my manoight.		
	50% of total cover:		20% of total cover:	26	Herb - All herbaceous (non-w	oody) plants ir	ncludina	
Woody Vine Stratum (Plot size:	30 ft.)		20 % Of total cover.		herbaceous vines, regardless		_	
1. None Observed	<u> </u>				plants, except woody vines, le	<u></u>	-	
					3 ft (1 m) in height.	oo man approx	arriatory	
2								
J					Woody vine - All woody vines	regardless of	: height	
۲					Troday ville / III woody villes	, rogaraioss or	orgin.	
5		0	= Total Cover		Lydrophytic			
	50% of total cover:		20% of total cover:	0	Hydrophytic Vegetation			
	JU /0 UI IUIAI COVEIT	U	ZU /0 UI IUIAI COVEI.	0	vegetation			

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed.

Yes _____ No __X___

Present?

C	\cap	П	ı	

Sampling Point: SS07

cheles) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks	Depth	Matrix			Redox F	eatures			
C-6 10YR 2/1 100 6-16 10YR 6/3 97 7.5YR 6/8 3 C M Sandy Loam Silt Loam	inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
Sype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Sype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Sydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histos (A1)								Silt Loam	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR O) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Poletic (F18) (Dutside MLRA 150A) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Mart (F10) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Depleted Below Dark Surface (A12) Umbric Surface (F3) (LRR P, T, U) Wethor (Surface (F13) (LRR P, T, U) Wethor (Surface (F13) (LRR P, T, U) Wethor (Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A), 153C, 153D) Bestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X				7 5YR 6/8	3				
Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150A) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F7) Robertal (A7) (LRR P, T, U) Poleted Dark Surface (F7) Depleted Blow Dark Surface (A12) Depleted Oriric (F11) (MLRA 151) Depleted Blow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Oriric (F11) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (LRR P, T, U) Depleted Dark Surface (F11) (MLRA 151) Depleted Dark Surface (F17) (MLRA 151) Depleted Below Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X Marks: Indicators for Problematic Hydric Soils ³ : 1 cm Muck (A9) (LRR O, S) Mark (H1) (LRR O, S) Mark (F10) (LRR O, S) Depleted Below Dark Surface (F18) (MLRA 151) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X	0 10	10111 0/0		7.01100				Carray Loann	
Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150A) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F7) Robertal (A7) (LRR P, T, U) Poleted Dark Surface (F7) Depleted Blow Dark Surface (A12) Depleted Oriric (F11) (MLRA 151) Depleted Blow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Oriric (F11) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (LRR P, T, U) Depleted Dark Surface (F11) (MLRA 151) Depleted Dark Surface (F17) (MLRA 151) Depleted Below Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X Marks: Indicators for Problematic Hydric Soils ³ : 1 cm Muck (A9) (LRR O, S) Mark (H1) (LRR O, S) Mark (F10) (LRR O, S) Depleted Below Dark Surface (F18) (MLRA 151) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X									
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Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150A) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F7) Robertal (A7) (LRR P, T, U) Poleted Dark Surface (F7) Depleted Blow Dark Surface (A12) Depleted Oriric (F11) (MLRA 151) Depleted Blow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Oriric (F11) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (LRR P, T, U) Depleted Dark Surface (F11) (MLRA 151) Depleted Dark Surface (F17) (MLRA 151) Depleted Below Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X Marks: Indicators for Problematic Hydric Soils ³ : 1 cm Muck (A9) (LRR O, S) Mark (H1) (LRR O, S) Mark (F10) (LRR O, S) Depleted Below Dark Surface (F18) (MLRA 151) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X									
Histosol (A1) Histic Epipedon (A2) Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Loamy Mucky Mineral (F1) (MLRA 151) Tom Muck (A9) (LRR P, T) Muck Presence (A8) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, P, T) Sandy Gleyed Matrix (S4) Delta Ochric (F17) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (LRR O, P, T) Delta Ochric (F17) (MLRA 150A) Sandy Redox (S7) Piedmont Floodplain Soils (F20) Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Loamy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Bestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Type: C=C	oncentration, D=Dep	letion, RM=R	educed Matrix, MS	S=Masked S	Sand Grains.	² Location: F		
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR Q) Reduced Vertic (F18) (outside MLRA 150A, E18) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Pepleted Dark Surface (F7) Muck Presence (A8) (LRR U) Pepleted Dark Surface (F7) Red Parent Material (TF2) Murk Presence (A8) (LRR P, T) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Depleted Deriv (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR Q, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F20) MILRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	ydric Soils	Indicators: (Appli	cable to all I	_RRs, unless oth	erwise note	ed.)		Indicators for Proble	ematic Hydric Soils ³ :
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Edwards (A5) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) Muck Gless (A6) (LRR P, T, U) Pepleted Dark Surface (F6) Muck Presence (A8) (LRR U) Pepleted Dark Surface (F7) Red Parent Material (TF2) Pepleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (LRR O, P, T) Piedmont Floodplain Soils (F10) (LRR U) Pepleted Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Piedmont Floodplain Soils (F19) (LRR O, P, T) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D)	Histoso	l (A1)		Polyva	lue Below S	Surface (S8) (LR	R S, T, U)	1 cm Muck (A9)	(LRR O)
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Edwards (A5) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) Muck Gless (A6) (LRR P, T, U) Pepleted Dark Surface (F6) Muck Presence (A8) (LRR U) Pepleted Dark Surface (F7) Red Parent Material (TF2) Pepleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (LRR O, P, T) Piedmont Floodplain Soils (F10) (LRR U) Pepleted Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Piedmont Floodplain Soils (F19) (LRR O, P, T) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D)	— Histic E	pipedon (A2)		Thin D	ark Surface	(S9) (LRR S, T	, U)	2 cm Muck (A10) (LRR S)
Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR 0, S) Sandy Medox (S5) Sandy Redox (S5) Sandy Redox (S5) Defleted Ochric (F17) (MLRA 150) Sandy Redox (S5) Defleted Ochric (F18) (MLRA 150) Sandy Redox (S5) Defleted Ochric (F19) (MLRA 150) Sandy Redox (S6) Dark Surface (S7) (LRR P, T, U) Defleted Ochric (F17) (MLRA 150) Sandy Redox (S6) Dark Surface (S7) (LRR P, T, U) Defleted Ochric (F19) (MLRA 150A) Sandy Redox (S6) Dark Surface (S7) (LRR P, T, U) Defleted Ochric (F19) (MLRA 150A) Sandy Redox (S6) Dark Surface (S7) (LRR P, S, T, U) Defleted Ochric (F18) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X				 Loamy	Mucky Min	eral (F1) (LRR (D)	Reduced Vertic	(F18) (outside MLRA 150A,E
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Som Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (F10) Marl (F10) (LRR U) Depleted Below Dark Surface (F11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S7) Depleted Dark Surface (F12) Depleted Dark Surface (F13) (MLRA 150A) Sandy Redox (S7) (LRR P, T, U) Depleted Dark Surface (F13) (MLRA 150A) Sandy Redox (S5) Delta Ochric (F17) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Petrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X							,		
Organic Bodies (A6) (LRR P, T, U) Set Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes Ne Parent Material (TF2) Med Parent Material (TF2) Red Parent Material (TF2) Red Parent Material (TF2) Red Parent Material (TF2) Wery Shallow Dark Surface (TF12) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Redox (S5) Reduced Vertic (F13) (MLRA 150A, 150B) Reduced Vertic (F13) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X		• •			-	` '			
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Depleted Dark Surface (F12) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Delta Ochric (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X			D T 11\			•			it Loainy Solis (1 20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Redox Depressions (F8) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain						. ,		•	
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Delta Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X No X						, ,			
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Meduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX		• • •	-						, ,
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Jenn-Manganese Masses (F12) (LRR O, P, T) Wetland hydrology must be present, unless disturbed or problematic. All MLRA 151) Sendy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X No X								Other (Explain in	Remarks)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Type: Type: Depth (inches): Type:	Deplete	ed Below Dark Surfac	ce (A11)	Deplete	ed Ochric (F	=11) (MLRA 15 1	l)		
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X	Thick D	ark Surface (A12)		Iron-Ma	anganese M	Masses (F12) (L	.RR O, P, T)		
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Coast F	Prairie Redox (A16) (MLRA 150A	Umbrio	: Surface (F	13) (LRR P, T,	U)	•	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X No X					•	•		disturbed or pro	oblematic.
Sandy Redox (S5) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X			,		, ,		A. 150B)		
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks:		• • • • • • • • • • • • • • • • • • • •			•				
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	<u> </u>	` '						AΔ 153C 153D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		, ,	C T II)		ilous brigin	Loanly Cons (12	20) (MEICA 14)	JA, 1330, 133D)	
Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		· , ·							
	Depth (ir	nches):					Hydr	ic Soil Present? Yes _	NoX
o positive indication of hydric soils was observed.									
o positive indication of hydric soils was observed.	emarks:								_
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric sc	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric sc	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric sc	oils was obse	rved.					
		ndication of hydric sc	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
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	Remarks:	ndication of hydric so	oils was obse	rved.					
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		ndication of hydric so	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					
		ndication of hydric so	oils was obse	rved.					

Project/Site:	North Houston	Highway Improvement	Project	County:	Harris		Sampling Da	ite: De	ecember 15, 2017
Applicant/Owner:		epartment of Transporta			ate:	Texas		•	
Investigator(s):	T. Love		P. Frasier	Section, Townsh	nip, Range:			N/A	
Landform (hillslope,	terrace, etc.):	 Plain		Local relief (con		none):	None	Slope (%):	0
Subregion (LRR or M		LRR T			.875024	Long:	-95.411718	Datum	
Soil Map Unit Name:	:	Clodin	e-Urban land con	nplex		NWI C	Classification:	_	Upland
Are climatic / hydrolo	ogic conditions on	the site typical for this ti	me of year?	(Yes / No)	Yes	(if no, e	explain in Rema	rks.)	
Are Vegetation	No ,Soil_	No ,or Hydrology	No signific	cantly disturbed?	Are "Norma	al Circumsta	ances" present?	Yes	X No
Are Vegetation	No ,Soil	No ,or Hydrology	No natura	Illy problematic?	((If needed, e	explain any answ	vers in Rem	ıarks.)
SUMMARY OF	FINDINGS -	Attach site map	showing sa	mpling poin	t location	s. transe	ects. impor	tant feat	tures, etc.
		- Tutadir dita iriap							
Hydrophytic Vegeta		Yes	No <u>X</u>	_					
Hydric Soil Present		Yes	No X	Is the Sam	-				
Wetland Hydrology	Present?	Yes	No <u>X</u>	within a W	etland?	Y	es	No	<u> </u>
Damanka									
Remarks:									
LIVEROLOGY									
HYDROLOGY Wetland bydro	ology Indicators:					0	La contra Parata de 1		(() () () () () () () () () (
	-		41 4 1- A				dary Indicators (two required)
	,	one is required; check all		(D40)			Surface Soil Cra	` '	Of (DO)
	Water (A1)		Aquatic Fauna	` ,			Sparsely Vegeta		re Surrace (B8)
	ter Table (A2)		Marl Deposits (, -			Drainage Patterr	,	
Saturatio	` '		Hydrogen Sulfic	, ,	D = = (OO)		Moss Trim Lines	, ,	20)
	arks (B1)			spheres on Living	g Roots(C3)		Dry-Season Wat	•	<i>7</i> 2)
	t Deposits (B2)			educed Iron (C4)	0-11- (00)		Crayfish Burrows	, ,	Les e mare (OO)
	oosits (B3)			duction in Tilled S	solis (C6)		Saturation Visibl		imagery (C9)
	t or Crust (B4)		Thin Muck Surfa	` '			Geomorphic Pos	` '	
	osits (B5)		Other (Explain i	in Remarks)			Shallow Aquitard	` ,	
	on Visible on Aeria						FAC-Neutral Tes	` ,) T II\
water-st	tained Leaves (B9)				— `	Sphagnum moss	5 (D6) (LK F	(1, 0)
Field Observations									
Surface Water Pres		No X	Depth (inche	es): N/A					
Water Table Preser		NoX	Depth (inche	,					
Saturation Present?		NoX	Depth (inche	<i></i>	Wetland F	Hydrology F	Present? Ye	es	No X
(includes capillary f			2 3 7 11 (11 10 11 2			.,			
		gauge, monitoring well,	aerial photos, pre	evious inspection	s), if available):			
	•		, , ,	·	,,				
Remarks:									
No positive indi	cation of wetland	hydrology was observed							

VEGETATION	(Five Strata	- Use	scientific	names o	f plants.
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			Absolute	Dominant	Indicator	Dominance Test worksheet:		
ree Stratum	(Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species		
1. <i>Pinus taeda</i>			5	Yes	FAC	That Are OBL, FACW, or FAC:	1	(A)
2. <i>Morus rubra</i>			2	Yes	FACU			
3				<u> </u>		Total Number of Dominant		
4				. <u> </u>		Species Across All Strata:	3	(B)
5				. <u> </u>				
6				. <u> </u>		Percent of Dominant Species		
			7	= Total Cover		That Are OBL, FACW, or FAC:	33.3%	(A/B)
		50% of total cover:	3.5	20% of total cover:	1.4			
Sapling Stratum	(Plot size:	30 ft.)				Prevalence Index Worksheet:		
1. None Observe	ed			. <u> </u>		Total % Cover of:	Multiply	by:
2				. <u> </u>		OBL species 0	x 1 =	0
3						FACW species 5	x 2 =1	0
4						FAC species 12	x 3 =	6
5						FACU species104	x 4 = 4	16
6.						UPL species2	x 5 = 1	0
		_	0	= Total Cover		Column Totals: 123	(A) 4	72 (B)
		50% of total cover:	0	20% of total cover:	0			
Shrub Stratum	(Plot size:	30 ft.)				Prevalence Index = B/A =	3.837	,
1. <i>Fraxinus ame</i>	ricana	<u>, </u>	2	No	FACU			
2.						Hydrophytic Vegetation Indicator	'S:	
3.				·		1 - Rapid Test for Hydroph		
4.						2 - Dominance Test is >50		
5.						3 - Prevalence Index is ≤ 3		
6.						Problematic Hydrophytic \		in)
·			2	= Total Cover			egotation (=xp.a.	,
		50% of total cover:		20% of total cover:	0.4	¹ Indicators of hydric soil and wetlan	d hydrology must	
Herb Stratum	(Plot size:	30 ft.)	•	2070 01 10101 00 001.	0.4	be present, unless disturbed or prol		
1. Cynodon dact	,	30 II.)	100	Yes	FACU	Definitions of Five Vegetation St		
			5	. <u>res</u> No	FACW	Tree - Woody plants, excluding wo		
2. Cyperus entre			7			• • • • • • • • • • • • • • • • • • • •	-	
3. Paspalum dila				No No	FAC	approximately 20 ft (6m) or more in	_	
4. <u>Bothriochloa i</u>	scnaemum		2	<u>No</u>	UPL	(7.6 cm) or larger in diameter at bre	east neight (DBH).	
5						Septing Weedy plants evaluating	woodyvingo	
6. 				·		Sapling - Woody plants, excluding	-	
7						approximately 20 ft (6 m) or more in	i neight and less	
8				·		than 3 in. (7.6 cm) DBH.		
9								
0				. <u> </u>		Shrub - Woody plants, excluding w	•	
1				. <u> </u>		approximately 3 to 20 ft (1 to 6 m) in	n height.	
			114	= Total Cover				
		50% of total cover:	57	20% of total cover:	22.8	Herb - All herbaceous (non-woody)		
Vo <u>ody Vine Strat</u>	<u>um</u> (Plot size	e: 30 ft.)				herbaceous vines, regardless of siz	e, <u>and</u> woody	
1. None Observe	ed					plants, except woody vines, less that	an approximately	
2						3 ft (1 m) in height.		
3.								
4.		_		·	_	Woody vine - All woody vines, rega	ardless of height.	
5.								
			0	= Total Cover		Hydrophytic		
		50% of total cover:		20% of total cover:	0	Vegetation		
					<u>-</u>	Present? Yes	No X	

No positive indication of hydrophytic vegetation was observed

Sampling Point:

SS08

SOIL		Sampling Point

Color (mast) 5: Calor (mast) 7: Tecure Remarks C16 10YR 271 100 C16 11YR 271 100 C17 Calor	Depth	Matrix			Redox				
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Variable Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Indicators for Problematic Hydric Soils (F20) Indicators for Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicators for Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicators for Hydrophytic Vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicators for Hydrophytic Vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicator for Hydrophytic Vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicator for Hydrophytic Vegetation and wetland hydrology must be present, unless disturbed or problematic. Indicator for Hydrophytic Vegetation and wetland hydrology must be present, unless disturbed or problematic.	nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
Adric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Peled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 151) Piedeted Below Dark Surface (F17) Piedmont Floodplain Soils (F11) (MLRA 151) Piedeted Below Dark Surface (F12) Piedmont Floodplain Soils (F19) (MLRA 151) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A) Piedm	0-16	10YR 2/1	100					Clay	
Adric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Peled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 151) Piedeted Below Dark Surface (F17) Piedmont Floodplain Soils (F11) (MLRA 151) Piedeted Below Dark Surface (F12) Piedmont Floodplain Soils (F19) (MLRA 151) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A) Piedm									
Adric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Peled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 151) Piedeted Below Dark Surface (F17) Piedmont Floodplain Soils (F11) (MLRA 151) Piedeted Below Dark Surface (F12) Piedmont Floodplain Soils (F19) (MLRA 151) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A) Piedm									
Adric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Peled Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 151) Piedeted Below Dark Surface (F17) Piedmont Floodplain Soils (F11) (MLRA 151) Piedeted Below Dark Surface (F12) Piedmont Floodplain Soils (F19) (MLRA 151) Piedmont Floodplain Soils (F19) (MLRA 150A) Piedmont Floodplain Soils (F19) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A) Piedm									
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Histosol (A1) Histic Epipedon (A2) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Loamy Mucky Mineral (F10) (LRR P, T) Muck Presence (A8) (LRR P, T, U) Depleted Below Dark Surface (F10) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, T) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F20) MINCR 153B) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Deriv (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X		-					Location: PL		
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, 1 Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Define (F11) (LRR U) Depleted Define (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F20) Piedmont Floodplain Soils (F20) MILRA 153B) Reduced Vertic (F18) (MLRA 1501) Time Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F13) Unmbric Surface (F13) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Postrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	ydric Soils	Indicators: (Applie	cable to all			-		Indicators for Prob	lematic Hydric Soils ³ :
Black Histic (A3) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Delor (F13) (LRR O, P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (F3) Sandy Gleyed Matrix (F3) Deloted Dark Surface (F7) Red Parent Material (TF2) Wery Shallow Dark Surface (TF12) Other (Explain in Remarks) Deloted Delow Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Histosol	I (A1)		Polyva	lue Below	Surface (S8) (LRR	S, T, U)	1 cm Muck (A9) (LRR O)
Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F13) (MLRA 151) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F17) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Histic E	pipedon (A2)		Thin D	ark Surfac	e (S9) (LRR S, T, U)	2 cm Muck (A1	0) (LRR S)
Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F13) (MLRA 151) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F17) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Black H	istic (A3)		Loamy	Mucky Mi	neral (F1) (LRR O)		Reduced Verti	c (F18) (outside MLRA 150A ,I
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Set Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Depleted Dark Surface (S7) Marl (F10) (LRR U) Depleted Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) John Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Delta Ochric (F17) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	— Hydroge	en Sulfide (A4)		Loamy	Gleved M	atrix (F2)			
Organic Bodies (A6) (LRR P, T, U) Some Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Mari (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Piedmorks: Piedmorks:					•	` '			
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) Depleted Dark Surface (F7) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Remarks		. ,) T II)			,			gitt Loanity Cone (i Lo)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes Nallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in						, ,		` ,	storial (TE2)
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Delta Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX						. ,			, ,
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Pelta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Petrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X					-	. ,			, ,
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Jensel Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Petrockies Masses (F12) (LRR O, P, T) Jensel Manganese Masses (F12)						-		Other (Explain	in Remarks)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX MoX			ce (A11)					2	
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Type: Depth (inches): Meduced Vertic (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X		, ,			_	, , ,	? O, P, T)		
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Type: Type: Depth (inches): Type: Type: Depth (inches): Type: Ty	Coast P	rairie Redox (A16) (I	MLRA 150A) Umbrid	c Surface (F13) (LRR P, T, U)		-	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Sestrictive Layer (if observed): Type: Depth (inches): Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X No X	Sandy M	Mucky Mineral (S1) (LRR O, S)	Delta (Ochric (F17	7) (MLRA 151)		disturbed or p	problematic.
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X	Sandy G	Sleved Matrix (S4)		Reduc	ed Vertic (F18) (MLRA 150A ,	150B)		
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:							-		
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		, ,			-	, , ,	-	. 153C, 153D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		, ,	S T 11\		aloud Brigh	t Loamy Cono (i Lo)	(111211)	, 1000, 1002,	
Type: Depth (inches): Hydric Soil Present? Yes No X emarks:			•						
	Depth (in	ches):					Hydric	Soil Present? Yes	No X
	omarke:								
o positive indication of hydric soils was observed.	oma no.								
	o positive in	ndication of hydric so	oils was obse	erved.					
		,							

SS08

Project/Site:		City of Houston		Co	unty:	Harris	3	Sampling I	Date:D	ecember 26, 2017
Applicant/Owner:		TxDOT H	ouston District		Stat	e:	Texas	Sample P	oint:	SS09
Investigator(s):	S. Arnold	and	P. Frasie	<u>er</u> Se	ection, Township	o, Range:			N/A	
Landform (hillslope, ter	race, etc.):	Dep	oression	Lc	ocal relief (conc	ave, convex	x, none):	Concave	Slope (%)): <u>2</u>
Subregion (LRR or MLF	RA):	L	RR T		_ Lat:29.8	72637	Long: _	-95.408822	2 Datur	n: <u>NAD 83</u>
Soil Map Unit Name:			Addicks-Urban	land comple	ex		NWI	Classification:		Upland
Are climatic / hydrologic	c conditions on f	the site typical fo	or this time of yea	ar? (Y	'es / No)	Yes	(if no,	explain in Rem	narks.)	
Are Vegetation	No ,Soil	Yes ,or Hydr	ology No	significan	tly disturbed?	Are "Norm	al Circums	tances" presen	t? Yes	X No
Are Vegetation			ology No					explain any an		
										·
SUMMARY OF F	INDINGS -	Attach site	map snow	ing sam	piing point	iocation	is, trans	sects, impo	ortant rea	atures, etc.
Hydrophytic Vegetatio Hydric Soil Present? Wetland Hydrology Pr		Yes X Yes X	No	X	Is the Sampl within a Wet		,	Yes	No_	<u> </u>
Remarks:										
Located within arti	ificial channel. I	Likely formed fro	om settling debris	S.						
HYDROLOGY Wetland hydrology	av Indicators:						0			- f. t \
			h a ala all that ann	I. A			Secor	•	•	of two required)
Primary Indicators	`	•			0)			Surface Soil C	` ,	0 (50)
			Aquatio	•	·			-		ave Surface (B8)
	Table (A2)			eposits (B15	, .			Drainage Patte	` ,	
X Saturation (` ,			en Sulfide (` ,	D = = (-(OO)		Moss Trim Lin	` ,	(00)
Water Mark	` '			-	eres on Living F	Roots(C3)		Dry-Season W	`	(C2)
	Deposits (B2)				ced Iron (C4)			Crayfish Burro		
Drift Depos	` ,				tion in Tilled So	oils (C6)				al Imagery (C9)
	r Crust (B4)			uck Surface	,			Geomorphic P	` '	
Iron Deposi	` '		Other (Explain in R	Remarks)			Shallow Aquita	` ,	
Inundation \	Visible on Aerial	I Imagery (B7)					<u> X</u>	FAC-Neutral T	est (D5)	
Water-Stair	ned Leaves (B9))						Sphagnum mo	oss (D8) (LR	R T, U)
						1				
Field Observations:		N.I.	V 5	(1(21)	NI/A					
Surface Water Preser				th (inches):						
Water Table Present?		No		th (inches):				5	v v	
Saturation Present?	Yes	No	Dep	th (inches):		Wetland	Hydrology	Present?	Yes X	No
(includes capillary frin	<u> </u>					<u> </u>				
Describe Recorde	d Data (stream	gauge, monitori	ng well, aerial ph	notos, previo	ous inspections)), if available	e:			
D										
Remarks:										
A positive indication	on of wetland hy	drology was obs	served							
7 poolivo maioaix	or wouldn't my	diology was obt	, o. v o a .							

