## PROJECT CONSULTING SERVICES®, INC.

1800 WEST LOOP SOUTH, SUITE 900 HOUSTON, TX. 77027-3259 (713) 952-7380 Fax (713) 952-7082 www.projectconsulting.com

FEB 2 2 2019

February 21, 2019

Mr. Robert Jones U.S. Army Corps of Engineers Galveston District - Corpus Christi Office, Regulatory Division 5151 Flynn Parkway, Suite 306 Corpus Christi, Texas 78411

**RE:** PERMIT APPLICATION – SWG-2018-00789

Axis Midstream Holdings, LLC – Midway to Harbor Island Pipelines & Support Facility Proposed Pipelines and Support Facilities San Patricio and Nueces Counties, Texas

Dear Mr. Jones:

Enclosed, please find two (2) pdf copies of a supplemental delineation report prepared for the Redfish Bay Facility area. The supplemental field work was done on January 16<sup>th</sup> and 17<sup>th</sup>, 2019.

Should you have any questions regarding the supplemental delineation report, please do not hesitate to contact me. Thanks!

Sincerely,

PROJECT CONSULTING SERVICES, INC.

Robert Ganczak

Senior Environmental Specialist

Enclosure

# AXIS MIDSTREAM PARTNERS, LLC



# **Supplemental Field Review Report**

Redfish Bay Facility
San Patricio Counties, Texas

Prepared By:





Date: 02/08/19

## TABLE OF CONTENTS

1.0	INTRODUCTION	1
	1 Background and Location	
	2 Site Characterization	
2.0	METHODS	3
2.	1 Preliminary Desktop Review	3
2.	2 Data Collection and Mapping	3
3.0	DATA	3
4.0	RESULTS	5
4.	1 Redfish Facility	5
5.0	REFERENCES	10

## **APPENDICES:**

APPENDIX A – FIGURES APPENDIX B – DATA SHEETS & PHOTO LOG APPENDIX C – DATA VALIDATION TABLE



Date: 02/08/19



# Field Review Report Midway to Harbor Island Pipeline Project PCS Project # 18087

#### 1.0 INTRODUCTION

### 1.1 Background and Location

Project Consulting Services, Inc. (PCS) was contracted by Axis Midstream Partners, LLC (Axis) to perform a supplemental delineation at the proposed Redfish Bay Facility and adjacent properties (Site) near Port Aransas, San Patricio County, Texas. The purpose of the supplemental delineation evaluation was to examine adjacent properties owned by Axis at the Site for potential Clean Water Act (CWA) permitting. Data on the supplemental properties was provided by Axis. A vicinity map depicting the Sites is included in **Appendix A, Figure 1**.

**CWA jurisdictional wetlands:** Observations were made and data collected on hydrology, vegetation, and soils to determine presence or absence of wetlands in the Survey Area(s).

- ❖ Wetland hydrology includes all hydrologic characteristics of areas that are continuously inundated or have soils saturated to the surface for 5% of the growing season. (Environmental Laboratory 1987)
- Hydrophytic vegetation is defined as "the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). When 50% or greater of the dominant plant species at a site are plants adapted for life in wet conditions, hydrophytic vegetation is present.
- Hydric soils are defined as soils that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil. (USDA National Technical Committee for Hydric Soils 2016)

**RHA jurisdictional waters:** Observations were made for the presence or absence of traditionally navigable waters (TNW), and relatively permanent waters (RPW) and non-relatively permanent waters (non-RPW) with a significant nexus to TNW.

Title 33, Section 328.4 I 1 of the Code of Federal Regulations (CFR) defines the lateral limit of jurisdiction in non-tidal waters as the ordinary high-water mark (OHWM), provided the jurisdiction is not extended by the presence of wetlands.

#### 1.2 Site Characterization

A review of topographic maps indicates that elevations at the Site range from approximately 10 feet to Mean Seal Level. A portion of the Project is situated within Aransas Bay (Appendix A, Figure 2). The Site is situated within the Aransas (12100407, Aransas Bay (12100405 and North Corpus Christi Bay (12110201) Sub-Basins (Appendix A, Figure 1).

The Site is located within the Mid-Coast Barrier Islands and Coastal Marshes ecoregion of the Western Gulf Coastal Plain. The Western Gulf Coastal Plain is a relatively flat grassland situated adjacent to the Gulf of Mexico. This area has been affected by agriculture (e.g. cropland or pasture), residential, and commercial activities. The Mid-Coast Barrier Islands and Coastal Marshes are comprised of dunes, beaches, bays, ettua ries, tidal marshes and barrier islands. The vegetation in this ecoregion is comprised primarily of cordgrass (*Spartina spp.*), saltgrass (*Distichlis sp.*), bluestems (*Andropogon spp.*) and paspalum (*Paspalum spp.*).