VEGETATION (Five Stra	ata) - Use scientif	fic name	es of plants.		Sa	mpling Point:		SS09	
		Absolute	Dominant	Indicator	Dominance Test wo	rksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant	Species			
1. None Observed					That Are OBL, FACV	/, or FAC:	1		(A)
2. 3.					Total Number of Dom	ninant			
4.			<u> </u>		Species Across All S		1		(B)
5									
6					Percent of Dominant	Species			
		0	= Total Cover		That Are OBL, FACW	/, or FAC:	100.0	0%	(A/B)
	50% of total cover:	0	20% of total cover	: 0					
Sapling Stratum (Plot size:	30 ft.)		•		Prevalence Index W	orksheet:			
1. None Observed					Total % Co	over of:	M	fultiply by:	
2.	_			<u> </u>	OBL species	5	x 1 =	5	
3.					FACW species	85	x 2 =	170	
4.	<u>.</u>			<u> </u>	FAC species	33	x 3 =	99	
5.					FACU species	0	x 4 =	0	
6.					UPL species	0	x 5 =	0	
		0	= Total Cover		Column Totals:	123	(A)	274	(B)
	50% of total cover:	0	20% of total cover	:0					
Shrub Stratum (Plot size:	30 ft.)				Prevalence	Index = B/A =		2.228	

6				
		0	_= Total Cover	
	50% of total cover:	0	_ 20% of total cover:	0
Shrub Stratum (Plot size:	30 ft.)			
1. None Observed				
2.				
3.				
4.				
5.				
6.				
		0	= Total Cover	
	50% of total cover:	0	20% of total cover:	0
Herb Stratum (Plot size:	30 ft.)			
1. Rumex crispus		10	No	FAC
2. Iva annua		15	No	FAC
3. Panicum repens		80	Yes	FACW
4. Triadica sebifera		5	No	FAC
5. Persicaria hydropiperoides	_	5	No	OBL
6. Setaria parviflora		5	No No	FACW
7. Paspalum urvillei		3	No No	FAC
8.				
9.				
0.				
1.				
		123	= Total Cover	
	50% of total cover:	61.5	20% of total cover:	24.6
Noody Vine Stratum (Plot size	e: 30 ft.)		_	
1. None Observed				

= Total Cover

20% of total cover:

0

Hydrophytic	Vegetation	Indicators:

- 1 Rapid Test for Hydrophytic Vegetation
- X 2 Dominance Test is >50%
- $\overline{\mathbf{X}}$ 3 Prevalence Index is $\leq 3.0^1$
 - Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic
Vegetation

Present? Yes X No _____

Remarks: (if observed, list morphological adaptations below).

50% of total cover:

A positive indication of hydrophytic vegetation was observed.

C	ı	ı	

Sampling Point: SS09

epth	Matrix			Redox Features			
nches)	Color (moist)	<u>%</u>	Color (moist)	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/1	75	-			Loam	Dual matrix
	10YR 6/4	25				Sand	
4-8	10YR 2/1	100				Loam	
8-16		100				Gravel	All Gravel
					-		
vne: C=Co	ncentration D=Denl	 letion_RM=R	Reduced Matrix MS	S=Masked Sand Grains.	² Location: PL	.=Pore Lining, M=N	 Natrix
	Indicators: (Applie				Location: 1 L		roblematic Hydric Soils ³ :
		cable to all i		•	DCT III		•
Histosol				lue Below Surface (S8) (LF	• • •		(A9) (LRR O)
	pipedon (A2)			ark Surface (S9) (LRR S, 1	•		(A10) (LRR S)
	stic (A3)			Mucky Mineral (F1) (LRR	0)		ertic (F18) (outside MLRA 150A,E
	n Sulfide (A4)		Loamy	Gleyed Matrix (F2)			loodplain Soils (F19) (LRR P, S, T
Stratified	d Layers (A5)		Deplet	ed Matrix (F3)		Anomalous	Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR F	P, T, U)	Redox	Dark Surface (F6)		(MLRA 153	3B)
5 cm Mu	ıcky Mineral (A7) (L l	RR P, T, U)	Deplet	ed Dark Surface (F7)		Red Paren	Material (TF2)
Muck Pr	esence (A8) (LRR U	J)	Redox	Depressions (F8)			w Dark Surface (TF12)
	ick (A9) (LRR P, T)	-		F10) (LRR U)			ain in Remarks)
	d Below Dark Surfac			ed Ochric (F11) (MLRA 15	1)		,
	ark Surface (A12)	· · · /		anganese Masses (F12) (I		³ Indicator	s of hydrophytic vegetation and
	rairie Redox (A16) (I	MLRA 150A		Surface (F13) (LRR P, T,			drology must be present, unless
	lucky Mineral (S1) (l			Ochric (F17) (MLRA 151)	-,		or problematic.
	lucky Militeral (S1) (I Bleyed Matrix (S4)	_ixix () , ()		ed Vertic (F18) (MLRA 151)	Δ 150R\		
				, , ,	- ·		
	edox (S5)			ont Floodplain Soils (F19) (-	4E20 4E2D)	
	Matrix (S6) rface (S7) (LRR P, \$	o = ···	Anoma	alous Bright Loamy Soils (F	20) (IVILKA 149 A	a, 153U, 153D)	
etrictive I	avor (if observed):				1		
estrictive L	ayer (if observed):						
Туре:							
	ches):				Hydric	Soil Present?	'es NoX
Depth (in					Hydric	: Soil Present?	/es NoX
					Hydric	Soil Present?	/es NoX
Depth (incention)	ches):				Hydric	Soil Present?	'es NoX
Depth (incention)					Hydric	Soil Present?	/es NoX
Depth (incention)	ches):				Hydric	Soil Present?	res NoX
Depth (incention)	ches):				Hydric	Soil Present?	/es NoX
Depth (incention)	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	: Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	/es NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	res NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: o positive in	ches):				Hydric	Soil Present?	Yes NoX
Depth (incention) emarks: popositive in	ches):				Hydric	Soil Present?	Yes NoX

Project/Site:	City of Houston	County:	Harris	Sampling Date:	December 19, 2017
Applicant/Owner:	TxDOT Houston District				
- · ·	Arnold and P. Frasier	Section, Townshi	p, Range:	 N/A	
Landform (hillslope, terrace, etc.): Hillslope		ave, convex, none):	Convex Slope	e (%): 4
Subregion (LRR or MLRA):	LRR T		361104 Long:		Patum: NAD 83
Soil Map Unit Name:	Addicks-Urban lar	nd complex	NW	/I Classification:	Upland
Are climatic / hydrologic condition	ns on the site typical for this time of year?	Yes / No)	Yes (if no	o, explain in Remarks.)	
Are Vegetation No ,	Soil No ,or Hydrology No s	significantly disturbed?	Are "Normal Circum	nstances" present? Ye	s <u>X</u> No
Are Vegetation No,	Soil No ,or Hydrology No r	naturally problematic?	(If needed	d, explain any answers in	Remarks.)
SUMMARY OF FINDING	GS - Attach site map showing	g sampling point	locations, tran	sects, important	features, etc.
Hydrophytic Vegetation Present Hydric Soil Present? Wetland Hydrology Present?	t? Yes No X Yes No X Yes No X	Is the Samp		Yes N	loX
Remarks: HYDROLOGY					
Wetland hydrology Indica	utors:		Sec	ondary Indicators (minim	um of two required)
	m of one is required; check all that apply)		<u> </u>	Surface Soil Cracks (E	
Surface Water (A1)		auna (B13)		Sparsely Vegetated Co	,
High Water Table (A	·	osits (B15) (LRR U)		Drainage Patterns (B1	
Saturation (A3)		Sulfide Odor (C1)		Moss Trim Lines (B16)	,
Water Marks (B1)	 -	Rhizospheres on Living	Roots(C3)		ole (C2)
Sediment Deposits (I	32) Presence	of Reduced Iron (C4)		_ Crayfish Burrows (C8)	
Drift Deposits (B3)	Recent Iro	on Reduction in Tilled So	oils (C6)	_ Saturation Visible on A	verial Imagery (C9)
Algal Mat or Crust (B	4) Thin Mucl	k Surface (C7)		_ Geomorphic Position (D2)
Iron Deposits (B5)	Other (Ex	plain in Remarks)		Shallow Aquitard (D3)	
Inundation Visible on	Aerial Imagery (B7)			FAC-Neutral Test (D5))
Water-Stained Leave	es (B9)			_ Sphagnum moss (D8)	(LRR T, U)
-					
Field Observations:	Van Na V Danida	(in also as). N/A			
		(inches): N/A			
	' '	(inches): >20 (inches): >20	Wetland Hydrolog	y Present? Yes	No X
(includes capillary fringe)	es NO Depti ((IIICHES)	Wetiand Hydrolog	ly Fresent: Tes	NOX
	tream gauge, monitoring well, aerial photo	os, previous inspections), if available:		
Remarks:					
No positive indication of we	tland hydrology was observed.				

EGETATION (Five Strata) - Use scientific names of plants.				Sa	Sampling Point: _		SS10
	Absolute	Dominant	Indicator	Dominance Test wo	rksheet:		
<u>Tree Stratum</u> (Plot size: 30 ft.)	% cover	Species?	Status	Number of Dominant	Species		
1. Celtis laevigata	30	Yes	FACW	That Are OBL, FACW	/, or FAC:	2	(A)
2. Morus rubra	20	Yes	FACU		-		
3. Melia azedarach	20	Yes	UPL	Total Number of Dom	ninant		
4.				Species Across All St	trata:	5	(B)
5.					-		
6.				Percent of Dominant	Species		
		= Total Cover		That Are OBL, FACW	/, or FAC:	40.09	% (A/E
50% of total	al cover: 35	20% of total cove	er: 14				
Sapling Stratum (Plot size: 30 ft.)				Prevalence Index W	orksheet:		
1. None Observed				Total % Co	over of:	M	ultiply by:
2.				OBL species	0	x 1 =	0
3.				FACW species	35	x 2 =	70
4.				FAC species	2	x 3 =	6
				FACIL appaires	20	<u> </u>	90

1. None Observed	<u> </u>				Total % Co	over of:	N	fultiply by:	
2.					OBL species	0	x 1 =	0	
3.					FACW species	35	x 2 =	70	
4.					FAC species	2	x 3 =	6	
5.					FACU species	20	x 4 =	80	
6.					UPL species	25	x 5 =	125	
		0	= Total Cover		Column Totals:	82	(A)	281	(B)
	50% of total cover:	0	20% of total cover:	0			_		
Shrub Stratum (Plot size:	30 ft.)		_		Prevalence	Index = B/A =		3.427	
1. None Observed									
2.					Hydrophytic Vegeta	ation Indicator	rs:		
3.					1 - Rapid To	est for Hydroph	nytic Vegeta	ation	
4.					2 - Dominar	nce Test is >50)%		
5.					3 - Prevaler	nce Index is ≤ 3	3.0 ¹		
6.					Problemation	Hydrophytic V	egetation ¹	(Explain)	
		0	= Total Cover						
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric	soil and wetlan	d hydrology	y must	
Herb Stratum (Plot size:	30 ft.)				be present, unless di	sturbed or prol	olematic.		
1. Oxalis debilis		5	Yes	UPL	Definitions of Five	Vegetation St	ata:		
2. Carex cherokeensis		5	Yes	FACW	Tree - Woody plants	s, excluding wo	ody vines,		
3. Lygodium japonicum		2	No	FAC	approximately 20 ft (6m) or more in	height and	l 3 in.	
4.					(7.6 cm) or larger in	diameter at bre	ast height	(DBH).	
5									
6					Sapling - Woody pla	ints, excluding	woody vine	es,	
7					approximately 20 ft (6 m) or more ir	n height and	d less	
8					than 3 in. (7.6 cm) D	BH.			
9									
10					Shrub - Woody plan	ts, excluding w	oody vines	,	
11					approximately 3 to 20	0 ft (1 to 6 m) ii	n height.		
		12	_= Total Cover						
	50% of total cover:_	6	20% of total cover:	2.4	Herb - All herbaceou	ıs (non-woody)	plants, inc	luding	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, re	gardless of siz	e, <u>and</u> woo	dy	
1. None Observed					plants, except woody	vines, less tha	an approxin	nately	
2.					3 ft (1 m) in height.				
3.									
4.					Woody vine - All wo	ody vines, rega	ardless of h	eight.	
5									

= Total Cover

20% of total cover:

Hydrophytic

Vegetation Present?

Remarks: (if observed, list morphological adaptations below).

50% of total cover:

No positive indication of hydrophytic vegetation was observed.

Yes _____ No ___X___

SOIL	Sampling Point:	SS10

epth nches)	Color (moist)	%	Color (moist)	_%_	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 3/1	100					Silty Loam	
ype: C=Co	ncentration, D=Depl	etion, RM=I	Reduced Matrix, MS	S=Masked	Sand Grains.	² Location: P	L=Pore Lining, M=Matri	X.
dric Soils	Indicators: (Applie	cable to all	LRRs, unless other	erwise no	ted.)		Indicators for Prob	lematic Hydric Soils ³ :
Histosol	(A1)		Polyva	lue Below	Surface (S8) (LR	R S, T, U)	1 cm Muck (A9) (LRR 0)
Histic Ep	oipedon (A2)		Thin D	ark Surfac	e (S9) (LRR S, T	', U)	2 cm Muck (A1	0) (LRR S)
Black Hi	stic (A3)		Loamy	Mucky Mi	neral (F1) (LRR (0)	Reduced Vertic	(F18) (outside MLRA 150A,I
Hydroge	en Sulfide (A4)		Loamy	Gleyed Ma	atrix (F2)		Piedmont Flood	dplain Soils (F19) (LRR P, S, T
Stratified	d Layers (A5)		Deplet	ed Matrix ((F3)		Anomalous Brig	ght Loamy Soils (F20)
Organic	Bodies (A6) (LRR P	P, T, U)	Redox	Dark Surfa	ace (F6)		(MLRA 153B)	
5 cm Mu	ıcky Mineral (A7) (L l	RR P, T, U)	Deplet	ed Dark Su	urface (F7)		Red Parent Ma	terial (TF2)
Muck Pr	esence (A8) (LRR L	J)	Redox	Depressio	ons (F8)		Very Shallow D	ark Surface (TF12)
1 cm Mu	uck (A9) (LRR P, T)		Marl (F	10) (LRR	U)		Other (Explain	in Remarks)
Depleted	d Below Dark Surfac	e (A11)	Deplet	ed Ochric	(F11) (MLRA 15	1)		
Thick Da	ark Surface (A12)		Iron-M	anganese	Masses (F12) (L	.RR O, P, T)	³ Indicators of	hydrophytic vegetation and
Coast Pr	rairie Redox (A16) (I	MLRA 150 <i>A</i>	A) Umbrid	Surface (F13) (LRR P, T,	U)		logy must be present, unless
Sandy M	lucky Mineral (S1) (I	LRR O, S)	Delta (Ochric (F17	7) (MLRA 151)		disturbed or p	roblematic.
Sandy G	Bleyed Matrix (S4)		Reduc	ed Vertic (F18) (MLRA 150	A, 150B)		
— Sandy R	Redox (S5)		Piedmo	ont Floodp	lain Soils (F19) (l	MLRA 149A)		
Stripped	Matrix (S6)		Anoma	llous Brigh	it Loamy Soils (F	20) (MLRA 149	A, 153C, 153D)	
 Dark Su		2 T II)						
						Hydri	c Soil Present? Yes	NoX
estrictive La	ayer (if observed):					Hydri	c Soil Present? Yes	NoX
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	NoX
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	NoX
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	NoX
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	NoX
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	No X
Type: Depth (inc	ayer (if observed):					Hydri	c Soil Present? Yes	NoX

Project/Site:	North Housto	n Highway Improvemer	nt Project	County:	Harris	s	Sampling Date:_	December 15, 2017
Applicant/Owner:	Texas	Department of Transpor	tation - Houst	on District	State:	Texas	Sample Point: _	SS11
Investigator(s):	T. Love	e and	P. Frasier	Section,	Township, Range:		N//	<u>A</u>
Landform (hillslope,	_				lief (concave, convex	x, none):	Convex Slo	pe (%): <u>30</u>
Subregion (LRR or N		LRR T		Lat:	29.860615	_ Long:	-95.403593	Datum: NAD 83
Soil Map Unit Name:	,	Addi				•	assification:	
· ·	•	n the site typical for this	-	•	lo) Yes		xplain in Remarks.)	
Are Vegetation		Yes ,or Hydrology		-	turbed? Are "Norm		•	
Are Vegetation	No ,Soil_	No ,or Hydrology	<u>No</u> n	aturally proble	matic?	(If needed, ex	xplain any answers	in Remarks.)
SUMMARY OF	FINDINGS	- Attach site ma	p showing	g sampling	g point location	ns, transe	cts, importan	it features, etc.
Hydrophytic Vegeta	ation Present?	Yes X	No					
Hydric Soil Present	t?	Yes	No <u>X</u>	Is t	he Sampled Area			
Wetland Hydrology	Present?	Yes	NoX	wit	hin a Wetland?	Ye	s	NoX
Remarks:								
Data point reco	orded along side	of channel. Upland com	nplement for V	Vetland 5 (SS	12).			
HYDROLOGY	- L L. P							
	ology Indicators		. 11 41 - 4 - 4 - 4 - 4 - 4					imum of two required)
·		one is required; check a		(D40)			urface Soil Cracks	•
	Water (A1)		Aquatic Fa	` ,	D 11)			Concave Surface (B8)
	iter Table (A2)			sits (B15) (LR	•		rainage Patterns (f	,
Saturatio	larks (B1)			Sulfide Odor (•		loss Trim Lines (B1	,
	,			•	on Living Roots(C3)		ry-Season Water T	` ,
	nt Deposits (B2)			of Reduced Iro	, ,		rayfish Burrows (C	,
	oosits (B3)				Tilled Soils (C6)			n Aerial Imagery (C9)
	it or Crust (B4)			Surface (C7)	ko)		Geomorphic Position	` ,
	osits (B5)	iol Imagary (P7)	_ Other (Exp	olain in Remar	KS)		hallow Aquitard (D:	•
	on Visible on Aer						AC-Neutral Test (D	,
water-Si	tained Leaves (B	9)				8	phagnum moss (D	5) (LRR 1, U)
Field Observation	s:							
Surface Water Pres	sent? Yes _	NoX	Depth (inches): N	/A			
Water Table Prese	nt? Yes _	No X	 Depth (inches): >	20			
Saturation Present?	? Yes	No X	Depth (inches): >	20 Wetland	Hydrology P	resent? Yes	No X
(includes capillary f	fringe)						_	
Describe Reco	rded Data (strear	m gauge, monitoring we	ll, aerial photo	s, previous in	spections), if availabl	le:		
Remarks:								
No positive indi	ication of wetland	d hydrology was observe	ed.					
•								

VEGETATION	(Five Stra	ita) - Use scientif	tic name	es of plants.		Sa	ampling Point: _		SS11	
			Absolute	 Dominant	Indicator	Dominance Test wo	orksheet:			
Tree Stratum	(Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant	Species			
1. None Observe	ed .	,				That Are OBL, FACV		1		(A)
2.										
3.						Total Number of Don	ninant			
4						Species Across All S	trata:	1		(B)
5				<u> </u>						
6						Percent of Dominant	Species			
			0	= Total Cover		That Are OBL, FACV	V, or FAC:	100.	0%	(A/B)
		50% of total cover:	0	20% of total cover:	0	December of the New York				
Sapling Stratum	(Plot size:	30 ft.)				Prevalence Index W				
1. None Observe	ed			<u> </u>		Total % Co			/lultiply by:	
2				 		OBL species _		x 1 = _	0	
3				<u> </u>		FACW species _	5	x 2 = _	10	
4				<u> </u>		FAC species _	103	x 3 = _	309	
5				<u> </u>		FACU species _		x 4 = _	0	
6				Tatal Carran		UPL species _	0	x 5 = _	0	
		FOO/ of total covers	0	= Total Cover	0	Column Totals: _	108	(A) _	319	(B
Charles Charles	(Diet eine)	50% of total cover:	0	20% of total cover:	0	Dravalanaa	Index = B/A =		2.054	
Shrub Stratum 1. None Observe	(Plot size:	30 ft.)				Prevalence	index = b/A =		2.954	
2.	·u			<u> </u>		Hydrophytic Vegeta	ation Indicator			
3.				<u> </u>			est for Hydroph		ation	
Δ						X 2 - Dominar			ation	
5.						X 3 - Prevaler				
6.							Hydrophytic V		(Explain)	
<u> </u>			0	= Total Cover				3	(,	
		50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric	soil and wetlan	d hydrolog	y must	
Herb Stratum	(Plot size:	30 ft.)		-		be present, unless di				
1. Stenotaphrum	`	, <u>, </u>	100	Yes	FAC	Definitions of Five	•			
2. Dichondra card			3	No	FAC	Tree - Woody plants	_			
3. Acmella repen			5	No	FACW	approximately 20 ft (_	-	l 3 in.	
4.				<u> </u>		(7.6 cm) or larger in	diameter at bre	ast height	(DBH).	
5.				<u> </u>				_		
6		<u> </u>				Sapling - Woody pla	nts, excluding	woody vine	es,	
7						approximately 20 ft (6 m) or more ir	height and	d less	
8.						than 3 in. (7.6 cm) D	BH.			
9.										
10						Shrub - Woody plan	ts excluding w	oody vines		

108 = Total Cover

= Total Cover

0

20% of total cover:

20% of total cover: 21.6

Remarks: (if observed, list morphological adaptations below).

(Plot size:

50% of total cover:

30 ft.)

50% of total cover:

A positive indication of hydrophytic vegetation was observed.

Woody Vine Stratum

1. None Observed

approximately 3 to 20 ft (1 to 6 m) in height.

3 ft (1 m) in height.

Hydrophytic

Vegetation

Present?

Herb - All herbaceous (non-woody) plants, including

plants, except woody vines, less than approximately

Woody vine - All woody vines, regardless of height.

Yes ____X No _____

herbaceous vines, regardless of size, and woody

Color (moist)	Depth	Matrix			Redox F	eatures			
Clay Disturbed	inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
Specific Concentration	0-6	10YR 3/1	100					Clay	Disturbed
Exercises Experiment Expe	6-16			10YR 6/8	30				
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)	0 10	10111 0/0		10111 0/0				Ciay	
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
Histosol (A1) Histic Epipedon (A2) Histic Epipedon (A2) Black Histic (A3) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Crganic Bodies (A6) (LRR P, T, U) Depleted Bolin Dark Surface (F6) Muck Presence (A8) (LRR P, T) Depleted Below Dark Surface (F10) Coast Prairie Redox (A16) Sandy Mucky Mineral (F10) (LRR O, P, T) Sandy Mucky Mineral (A16) Sandy Mucky Mineral (A16) Sandy Redox (S5) Delta Ochric (F13) Hydric Soil Present? Yes No X	Type: C=Co	oncentration, D=Dep	letion, RM=R	educed Matrix, MS	S=Masked S	Sand Grains.	² Location: PL	=Pore Lining, M=N	Matrix.
Histosol (A1) Histic Epipedon (A2) Histic Epipedon (A2) Black Histic (A3) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Crganic Bodies (A6) (LRR P, T, U) Depleted Bolin Dark Surface (F6) Muck Presence (A8) (LRR P, T) Depleted Below Dark Surface (F10) Coast Prairie Redox (A16) Sandy Mucky Mineral (F10) (LRR O, P, T) Sandy Mucky Mineral (A16) Sandy Mucky Mineral (A16) Sandy Redox (S5) Delta Ochric (F13) Hydric Soil Present? Yes No X	lydric Soils	Indicators: (Appli	cable to all I	RRs, unless other	erwise note	ed.)		Indicators for P	roblematic Hydric Soils ³ :
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Marl (F10) (LRR U) Depleted Dark Surface (F7) Order (Explain in Remarks) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	-	`				•	R S. T. U)		
Black Histic (A3) Hydrogen Sulfide (A4) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) Sem Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Muck (A9) (LRR P, T) Depleted Dark Surface (F8) Loamy Gleyed Matrix (F2) Muck Presence (A8) (LRR P, T, U) Predmont Floodplain Soils (F19) (LRR P, S, Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (TF2) Wery Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X		• •							
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Sor Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) Anomalous Bright Loamy Soils (F20) Muck Presence (A8) (LRR U) Anomalous Bright Loamy Soils (F20) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X							· -		
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Fresence (A8) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Depleted Dark Surface (A17) Deleta Ochric (F17) (MLRA 150A) Stripped Matrix (S6) Derived Warting Redox (A19) Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (TF2) Ned Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Debric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes NoX							0)		
Organic Bodies (A6) (LRR P, T, U) Set Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Boark Surface (F7) Mart (F10) (LRR U) Depleted Bow Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Redox Dark Surface (F6) Mart (F10) (LRR U) Depleted Bolow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Depleted Bolow Dark Surface (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X	<u> </u>	` '			-	` ,		Piedmont F	loodplain Soils (F19) (LRR P, S, T
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (A5) Sardy Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F13) (MLRA 151) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Marl (F10) (LRR O, F) Very Shallow Dark Surface (F712) Very Shallow Dark Surface (F712) Very Shallow Dark Surface (F712) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Jepleted Dark Surface (F13) (LRR O, F, T, U) Werl A 151) Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F13) (MLRA 151) Sandy Redox (S5) Sandy Redox (S5) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX	Stratifie	ed Layers (A5)		Deplet	ed Matrix (F	⁷ 3)		Anomalous	Bright Loamy Soils (F20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jepleted Ochric (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Park Surface (S7) (LRR P, S, T, U) Petrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Organio	Bodies (A6) (LRR I	P, T, U)	Redox	Dark Surfa	ce (F6)		(MLRA 153	BB)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jepleted Ochric (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Park Surface (S7) (LRR P, S, T, U) Petrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	 5 cm M	ucky Mineral (A7) (L	RR P, T, U)	Deplete	ed Dark Sui	face (F7)		Red Parent	Material (TF2)
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Mang									· · · ·
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X Hydric Soil Present? Yes No X		, , ,	-						· · ·
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Jenon-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 151) Reduced Vertic (F18) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X Mo X							1)	опет (Ехр	an in Nemara)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Destrictive Layer (if observed): Type: Depth (inches):			æ (ATT)					a.	
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Derk Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X		• •			_				
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X	Coast F	Prairie Redox (A16) (MLRA 150A	Umbrio	: Surface (F	13) (LRR P, T,	U)		
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A)	Sandy I	Mucky Mineral (S1) (LRR O, S)	Delta C	Ochric (F17)	(MLRA 151)		aisturbea	or problematic.
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Piedmont Floodplain Soils (F20) (MLRA 149A)	Sandy (Gleyed Matrix (S4)		Reduc	ed Vertic (F	18) (MLRA 150	A, 150B)		
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:				—— Piedmo	ont Floodpla	ain Soils (F19) (MLRA 149A)		
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		` ,						153C 153D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks:		, ,	C T II)		lious Bright	Loamy Cono (i	eo) (MERA 14 0 7	1, 1000, 1002)	
Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	Daik 30	unace (57) (LKK F,	3, 1, 0)						
Depth (inches): Hydric Soil Present? Yes No X emarks:	estrictive l	Layer (if observed):							
Depth (inches): Hydric Soil Present? Yes No X emarks:	Type:								
emarks:							Hydric	Soil Present?	vos No Y
	Depti (ii						liyanc	oon resent:	NO
o positive indication of hydric soils was observed.	emarks:								
o positive indication of hydric soils was observed.									
	lo positive i	ndication of hydric so	oils was obse	rved.					
	•	•							

Project/Site: No	rth Houston	n Highway Impro	vement Project	Co	unty:	Harris		Sampling	Date: D	ecember 15, 2017
Applicant/Owner:	Texas D	epartment of Tr	ansportation - F	louston Distri	ctStat	e: _	Texas	Sample P	oint:	SS12
Investigator(s):	T. Love	and	P. Fras	sier Se	ection, Township	, Range: _			N/A	
Landform (hillslope, terrace	e, etc.):		Plain	Lo	ocal relief (conca	ave, convex	, none): _	None	Slope (%)	:0
Subregion (LRR or MLRA)	· · · · · · · · · · · · · · · · · · ·		LRR T		_	60592	Long: _	-95.403591	Datum	n: <u>NAD 83</u>
Soil Map Unit Name: _			Addicks-Urba	n land compl	ex		NWI (Classification:		Upland
Are climatic / hydrologic co		• •	•	•	'es / No)			explain in Ren	•	
		No ,or Hyd	<u> </u>		•			-		
Are Vegetation No.	,Soil	No ,or Hyd	Irology No	naturally	problematic?		(If needed,	explain any an	swers in Rer	narks.)
SUMMARY OF FIN	DINGS -	Attach site	map shov	ving sam	pling point	location	ns, trans	ects, impo	ortant fea	tures, etc.
Hydrophytic Vegetation P Hydric Soil Present? Wetland Hydrology Prese		Yes X Yes X Yes X	No		Is the Sampl within a Wet		Υ	⁄es <u>X</u>	No_	
Remarks:										
Wetland 5. Data poir	it recorded a	at the lower port	ion of a drainag	e channel.						
HYDROLOGY Wetland bydrology I	Indicators:								,	
Wetland hydrology I			ala ada a U. d d	l. A				•	•	of two required)
Primary Indicators (m		•	-		0)			Surface Soil C	` ,	0 (50)
	•			•	,		<u> </u>			ve Surface (B8)
X High Water Tal	. ,			Deposits (B1	, ,			Drainage Patt	,	
X Saturation (A3)				gen Sulfide (,	Pooto(C2)		Moss Trim Lin	` ,	C2)
Water Marks (E	•			-	eres on Living F	(00ts(C3)		Dry-Season W	•	<i>5</i> 2)
Sediment Depo	` '			ence of Reduc	` ,	'L (OO)		Crayfish Burro	` ,	(00)
Drift Deposits (` ,				tion in Tilled So	ils (C6)				I Imagery (C9)
Algal Mat or Cr	` ,			Muck Surface	` '			Geomorphic F	` ,	
Iron Deposits (,	(5-)	Other	(Explain in F	(emarks)		· · · · · · · · · · · · · · · · · · ·	Shallow Aquita	` ,	
Inundation Visi								FAC-Neutral	` ,	
Water-Stained	Leaves (B9	<i>i</i>)						Sphagnum mo	oss (D8) (LR	R T, U)
Field Observations:										
Surface Water Present?	Yes	No	X De	pth (inches):	N/A					
Water Table Present?	Yes	X No		pth (inches):						
Saturation Present?	Yes	X No		pth (inches):		 Wetland I	Hydrology	Present?	Yes X	No
(includes capillary fringe)				p (oo.).			,			
Describe Recorded D	ata (stream	gauge, monitor	ing well, aerial _l	ohotos, previo	ous inspections)	, if available	9 :			
Remarks:										
A positive indication o	of wetland h	vdrology was ob	served.							
		, a. c.eg, c.								

VEGETATIO	N (Five Str	ata) - Use scie	entific names	of plants.		Sampling Point:	SS1	2
			Absolute	Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum	(Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species		
1. None Obser	rved					That Are OBL, FACW, or FAC:	2	(A)

Tree Stratum	(Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Obser	ved					That Are OBL, FACW, or FAC:	2	2	(A)
2.									
2						Total Number of Dominant			
						Species Across All Strata:		2	(B)
_									
_		-				Percent of Dominant Species			
		_	0	= Total Cover	_	That Are OBL, FACW, or FAC:	100	.0%	(A/B)
		50% of total cover:	0	20% of total cover:	0				
Sapling Stratum	(Plot size:	30 ft.)				Prevalence Index Worksheet:			
1. None Obser	rved					Total % Cover of:	!	Multiply by:	
2						OBL species 100	x 1 =	100	
3						FACW species2	x 2 =	4	
4				<u> </u>		FAC species 45	x 3 =	135	
5						FACU species0	x 4 =	0	
6						UPL species0	x 5 =	0	
			0	_= Total Cover		Column Totals: 147	(A)	239	(B
		50% of total cover:	0	20% of total cover:	0				
Shrub Stratum	(Plot size:	30 ft.)				Prevalence Index = B/A =	<u> </u>	1.626	
1. None Obser	rved								
2						Hydrophytic Vegetation Indicate	ors:		
3						1 - Rapid Test for Hydror	hytic Veget	ation	
4						X 2 - Dominance Test is >5			
5						X 3 - Prevalence Index is ≤			
6						Problematic Hydrophytic	Vegetation ¹	(Explain)	
			0	_= Total Cover					
		50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetla	nd hydrolog	y must	
Herb Stratum	(Plot size:	30 ft.)				be present, unless disturbed or pre-	oblematic.		
1. <i>Persicaria h</i>	ydropiperoides		100	Yes	OBL	Definitions of Five Vegetation S			
2. <u>Stenotaphru</u>	ım secundatum		5	No	FAC	Tree - Woody plants, excluding w	oody vines,		
3. Cyperus en	trerianus		2	<u>No</u>	FACW	approximately 20 ft (6m) or more i	n height and	d 3 in.	
4. Cerastium f	ontanum		40	Yes	FAC	(7.6 cm) or larger in diameter at b	east height	(DBH).	
5									
6						Sapling - Woody plants, excluding	-		
7						approximately 20 ft (6 m) or more	in height an	id less	
8						than 3 in. (7.6 cm) DBH.			
9									
10						Shrub - Woody plants, excluding	-	5,	
11						approximately 3 to 20 ft (1 to 6 m)	in height.		
			147	_= Total Cover					
		50% of total cover:	73.5	20% of total cover:	29.4	Herb - All herbaceous (non-wood)	-	_	
Woody Vine Str	<u>atum</u> (Plot size	e: 30 ft.)				herbaceous vines, regardless of s		_	
1. None Obser	rved					plants, except woody vines, less th	ıan approxir	mately	
2				<u> </u>		3 ft (1 m) in height.			
3									
4						Woody vine - All woody vines, req	jardless of l	height.	
_									

= Total Cover

20% of total cover:

Remarks: (if observed, list morphological adaptations below).

50% of total cover:

A positive indication of hydrophytic vegetation was observed.

Yes ____X No _____

Hydrophytic

Vegetation

Present?

SOIL	Sampling Point:	SS12
	-	

Histosol (A1)	RRs, unless otherwise noted.) Polyvalue Below Surface (S8) (LRR S, T, U) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Iron-Manganese Masses (F12) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X	Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR O) 2 cm Muck (A10) (LRR O) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A,B) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Peleted Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Ox Derressions (F8) Peleted Dark Surface (T11) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Worth Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 150A, 150B) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Withough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a stripped mater table and saturation, and location within a	epth nches) 0-16	Matrix Color (moist) 10YR 2/2	<u>%</u> 100	Color (moist)	<u>%</u>	Features Type ¹	Loc ²	Texture Clay Loam	Remarks
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR O) Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Stratified Layers (A5) Depleted Matrix (F2) Polyvalue Below Surface (F6) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F Other Certain Reduced Vertic (F18) (outside M Piedmont Floodplain Soils (F19) (MLRA 153B) Some Mucky Mineral (A7) (LRR P, T, U) Polepted Dark Surface (F6) Muck Presence (A8) (LRR P, T, U) Polepted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Marl (F10) (LRR U) Polepted Dark Surface (A11) Thick Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Mucky Mineral (A7) (MLRA 150A) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	Indicators for Problematic Hydric Soils ³ : Polyvalue Below Surface (S8) (LRR S, T, U) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes No X rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR C) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR C) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR C) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR C) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, E Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T, C) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Redox Dare Muck (A9) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F11) (MLRA 151) Thick Dark Surface (A12) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) wettand hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S4) Reduced Vertic (F18) (MLRA 150A) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X **Hydric Soil Present? Tes No X									
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR O) Pister Epipedon (A2) Loamy Mucky Mineral (F1) (LRR O) Piedmont Floodplain Soils (F19) (MLRA 151) Torm Muck (A10) (LRR P, T, U) Polyteld Addric (F18) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (MLRA 151) Torm Muck (A9) (LRR P, T, U) Polyteld Ochric (F11) (MLRA 151) Thick Dark Surface (A11) Thick Dark Surface (A11) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F13) (LRR D, T, U) Polyteld Ochric (F13) (LRR D, T, U) Polyteld Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F13) (LRR O, P, T) Polyteld Ochric (F17) (MLRA 151) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F13) (LRR O, P, T) Piedmont Floodplain Soils (F19) (MLRA 149A) Piedmont Floodplain Soils (F19)	RRs, unless otherwise noted.) Polyvalue Below Surface (S8) (LRR S, T, U) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Hydric Soil Present? Yes NoX rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR C) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A,E Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) To m Muck (A9) (LRR P, T) Marl (F10) (LRR U) Peleted Dark Surface (F11) (MLRA 151) Thick Dark Surface (A11) Depleted Obric (F11) (MLRA 151) Thick Dark Surface (A12) Unbric Surface (F13) (LRR P, T, U) wetland William (S1) (LRR P, T, U) Whore Surface (F13) (LRR P, T, U) Whore Surface (A12) (LRR D, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Stripped Matrix (S4) Reduced Vertic (F18) (MLRA 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A), 153C, 153D) **Estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X **Indicators for Problematic Hydric Soils Presented Propolematic Problematic Pro									
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Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location	Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Sandy Redox (S5)			LRR O, S)		•	, .	450D)	distarbed of pr	obiematio.
Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed):	Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks: though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a									
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No emarks: Ithough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location	Hydric Soil Present? Yes NoX rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: Ithough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a		, ,			-	, , ,	-	Δ 153C 153D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No emarks: Ithough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location	Hydric Soil Present? Yes NoX rved in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks: Ithough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a		, ,	S. T. U)		ilous Brigiri	t Loanly Cons (1 2	O) (MEKA 143)	A, 1000, 100 <i>D</i>	
hough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location	· · · · · · · · · · · · · · · · · · ·	hough no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	estrictive L	-ayer (if observed):							
though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location	· · · · · · · · · · · · · · · · · · ·	though no redoximorphic features were observed in the soil, the dominant vegetation, the presence of a high water table and saturation, and location within a	Type:						Hydric	c Soil Present? Yes	NoX
			Type: Depth (in	nches):			e dominan	t vegetation, the p		•	
			Type: Depth (inemarks: though no response	redoximorphic featur	es were obs	served in the soil, th			presence of a h	igh water table and satu	
			Type: Depth (inemarks: though no response	redoximorphic featur	es were obs	served in the soil, th			presence of a h	igh water table and satu	
			Type: Depth (inemarks: though no response	redoximorphic featur	es were obs	served in the soil, th			presence of a h	igh water table and satu	

Project/Site: Nor	th Houston	ı Highway Improvement	Project	County:	Harris	6	Sampling Da	ate: D	ecember 18, 2017
Applicant/Owner:	Texas D	epartment of Transport	ation - Houstor		State:	Texas		nt:	SS13
Investigator(s):		and			 ownship, Range:			N/A	
Landform (hillslope, terrace,					f (concave, convex			Slope (%):	2
Subregion (LRR or MLRA):					•		-95.397914	Datum	n: NAD 83
	<u>'</u>	Addic		<u> </u>			Classification:		
Are climatic / hydrologic con	nditions on	the site typical for this t	ime of year?	(Yes / No)	Yes	(if no,	explain in Rema	rks.)	
Are Vegetation No	,Soil	No ,or Hydrology	No sign	nificantly distur	bed? Are "Norm	nal Circumst	ances" present?	Yes	X No
Are Vegetation No	,Soil	No ,or Hydrology	No			(If needed,	explain any ansv	wers in Ren	narks.)
SUMMARY OF FINE	DINGS -	Δttach site man	showing	sampling r	ooint location	ns trans	ects impor	tant fea	tures etc
		——————————————————————————————————————	- Silowing			- Trails			
Hydrophytic Vegetation Pre	esent?	Yes	No <u>X</u>	_					
Hydric Soil Present?		Yes	No <u>X</u>		Sampled Area				
Wetland Hydrology Presen	nt?	Yes	No X	_ within	a Wetland?	Y	'es	No	X
Remarks:									
HADBOI OCA									
HYDROLOGY Wetland hydrology In	ndicators:					Casan	dom (lo dio atomo (/mainimama	f true required)
			I that apply				dary Indicators (two required)
		one is required; check al	, , , ,	(D42)			Surface Soil Cra	` '	va Curtana (DO)
Surface Water (,		_ Aquatic Fau	,	111		Sparsely Vegeta		ve Surface (B8)
High Water Tab	ie (AZ)		-	ts (B15) (LRR)	•		Drainage Patter	` ,	
Saturation (A3)	4)		-	ulfide Odor (C1	•		Moss Trim Lines	,	20)
Water Marks (B	•		-	•	Living Roots(C3)		Dry-Season Wa	•	52)
Sediment Depos	, ,		_	Reduced Iron	, ,		Crayfish Burrow	, ,	(00)
Drift Deposits (B	•		-		illed Soils (C6)		Saturation Visible		Imagery (C9)
Algal Mat or Cru	` '		_ Thin Muck S	` '			Geomorphic Pos	` '	
Iron Deposits (B	,		_ Other (Expla	in in Remarks)			Shallow Aquitare	` ,	
Inundation Visib		,					FAC-Neutral Te	` ,	
Water-Stained L	₋eaves (B9	1)					Sphagnum mos	s (D8) (LR f	₹ T, U)
Field Observations									
Field Observations:	V	NI- V	Danth (in	-l\					
Surface Water Present?	Yes _	NoX	_ Depth (ind	· —	_				
Water Table Present?	Yes _	NoX	_ Depth (ind	· —	— Matlemal	He admed a secol	D	·	N. V
Saturation Present?	Yes _	NoX	_ Depth (ind	ches): <u>>20</u>	Wetland	Hydrology	Present? Y	es	NoX
(includes capillary fringe)					antinum Nitara ilah				
Describe Recorded Da	ita (stream	gauge, monitoring well	, aeriai photos,	previous inspe	ections), if available	e:			
Damania.									
Remarks:									
No positive indication of	of wetlend	hudralagu waa ahaariya	J						
No positive indication of	or welland	hydrology was observed	J.						