Date: 02/08/19

The Survey Area consists of freshwater and intertidal marsh habitats. The NWI maps show the Site to contain estuarine intertidal (E2), lacustrine littoral (L2) and palustrine emergent (PEM) habitats (Appendix A, Figure 3).

Several soils are mapped by the Natural Resources Conservation Service (NRCS) within the Project area. This data is presented in **Table 1**. The NRCS soils map is included in **Appendix A, Figure 4**.

Table 1: NRCS Mapped Soils within the Project Area

Map Unit Symbol	Map Unit Name	Drainage Class Rating	Hydric Soil Rating* (major component)
Ds	Dianola soils	Poorly drained	Hydric
ls	ljam soils, rarely flooded	Poorly drained	Hydric
Mu	Mustang fine sand, 0 to 1 percent slopes, occasionally flooded, frequently ponded	Poorly drained	Hydric

The Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) shows the Site within the 100-year flood plain in San Patricio County (**Appendix**, **Figure 5**).

Average yearly rainfall for Port Aransas, Texas is 34.76 inches. The rainfall total for the fourteen days preceding the site visit was 0.48 inches.





Date: 02/08/19

#### 2.0 METHODS

### 2.1 Preliminary Desktop Review

PCS previously conducted a desktop review of the Site in association with the overall Midway to Harbor Island Pipeline Projects. The desktop review was used to assist in determining the presence/absence of a significant nexus to a TNW which is used to determine the jurisdictional nature of any observed features. Sources used to complete the review include:

- ❖ U.S. Geological Survey (USGS): 7.5-minute topographic quadrangles,
- National Agriculture Imagery Program (NAIP): 2015 1m natural color digital aerial imagery,
- U.S. Department of Agriculture Watershed Data: 2016 Aransas Bay (12100405), Texas,
- ❖ U.S. Fish and Wildlife Service (USFWS): NWI data,
- NAIP: 2004 1m Color-Infrared digital aerial imagery,
- NRCS: Soil Surveys for Nueces and San Patricio Counties, Texas and
- FEMA Floodplain Data.

#### 2.2 Data Collection and Mapping

To perform the supplemental delineation PCS scientists utilized the Corps' Wetland Delineation Manual (TR Y-87-1) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0). PCS scientist employed the routine method for areas greater than 5 acres in size procedures. A total of seven (7) transects were established. Data points and feature boundaries within the Site were geographically referenced using a Trimble Geo7X global positioning system differentially corrected to one-meter accuracy. Geographic Information Systems and Post-Processing software were used to examine the collected data, calculate feature size and produce report figures. Report figures are shown in **Appendix A**. Data sheets, photo log and a plant list are included in **Appendix B**. A data validation table is included in **Appendix C**.

At each Intersection Point, hydrology, vegetation and soils were examined for wetland characteristics. An Intersection Point must contain wetland vegetation, hydric soils, and wetland hydrology in order to be considered a wetland. If any one of these three characteristics is missing, the Intersection Point is not within a wetland.

#### 3.0 DATA

In total, thirty-four (34) sample locations (Plots) were examined at the Site. Where applicable, one observation was made in wetlands and one was made in uplands discerning the wetlands boundary at each of the observed wetlands.

**Table 2** summarizes observations made at each Plot. Data sheets, photo log and a plant list are included in **Appendix B.** A data validation table is included in **Appendix C**.