/EGETATION (Five Strat	a) - Use scientif	ic name	s of plants.		Sampling Po	oint:	SS13	
		Absolute	Dominant	Indicator	Dominance Test worksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Observed					That Are OBL, FACW, or FAC:		0	(A)
2.							_	
3					Total Number of Dominant			
4					Species Across All Strata:		1	(B)
5								
6					Percent of Dominant Species			
		0	= Total Cover		That Are OBL, FACW, or FAC:	0.	0%	(A/B)
	50% of total cover:	0	20% of total cover:	0				
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Worksheet:			
1. None Observed					Total % Cover of:		Multiply by:	
2					OBL species0	x 1 =	0	
3					FACW species0	x 2 =	0	
4					FAC species 0	x 3 =	0	
5					FACU species 75	x 4 =	300	
6					UPL species25	x 5 =	125	
			= Total Cover		Column Totals:100	(A)	425	(B
	50% of total cover:	0	20% of total cover:	0				
Shrub Stratum (Plot size:	30 ft.)				Prevalence Index = B	A =	4.250	
1. None Observed					Halandada Manadada India	-1		
2					Hydrophytic Vegetation India		4-4	
3.					1 - Rapid Test for Hyd		etation	
4					2 - Dominance Test is 3 - Prevalence Index i			
5					Problematic Hydrophy		¹ (Evolain)	
6		0	= Total Cover		Froblematic Hydrophy	tic vegetation	(Explairi)	
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric soil and we	etland hydrolog	av must	
Herb Stratum (Plot size:	30 ft.)		20% of total cover.		be present, unless disturbed or		gy mast	
1. Cynodon dactylon	30 It.)	60	Yes	FACU	Definitions of Five Vegetation	•		
Paspalum notatum		15	No	FACU	Tree - Woody plants, excluding			
Bothriochloa ischaemum		10	No	UPL	approximately 20 ft (6m) or mo	-		
4. Oxalis corniculata		15	No	UPL	(7.6 cm) or larger in diameter a	_		
5.					(: ::::::::::::::::::::::::::::::::::::	(22).	
6					Sapling - Woody plants, exclud	ding woody vir	nes,	
7.					approximately 20 ft (6 m) or mo	re in height ar	nd less	
8.					than 3 in. (7.6 cm) DBH.			
9.								
10.					Shrub - Woody plants, excludir	ng woody vine	s,	
11.					approximately 3 to 20 ft (1 to 6	m) in height.		
		100	= Total Cover					
	50% of total cover:		20% of total cover:	20	Herb - All herbaceous (non-wo	ody) plants, in	cluding	
Woody Vine Stratum (Plot size:	30 ft.)		•		herbaceous vines, regardless of	of size, <u>and</u> wo	ody	
1. None Observed	,				plants, except woody vines, les	s than approxi	imately	
2.					3 ft (1 m) in height.			
3.								
4.					Woody vine - All woody vines,	regardless of	height.	
5.								
					11 1 1 1			
		0	= Total Cover		Hydrophytic			
	50% of total cover:		= Total Cover 20% of total cover:	0	Vegetation			

Remarks: (if observed, list morphological adaptations below).

No positive indication of hydrophytic vegetation was observed.

C	^	П	
	. ,		

Profile Description: (Describe to the de	oth needed to documer	nt the indicator or cor	nfirm the absen	ce of indicators.)	
Depth Matrix		Redox Features			
(inches) Color (moist) %	Color (moist)	% Type ¹	Loc ²	Texture	Remarks
0-4 10YR 2/1 100	None			Clay Loam	
4-16 10YR 3/2 100	None			Clay Loam	
	· · · · · · · · · · · · · · · · · · ·				
					_
¹ Type: C=Concentration, D=Depletion, RM	=Reduced Matrix, MS=M	lasked Sand Grains	² Location: P	L=Pore Lining, M=Matrix	
Hydric Soils Indicators: (Applicable to a			Location. 1	Indicators for Proble	
Histosol (A1)		Below Surface (S8) (L	RRS T II)	1 cm Muck (A9)	•
		Surface (S9) (LRR S,		2 cm Muck (A10)	
Histic Epipedon (A2) Black Histic (A3)		cky Mineral (F1) (LRR			(F18) (outside MLRA 150A,B)
			0,		
Hydrogen Sulfide (A4)		eyed Matrix (F2)			plain Soils (F19) (LRR P, S, T)
Stratified Layers (A5)		Matrix (F3)			nt Loamy Soils (F20)
Organic Bodies (A6) (LRR P, T, U)		rk Surface (F6)		(MLRA 153B)	orial (TEO)
5 cm Mucky Mineral (A7) (LRR P, T,		Dark Surface (F7)		Red Parent Mate	·
Muck Presence (A8) (LRR U)		oressions (F8)			rk Surface (TF12)
1 cm Muck (A9) (LRR P, T)	Marl (F10)		-4)	Other (Explain in	кетагкѕ)
Depleted Below Dark Surface (A11)		Ochric (F11) (MLRA 1		3	
Thick Dark Surface (A12)		anese Masses (F12) (ydrophytic vegetation and ogy must be present, unless
Coast Prairie Redox (A16) (MLRA 15		rface (F13) (LRR P, T	, U)	disturbed or pro	
Sandy Mucky Mineral (S1) (LRR O, S		ric (F17) (MLRA 151)	04 4505)	ологолосо от раз	
Sandy Gleyed Matrix (S4)		/ertic (F18) (MLRA 15			
Sandy Redox (S5)		Floodplain Soils (F19)	•	A 4500 450D)	
Stripped Matrix (S6)	Anomaiou	s Bright Loamy Soils (F	-20) (NILKA 149	A, 153C, 153D)	
Dark Surface (S7) (LRR P, S, T, U)					
Restrictive Layer (if observed):					
Type:				0 !! D . (0 .)	
Depth (inches):			Hydri	c Soil Present? Yes _	NoX
Remarks:					
No positive indication of hydric soils was ob-	served.				
. To positive maneaution of my and come made of					

Project/Site:	North Housto	n Highway Improvement	Project	County:	Harris	8	_Sampling Date:	December 18, 2017
Applicant/Owner:	Texas D	Department of Transport	ation - Housto	n District	State:	Texas	_ Sample Point:	SS14
Investigator(s):	S. Arnold	<u>d</u> and	P. Frasier	Section, To	ownship, Range:		N/A	
Landform (hillslope,	terrace, etc.):	Hillslope		Local relie	f (concave, convex	k, none):	Convex Slope	e (%): <u>2</u>
Subregion (LRR or M	MLRA):	LRR T		Lat:	29.841694	Long:	-95.390751 D	Patum: NAD 83
Soil Map Unit Name:	:	Clodi	ne-Urban land	complex		NWI Cla	ssification:	Upland
Are climatic / hydrolo	ogic conditions on	the site typical for this t	-	•	Yes	` ` '	olain in Remarks.)	
Are Vegetation	No ,Soil	,or Hydrology	No sig	nificantly distur	bed? Are "Norm	nal Circumstand	ces" present? Ye	s <u>X</u> No
Are Vegetation	No ,Soil_	No ,or Hydrology	No na	turally problema	atic?	(If needed, exp	olain any answers in	Remarks.)
SUMMARY OF	FINDINGS	- Attach site map	showing	sampling	ooint location	ns, transec	ts, important	features, etc.
Hydrophytic Vegeta		Yes	No X	_	Commission Area			
Hydric Soil Present		Yes			Sampled Area a Wetland?	Voc		lo Y
Wetland Hydrology	Present?	Yes	No X	_ withir	i a vvetiano?	Yes		loX
Remarks:								
Associated with	n DPA01_PEM.							
HYDROLOGY Wetland hydro	ology Indicators:	<u> </u>				Soconda	ry Indicators (minim	um of two required)
		one is required; check a	II that apply)				rface Soil Cracks (E	um of two required)
'	Water (A1)	one is required, check a	Aquatic Fau	ına (B13)			·	oncave Surface (B8)
	iter Table (A2)		-	its (B15) (LRR	U)	<u> </u>	ainage Patterns (B1	
Saturatio	, ,		_	ulfide Odor (C1	•		oss Trim Lines (B16	,
	arks (B1)		-	·	Living Roots(C3)		y-Season Water Ta	,
	nt Deposits (B2)		_	Reduced Iron			ayfish Burrows (C8)	
	posits (B3)		_	Reduction in T	, ,		turation Visible on A	
	it or Crust (B4)		_	Surface (C7)	illed Solis (Co)		eomorphic Position (
	osits (B5)		_	ain in Remarks)			allow Aquitard (D3)	` '
	on Visible on Aeri	al Imagery (R7)	_ Other (Expir	alli ili Nelliaiks,			.C-Neutral Test (D5)	
		. ,					•	•
water-st	tained Leaves (B	9)				5p	hagnum moss (D8)	(LKK 1, 0)
Field Observations	s:							
Surface Water Pres	sent? Yes	No X	Depth (in	ches): N/A				
Water Table Presei	nt? Yes	No X	Depth (in	ches): >20				
Saturation Present?	? Yes	No X	_			Hydrology Pre	esent? Yes	No X
(includes capillary f	fringe)		- ' `	,	_			
Describe Recor	rded Data (strean	n gauge, monitoring well	, aerial photos	, previous inspe	ections), if available	e:		
Remarks:								
No positive indi	ication of wetland	hydrology was observed	d.					
		,						

EGETATION (Five Strata)	ı - Use scientii	ic name	s or plants.		Sampling Point	:	SS14	
		Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size: 3	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Observed					That Are OBL, FACW, or FAC:	1		(A)
2					Total Nevel on of Densire out			
3					Total Number of Dominant	•		(D)
4 5					Species Across All Strata:	2		(B)
5 6.					Percent of Dominant Species			
		0	= Total Cover		That Are OBL, FACW, or FAC:	50.0	%	(A/B)
	50% of total cover:	0	20% of total cover:	0				
	30 ft.)				Prevalence Index Worksheet:	_		
1. None Observed					Total % Cover of:		fultiply by:	
2. 3.					OBL species 0 FACW species 0	_ x1= _	0	
3					FACW species 0 FAC species 35	_ x2= _ x3=	105	
5.					FACU species 75	_	300	
6.					UPL species 0	- x 5 =	0	
		0	= Total Cover		Column Totals: 110	(A)	405	(B)
!	50% of total cover:	0	20% of total cover:	0				
	30 ft.)				Prevalence Index = B/A	=	3.682	
1. None Observed					Hydrophytic Vogetation Indicat	Oro.		
2			·		Hydrophytic Vegetation Indicat 1 - Rapid Test for Hydro		ation	
4.					2 - Dominance Test is >		2011	
5.					3 - Prevalence Index is	4		
6.					Problematic Hydrophytic	Vegetation ¹	(Explain)	
		0	= Total Cover					
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetla		/ must	
	30 ft.)	4.0		5 4011	be present, unless disturbed or pr			
1. Vicia Iudoviciana		10	No	FACU	Definitions of Five Vegetation S			
Cynodon dactylon Stenotaphrum secundatum		<u>45</u> 35	Yes Yes	FACU FAC	Tree - Woody plants, excluding v approximately 20 ft (6m) or more	-	3 in	
4. Paspalum notatum		 15	No	FACU	(7.6 cm) or larger in diameter at b	_		
5. Taraxacum officinale		5	No	FACU	(,		(==::):	
6.					Sapling - Woody plants, excludin	g woody vine	s,	
7.					approximately 20 ft (6 m) or more	in height and	less	
8					than 3 in. (7.6 cm) DBH.			
9					Chrub Woody plants evaluating	woody vinos		
10					Shrub - Woody plants, excluding approximately 3 to 20 ft (1 to 6 m)	_	,	
· · · · · · · · · · · · · · · · · · ·		110	= Total Cover			iii rioigiit.		
,	50% of total cover:	55	20% of total cover:	22	Herb - All herbaceous (non-wood	y) plants, incl	luding	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of s	·	_	
1. None Observed	,				plants, except woody vines, less t	nan approxim	nately	
2.					3 ft (1 m) in height.			
3								
4					Woody vine - All woody vines, re	gardless of h	eight.	
5		0	= Total Cover		Hydrophytic			
1	50% of total cover:	0	= 10tal Cover 20% of total cover:	0	Vegetation			
•	55,0 5. total 50vol.	<u>`</u>	_0,0 0. total 00vol.		Present? Yes	No X		
						<u> </u>		

No positive indication of hydrophytic vegetation was observed

SOIL		

OIL	Sampling Point:	SS14

Color (moist) % Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks 0-6 10 YR 2/1 100 6-16 10 YR 4/1 100 Silty Clay Silty Clay Silty Clay Silty Clay Silty Clay Silty Clay ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. PL=Pore Lining, M=Matrix. Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Corganic Bodies (A6) (LRR P, T, U) Stratified Layers (A5) Depleted Matrix (F2) Stratified Layers (A5) Depleted Matrix (F2) Muck Presence (A8) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Marl (F10) (LRR U) Depleted Dark Surface (F11) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Bestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	JPUI	Matrix			Redox F	eatures					
Clay Loam Silty Clay Clay Loam	-	-		Color (moist)			Loc ²	_	Texture		Remarks
Silty Clay Silty Clay Shallow Dark Surface (F19) (LRR P, S, T, U) Silty Clay Shallow Dark Surface (F19) (MLR A 150A, 150B) Silty Clay Silty Clay Silty Clay Silty Clay Silty Clay Silty Clay Silty Clay S				(<u> </u>			1		
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Cocation: PL=Pore Lining, M=Matrix.								_			
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Polyvalue Below Surface (R1) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (TF2) Polyvalue Allow Soils (R1) Polyvalue Mucky Mineral (R7) (LRR P, T, U) Polyvalue Below Surface (R1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (LRR P, S, T) Mucky Presence (A8) (LRR P, T, U) Polyvalue Below Surface (R1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 151) Polyvalue Allow Surface (R12) Depleted Dark Surface (F1) Piedmont Floodplain Soils (F19) Piedmont Floodplain Soils	0 10	1011(4/1							mry Olay		
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Polyvalue Below Mucky Mineral (F1) (LRR O) Loamy Mucky Mineral (F1) (LRR O) Polyvalue Below Surface (R1) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) (MLRA 153B) Red Parent Material (TF2) Polyvalue Allow Soils (R1) Polyvalue Mucky Mineral (R7) (LRR P, T, U) Polyvalue Below Surface (R1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (LRR P, S, T) Mucky Presence (A8) (LRR P, T, U) Polyvalue Below Surface (R1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 151) Polyvalue Allow Surface (R12) Depleted Dark Surface (F1) Piedmont Floodplain Soils (F19) Piedmont Floodplain Soils											
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Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A,1 Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, 1 Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Pepleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redox Depressions (F8) Pepleted Below Dark Surface (A11) Depleted Deriv (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F20) Mineral (R7) (LRR P, T, U) Pepleted Deriv (F11) (MLRA 150A) Red Parent Material (TF2) Marl (F10) (LRR U) Other (Explain in Remarks) Other (Explain in Remarks) Depleted Deriv (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	ydric Soils	Indicators: (Applie	cable to all LF	RRs, unless othe	erwise not	ed.)		Indi	cators for Pr	oblematic H	Hydric Soils ³ :
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	Histosol	l (A1)		Polyval	lue Below S	Surface (S8) (L l	RR S, T, U)		1 cm Muck ((A9) (LRR O)
Black Histic (A3) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A,I Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Anomalous Bright Loamy Soils (F20) Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox Depressions (F8) Umbric Surface (F13) (LRR O, P, T) Delta Ochric (F11) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F20) Hydric Soil Present? Yes No X Mari (F10) (LRR O, S) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A), 153C, 153D)	— Histic E _l	pipedon (A2)		Thin Da	ark Surface	e (S9) (LRR S,	T, U)		_ 2 cm Muck ((A10) (LRR \$	S)
Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F13) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Detented Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mecky Mineral (S1) (LRR O, S) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Peleted Ochric (F13) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X	Black H	istic (A3)		Loamy	Mucky Min	eral (F1) (LRR	O)		- Reduced Ve	ertic (F18) (o	utside MLRA 150
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Sem Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (F10) Marl (F10) (LRR U) Depleted Below Dark Surface (F11) Thick Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes Ne Aed Parent Material (TF2) (MLRA 153B) Red Parent Material (TF2) (MLRA 151B) Red Parent Material (TF2) (MLRA 151B) (MLRA 151D) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Delta Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jelta Ochric (F17) (MLRA 151) Sendy Redox (S5) Delta Ochric (F17) (MLRA 150A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X							•		_		
Organic Bodies (A6) (LRR P, T, U) Set Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Mari (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Depleted Dark Surface (F6) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depthe (Explain in Remarks) Other (Explain in Remarks) Depthe (Explain in Remarks) Depth (Explain in Remarks) Depth (IRR P, T, U) Wetland In Remarks No X					-	• •			_		
Depleted Dark Surface (F7) Red Parent Material (TF2)		• • •	D T 11\			•			_		y 30113 (1 20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Other (Explain in Remarks) Other (Explain in Remarks						` ,			•	•	
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Delta Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron									_	•	•
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Pelta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX					-				_Very Shallov	w Dark Surfa	ace (TF12)
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Jensense Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Petrock Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Petrock Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Petrock Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Predmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Present? Yes No X	1 cm Mu	uck (A9) (LRR P, T)		Marl (F	10) (LRR (J)			Other (Expla	ain in Remar	ks)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Method Nurse (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX MoX	Deplete	d Below Dark Surfac	ce (A11)	Deplete	ed Ochric (F11) (MLRA 1 5	51)				
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Demarks: Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Method Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX	Thick Da	ark Surface (A12)		Iron-Ma	anganese N	Masses (F12) (LRR O, P, T	·)	³ Indicators	of hydrophy	tic vegetation and
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	— Coast P	rairie Redox (A16) (MLRA 150A)	Umbrid	: Surface (F	13) (LRR P, T ,	, U)				
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X No X							•		disturbed c	or problemati	ic.
Sandy Redox (S5) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X							0A 150B)				
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks:		. ,			•		-	۸۱			
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		, ,							C 453D)		
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:		, ,	o =	Anoma	lious bright	Loanly Solis (F	(WILKA	149A, 155	C, 153D)		
Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	Dark Su	irrace (S7) (LRR P,	5, 1, 0)								
							H\	vdric Soil	Present? Y	es	NO X
o positive indication of hydric soils was observed.							Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in						Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ No <u>X</u>
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ No <u>X</u>
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NoX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NOX
	Depth (in emarks:	iches):					Hy	ydric Soil	Present? Y	es	_ NO _ X
	Depth (in	iches):					Hy	ydric Soil	Present? Y	es	_ NO _ X

Project/Site: Nort	th Houston	Highway Improveme	ent Project	County:	Harri	is	Sampling [Date: D	ecember 20, 2017
Applicant/Owner:	Texas De	epartment of Transpo	ortation - Housto		State:	Texas		oint:	SS15
Investigator(s):		and			Township, Range:				
Landform (hillslope, terrace,		<u> </u>			ef (concave, conve				: 2
Subregion (LRR or MLRA):	' 				29.806143		-95.373547		n: NAD 83
,		ner occasionally pon							
Are climatic / hydrologic con							_		
Are Vegetation No			-				-	-	X No
Are Vegetation No			•				explain any ans	·	<u> </u>
						•			•
SUMMARY OF FINE	JINGS -	Attach site ma	ıp snowing	sampling	point locatio	ns, trans	ects, impo	rtant tea	tures, etc.
Hydrophytic Vegetation Pre Hydric Soil Present? Wetland Hydrology Presen Remarks:		Yes X Yes Yes	No NoX NoX		e Sampled Area in a Wetland?	Y	⁄es	No	X
HYDROLOGY									
Wetland hydrology In	dicators:					Secon	dary Indicators	(minimum c	of two required)
Primary Indicators (mir		ne is required: check	all that apply)				Surface Soil C	•	n two required)
Surface Water (le le required, ericeix	Aquatic Fa	una (B13)				` ,	ve Surface (B8)
High Water Tabl	•	_	<u> </u>	sits (B15) (LRF	2 11)		Drainage Patte		ve danace (bo)
Saturation (A3)	ic (A2)	_		Sulfide Odor (C	•		Moss Trim Line	` ,	
	1)	_		•	,			,	C2)
Water Marks (B	•	_		•	n Living Roots(C3)		Dry-Season W	•	<i>5</i> 2)
Sediment Depos	` ,	_		of Reduced Iron	, ,		Crayfish Burro	` ,	(00)
Drift Deposits (B	,	_			Tilled Soils (C6)		Saturation Visi		Imagery (C9)
Algal Mat or Cru	` ,	_		Surface (C7)			Geomorphic P	` '	
Iron Deposits (B	,	_	Other (Exp	lain in Remark	s)		Shallow Aquita	` ,	
Inundation Visible		• • • •					FAC-Neutral T	` ,	
Water-Stained L	.eaves (B9)	!					Sphagnum mo	ss (D8) (LR	R T, U)
Field Observations:									
Surface Water Present?	Yes	NoX	Depth (i	· -	<u> </u>				
Water Table Present?	Yes	NoX	Depth (i	nches): >2	0				
Saturation Present?	Yes	NoX	Depth (i	nches): >2	0 Wetland	Hydrology	Present?	Yes	NoX
(includes capillary fringe)									
Describe Recorded Da	ıta (stream	gauge, monitoring w	ell, aerial photo:	s, previous ins _l	pections), if availab	le:			
Remarks:									
No positive indication of	of wetland h	ydrology was observ	ed.						

VEGETATION (Five Strata) - Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
30 ft.)				Number of Dominant Species	
,	20	Yes	FACW	·	(A)
	15	Yes	FAC		` ,
	20	Yes	FACW	Total Number of Dominant	
	15	Yes	FAC	Species Across All Strata: 6	(B)
				Percent of Dominant Species	
	70	= Total Cover		That Are OBL, FACW, or FAC: 66.7%	(A/B)
50% of total cover:	35	20% of total cover:	14		
30 ft.)		•		Prevalence Index Worksheet:	
				Total % Cover of: Mult	tiply by:
				OBL species 0 x 1 =	0
				FACW species 40 x 2 =	80
				FAC species 35 x 3 =	105
					160
					25
	0	= Total Cover		· — —	370 (B)
50% of total cover:	0		0		
				Prevalence Index = B/A = 3.	.083
<u> </u>					
				Hydrophytic Vegetation Indicators:	
					ın
					vnlain)
		- Total Cayor		Troblematic Hydrophytic Vegetation (E2	хріант)
50% of total cover			0	¹ Indicators of hydric soil and wetland hydrology m	nuet
		20% of total cover.	<u> </u>		lust
30 II.)	20	Voo	FACIL	·	
				_	
					•
	20	<u> Yes</u>	FACU	(7.6 cm) or larger in diameter at breast height (DE	3H).
				Septime Weady plants avaluating weady vines	
					88
				than 3 in. (7.6 cm) DBH.	
				approximately 3 to 20 ft (1 to 6 m) in height.	
		= Total Cover			
50% of total cover:	: 25	20% of total cover:	10		-
30 ft.)					
					ely
				3 ft (1 m) in height.	
				Woody vine - All woody vines, regardless of heig	jht.
_			_		
	0	= Total Cover		Hydrophytic	
	U				
50% of total cover:		20% of total cover:	0	Vegetation	
50% of total cover:		20% of total cover:	0	1	
	50% of total cover 30 ft.) 50% of total cover 30 ft.)	20 15 20 15 20 15 30 ft.) 70 50% of total cover: 35 30 ft.) 0 50% of total cover: 0 30 ft.) 20 50% of total cover: 0 50% of total cover: 0 20 55 5 5 20 50% of total cover: 25	30 ft.	30 ft.	30 ft. % cover Species? Status

A positive indication of hydrophytic vegetation was observed.

C	^	П	
	. ,		

'	Depth	. Matrix			Redox Fea			sence of indicators.)	
10	•	Color (moist)	% Co	lor (moist)	%	Type ¹	Loc ²	- Texture	Remarks
7-15 10YR 4/3 100 Clay 15-20 7.5YR 5/4 100 Clay Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Thick concentration, D=Depletion of LRRs, unless otherwise noted. Type: C=Consentration, D=Depletion Matrix, MS=Masked Sand Grains. Thick concentration, D=Depletion Matrix, MS=Masked Sand Grains. Thick concentration, D=Depletion Matrix, MS=Masked Sand Grains. Thick concentration, D=Depletion Matrix, MS=Masked Sand Grains. Thick concentration. Thick concentration	`					<u>, , , , , , , , , , , , , , , , , , , </u>		Clav Loam	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR O) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F3) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (MLRA 153B) (MLRA 153B) 5 cm Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR P, T) Marl (F10) (LRR U) (LRR D) (Very Shallow Dark Surface (TF1) 1 cm Muck (A9) (LRR P, T) Depleted Delow Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Very Shallow Dark Surface (F17) (MLRA 151) (LRR P, T, U) Depleted Ochric (F17) (MLRA 151) (Surface (A12) (LRR O, S) Delta Ochric (F17) (MLRA 150A) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 150A) (LRR P, T, U) disturbed or problematic. Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) (Siturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No_Remarks:				_				- -	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) Historic (F13) Historol (A2) Historol (10 20	7.011074							
Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)									
Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) Historic (F13) Historol (A2) Historol (
Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) History (A2) Histosol (A2) Histosol (A2) Histosol (A2) Histosol (A2) History (A2) H									
Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Histosol (A2) Hedwork (A2) Histosol (A2	Type: C=Cor	 ncentration, D=Dep	letion, RM=Reduc	ed Matrix. M	S=Masked Sar	nd Grains.	² Location	 : PL=Pore Lining, M=Matrix	(.
Histosol (A1)								-	•
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside lend to lours of lend to lend to lours of lend to lours o							RSTII)		•
Black Histic (A3)									
Hydrogen Sulfide (A4) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Mari (F10) (LRR U) Depleted Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Derived Matrix (F2) Piedmont Floodplain Soils (F19) Anomalous Bright Loamy Soils (MLRA 153B) Anomalous Bright Loamy Soils (MLRA 153B) Red Parent Material (TF2) Wery Shallow Dark Surface (TF1 Other (Explain in Remarks) Iron-Manganese Masses (F12) (LRR O, P, T) Wetland hydrology must be pre disturbed or problematic. Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No									
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Stratified Layer (A5) Organic Bodies (A6) (LRR P, T, U) Stratified Layer (A7) (LRR P, T, U) Stratified Layer (A8) (LRR P, T, U) Stratified Layer (A7) Stratified Layer (A7) Stratified Layer (A8) (LRR P, T, U) Stratified Layer (A8) (LRR P, T, U) Stratified Layer (A7) Strati							0)		
Organic Bodies (A6) (LRR P, T, U) Stom Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Redox Dark Surface (F6) Med Parent Material (TF2) Red Parent Material (TF2) Red Parent Material (TF2) Redox Dark Surface (F7) Red Parent Material (TF2) Redox Dark Surface (F6) (MLRA 153B) Red Parent Material (TF2) Redox Dark Surface (F7) Red Parent Material (TF2) Redox Dark Surface (F7) Redox Dark Surface (F7) Redox Dark Surface (F7) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Unbric Surface (F12) (LRR O, P, T) Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No		` ,			-	` ,			
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (F7) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, T, U) Redox Depressions (F8) Very Shallow Dark Surface (F7) Narl (F10) (LRR U) Other (Explain in Remarks) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) 3Indicators of hydrophytic vege wetland hydrology must be pre disturbed or problematic. Delta Ochric (F13) (LRR P, T, U) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No									ht Loamy Soils (F20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Redox Depressions (F8) Marl (F10) (LRR U) Deptressions (F8) Marl (F10) (LRR U) Deptressions (F8) Marl (F10) (LRR U) Depteded Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jelta Ochric (F13) (LRR P, T, U) Wetland hydrology must be predisturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No								•	
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be pre disturbed or problematic. Reduced Vertic (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No				Deplet	ed Dark Surfa	ce (F7)		Red Parent Mat	erial (TF2)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Delta Ochric (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Type: Depth (inches): Deleta Ochric (F11) (MLRA 151) Wetland hydrology must be predictive (F18) (LRR P, T, U) Wetland hydrology must be predictive (F17) (MLRA 151) Wetland hydrology must be predictive (F17) (MLRA 151) Wetland hydrology must be predictive (F17) (MLRA 151) Setting (F17) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	Muck Pre	esence (A8) (LRR I	J)		•	(F8)		Very Shallow Da	ark Surface (TF12)
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) John Manganese Masses (F12) (LRR P, T, U) wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrophytic vege wetland hydrology must be predictive first of hydrology mus	1 cm Mud	ck (A9) (LRR P, T)		Marl (I	=10) (LRR U)			Other (Explain i	n Remarks)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Delta Ochric (F13) (LRR P, T, U) wetland hydrology must be predisturbed or problematic. Matrix (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	Depleted	Below Dark Surface	ce (A11)	Deplet	ed Ochric (F1	1) (MLRA 15	1)		
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): Delta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No	Thick Da	rk Surface (A12)		Iron-M	anganese Mas	sses (F12) (I	LRR O, P, T	Indicators of h	nydrophytic vegetation and
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Denta Connect (17) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No	Coast Pr	airie Redox (A16) (MLRA 150A)	Umbri	c Surface (F13	B) (LRR P, T,	U)	-	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No	Sandy M	ucky Mineral (S1) (LRR O, S)	Delta	Ochric (F17) (MLRA 151)		disturbed or pr	oblematic.
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No			•)A, 150B)		
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No					•			N	
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No emarks:									
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No		, ,	S T III		arous Brigin Le	diriy cono (i	20) (111211) (1-10/1, 1000, 1000,	
Type: Depth (inches): Hydric Soil Present? Yes No	Bark Gar	idoc (Or) (ERICT)	o, i, o,						
Type: Depth (inches): Hydric Soil Present? Yes No	Restrictive La	yer (if observed):							
Depth (inches): Hydric Soil Present? Yes No No									
emarks:							П,	dric Sail Procent? Voc	No X
	Deptii (iiic						'''	dile soli i leseitt: Tes_	NOX
	emarks:								
lo positive indication of hydric soils was observed.									
	lo positive inc	dication of hydric so	oils was observed.						
	·	•							

Project/Site:	North Houston	Highway Improvement	Project (County:	Harris		Sampling Da	te: De	ecember 20, 2017
Applicant/Owner:		epartment of Transporta				Texas	Sample Poir	`	
Investigator(s):	S. Arnold			Section, Townshi	p, Range:			N/A	
Landform (hillslope, to				Local relief (cond		none):	Convex	Slope (%):	2
Subregion (LRR or M		LRR T			794117	Long:	-95.371156	Datum	
Soil Map Unit Name:	Gess	ner occasionally ponde	d-Urban land com	plex, 0 to 1 perce	nt slopes	NWI Cla	assification:		Upland
Are climatic / hydrolog	gic conditions on t	the site typical for this ti	me of year?	(Yes / No)	Yes	(if no, ex	φlain in Remar	ks.)	
Are Vegetation _	No ,Soil	No ,or Hydrology	No signific	antly disturbed?	Are "Norma	l Circumstan	nces" present?	Yes	X No
Are Vegetation _	No ,Soil	No ,or Hydrology	No natural	ly problematic?	(1	f needed, ex	plain any answ	ers in Rem	arks.)
SUMMARY OF	FINDINGS -	Attach site map	showing sar	mpling point	locations	s, transe	cts, import	tant feat	ures, etc.
Hydrophytic Vegetat	tion Present?	Yes	No X						
Hydric Soil Present?		Yes	No X	Is the Samp	led Area				
Wetland Hydrology		Yes	No X	within a We		Yes	s	No	X
Remarks:									
HYDROLOGY									
	logy Indicators:					Seconda	ary Indicators (r	minimum of	two required)
_		ne is required; check all	that annly)				urface Soil Cra		two required)
•	Vater (A1)	ne is required, check all	Aquatic Fauna (l	R13)				` '	re Surface (B8)
	er Table (A2)		Marl Deposits (E	•			rainage Patterr		e Surface (Bo)
Saturation			Hydrogen Sulfid				oss Trim Lines	,	
Water Ma	` '			pheres on Living	Roots(C3)		ry-Season Wat	, ,	<u>'2)</u>
	Deposits (B2)		Presence of Rec		110013(03)		rayfish Burrows	•	2)
Drift Depo	. , ,			luction in Tilled S	oils (C6)		aturation Visible	` '	Imagery (CQ)
	or Crust (B4)		Thin Muck Surfa		0113 (00)		eomorphic Pos		inagery (OS)
Iron Depo	` ,		Other (Explain in	` ,			hallow Aquitard	` ,	
	n Visible on Aerial	I Imagery (B7)	Other (Explain ii	i Kemarks)			AC-Neutral Tes	` '	
	ained Leaves (B9)						phagnum moss	` ,	t T. U)
	amed 200700 (20)	,					paga	(20) (2:	, .,
Field Observations	s:								
Surface Water Pres	ent? Yes	No X	Depth (inches	s): N/A					
Water Table Presen	nt? Yes	No X	Depth (inches	s): >20					
Saturation Present?	Yes	No X	Depth (inches	s): >20	Wetland H	ydrology Pr	esent? Ye	es	No X
(includes capillary fr	ringe)		,		, in the second				
Describe Record	ded Data (stream	gauge, monitoring well,	aerial photos, pre	vious inspections), if available:				
Remarks:									
N. I. a. a. a. M. a	antina at water at h								
No positive indic	cation of wetland r	nydrology was observed							

VEGETATION (Five Stra	ata) - Use scientif	ic name	s of plants.		Sa	mpling Point:		SS16	
		Absolute	Dominant	Indicator	Dominance Test wo	rksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant	Species			
1. None Observed	,		<u> </u>	_	That Are OBL, FACW	•	0		(A)
2.	_				,	-			` '
3.				_	Total Number of Dom	ninant			
4.	_				Species Across All St	trata:	2		(B)
5.				_	'	-			` '
6.	_				Percent of Dominant	Species			
		0	= Total Cover		That Are OBL, FACW	•	0.0	%	(A/B)
	50% of total cover:	0	20% of total cover:	0	,	· -			,
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index W	orksheet:			
1. None Observed	,				Total % Co	over of:	M	fultiply by:	
2.				_	OBL species	0	x 1 =	0	
3.	_				FACW species	0	x 2 =	0	
4.				_	FAC species	25	x 3 =	75	
5.					FACU species	<u>85</u>	x 4 =	340	
6.					UPL species	5	x 5 =	25	
		0	= Total Cover		Column Totals:	115	(A)	440	(B)
	50% of total cover:	0	20% of total cover:	0			_		
Shrub Stratum (Plot size:	30 ft.)		•		Prevalence	Index = B/A =		3.826	
1. None Observed									
2.					Hydrophytic Vegeta	tion Indicator	rs:		
3.	<u>.</u>				1 - Rapid Te	est for Hydroph	nytic Vegeta	ation	
4.					2 - Dominan	nce Test is >50)%		
5.					3 - Prevalen	ice Index is ≤ 3	3.0 ¹		
6.					Problematic	Hydrophytic V	egetation ¹	(Explain)	
		0	= Total Cover						
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric s	soil and wetlan	d hydrology	/ must	
Herb Stratum (Plot size:	30 ft.)				be present, unless dis	sturbed or prol	olematic.		
1. Rumex crispus		5	No	FAC	Definitions of Five V	egetation Str	ata:		
2. Paspalum notatum		25	Yes	FACU	Tree - Woody plants	, excluding wo	ody vines,		
3. Geranium carolinianum		5	No	UPL	approximately 20 ft (6	Sm) or more in	height and	3 in.	
4. Calyptocarpus vialis		20	No	FAC	(7.6 cm) or larger in o	diameter at bre	ast height ((DBH).	
5. Vicia ludoviciana		5	No	FACU					
6. Cynodon dactylon		50	Yes	FACU	Sapling - Woody plan		•		
7. Plantago lanceolata		5	No	FACU	approximately 20 ft (6	•	n height and	d less	
8.					than 3 in. (7.6 cm) DE	3H.			

115 = Total Cover

57.5 20% of total cover:

= Total Cover

0

20% of total cover:

Remarks: (if observed, list morphological adaptations below).

(Plot size:

50% of total cover:

30 ft.)

50% of total cover:

No positive indication of hydrophytic vegetation was observed.

10.

Woody Vine Stratum

1. None Observed

Shrub - Woody plants, excluding woody vines,

Herb - All herbaceous (non-woody) plants, including

plants, except woody vines, less than approximately

Woody vine - All woody vines, regardless of height.

Yes No X

herbaceous vines, regardless of size, and woody

approximately 3 to 20 ft (1 to 6 m) in height.

3 ft (1 m) in height.

Hydrophytic

Vegetation

Present?

C		п	
.–	. ,		

	eded to document the indicator or confirm the	absence of indicators.)
Depth <u>Matrix</u>	Redox Features	
(inches) Color (moist) % C	olor (moist) % Type ¹ Loc	Z ² Texture Remarks
0-4 10YR 3/2 100		Clay Loam
4-16 10YR 5/3 100		Clay Loam
<u> </u>		
¹ Type: C=Concentration, D=Depletion, RM=Redu	ced Matrix, MS=Masked Sand Grains. ² Locat	tion: PL=Pore Lining, M=Matrix.
Hydric Soils Indicators: (Applicable to all LRR	•	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Polyvalue Below Surface (S8) (LRR S, T, L	J)1 cm Muck (A9) (LRR O)
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR S, T, U)	2 cm Muck (A10) (LRR S)
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR O)	Reduced Vertic (F18) (outside MLRA 150A,B)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19) (LRR P, S, T)
Stratified Layers (A5)	Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Surface (F6)	(MLRA 153B)
5 cm Mucky Mineral (A7) (LRR P, T, U)	Depleted Dark Surface (F7)	Red Parent Material (TF2)
Muck Presence (A8) (LRR U)	Redox Depressions (F8)	Very Shallow Dark Surface (TF12)
1 cm Muck (A9) (LRR P, T)	Marl (F10) (LRR U)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)	Depleted Ochric (F11) (MLRA 151)	
Thick Dark Surface (A12)	Iron-Manganese Masses (F12) (LRR O, P	
Coast Prairie Redox (A16) (MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)	wetland hydrology must be present, unless disturbed or problematic.
Sandy Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 151)	
Sandy Gleyed Matrix (S4)	Reduced Vertic (F18) (MLRA 150A, 150B)	
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 14	•
Stripped Matrix (S6)	Anomalous Bright Loamy Soils (F20) (MLR	RA 149A, 153C, 153D)
Dark Surface (S7) (LRR P, S, T, U)		
Restrictive Layer (if observed):		
Type:		Hydria Sail Brasant? Vos No V
Depth (inches):		Hydric Soil Present? Yes NoX
Remarks:		
Nemarks.		
No positive indication of hydric soils was observed	i.	
No positive indication of hydric soils was observed	i.	
No positive indication of hydric soils was observed	i.	
No positive indication of hydric soils was observed	d.	
No positive indication of hydric soils was observed	d.	
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No positive indication of hydric soils was observed		
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No positive indication of hydric soils was observed	1.	
No positive indication of hydric soils was observed		
No positive indication of hydric soils was observed	1.	
No positive indication of hydric soils was observed	1.	
No positive indication of hydric soils was observed	j.	
No positive indication of hydric soils was observed	3.	
No positive indication of hydric soils was observed	3.	

Project/Site:	North Houstor	n Highway Improvemen	t Project Co	ounty:	Harris	Sampling	g Date: Do	ecember 19, 2017
Applicant/Owner:		Department of Transpor		-			Point:	
Investigator(s):	T. Love			ection, Township	p, Range:	·	N/A	
Landform (hillslope, t	terrace, etc.):	 Plain			ave, convex, none): None	Slope (%):	: 0
Subregion (LRR or M		LRR T			71027 Long:	-95.363574	 Datum	NAD 83
Soil Map Unit Name:		U	rban land		NWI Cla	ssification:	l	Jpland
Are climatic / hydrolo	gic conditions on	the site typical for this	time of year? (Yes /	No) Yes	(i	f no, explain in Re	marks.)	
Are Vegetation	No ,Soil_	No ,or Hydrology	No significar	ntly disturbed?	Are "Normal Circ	umstances" prese	nt? Yes	X No
Are Vegetation	No ,Soil_	No ,or Hydrology	No naturally	problematic?	(If nee	ded, explain any a	ınswers in Ren	narks.)
SUMMARY OF	FINDINGS -	- Attach site map	showing sam	plina point	locations, tr	ansects. imp	ortant fea	tures. etc.
Hydrophytic Vegeta		Yes	No X	l				
Hydric Soil Present		Yes	No X	Is the Sampl				.,
Wetland Hydrology	Present?	Yes	No <u>X</u>	within a Wet	:land?	Yes	_ No	<u> </u>
Remarks:								
Point recorded a	at top of White O	ak bank.						
HYDROLOGY								
Wetland hydro	logy Indicators:					Secondary Indicato	rs (minimum c	of two required)
Primary Indicate	ors (minimum of o	one is required; check a	II that apply)			Surface Soil	Cracks (B6)	
Surface V	Water (A1)		_ Aquatic Fauna (B	13)	_	Sparsely Ve	getated Conca	ve Surface (B8)
High Wat	ter Table (A2)		_ Marl Deposits (B1	5) (LRR U)	_	Drainage Pa	tterns (B10)	
Saturatio	n (A3)		_ Hydrogen Sulfide	Odor (C1)	_	Moss Trim L	ines (B16)	
Water Ma	arks (B1)		Oxidized Rhizospł	neres on Living I	Roots(C3)	Dry-Season	Water Table (0	32)
Sediment	t Deposits (B2)		Presence of Redu	ced Iron (C4)	_	Crayfish Bur	rows (C8)	
Drift Dep	osits (B3)		_ Recent Iron Redu	ction in Tilled Sc	oils (C6)	Saturation V	isible on Aerial	Imagery (C9)
Algal Mat	t or Crust (B4)		_ Thin Muck Surface	e (C7)	_	Geomorphic	Position (D2)	
Iron Depo	osits (B5)		Other (Explain in F	Remarks)	_	Shallow Aqu	itard (D3)	
Inundatio	n Visible on Aeria	al Imagery (B7)			_	FAC-Neutral	Test (D5)	
Water-St	ained Leaves (B9	9)			_	Sphagnum n	noss (D8) (LRI	₹ T, U)
F1 1 1 0 1 11								
Field Observations		No. V	Danth (in ab an)	NI/A				
Surface Water Pres		NoX	_ Depth (inches):					
Water Table Preser Saturation Present?	_	NoX NoX	_ Depth (inches):		Watland Hydra	logy Procent?	Voc	No. V
(includes capillary fi		NoX	_ Depth (inches):	>20	Wetland Hydrol	logy Fresent?	Yes	NoX
		n gauge, monitoring wel	l aerial photos previ	ous inspections) if available:			
	aca Data (ct. ca.)	. gaage, memering ne	., aca. p, p		,, ii availabioi			
Remarks:								
No positive indi	cation of wetland	hydrology was observe	d.					

VEGETATION (Five Strata	a) 030 301011111	io marric	o or planto.		Sampling Point:		SS17	
		Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Observed	,		<u> </u>		That Are OBL, FACW, or FAC:	1		(A)
2.								, ,
3.					Total Number of Dominant			
4.					Species Across All Strata:	2		(B)
5								
6					Percent of Dominant Species			
		0	= Total Cover		That Are OBL, FACW, or FAC:	50.0	%	(A/B)
	50% of total cover:	0	20% of total cover:	0				
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Worksheet:			
1. None Observed					Total % Cover of:	M	ultiply by:	
2					OBL species0	x 1 =	0	
3					FACW species0	x 2 =	0	
4					FAC species 45	x 3 =	135	
5					FACU species66	x 4 =	264	
6					UPL species 1	x 5 =	5	
			= Total Cover	•	Column Totals: 112	(A)	404	(B)
	50% of total cover:	0	20% of total cover:	0	5 5/4			
Shrub Stratum (Plot size: 1. None Observed	30 ft.)				Prevalence Index = B/A =		3.607	
2.					Hydrophytic Vegetation Indicato	rs:		
3.					1 - Rapid Test for Hydrop	hytic Vegeta	tion	
4.					2 - Dominance Test is >50	0%		
5.					3 - Prevalence Index is ≤	3.0 ¹		
6.					Problematic Hydrophytic \	egetation (Explain)	
		0	= Total Cover					
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetlar	nd hydrology	must	
Herb Stratum (Plot size:	30 ft.)				be present, unless disturbed or pro	blematic.		
1. Ampelopsis arborea		45	Yes	FAC	Definitions of Five Vegetation St	rata:		
2. Trifolium repens		50	<u>Yes</u>	FACU	Tree - Woody plants, excluding wo	-		
3. Rudbeckia hirta		15	<u>No</u>	FACU	approximately 20 ft (6m) or more in			
4. Melilotus officinalis		1	<u>No</u>	FACU	(7.6 cm) or larger in diameter at bre	east height (DBH).	
5. Astragalus leptocarpus		1	<u>No</u>	UPL	Continue Wood starts and Free			
6					Sapling - Woody plants, excluding	-		
7			 -		approximately 20 ft (6 m) or more in	n neight and	iess	
8					than 3 in. (7.6 cm) DBH.			
9			 -		Shrub - Woody plants, excluding w	roody vines		
10					approximately 3 to 20 ft (1 to 6 m) i	•		
11		112	= Total Cover			ii rioigiit.		
	50% of total cover:		20% of total cover:	22.4	Herb - All herbaceous (non-woody)	nlants inclu	ıdina	
Woody Vine Stratum (Plot size:	30 ft.)		20% of total cover.	22.4	herbaceous vines, regardless of size	•	•	
1. None Observed	<u> </u>				plants, except woody vines, less that		-	
2.					3 ft (1 m) in height.	a app. 5/	a.c.,	
3.								
4.					Woody vine - All woody vines, reg	ardless of he	eight.	
5.							J	
		0	= Total Cover		Hydrophytic			
	50% of total cover:	0	20% of total cover:	0	Vegetation			
			-		Present? Yes	No X		
Demontos (HL L.P.)								
Remarks: (if observed, list mor	rpnological adaptatio	ns below).						
No positive indication of hydrop	hytic vegetation was	observed.						