Date: 02/08/19

Table 2: Redfish Bay Facility Project Data Point Summary

Data Point Number	Hydrology	Vegetation	Soils	Wetland Determination
T1-P1	Yes - A1, A2, A3, B4, C3, C9 & D5	Yes – DT & PI	Yes - F3	Yes
T1-P2	Yes - C9 & D5	Yes - DT & PI	No	No
T1-P3	Yes - C9 & D5	Yes - DT & PI	No	No
T1-P4	No	Yes - DT & PI	Yes - F2*	No
T1-P5	No	Yes – DT	Yes - F3**	No
T1-P6	Yes - A3, B10, C9 & D5	Yes - DT & PI	Yes - F3**	No
T1-P7	Yes - A3, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T1-P8	No	Yes – DT	No	No
T2-P1	No	Yes - DT & PI	No	No
T2-P2	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - S4	Yes
T2-P3	Yes -C9 & D5	Yes - DT & PI	No	No
T2-P4	Yes - A3, C9 & D5	Yes - PI	Yes - F3	Yes
T2-P5	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T3-P1	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T4-P1	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - S5	Yes
T4-P2	Yes -C9 & D5	Yes - DT & PI	No	No
T4-P3	Yes - A2, A3, C3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T4-P4	Yes - A2, A3, C9 & D5	Yes - DT & PI	No	No
T5-P1	Yes - C3, B8 & C9	Yes - PI	Yes - F3	Yes
T5-P2	Yes - A2, A3, B8 & D5	Yes - DT & PI	Yes - S4	Yes
T5-P3	Yes - C9 & D5	Yes - DT & PI	Yes - F3	Yes
T5-P4	No	Yes - PI	No	No
T5-P5	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - S6	Yes
T6-P1	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T6-P2	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T6-P3	Yes - A2, A3, C9 & D5	Yes – DT & PI	Yes - F3	Yes
T6-P4	Yes - A2, A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T6-P5	Yes - C9 & D5	Yes - DT & PI	No	No
T7-P1	Yes - A2, A3, B10, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T7-P2	Yes - C9 & D5	Yes – DT & PI	Yes - F3	Yes
Т7-Р3	Yes - A3, C9 & D5	Yes – DT & PI	Yes - F3	Yes
T7-P4	Yes - A3, C9 & D5	Yes - DT & PI	Yes - F3	Yes
T7-P5	Yes - C9 & D5	Yes - DT & PI	Yes - F3	Yes
T7-P6	Yes - C9 & D5	Yes - DT & PI	No	No

## Hydrology Indicators: A1 - Surface Water

A2 - High Water Table

A3 - Saturation

B4 - Algal Mat or Crust

B8 - Sparsely Vegetated Concave Surface

B10 – Drainage Patterns
C3 - Oxidized Rhizospheres on Living Roots

C9 - Saturation Visible on Aerial Imagery

D5 - FAC-Neutral Test

## Vegetation Indicators: DT – Dominance Test

PI - Prevalence Index

#### Soils Indicators:

F2 - Loamy Gleyed Matrix

F3 - Depleted Matrix

S4 - Sandy Gleyed Matrix

S6 - Stripped Matrix



<sup>\*</sup> Material is likely spoil due to the presence of clay.

\*\* The material appears to be spoil or fill as evidenced by the shell & gravel debris present in the matrix



Date: 02/08/19

#### 4.0 RESULTS

#### 4.1 Redfish Facility

The Redfish Facifity consists of an industrial site, historic spoil placement areas and bermed tidal wetlands situated between the Gulf Intracoastal Waterway (GIWW) to the east and FM 2725 to the west (Figure 6, Redfish). Elevation within the Redfish Facility site ranges between 0 to 7-ft. above mean sea level. The area drains to the GIWW directly or through a man-made tidal channel. All bermed areas were observed to be connected by culverts.

Transect 1: Transect 1 consists of tidal flats and high marsh (possible spoil areas) north of East Beasley Road.

<u>T1-P1</u>: The Plot was collected on vegetated tidal flats. Google Earth elevation at the Plot location is  $\pm$  1-ft. The Plot met the hydrology criteria by exhibiting multiple primary indicators (A1, A2, A3, B4 and C3) and two secondary indicators (C9 and D5). The vegetation consisted entirely of OBL species and meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>TI-P2</u>: The Plot was collected at the toe of the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  5-ft. The Plot met the hydrology criteria by exhibiting two secondary indicators (C9 and D5). The vegetation consisted of FAC species within the sapling/shrub stratum, and FAC and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>T1-P3</u>: The Plot was collected within the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  9-ft. The Plot met the hydrology criteria by exhibiting two secondary indicators (C9 and D5). The vegetation consisted of FAC species within the sapling/shrub stratum, and FAC and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

**T1-P4:** The Plot was collected within the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  5-ft. The Plot does not meet the hydrology criteria by exhibiting only one secondary indicator (C9). The vegetation consisted of FAC species within the sapling/shrub stratum, FAC and FACW species within the herb stratum, and FAC species within the woody vine stratum. The Plot meets the DT and Pl for hydrophytic vegetation. The soils meet the hydric soil criteria (F2). The Plot does not meet the criteria of a wetland.

<u>T1-P5</u>: The Plot was collected within the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  5-ft. The Plot does not meet the hydrology criteria by exhibiting only one secondary indicator (C9). The vegetation consisted of FAC species within the sapling/shrub stratum, and FAC, FACW and FACU species within the herb stratum. The Plot meets the DT for hydrophytic vegetation. The soils meet the hydric soil criteria (F23). The Plot does not meet the criteria of a wetland.