C		ı	
т.	u	"	

Sandy Loam Clay		Matrix	<u> </u>		Redox Features			
B-16 10YR 3/3 Clay Clay	inches)	Color (moist) %	Color	(moist)	% Type ¹	Loc ²	Texture	Remarks
Sype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Thistosol (A1)	0-8						Sandy Loam	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.	8-16		_					
Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) 2 cm Muck (A10) (LRR O) 4 pledend (A2) End Mucky Mineral (F1) (LRR O) 5 cm Mucky Mineral (A1) (LRR P, T, U) 6 pleted Dark Surface (F7) (MLRA 151) 7 pleted Delow Dark Surface (A10) (MLRA 150A) 5 pleted Octric (F11) (MLRA 151) 5 pleted Dark Surface (F12) (LRR P, T, U) 5 pleted Dark Surface (F13) (LRR P, T, U) 5 pleted Octric (F17) (MLRA 1519) 5 pleted Dark Surface (F17) (MLRA 149A) 5 pleted Octric (F18) pleted Octric (F18) pleted Octric (F18) pleted Octric (F18) plete								
Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, 150B) Form Mucky Mineral (A7) (LRR P, T, U) Poleted Dark Surface (F7) Robert (F11) (MLRA 151) Depleted Blow Dark Surface (A12) Loamy Marric (F11) (MLRA 151) Depleted Blow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Oric (F17) (MLRA 151) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (LRR P, T, U) Depleted Dark Surface (F10) (MLRA 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F10) (MLRA 149A) Sardy Redox (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Histors (A9) Loamy Surface (S9) (LRR S, T, U) Loamy Surface (S9) (LRR O, T) Loamy Mucky Mineral (F1) (LRR D, S) Loamy Mucky Mineral (S1) (LRR P, T, U) Depleted Bark Surface (F13) (LRR D, P, T) Depleted Below Dark Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Bedox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X								
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Depleted Matrix (F3) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Depleted Bow Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No _ X Indicators for Problematic Hydric Soils?: 1 cm Muck (A9) (LRR O, S) Communication Mucky Mineral (S1) (LRR O, S) Coast Prairie Redox (A10) Defined Selow Dark Surface (F1) Defined Selow Dark Surface (F13) (LRR O, P, T) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Indicators for Problematic Hydric Soils?: In muck (A9) (LRR O, S) Carm Muck (A9) (LRR O, S) Carm Mucky Mineral (S1) (LRR O, S) Care Prairie Redox (A16) (MLRA 150A) Coast Prairi								
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Depleted Matrix (F3) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Depleted Bow Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No _ X Indicators for Problematic Hydric Soils?: 1 cm Muck (A9) (LRR O, S) Communication Mucky Mineral (S1) (LRR O, S) Coast Prairie Redox (A10) Defined Selow Dark Surface (F1) Defined Selow Dark Surface (F13) (LRR O, P, T) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Indicators for Problematic Hydric Soils?: In muck (A9) (LRR O, S) Carm Muck (A9) (LRR O, S) Carm Mucky Mineral (S1) (LRR O, S) Care Prairie Redox (A16) (MLRA 150A) Coast Prairi								
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Depleted Matrix (F3) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Muck Presence (A8) (LRR P, T) Depleted Bow Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No _ X Indicators for Problematic Hydric Soils?: 1 cm Muck (A9) (LRR O, S) Communication Mucky Mineral (S1) (LRR O, S) Coast Prairie Redox (A10) Defined Selow Dark Surface (F1) Defined Selow Dark Surface (F13) (LRR O, P, T) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Indicators for Problematic Hydric Soils?: In muck (A9) (LRR O, S) Carm Muck (A9) (LRR O, S) Carm Mucky Mineral (S1) (LRR O, S) Care Prairie Redox (A16) (MLRA 150A) Coast Prairi								
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Black Histic (A3) Depleted Matrix (F3) Organic Bodies (A6) (LRR P, T, U) For Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR V, T) Depleted Bow Dark Surface (A11) Depleted Operic (F11) (MLRA 151) Depleted Bow Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (LRR P, T, U) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Dark Surface (F7) Depleted Below Dark Surface (F12) Other (Explain in Remarks) Other (Explain in Remarks) Jindicators of Problematic Hydric Soils *: 1 on Muck (A9) (LRR O, P, T) Marl (F10) (LRR O, P, T) Depleted Below Dark Surface (F12) Other (Explain in Remarks) Detended Below Dark Surface (F13) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 150A) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X								
Histosol (A1) Histosol (A2) Histo Epipedon (A2) Histo Epipedon (A2) Histo Epipedon (A2) Histo Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) For Mucky Mineral (R1) (LRR P, T, U) Hucky Mineral (R1) For Muck (A9) (LRR P, T, U) Peledro Matrix (F3) For Mucky Mineral (A7) (LRR P, T, U) Hucky Mineral (A7) (LRR P, T, U) Peleted Dark Surface (F6) Muck Presence (A8) (LRR U) Hording Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Depleted Below Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (LRR P, T, U) Peleted Ochric (F11) (MLRA 151) Peleted Selow Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Bark Surface (A7) Hydric Soil Present? Yes No X Hydric Soil Present? Yes No X Hydric Soil Present? Yes No X	Type: C=Co	ncentration, D=Depletion,	RM=Reduced	Matrix, MS	=Masked Sand Grains.	² Location:	PL=Pore Lining, M=Matrix	
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, 1 Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Pepleted Dark Surface (F7) Red Parent Material (TF2) Muck (A9) (LRR P, T) Pepleted Balow Dark Surface (A11) Thick Dark Surface (A11) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Pepleted Belox (S6) Dark Surface (S7) (LRR P, T, U) Pepleted Selox (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X 2 cm Muck (A10) (LRR S) Reduced Vertic (F18) (LRR O, S) Reduced Vertic (F18) (LRR O, S) Reduced Vertic (F18) (LRR O, F, T, U) Redox Dark Surface (F19) (MLRA 150A) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Bridge MLRA 150A, 150B) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	ydric Soils	Indicators: (Applicable	to all LRRs, u	nless othe	rwise noted.)		Indicators for Proble	matic Hydric Soils ³ :
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR Q) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, Tyu) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Murk (A9) (LRR P, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Marl (F10) (LRR U) Depleted Delow Dark Surface (TF12) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR Q, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) Mick Presence (A8) (LRR P, T, U) Marl (F10) (LRR P, T,	Histosol	(A1)		Polyvalı	ue Below Surface (S8) (LF	RR S, T, U)	1 cm Muck (A9)	(LRR O)
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 150A, Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Mary Gleyed Matrix (F3) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Redox Depressions (F8) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X		•		 Thin Da	rk Surface (S9) (LRR S. 1	Γ. U)		
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Morganic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Sandy Redox (S5) Delta Ochric (F17) (MLRA 151) Triped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X		• •				· -		
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Som Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Medox Dark Surface (F6) (MLRA 153B) Redox Dark Surface (F7) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Other (Explain in Re		. ,				O ,		
Organic Bodies (A6) (LRR P, T, U) Setrictive Layer (if observed): Type: Deptated Dark Surface (F6) Surface (F7) Sedox Dark Surface (F6) Surface (F7) Sedox Depressions (F8) Surface (F7) Sedox Depressions (F8) Surface (A81) Sedox Depressions (F8) Surface (F10) (LRR V) Sedox Depressions (F8) Surface (F12) Sedox Depressions (F8) Surface (F10) (LRR V) Surface (F11) (MLRA 151) Sedox Depleted Bollow Dark Surface (A11) Iron-Manganese Masses (F12) (LRR O, P, T) Surface (F13) (LRR O,		• •	_		• • • • • • • • • • • • • • • • • • • •			
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, T, U) Depleted Dark Surface (F12) Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Delta Ochric (F13) (LRR P, T, U) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX Marl (F12) Very Shallow Dark Surface (TF12) Very Shallow Dark Surface (TF12) Ochter (Explain in Remarks) Other (Explain in Rem		• , ,	. —		, ,			nt Loamy Soils (F20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Other (Explain in Remarks) Other (Explain in Remarks					` ,		,	
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Delta Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jepleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jepleted Ochric (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X Marl (F10) (LRR U) Other (Explain in Remarks) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X	5 cm Mu	ucky Mineral (A7) (LRR P,	T, U)	Deplete	d Dark Surface (F7)		Red Parent Mate	erial (TF2)
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Jepleted Ochric (F13) (LRR O, P, T) Jepleted Ochric (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Belta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Betrictive Layer (if observed): Type: Depth (inches):	Muck Pr	resence (A8) (LRR U)		Redox I	Depressions (F8)		Very Shallow Da	rk Surface (TF12)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Pelta Ochric (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes NoX MoX MoX MoX MoX MoX MoX MoX MoX MoX Mo	1 cm Mu	uck (A9) (LRR P, T)					Other (Explain in	Remarks)
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Belta Ochric (F17) (MLRA 151) Delta Ochric (F17) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X No X Hydric Soil Present? Yes No X			1)			1)		,
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Mineral (S1) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X Emarks:		•	_				3Indicators of h	vdronhytic vegetation and
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Meduced Vertic (F17) (MLRA 151) Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X		, ,	1504)					
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inches): Hydric Soil Present? Yes No X Reduced Vertic (F18) (MLRA 150A, 150B) Reduced Vertic (F18) (MLRA 149A) Reduced Vertic (F18) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X						U)	•	
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X), S)				diotalibod of pro	
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	Sandy G	Gleyed Matrix (S4)	_		` , •	•		
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	Sandy R	Redox (S5)		Piedmo	nt Floodplain Soils (F19) (MLRA 149A)		
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	Stripped	l Matrix (S6)		Anomal	ous Bright Loamy Soils (F	20) (MLRA 1 4	19A, 153C, 153D)	
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks:	 Dark Su	ırface (S7) (LRR P, S, T, U	J)					
Type: Depth (inches): Hydric Soil Present? Yes No X emarks:								
	Depth (in	ches):				Hyd	Iric Soil Present? Yes _	NoX
o positive indication of hydric soils was observed.	emarks:							
o positive indication of hydric soils was observed.								
	o positive in	ndication of hydric soils was	s observed.					

Project/Site:	North Houston	Highway Improvement	Project	County:	Harris		Sampling D	ate: Do	ecember 20, 2017
Applicant/Owner:		epartment of Transporta			ate:	Texas			
Investigator(s):	S. Arnold		P. Frasier	Section, Townsh	nip, Range:		<u> </u>	N/A	
Landform (hillslope, t				Local relief (con		, none):	None	Slope (%):	: 0
Subregion (LRR or M		LRR T			.760834	Long:	-95.374154	Datum	
Soil Map Unit Name:	•		Urban land		_	NWI C	Classification:		Upland
Are climatic / hydrolo	gic conditions on	the site typical for this ti	me of year?	(Yes / No)	Yes	(if no,	explain in Rema	arks.)	
Are Vegetation	No ,Soil	Yes ,or Hydrology	No signifi	cantly disturbed?	Are "Norma	al Circumst	ances" present?	? Yes	X No
Are Vegetation	No ,Soil	No ,or Hydrology	No natura	ally problematic?	((If needed, o	explain any ans	wers in Ren	narks.)
SUMMARY OF	FINDINGS -	Attach site map	showing sa	mpling poin	nt location	s, trans	ects, impoi	rtant fea	tures, etc.
Hydrophytic Vegeta	tion Present?	Yes	No X						
Hydric Soil Present		Yes	No X	Is the Sam	pled Area				
Wetland Hydrology		Yes	No X	within a W	-	Υ	'es	No	X
Wonding Hydrology	1 1000111.					•			
Remarks:				•					
HYDROLOGY									
Wetland hydro	logy Indicators:					Secon	dary Indicators	<u>(minimum o</u>	f two required)
Primary Indicate	ors (minimum of o	ne is required; check all	that apply)				Surface Soil Cra	acks (B6)	
Surface V	Water (A1)		Aquatic Fauna	(B13)			Sparsely Vegeta	ated Conca	ve Surface (B8)
High Wat	ter Table (A2)		Marl Deposits (B15) (LRR U)			Drainage Patter	rns (B10)	
Saturatio	n (A3)		Hydrogen Sulfic	de Odor (C1)			Moss Trim Line	s (B16)	
Water Ma	arks (B1)		Oxidized Rhizo	spheres on Living	g Roots(C3)		Dry-Season Wa	ater Table (0	J2)
Sediment	t Deposits (B2)		Presence of Re	educed Iron (C4)			Crayfish Burrow	vs (C8)	
Drift Dep	osits (B3)		Recent Iron Re	duction in Tilled S	Soils (C6)		Saturation Visib	ole on Aerial	Imagery (C9)
Algal Mat	t or Crust (B4)		Thin Muck Surf	ace (C7)			Geomorphic Po	sition (D2)	
Iron Depo	` ,		Other (Explain	in Remarks)			Shallow Aquitar	` ,	
	n Visible on Aeria						FAC-Neutral Te	` ,	
Water-St	ained Leaves (B9)					Sphagnum mos	ss (D8) (LRF	R T, U)
Field Observations									
Surface Water Pres		No X	Depth (inche	es): N/A					
Water Table Preser		NoX	Depth (inche	, 					
Saturation Present?		NoX	Depth (inche	·	Wetland F	- Hydrology I	Procent? V	es es	No X
(includes capillary fi		NO	Deptil (illelie	<i>–</i> – – – – – – – – – – – – – – – – – – 	Wetland	iyarology	riesent: i		NO
		gauge, monitoring well,	aerial photos, pr	evious inspection	 is). if available):			
	aca 2 a.a (c ca	gaage, mememig men,	acriai priotos, pr	orrede mepeemen	io), ii araiiabio				
Remarks:									
No positive indi	cation of wetland	hydrology was observed							

VEGETATION (Five Strata	a) - Use scientif	ic name	es of plants.		Sampling Point		SS18	
		Absolute	Dominant	Indicator	Dominance Test worksheet:			
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species			
1. None Observed	30 It.)	70 COVE1	<u>Opecies:</u>	Status	That Are OBL, FACW, or FAC:	0		(A)
					That Ale OBL, FACW, of FAC.			(A)
2					Total Number of Deminerat			
3					Total Number of Dominant	_		(5)
4					Species Across All Strata:	2		(B)
5								
6					Percent of Dominant Species			
		0	= Total Cover		That Are OBL, FACW, or FAC:	0.0%		(A/B)
	50% of total cover:	0	20% of total cover:	0				
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Worksheet:			
1. None Observed					Total % Cover of:	Mul	Itiply by:	
2.			· · · · · · · · · · · · · · · · · · ·		OBL species 0	x 1 =	0	
3.					FACW species 0	x 2 =	0	
4.					FAC species 20	x 3 =	60	
5.	-			-	FACU species 50	x 4 =	200	
6.					UPL species 35	x 5 =	175	
o		0	= Total Cover	-	Column Totals: 105	- (A)	435	—— (B)
	50% of total cover:		•	0	Column Totals. 103	_ (^)	433	(b)
Charle Chartena (Diet size)		0	20% of total cover:	0	Dravalance Index D/A		4 4 4 2	
Shrub Stratum (Plot size:	30 ft.)				Prevalence Index = B/A =		4.143	
1. None Observed								
2					Hydrophytic Vegetation Indicate			
3					1 - Rapid Test for Hydrop		on	
4					2 - Dominance Test is >5			
5					3 - Prevalence Index is ≤			
6					Problematic Hydrophytic	Vegetation ¹ (E	xplain)	
		0	= Total Cover					
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetla	nd hydrology n	nust	
Herb Stratum (Plot size:	30 ft.)				be present, unless disturbed or pre-	oblematic.		
Cynodon dactylon		50	Yes	FACU	Definitions of Five Vegetation S	trata:		
Calyptocarpus vialis		20	No	FAC	Tree - Woody plants, excluding w			
3. Oxalis corniculata		35	Yes	UPL	approximately 20 ft (6m) or more i	-	in.	
4.					(7.6 cm) or larger in diameter at be			
5.					(1.10 o.i.) or larger in alameter at 2		,.	
6				-	Sapling - Woody plants, excluding	a woody vines.		
7					approximately 20 ft (6 m) or more	•		
					than 3 in. (7.6 cm) DBH.	g.n. and n	500	
8					than 5 m. (7.5 cm) DBM.			
9					Shrub Woody plants, avaluding	woody vinos		
10					Shrub - Woody plants, excluding	•		
11					approximately 3 to 20 ft (1 to 6 m)	in neight.		
			= Total Cover					
	50% of total cover:	52.5	20% of total cover:	21	Herb - All herbaceous (non-woody			
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of s	_		
1. None Observed					plants, except woody vines, less the	nan approxima	tely	
2					3 ft (1 m) in height.			
3								
4.			· · · · · · · · · · · · · · · · · · ·		Woody vine - All woody vines, reg	gardless of heig	ght.	
5								
5.		0	= Total Cover		Hydrophytic			
J		0	20% of total cover:	0	Vegetation			
J	50% of total cover:	U		-				
J	50% of total cover:				Present? Yes	No X		
J	50% of total cover:				Present? Yes	NoX	_	
					Present? Yes	_ NoX		
Remarks: (if observed, list mor	phological adaptatio	ns below).			Present? Yes	_ NoX	<u> </u>	

nches) Calor (most) % Color (most) % Type Loc' Texture Remarks 0-4 107R 271 100 4-16 107R 324 65 Sand Sand Craine. 2.5YR 8/3 35 SSAND Sand Sand Craine. Fiyer C-Concentration, D-Depletion, RM-Reduced Matrix, MS-Masked Sand Graine. Fixer Graine Masked Sand Graine. Fixer Graine Matrix, MS-Masked Sand Graine. Fixer Gr	Depth	Matrix		<u> </u>		Features	. ?	<u> </u>	
Sandy Loam	nches)	Color (moist)	<u> </u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F3) To muck (A9) (LRR P, T, U) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Mark Presence (S8) (LRR O, S) Sardy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A, 153C, 153D) Matric Soil Present? Yes No X Matric Soil Present? Yes No X Matric Soil Present? Yes No X	0-4	10YR 2/1	100					Clay Loam	
ype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (Ar) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loarny Mucky Mineral (F1) (LRR O) Estrictive Layers (A5) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Depleted Below Dark Surface (A10) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Dark Surface (S7) (LRR P, S, T, U) Dark Surface (S7) Dark Surface (S7) Dark Surface (S7) Dark Surface (S7) Dark Surface (A10) Dark Surface (S7) Dark Surface (A10) Dark Surface (S7) Dark Surface (A10) Dark Surface (A	4-16	10YR 3/4	65					Sandy Loam	Dual matrix
Vype: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. **Location: PL=Pore Lining, M=Matrix. ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Polyvalue Below Surface (S9) (LRR S, T, U) Indicators for Problematic Hydric Soils*: Histosol (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A9) (LRR O) Hydrogen Sulfide (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 15 Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) S cm Mucky Mineral (A7) (LRR P, T, U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) Muck Presence (A8) (LRR P, T) Mari (F10) (LRR U) Mari (F10) (LRR U) Very Shallow Dark Surface (TF12) Depleted Bolow Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Other (Explain in Remarks) Coast Prairie Redox (A16) (MLRA 150A) Delta Cohric (F13) (MLRA 151) Sandy Matrix (S6) Matrice (F18) (MLRA 150A) Matrice (F18) (MLRA 149A) Sandy Gl		2.5YR 8/3						Sand	
Addric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Stratified Layers (A5) Depleted Matrix (F3) Scr Mucky Mineral (A7) (LRR P, T, U) Polyvalue Below Dark Surface (F6) Scr Mucky Mineral (A7) (LRR P, T, U) Mucky Mineral (A7) (LRR P, T, U) Polyeleted Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Polyeleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Polyeleted Delow Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Depleted Delow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Polytic Surface (S8) (LRR O, P, T) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Polytic Surface (S7) (LRR P, S, T, U) Polytic Soil Present? Yes No X Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)							-	_	
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) Stratified Layers (A8) (LRR P, T, U) Mucky Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Depleted Below Dark Surface (T10) (LRR U) Depleted Deriv (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 159A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Popsitive indication of hydric soils was observed.							-	_	
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Peleted Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Polyteded Matrix (F3) Piedmont Floodplain Soils (F19) (LRR P, T, U) Polyteded Ohric (F11) (LRR O) Peleted Dark Surface (F6) Stratified Layers (A5) Poepleted Matrix (F3) Poepleted Dark Surface (F6) Sorm Mucky Mineral (A7) (LRR P, T, U) Poepleted Dark Surface (F6) Poepleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Poepleted Dark Surface (F10) (LRR U) Poepleted Deric (F11) (MLRA 151) Poepleted Below Dark Surface (A12) Poepleted Below Dark Surface (A12) Poepleted Ochric (F11) (MLRA 151) Poepleted Below Dark Surface (A12) Poepleted Deric (F11) (MLRA 151) Poepleted Below Dark Surface (A12) Poepleted Poepleted Ochric (F13) (LRR P, T, U) Poepleted Below Dark Surface (A12) Poepleted Poepleted Ochric (F13) (LRR P, T, U) Poepleted Poepleted Poepleted Ochric (F13) (LRR P, T, U) Poepleted Poepleted Poepleted Ochric (F13) (LRR P, T, U) Poepleted Poepleted Poepleted (A12) Poepleted Poepleted Poepleted (A12) Poepleted Poepleted (A12) Poepleted Poepleted Poepleted (A12) Poepleted Poeple				-			-	<u> </u>	
ydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) Stratified Layers (A8) (LRR P, T, U) Mucky Presence (A8) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Depleted Below Dark Surface (T10) (LRR U) Depleted Deriv (F11) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S6) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 159A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Popsitive indication of hydric soils was observed.									
Addric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, T, U) Stratified Layers (A5) Depleted Matrix (F3) Scr Mucky Mineral (A7) (LRR P, T, U) Polyvalue Below Dark Surface (F6) Scr Mucky Mineral (A7) (LRR P, T, U) Mucky Mineral (A7) (LRR P, T, U) Polyeleted Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Polyeleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Polyeleted Delow Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Depleted Delow Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Gleyed Matrix (S4) Piedmont Floodplain Soils (F19) (MLRA 150A) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Polytic Surface (S8) (LRR O, P, T) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Polytic Surface (S7) (LRR P, S, T, U) Polytic Soil Present? Yes No X Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)							-	_	
Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 15 Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) 1 cm Muck (A9) (LRR V, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Belov Dark Surface (A11) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unled disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 1540) Sardy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	ype: C=Co	oncentration, D=Dep	letion, RM=F	Reduced Matrix, MS	S=Masked	Sand Grains.	² Location	n: PL=Pore Lining, M=M	atrix.
Histosol (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O) Histic Epipedon (A2) Thin Dark Surface (S9) (LRR S, T, U) 2 cm Muck (A10) (LRR S) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 15 Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Depleted Dark Surface (F6) (MLRA 153B) 1 cm Muck (A9) (LRR V, T) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Belov Dark Surface (A11) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unled disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Piedmont Floodplain Soils (F19) (MLRA 1540) Sardy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X	vdric Soils	Indicators: (Appli	cable to all	LRRs, unless other	erwise not	ed.)		Indicators for Pr	oblematic Hydric Soils ³ :
Histic Epipedon (A2) Black Histic (A3) Loamy Mucky Mineral (F1) (LRR Q) Cost Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S9) (LRR S, T, U) Cost Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S9) (LRR Q, T, U) Sandy Redox (S5) Sardy Redox (S7) Dark Surface (S9) (LRR Q, T, U) Sandy Redox (S6) Sandy Redox (S6) Sandy Redox (S6) Sandy Redox (S7) Sandy Redox (S8) Sandy						-	RR S. T. U)		•
Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Reduced Vertic (F18) (outside MLRA 15 Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Setrified Layers (A5) Corganic Bodies (A6) (LRR P, T, U) Setrified Layers (A5) Corganic Bodies (A6) (LRR P, T, U) Depleted Oark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Wery Shallow Dark Surface (TF12) Core Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Depleted Oark Corric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Delta Ochric (F17) (MLRA 151) Sandy Redox (S5) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Pestrictive Layer (if observed): Type: Depth (inches): Deptitive indication of hydric soils was observed.							_		
Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Matrix (F2) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Stripped Matrix (S4) Sandy Gleyed Matrix (S5) Sandy Gleyed Matrix (S6) Sandy Redox (S5) Stripped Matrix (S6) Depleted Oberic (F18) (MLRA 150A) Stripped Matrix (S6) Depleted Oberic (F18) (MLRA 150B) Stripped Matrix (S6) Depth (inches): Depth (inches): Depth (inches): Depositive indication of hydric soils was observed.						. , .	•		
Stratified Layers (A5) Organic Bodies (A6) (LRR P, T, U) From Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) Lord Muck (A9) (LRR P, T) Depleted Below Dark Surface (A12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Detta Obrit (F71) (MLRA 150A) Sandy Redox (S5) Detta Obrit (F71) (MLRA 150B) Sandy Redox (S5) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Detta Obrit (F71) (MLRA 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches):					•	, , ,	0)		
Organic Bodies (A6) (LRR P, T, U) S cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (F6) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Redox Dark Surface (F1) Redox Dark Surface (F7) Red Parent Material (TF2) Nerdox Dark Surface (F1) Depleted Below Dark Surface (A11) Depleted Dehick (F10) (LRR U) Other (Explain in Remarks) Depleted Dehick (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Polita Ochric (F13) (LRR P, T, U) Delta Ochric (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151) Sandy Redox (S5) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depth (inch	Hydroge	en Sulfide (A4)		Loamy	Gleyed Ma	atrix (F2)		Piedmont Fl	oodplain Soils (F19) (LRR P, S, T
5 cm Mucky Mineral (A7) (LRR P, T, U) Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Setrictive Layer (if observed): Type: Depth (inches): Depleted Dark Surface (F7) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) O	Stratifie	d Layers (A5)		Deplete	ed Matrix (F3)		Anomalous	Bright Loamy Soils (F20)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Jindicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Serictive Layer (if observed): Type: Depth (inches): Depth (i	Organic	Bodies (A6) (LRR F	P, T, U)	Redox	Dark Surfa	ace (F6)		(MLRA 153	В)
Muck Presence (A8) (LRR U) 1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Jindicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Serictive Layer (if observed): Type: Depth (inches): Depth (i	 5 cm M	uckv Mineral (A7) (L	RR P. T. U)					Red Parent	Material (TF2)
1 cm Muck (A9) (LRR P, T) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depth (inches): Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151) Depleted Ochric (F11) (MLRA 151) Sindicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic. Slandy Mucky Mineral (S11) (LRR O, S) Delta Ochric (F17) (MLRA 151) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Pestrictive Layer (if observed): Type: Depth (inches): Depth (inches): Depth (inches): Depth (i						, ,			• •
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Dept					-				• •
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Estrictive Layer (if observed): Type: Depth (inches): Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unled disturbed or problematic. Wetland hydrology must be present, unled disturbed or problematic. Wetland hydrology must be present, unled disturbed or problematic. Meduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Hydric Soil Present? Yes No X No X Pemarks: O positive indication of hydric soils was observed.						-	.4)	Other (Expla	ani in remarks)
Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches):			ce (A11)						
Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): o positive indication of hydric soils was observed.		, ,			_			-	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: o positive indication of hydric soils was observed.	Coast F	Prairie Redox (A16) (MLRA 150A	() Umbrio	: Surface (F13) (LRR P, T ,	, U)	-	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) estrictive Layer (if observed): Type: Depth (inches): Depth (in	— Sandv N	Mucky Mineral (S1) (LRR O. S)	—— Delta C	Ochric (F17	") (MLRA 151)		disturbed o	or problematic.
Sandy Redox (S5)			-,-,		•	, ,	0A 150B)		
Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No X emarks: o positive indication of hydric soils was observed.									
Dark Surface (S7) (LRR P, S, T, U) estrictive Layer (if observed): Type: Depth (inches): Depth (inches): emarks: o positive indication of hydric soils was observed.		` '			•	` ,	•		
estrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: o positive indication of hydric soils was observed.		` ,		Anoma	lious Brigh	t Loamy Soils (F	-20) (MLRA	149A, 153C, 153D)	
Type: Depth (inches): Hydric Soil Present? Yes NoX emarks: o positive indication of hydric soils was observed.	Dark Sເ	urface (S7) (LRR P,	S, T, U)						
positive indication of hydric soils was observed.									
	emarks:								
isturbed Soils.	o positive ir	ndication of hydric so	oils was obse	erved.					
sturoed Soils.		11-							
	isturbed So	olls.							

Project/Site:	North Houston	Highway Improvement	Project	County:	Harris		Sampling Da	ate: De	ecember 20, 2017
Applicant/Owner:		epartment of Transporta			ate:	Texas	Sample Poi		
Investigator(s):	S. Arnold		P. Frasier	Section, Townsh	ip, Range:		<u> </u>	N/A	
Landform (hillslope, t				Local relief (con	_	none):	Convex	Slope (%):	2
Subregion (LRR or M		LRR T			760389	Long:	-95.374238	Datum	
Soil Map Unit Name:	•		Urban land			NWI C	Classification:		Upland
Are climatic / hydrolo	gic conditions on	the site typical for this ti	me of year?	(Yes / No)	Yes	(if no, e	explain in Rema	rks.)	
Are Vegetation	No ,Soil	Yes ,or Hydrology	No signific	cantly disturbed?	Are "Norma	al Circumsta	ances" present?	Yes	X No
Are Vegetation	No ,Soil	No ,or Hydrology	No natura	Illy problematic?	((If needed, e	explain any ansv	wers in Rem	narks.)
SUMMARY OF	FINDINGS -	Attach site map	showing sa	mpling poin	t location	s, transe	ects, impor	tant fea	tures, etc.
		<u> </u>					· •		<u> </u>
Hydrophytic Vegeta	tion Procent?	Voc	No X						
Hydric Soil Present		Yes Yes	No X	Is the Sam	aled Area				
Wetland Hydrology		Yes	No X	within a We		Y	es	No	X
vvetiana riyarology	i iosoni:		<u> </u>	Within a W	, ciarra i	•		<u> </u>	
Remarks:				<u> </u>					
HYDROLOGY									
Wetland hydro	logy Indicators:					Second	dary Indicators (minimum o	f two required)
Primary Indicate	ors (minimum of o	ne is required; check all	that apply)			;	Surface Soil Cra	acks (B6)	
Surface \	Water (A1)		Aquatic Fauna	(B13)		;	Sparsely Vegeta	ated Conca	/e Surface (B8)
High Wat	ter Table (A2)		Marl Deposits (B15) (LRR U)			Drainage Patter	ns (B10)	
Saturatio	n (A3)		Hydrogen Sulfic	de Odor (C1)			Moss Trim Lines	s (B16)	
Water Ma	arks (B1)		Oxidized Rhizo	spheres on Living	Roots(C3)		Dry-Season Wa	iter Table (C	22)
Sedimen	t Deposits (B2)		Presence of Re	educed Iron (C4)		(Crayfish Burrow	/s (C8)	
Drift Dep	osits (B3)		Recent Iron Re	duction in Tilled S	Soils (C6)	;	Saturation Visib	le on Aerial	Imagery (C9)
Algal Mat	t or Crust (B4)		Thin Muck Surf	ace (C7)			Geomorphic Po	sition (D2)	
Iron Depo	osits (B5)		Other (Explain i	in Remarks)		;	Shallow Aquitar	d (D3)	
Inundatio	n Visible on Aeria	ıl Imagery (B7)					FAC-Neutral Te	st (D5)	
Water-St	ained Leaves (B9)				;	Sphagnum mos	s (D8) (LRF	₹ T, U)
First Of a second second	-								
Field Observations		N. V	Danth Cash	- N- NI/A					
Surface Water Pres		NoX	Depth (inche						
Water Table Present		NoX	Depth (inche	<i>'</i>	Watland L	Judrala av I	Dragont? V	-	No. V
Saturation Present? (includes capillary fi		No <u>X</u>	Depth (inche	es): >20	wetiand F	Hydrology F	Present? Y	es	NoX
		gauge, monitoring well,	aerial photos, pro	evious inspection	s) if available	.			
Describe recor	aca Bata (Stream	gaage, monitoring wen,	acriai priotos, pri	evious mopeonom	oj, ii avaliabio	·•			
Remarks:									
No positive indi	cation of wetland	hydrology was observed							

VEGETATION (Five Strata		io name	o or planto.		Sampling Point:	SS19	
		Absolute	Dominant	Indicator	Dominance Test worksheet:		
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species		
1. Quercus virginiana		70	Yes	FACU	That Are OBL, FACW, or FAC:	1	(A)
Lagerstroemia indica		12	No	UPL			
3.					Total Number of Dominant		
4.					Species Across All Strata:	2	(B)
5.							
6.					Percent of Dominant Species		
		82	= Total Cover		That Are OBL, FACW, or FAC:	50.0%	(A/B)
	50% of total cover:	41	20% of total cover:	16.4			
Sapling Stratum (Plot size:	30 ft.)				Prevalence Index Worksheet:		
1. None Observed					Total % Cover of:	Multiply by	
2.					OBL species 0	x 1 = 0	
3.					FACW species 0	x 2 = 0	
4.					FAC species 10	x 3 = 30	
5.					FACU species 70	x 4 = 280	
6.					UPL species 12	x 5 = 60	
	_	0	= Total Cover		Column Totals: 92	(A) 370	(B)
	50% of total cover:		20% of total cover:	0			(-/
Shrub Stratum (Plot size:	30 ft.)				Prevalence Index = B/A =	4.022	
1. None Observed					2,7,5		
2.					Hydrophytic Vegetation Indicato	rs:	
3.					1 - Rapid Test for Hydropl		
4.					2 - Dominance Test is >50		
5					3 - Prevalence Index is ≤ 3		
6.					Problematic Hydrophytic \		
o		0	= Total Cover		Troblemane tryanophyne (regetation (Explain)	
	50% of total cover:		20% of total cover:	0	¹ Indicators of hydric soil and wetlan	nd hydrology must	
Herb Stratum (Plot size:	30 ft.)		2070 01 total cover.		be present, unless disturbed or pro		
1. Calyptocarpus vialis	30 II.)	10	Yes	FAC	Definitions of Five Vegetation St		
2.			163	T AC	Tree - Woody plants, excluding wo		
3.					approximately 20 ft (6m) or more in	-	
1							
4 5.					(7.6 cm) or larger in diameter at bre	east neight (DBH).	
6	_				Sapling - Woody plants, excluding	woody vines	
6					approximately 20 ft (6 m) or more in	•	
7					than 3 in. (7.6 cm) DBH.	Trioigni and 1000	
8					(7.0 cm) DD11.		
9	-				Shrub - Woody plants, excluding w	roody vines	
10					approximately 3 to 20 ft (1 to 6 m) i	-	
11			Tatal Carrage			ir neignt.	
	500/ of total accomm		= Total Cover	0	Horb - All harbacous (non-woody)	A plante including	
W 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50% of total cover:	5	20% of total cover:	2	Herb - All herbaceous (non-woody)	-	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of siz	-	
1. None Observed					plants, except woody vines, less that	ан арргохінацету	
2					3 ft (1 m) in height.		
3					Woody vine All woody vines road	ordiose of boight	
4					Woody vine - All woody vines, rega	ardiess of fleight.	
5			T				
			= Total Cover		Hydrophytic		
	50% of total cover:	0	20% of total cover:	0	Vegetation		
					Present? Yes	No <u>X</u>	
Remarks: (if observed, list mor	rphological adaptatio	ns below).					
No positive indication of hydrop	hytic vegetation was	observed.					
, , , , , , , , ,	, ,						

C	^	П	ı
	. ,		

Profile Description: (Describe to the depth	needed to document the indicator or confirm th	ne absence of indicators.)	
Depth Matrix	Redox Features		
(inches) Color (moist) %	Color (moist) % Type ¹ L	Loc ² Texture Remarks	
<u> </u>		Clay Loam	
4-16 10YR 2/1 50		Clay Loam	
50		Gravel	
			
¹ Type: C=Concentration, D=Depletion, RM=R		cation: PL=Pore Lining, M=Matrix.	
Hydric Soils Indicators: (Applicable to all L	•	Indicators for Problematic Hydric Soils ³ :	
Histosol (A1)	Polyvalue Below Surface (S8) (LRR S, T	Γ, U)1 cm Muck (A9) (LRR O)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR S, T, U)	2 cm Muck (A10) (LRR S)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR O)	Reduced Vertic (F18) (outside MLRA 150	A,B)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19) (LRR P, S	3, T)
Stratified Layers (A5)	Depleted Matrix (F3)	Anomalous Bright Loamy Soils (F20)	
Organic Bodies (A6) (LRR P, T, U)	Redox Dark Surface (F6)	(MLRA 153B)	
5 cm Mucky Mineral (A7) (LRR P, T, U)	Depleted Dark Surface (F7)	Red Parent Material (TF2)	
Muck Presence (A8) (LRR U)	Redox Depressions (F8)	Very Shallow Dark Surface (TF12)	
1 cm Muck (A9) (LRR P, T)	Marl (F10) (LRR U)	Other (Explain in Remarks)	
Depleted Below Dark Surface (A11)	Depleted Ochric (F11) (MLRA 151)		
Thick Dark Surface (A12)	Iron-Manganese Masses (F12) (LRR O,		
Coast Prairie Redox (A16) (MLRA 150A)		wetland hydrology must be present, unles	S
Sandy Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 151)	disturbed or problematic.	
Sandy Gleyed Matrix (S4)	Reduced Vertic (F18) (MLRA 150A, 150	•	
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA	•	
Stripped Matrix (S6)	Anomalous Bright Loamy Soils (F20) (M I	LRA 149A, 153C, 153D)	
Dark Surface (S7) (LRR P, S, T, U)			
Bactrictica Lavar (% also aread)		T	
Restrictive Layer (if observed):			
Type:			
Depth (inches):		Hydric Soil Present? Yes NoX	
Damarka			
Remarks:			
No positive indication of hydric soils was obser	ved.		

Project/Site:	North Houston	Highway Improvement	Project (County:	Harris		Sampling Da	ate: De	ecember 20, 2017
Applicant/Owner:		epartment of Transporta				Texas			
Investigator(s):	S. Arnold			Section, Townshi	p, Range:			N/A	
Landform (hillslope, t				Local relief (cond		none):	Convex	Slope (%):	4
Subregion (LRR or M		LRR T			771646	Long:	-95.330378	Datum	
Soil Map Unit Name:		Verlan	d-Urban land com	nplex		NWI C	lassification:		Upland
Are climatic / hydrolo	gic conditions on	the site typical for this tir	me of year?	(Yes / No)	Yes	(if no, e	explain in Rema	rks.)	
Are Vegetation	No ,Soil	No ,or Hydrology	No signific	antly disturbed?	Are "Norma	al Circumsta	nces" present?	Yes	X No
Are Vegetation	No ,Soil_	No ,or Hydrology	No natural	ly problematic?	((If needed, e	xplain any ansv	vers in Rem	arks.)
SUMMARY OF	FINDINGS -	Attach site map	showing sai	mpling point	location	s, transe	ects, impor	tant feat	tures, etc.
Hydrophytic Vegeta	tion Present?	Yes	No X						
Hydric Soil Present		Yes	No X	Is the Samp	led Area				
Wetland Hydrology		Yes	No X	within a We		Ye	es	No	X
vvetidila riyarology	i iosoni:	100	<u> </u>	Within a we	tialia .	10			
Remarks:				-					
HYDROLOGY									
Wetland hydro	logy Indicators:					Second	lary Indicators (minimum of	two required)
Primary Indicate	ors (minimum of c	ne is required; check all	that apply)			8	Surface Soil Cra	acks (B6)	
Surface V	Water (A1)		Aquatic Fauna (B13)		\$	Sparsely Vegeta	ited Concav	ve Surface (B8)
High Wat	ter Table (A2)		Marl Deposits (E	315) (LRR U)			Drainage Patteri	ns (B10)	
Saturation	n (A3)		Hydrogen Sulfid	e Odor (C1)		N	Moss Trim Lines	s (B16)	
Water Ma	arks (B1)		Oxidized Rhizos	spheres on Living	Roots(C3)	[Ory-Season Wa	ter Table (C	;2)
Sediment	t Deposits (B2)		Presence of Red	duced Iron (C4)			Crayfish Burrow	s (C8)	
Drift Depo	osits (B3)		Recent Iron Rec	duction in Tilled S	oils (C6)	S	Saturation Visibl	le on Aerial	Imagery (C9)
Algal Mat	t or Crust (B4)		Thin Muck Surfa	ace (C7)			Geomorphic Pos	sition (D2)	
Iron Depo	` ,		Other (Explain in	n Remarks)			Shallow Aquitard	` ,	
	n Visible on Aeria	- , , ,					FAC-Neutral Te	, ,	
Water-St	ained Leaves (B9)				8	Sphagnum mos	s (D8) (LRF	₹ T, U)
Field Observations					<u> </u>				
Surface Water Pres		No. V	Donth (inches	o): N/A					
Water Table Preser		NoX NoX	Depth (inches						
Saturation Present?		No X	Depth (inchest Depth	<i>'</i>	Wotland L	lydrology P	Procent? V	es	No X
(includes capillary fr		NO	Deptil (illettes	5)	VVEtianu	iyarology F	resent: I		_ 110
		gauge, monitoring well,	aerial photos, pre	evious inspections), if available	<u> </u>			
	aca 2 a.a (c ca	gaage, mememig nem	acriai priotoc, pro	Triodo iniopodiacino	,,, ii araiiabib				
Remarks:									
No positive indic	cation of wetland	hydrology was observed							

VEGETATION	I (Five Stra	ata) - Use scientif	fic name	s of plants.		Sai	mpling Point:		SS20	
			Absolute	Dominant	Indicator	Dominance Test wor	rksheet:			
Tree Stratum	(Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant	Species			
1. Quercus virgir	niana		30	Yes	FACU	That Are OBL, FACW	, or FAC:	1		(A)
2. Ulmus crassifo	olia		5	No	FAC					
3.						Total Number of Dom	inant			
4.						Species Across All St	rata:	3		(B)
5.									_	
6.						Percent of Dominant S	Species			
			35	= Total Cover		That Are OBL, FACW	, or FAC:	33.3	3%	(A/B)
		50% of total cover:	17.5	20% of total cover:	7					
Sapling Stratum	(Plot size:	30 ft.)				Prevalence Index Wo	orksheet:			
1. None Observe	ed					Total % Co	ver of:	N	Multiply by:	
2.						OBL species	0	x 1 =	0	
3.						FACW species	3	x 2 =	6	
4.						FAC species	20	x 3 =	60	
5.						FACU species	35	x 4 =	140	
6.						UPL species	2	x 5 =	10	
		_	0	= Total Cover		Column Totals:	60	(A)	216	(B
		50% of total cover:	0	20% of total cover:	0					
Shrub Stratum	(Plot size:	30 ft.)				Prevalence I	ndex = B/A =		3.600	
1. Ilex vomitoria			15	Yes	FAC					
2.						Hydrophytic Vegetat	tion Indicato	rs:		
3						1 - Rapid Te	st for Hydrop	hytic Vegeta	ation	
4.						2 - Dominan	ce Test is >50	0%		
5						3 - Prevalend	ce Index is ≤	3.0 ¹		
6						Problematic	Hydrophytic \	egetation ¹	(Explain)	
			15	= Total Cover						
		50% of total cover:	7.5	20% of total cover:	3	¹ Indicators of hydric s	oil and wetlar	nd hydrolog	y must	
Herb Stratum	(Plot size:	30 ft.)				be present, unless dis	sturbed or pro	blematic.		
1. Melia azedara	nch		2	No	UPL	Definitions of Five V	egetation St	rata:		
2. Celtis laevigat	ta		3	No	FACW	Tree - Woody plants,	excluding wo	ody vines,		
3. Galium aparin	e		5	Yes	FACU	approximately 20 ft (6	m) or more in	height and	d 3 in.	
4						(7.6 cm) or larger in d	iameter at bre	east height	(DBH).	
5.										
6.						Sapling - Woody plar	_	-		
7.						approximately 20 ft (6	m) or more i	n height and	d less	

= Total Cover

= Total Cover

20% of total cover:

5 20% of total cover:

10

0

50% of total cover:

30 ft.)

50% of total cover:

than 3 in. (7.6 cm) DBH.

3 ft (1 m) in height.

Hydrophytic

Vegetation

Present?

Shrub - Woody plants, excluding woody vines,

Herb - All herbaceous (non-woody) plants, including

plants, except woody vines, less than approximately

Woody vine - All woody vines, regardless of height.

Yes _____ No ___X___

herbaceous vines, regardless of size, and woody

approximately 3 to 20 ft (1 to 6 m) in height.

Remarks: (if observed, list morphological adaptations below).

(Plot size:

No positive indication of hydrophytic vegetation was observed.

10.

Woody Vine Stratum

1. None Observed

SOIL		

epth	Matrix			Redox Features			
nches)	Color (moist)	%	Color (moist)	% Type ¹	Loc ²	Texture	Remarks
0-7	10YR 2/1	100			<u> </u>	Loam	
7-16	10YR 3/2	100	_			Clay Loam	
7 10	10111 0/2	<u> 100</u>				<u>Oldy Loaini</u>	
			_				
vpe: C=Co	ncentration. D=Dep	letion. RM=Re	educed Matrix. MS	S=Masked Sand Grains.	² Location: I	PL=Pore Lining, M=Matrix.	
	Indicators: (Appli					Indicators for Proble	
		cable to all L		•	DE TIII		•
Histosol	•			lue Below Surface (S8) (LF		1 cm Muck (A9) (•
	oipedon (A2)			ark Surface (S9) (LRR S, 1	· -	2 cm Muck (A10)	
Black Hi	stic (A3)		Loamy	Mucky Mineral (F1) (LRR	O)	Reduced Vertic (F18) (outside MLRA 150A ,E
Hydroge	n Sulfide (A4)		Loamy	Gleyed Matrix (F2)		Piedmont Floodp	lain Soils (F19) (LRR P, S, T
 Stratified	d Layers (A5)		 Deplet	ed Matrix (F3)		Anomalous Brigh	t Loamy Soils (F20)
	Bodies (A6) (LRR F	P. T. U)		Dark Surface (F6)		(MLRA 153B)	, ,
	ıcky Mineral (A7) (L			ed Dark Surface (F7)		Red Parent Mate	rial (TE2)
							• •
	esence (A8) (LRR I	-		Depressions (F8)			k Surface (TF12)
	ıck (A9) (LRR P, T)			F10) (LRR U)		Other (Explain in	Remarks)
Depleted	d Below Dark Surfac	ce (A11)	Deplet	ed Ochric (F11) (MLRA 15	1)		
Thick Da	ark Surface (A12)		Iron-M	anganese Masses (F12) (I	_RR O, P, T)	³ Indicators of hy	drophytic vegetation and
Coast P	rairie Redox (A16) (MLRA 150A)	 Umbri	Surface (F13) (LRR P, T,	U)	-	gy must be present, unless
	lucky Mineral (S1) (Ochric (F17) (MLRA 151)	-	disturbed or pro	blematic.
	Gleyed Matrix (S4)			ed Vertic (F18) (MLRA 150	Δ 150R)		
				, , ,			
	ledox (S5)			ont Floodplain Soils (F19) (-	04 4500 4505	
	Matrix (S6)		Anoma	alous Bright Loamy Soils (F	∠∪) (MLRA 14	9A, 153C, 153D)	
Dark Su	rface (S7) (LRR P,	S, T, U)					
marks:							
o positive in	dication of hydric so	oils was obser	ved.				

Project/Site: No	orth Houstor	n Highway Improvement	Project	County:	Harri	S	Sampling D	ate: D	ecember 20, 2017
Applicant/Owner:	Texas D	epartment of Transporta	ation - Houston	District	State:	Texas	Sample Po	oint:	SS21
Investigator(s):	S. Arnold	l and	P. Frasier	Section, To	wnship, Range:			N/A	
Landform (hillslope, terrace	e, etc.):	Hillslope		_ Local relief	(concave, convex	x, none):	Convex	Slope (%)	: 1
Subregion (LRR or MLRA)				_ Lat:	29.748971	Long:	-95.359561	Datun	n: NAD 83
Soil Map Unit Name:	•		Urban land			NWI	Classification:		Upland
Are climatic / hydrologic co	onditions on	the site typical for this ti	me of year?	(Yes / No)	Yes	(if no,	explain in Rema	arks.)	
Are Vegetation No.	,Soil_	Yes ,or Hydrology	No sigr	nificantly disturb	ped? Are "Norn	nal Circumst	ances" present	? Yes	X No
Are Vegetation No.	.Soil_	No , or Hydrology	No nati	urally problema	tic?	(If needed,	explain any ans	wers in Rer	narks.)
SUMMARY OF FIN	DINGS -	Attach site man	showings	sampling r	oint locatio	ns. trans	ects. impo	rtant fea	tures, etc.
Hydrophytic Vegetation P	resent?	Yes	No X	_	_				
Hydric Soil Present?		Yes	No <u>X</u>		Sampled Area				
Wetland Hydrology Prese	ent?	Yes	No <u>X</u>	_ within	a Wetland?	Y	'es	No_	<u> </u>
Pomorko									
Remarks:									
HYDROLOGY									
Wetland hydrology	Indicators:					Secon	dary Indicators	(minimum d	of two required)
Primary Indicators (m	inimum of o	one is required; check al	l that apply)				Surface Soil Cr	acks (B6)	
Surface Water	(A1)		Aquatic Faur	na (B13)			Sparsely Veget	ated Conca	ve Surface (B8)
High Water Ta	ble (A2)		Marl Deposit	s (B15) (LRR l	J)		Drainage Patte	rns (B10)	
Saturation (A3))		Hydrogen Su	ılfide Odor (C1))		Moss Trim Line	es (B16)	
Water Marks (I	B1)		Oxidized Rhi	zospheres on l	iving Roots(C3)		Dry-Season Wa	ater Table (C2)
Sediment Depo	osits (B2)		Presence of	Reduced Iron (C4)		Crayfish Burrov	ws (C8)	
Drift Deposits ((B3)		Recent Iron I	Reduction in Ti	lled Soils (C6)		Saturation Visit	ole on Aeria	l Imagery (C9)
Algal Mat or Cı	rust (B4)		Thin Muck S	urface (C7)			Geomorphic Po	osition (D2)	
Iron Deposits (B5)		Other (Expla	in in Remarks)			Shallow Aquita	rd (D3)	
Inundation Visi	ble on Aeria	al Imagery (B7)					FAC-Neutral Te	est (D5)	
Water-Stained	Leaves (B9	9)					Sphagnum mos	ss (D8) (LR	R T, U)
Field Observations:									
Surface Water Present?	Yes _	NoX	Depth (inc	ches): N/A	_				
Water Table Present?	Yes _	NoX	Depth (inc	ches): >20					
Saturation Present?	Yes _	NoX	Depth (inc	ches): >20	Wetland	Hydrology	Present?	res	NoX
(includes capillary fringe)									
Describe Recorded D	ata (stream	n gauge, monitoring well,	aerial photos,	previous inspe	ctions), if availabl	le:			
Remarks:									
No positive indication	of wetland	hydrology was observed	l.						

/EGETATION (Five Strat	,		•		Sampling Point: _		
		Absolute	Dominant	Indicator	Dominance Test worksheet:		
<u>Tree Stratum</u> (Plot size:	30 ft.)	% cover	Species?	Status	Number of Dominant Species		
1. None Observed					That Are OBL, FACW, or FAC:	0	(A)
2							
3					Total Number of Dominant		
4					Species Across All Strata:	1	(B)
5							
6					Percent of Dominant Species	• ••	(4 (5)
	500/ // /		= Total Cover	•	That Are OBL, FACW, or FAC:	0.0%	(A/B)
Capling Ctratum (Dlat size)	50% of total cover:	0	20% of total cover:	0	Prevalence Index Worksheet:		
Sapling Stratum (Plot size: 1. None Observed	30 ft.)				Total % Cover of:	Multiply by	
2.					OBL species 0		
3.					FACW species 0	x = 0 $x = 0$	
4					FAC species 20	$x 3 = \frac{0}{60}$	
5.					FACU species 90	x 4 = 360	
6.					UPL species 0	x = 5 = 0	
· ·		0	= Total Cover		Column Totals: 110	(A) 420	—— (B)
	50% of total cover:		20% of total cover:	0			` ′
Shrub Stratum (Plot size:	30 ft.)		•		Prevalence Index = B/A =	3.818	
1. None Observed	<u> </u>						
2.					Hydrophytic Vegetation Indicators	s:	
3.					1 - Rapid Test for Hydrophy	ytic Vegetation	
4					2 - Dominance Test is >509	%	
5					3 - Prevalence Index is ≤ 3.		
6					Problematic Hydrophytic Ve	egetation¹ (Explain)	
		0	= Total Cover				
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetland		
Herb Stratum (Plot size:	30 ft.)	00		E4011	be present, unless disturbed or prob		
1. Cynodon dactylon		90	Yes	FACU	Definitions of Five Vegetation Stra		
 Stenotaphrum secundatum 3. 		20	<u>No</u>	FAC	Tree - Woody plants, excluding woo approximately 20 ft (6m) or more in h		
3 4.					(7.6 cm) or larger in diameter at brea		
5.					(7.0 cm) of larger in diameter at brea	ast neight (DBH).	
6					Sapling - Woody plants, excluding w	voody vines.	
7	_				approximately 20 ft (6 m) or more in	-	
8.	_				than 3 in. (7.6 cm) DBH.		
9.					, , ,		
10.					Shrub - Woody plants, excluding wo	ody vines,	
11.					approximately 3 to 20 ft (1 to 6 m) in	height.	
		110	= Total Cover				
	50% of total cover:	55	20% of total cover:	22	Herb - All herbaceous (non-woody) լ	plants, including	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of size	e, <u>and</u> woody	
1. None Observed					plants, except woody vines, less than	n approximately	
2					3 ft (1 m) in height.		
3							
4					Woody vine - All woody vines, regard	rdless of height.	
5					<u> </u>		
	500 / of total access	_	= Total Cover	0	Hydrophytic		
	50% of total cover:	0	20% of total cover:	0	Vegetation	Na V	
					Present? Yes	No <u>X</u>	
Remarks: (if observed, list mo	rphological adaptation	ns helow)					
•		,					
No positive indication of hydror	onytic vegetation was	observed.					

SOII		96

TOTHE DESC	cription: (Describe to	the depth nee	ded to docur			firm the absenc	e of indicators.)		
epth	Matrix			Redox F		2			
nches)	Color (moist)		olor (moist)	<u> </u>	Type ¹	Loc ²	Texture		Remarks
0-16	10YR 2/1	90					Clay	Dual Matrix	X
	2YR 4/6						Clay		
Type: C=Co	oncentration, D=Depleti	on, RM=Reduc	ed Matrix, MS	=Masked S	and Grains.	² Location: PL	_=Pore Lining, M=M	latrix.	
lydric Soils	s Indicators: (Applicat	ble to all LRRs	ទ, unless othe	erwise note	ed.)		Indicators for P	roblematic Hy	dric Soils³:
Histoso	ol (A1)		Polyval	ue Below S	urface (S8) (LF	RR S, T, U)	1 cm Muck	(A9) (LRR O)	
Histic E	pipedon (A2)		Thin Da	ark Surface	(S9) (LRR S, T	⁻ , U)	2 cm Muck	(A10) (LRR S)	
Black H	listic (A3)		Loamy	Mucky Mine	eral (F1) (LRR	0)	Reduced V	ertic (F18) (out	side MLRA 150A,B
— Hydrog	en Sulfide (A4)		Loamy	Gleyed Mat	trix (F2)		Piedmont F	loodplain Soils	(F19) (LRR P, S, T)
Stratifie	ed Layers (A5)		Deplete	ed Matrix (F	3)		Anomalous	Bright Loamy	Soils (F20)
	Bodies (A6) (LRR P, T	r, u)		Dark Surfac	,		(MLRA 153		•
	lucky Mineral (A7) (LRR			ed Dark Sur	. ,		`	Material (TF2)	
	Presence (A8) (LRR U)			Depression	, ,			w Dark Surface	
	luck (A9) (LRR P, T)			10) (LRR U				ain in Remarks	
	ed Below Dark Surface ((A11)			, 11) (MLRA 15	1)			,
	Park Surface (A12)	(****)		•	lasses (F12) (L	-	³ Indicators	s of hydrophytic	vegetation and
	Prairie Redox (A16) (ML	_RA 150A)		_	13) (LRR P, T,				pe present, unless
	Mucky Mineral (S1) (LR	•		•	(MLRA 151)	- ,	•	or problematic.	•
	Gleyed Matrix (S4)	0, 0)		, ,	18) (MLRA 150	Δ 150R)			
	Redox (S5)			•	in Soils (F19) (
	, ,			•	, , ,	20) (MLRA 149 4)	\ 153C 153D\		
	d Matrix (S6)	T 11)	Anoma	ious Brigin	Loanly Solis (F.	20) (WILKA 149)	4, 133C, 133D)		
Dark St	urface (S7) (LRR P, S,	1, 0)							
estrictive l	Layer (if observed):								
Type:	_ayo. (o.boo. voa).								
	achoe):					Hydrid	Soil Present? Y	'os	No X
Donth (ir	1011 0 5).					Пушт	, Son Fresent? 1	<u> </u>	NO
Depth (ir	<u> </u>								
	,								
Depth (ir									
temarks:		was absorved							
temarks:	ndication of hydric soils	was observed.							
temarks:		was observed.							
temarks:		was observed.							
temarks:		was observed.							
temarks:		was observed.							
temarks:		was observed.	,						
temarks:		was observed.							
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temarks:		was observed.							
temarks:		was observed.							

Project/Site:	North Housto	n Highway Improvemer	nt Project	County:	Harris	3	Sampling Date:	December 20, 2017
Applicant/Owner:	Texas [Department of Transpor	rtation - Houstor	n District	_State:	Texas	Sample Point:	SS22
Investigator(s):	S. Arnolo	d and	P. Frasier	Section, To	wnship, Range:		N/A	
Landform (hillslope,		Hillslope	<u>e </u>	Local relief	(concave, convex	ເ, none): <u> </u>	Convex Slope	e (%): <u>3</u>
Subregion (LRR or N		LRR T		Lat:	29.737038			Patum: NAD 83
Soil Map Unit Name	•		and complex, 0 t				ssification:	Upland
		the site typical for this		(Yes / No)	Yes	`	lain in Remarks.)	
Are Vegetation		Yes ,or Hydrology		-			es" present? Ye	
Are Vegetation	,Soil	No ,or Hydrology	No nat	turally problema	IIC?	(It needed, expl	lain any answers in	Remarks.)
SUMMARY OF	FINDINGS	- Attach site ma _l	p showing :	sampling p	oint location	ns, transect	ts, important	features, etc.
Hydrophytic Vegeta		Yes X	No		Damania di Anna			
Hydric Soil Present Wetland Hydrology		Yes Yes	No X		Sampled Area a Wetland?	Yes	N	lo X
Trough								
Remarks:								
HYDROLOGY								
	ology Indicators							um of two required)
		one is required; check a		(D40)			face Soil Cracks (E	,
	Water (A1) ater Table (A2)		Aquatic Faur	na (B13) ts (B15) (LRR U	N	<u></u>	arsely vegetated Co ainage Patterns (B1	oncave Surface (B8)
Saturation	, ,			ulfide Odor (C1)	-		ss Trim Lines (B16	,
	larks (B1)	_		, ,	iving Roots(C3)		-Season Water Tal	•
	nt Deposits (B2)			Reduced Iron (yfish Burrows (C8)	
	posits (B3)			Reduction in Til	,			
	` ,				ied Solis (Co)			Aerial Imagery (C9)
	at or Crust (B4)		Thin Muck S	` '			omorphic Position (` '
· · · · · · · · · · · · · · · · · · ·	osits (B5)		_ Other (Expla	ain in Remarks)			allow Aquitard (D3)	
	on Visible on Aeri	5 , ,					C-Neutral Test (D5)	•
Water-S	tained Leaves (B	<i>3</i>)				Spn	nagnum moss (D8)	(LRR I, U)
Field Observation	s:							
Surface Water Pres		No X	Depth (inc	ches): N/A				
Water Table Prese		No X	Depth (inc	· —	_			
Saturation Present	_	No X	Depth (inc	, <u> </u>	Wetland	Hydrology Pres	sent? Yes	No X
(includes capillary f			_ · `	, <u> </u>	_	, 0,		
Describe Reco	rded Data (strean	n gauge, monitoring we	II, aerial photos,	, previous inspe	ctions), if available	e:		
Remarks:								
No positivo indi	ication of watland	hydrology was shoony	ad					
ino positive indi	ication of wettand	hydrology was observe	3 0.					

VEGETATION (Five Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 3) 1. Celtis laevigata 2. Ulmus americana 3. Pinus taeda 4. Quercus falcata 5. 6.	30 ft.)	Absolute % cover 25	Dominant Species? Yes	Indicator Status	Number of Dominant Species	
 Celtis laevigata Ulmus americana Pinus taeda Quercus falcata 		25			·	
 Ulmus americana Pinus taeda Quercus falcata 		40		FACW	That Are OBL, FACW, or FAC: 2	(A)
4. Quercus falcata5.		40	Yes	FAC		_ ` ′
5.		10	No	FAC	Total Number of Dominant	
		10	No	FACU	Species Across All Strata: 3	(B)
6.						_ ` ′
					Percent of Dominant Species	
		85	= Total Cover		That Are OBL, FACW, or FAC: 66.7%	(A/B)
5	50% of total cover:	42.5	20% of total cover:	17		_ ` `
Sapling Stratum (Plot size: 3	30 ft.)				Prevalence Index Worksheet:	
1. None Observed	, , , , , , , , , , , , , , , , , , , 				Total % Cover of: Multiply	by:
2.						<u> </u>
3.						0
4.					· — — — — — — — — — — — — — — — — — — —	50
5.					FACU species 10 x 4 = 4	0
6.					UPL species 5 x 5 = 2	
		0	= Total Cover		Column Totals: 90 (A) 26	
F	50% of total cover:		20% of total cover:	0		(5)
	30 ft.)		2070 01 total 00 01.		Prevalence Index = B/A = 2.944	
1. None Observed	, , , , , , , , , , , , , , , , , , ,				2.344	
2.					Hydrophytic Vegetation Indicators:	
3.					1 - Rapid Test for Hydrophytic Vegetation	
4.					X 2 - Dominance Test is >50%	
4					$\frac{\mathbf{X}}{\mathbf{X}}$ 3 - Prevalence Index is $\leq 3.0^{1}$	
5					Problematic Hydrophytic Vegetation ¹ (Explai	n)
6			Total Caver		Problematic Hydrophytic Vegetation (Explai	11)
-	-00/ -f.t-t-l		= Total Cover	0	1 Indicators of hydric soil and watland hydrology must	
	50% of total cover:	0	20% of total cover:	0	¹ Indicators of hydric soil and wetland hydrology must	
	30 ft.)	_	V.	LIDI	be present, unless disturbed or problematic.	
1. Oxalis debilis		5	Yes	UPL	Definitions of Five Vegetation Strata:	
2					Tree - Woody plants, excluding woody vines,	
3					approximately 20 ft (6m) or more in height and 3 in.	
4					(7.6 cm) or larger in diameter at breast height (DBH).	
5					Continue Manda plants avaluating was divising	
6					Sapling - Woody plants, excluding woody vines,	
7					approximately 20 ft (6 m) or more in height and less	
8					than 3 in. (7.6 cm) DBH.	
9						
10					Shrub - Woody plants, excluding woody vines,	
11					approximately 3 to 20 ft (1 to 6 m) in height.	
			= Total Cover			
5	50% of total cover:	2.5	20% of total cover:	1	Herb - All herbaceous (non-woody) plants, including	
Woody Vine Stratum (Plot size:	30 ft.)				herbaceous vines, regardless of size, and woody	
1. None Observed					plants, except woody vines, less than approximately	
2					3 ft (1 m) in height.	
3						
4					Woody vine - All woody vines, regardless of height.	
5.						
		0	= Total Cover		Hydrophytic	
5	50% of total cover:	0	20% of total cover:	0	Vegetation	
			•		Present? Yes X No	

A positive indication of hydrophytic vegetation was observed.

Sampling Point:

SS22

0		l
	 ш	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth	Matrix			Redox F							
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks			
0-6	10YR 2/1	100					Loam				
6-16	10YR 3/1	90_					Clay	Dual matrix			
	2.5YR 4/6	_10_					Clay				
1				<u> </u>		2.					
	ncentration, D=Dep					² Location: F	PL=Pore Lining, M=M	•			
•	Indicators: (Appli	cable to all L			•			roblematic Hydric Soils ³ :			
Histosol	` '				Surface (S8) (Li						
	pipedon (A2)				e (S9) (LRR S,			(A10) (LRR S)			
· · · · · · · · · · · · · · · · · · ·	stic (A3)				eral (F1) (LRR	O)	Reduced Vertic (F18) (outside MLRA 150A,B)				
	n Sulfide (A4)			Gleyed Ma	. ,		Piedmont Floodplain Soils (F19) (LRR P, S, T)				
	d Layers (A5)			ed Matrix (F				omalous Bright Loamy Soils (F20) LRA 153B)			
	Bodies (A6) (LRR I			Dark Surfa			-				
	icky Mineral (A7) (L			ed Dark Su			Red Parent Material (TF2)				
	esence (A8) (LRR I			Depression	. ,		Very Shallow Dark Surface (TF12)				
	ick (A9) (LRR P, T)			F10) (LRR (4)	Other (Explain in Remarks)				
	d Below Dark Surface (A42)	ce (A11)			F11) (MLRA 15		31				
	ark Surface (A12)	MI DA 150AY		_	Masses (F12) (1		9, P, T) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless				
	rairie Redox (A16) (^F 13) (LRR P, T,) (MLRA 151)	U)	disturbed or problematic.				
	lucky Mineral (S1) (Bleyed Matrix (S4)	LKK 0, 3)			7 (MLRA 131) (18) (MLRA 15 0)A 150B)		•			
	tedox (S5)			`	ain Soils (F19) (•					
	Matrix (S6)			-	, ,		9A, 153C, 153D)				
	rface (S7) (LRR P,	S T U)		alous Bright	Loamy Cons (I	20) (MEKA 14)	JA, 1000, 100 <i>D</i>)				
Bank Gu	(O7) (LIKKT)	0, 1, 0,									
Restrictive L	ayer (if observed):										
Type:											
Depth (in	 ches):					Hydr	Hydric Soil Present? Yes No X				
, ,	,										
Remarks:						<u> </u>					
No positive in	dication of hydric so	oils was obser	ved.								

This report was written on behalf of the Texas Department of Transportation by

AECOM

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Houston, Texas 77094

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