<u>T1-P6</u>: The Plot was collected within a drainage feature situated at the south east corner of elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot met the hydrology criteria by exhibiting one primary indicators (A3) and three secondary indicators (B10, C9 and D5). The vegetation consisted of FAC species within the sapling/shrub stratum, and OBL and FACW species within the herb stratum. The Plot meets the DT for hydrophytic vegetation. The soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.







Date: 02/08/19

<u>T1-P7</u>: The Plot was collected at the toe of the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot met the hydrology criteria by exhibiting two primary (A2 & A3) and two secondary indicators (C9 and D5). The vegetation consisted of OBL, FAC and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T1-P8</u>: The Plot was collected within the elevated marsh (spoil) area. Google Earth elevation at the Plot location is  $\pm$  9-ft. The Plot does not meet the hydrology criteria exhibiting only one secondary indicator (C9). The vegetation consisted of FAC, FACU and UPL species within the herb stratum. The Plot meets the DT for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>Transect 2</u>: This transect is situated within a bermed area previously authorized under permit SWG 11867. Based on historic aerial photography the northeastern most area received spoil in the 1980's. The berm appears to have been constructed between 1990 and 1995.

 $\underline{\mathbf{T2-P1}}$ : The Plot was collected within the spoiled area. Google Earth elevation at the Plot location is  $\pm$  12-ft. The Plot does not meet the hydrology criteria exhibiting only one secondary indicators (C9). The vegetation consisted of OBL, FAC and UPL species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (S5). The Plot does not meet the criteria of a wetland.

<u>T2-P2</u>: The Plot was collected within the bermed area in proximity to the spoiled area. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of FAC species in the sapling/shrub stratum and OBL and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (S4). The Plot meets the criteria of a wetland.

<u>T2-P3</u>: The Plot was collected within the bermed area. Historic aerials show spoil material placement in 2005. Google Earth elevation at the Plot location is  $\pm$  6-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of OBL and FAC species in the sapling/shrub stratum and OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>T2-P4</u>: The Plot was collected within the bermed area. There is no historic evidence of filling at the Plot location. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting one primary (A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The clayey soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T2-P5</u>: The Plot was collected within the bermed area. There is no historic evidence of filling at the Plot location. Google Earth elevation at the Plot location is  $\pm$  2-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of primarily OBL species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

Transect 3: This transect is situated outside of the bermed area authorized under permit SWG 11867. A single



FEB 2 2 2019



# Field Review Report Midway to Harbor Island Pipeline Project PCS Project # 18087

Date: 02/08/19

Plot was collected as supplement to the original delineation data.

<u>T3-P1</u>: The Plot was collected outside of the bermed area in a tidal flat area. Google Earth elevation at the Plot location is  $\pm$  2-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>Transect 4</u>: This transect is situated outside of the bermed area authorized under permit SWG 11867. The transect crosses tidal flats brackish marsh and "pimple mounds" within the footprint of the proposed Redfish Facility.

<u>T4-P1</u>: The Plot was collected in a marsh area adjacent to a tidal flat. Google Earth elevation at the Plot location is  $\pm$  2-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted primarily of OBL and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (S5). The Plot meets the criteria of a wetland.

<u>T4-P2</u>: The Plot was collected in a marsh area on a microtopographic high (pimple mound). Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted primarily of OBL, FAC and FACU species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>T4-P3</u>: The Plot was collected in a marsh area adjacent to a tidal flat in between microtopographic highs. Google Earth elevation at the Plot location is  $\pm$  2-ft. The Plot meets the hydrology criteria exhibiting three primary (A2, A3 & C3) and two secondary indicators (C9 & D5). The vegetation consisted primarily of OBL and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T4-P4</u>: The Plot was collected in a marsh area on a microtopographic high (pimple mound). Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted primarily of OBL and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (S5). The Plot meets the criteria of a wetland.

<u>Transect 5</u>: This transect is situated south of the existing Redfish Terminal and north of the man-made drainage feature. Area appears to be historic spoil placement site for adjacent industrial site(s).

<u>T5-P1</u>: The Plot was collected in a tidal marsh area adjacent to a man-made drainage feature. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting one primary (C3) and two secondary indicators (B8 & C9). The vegetation consisted of OBL species in the sapling/shrub stratum and OBL, FACU and UPL species within the herb stratum. The Plot meets the PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T5-P2</u>: The Plot was collected in a tidal marsh area on a microtopographic high. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (B8 & D5). The vegetation consisted of OBL species in the sapling/shrub stratum and



FEB 2 2 2019



# Field Review Report Midway to Harbor Island Pipeline Project PCS Project # 18087

Date: 02/08/19

OBL, and FACW species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (S4). The Plot meets the criteria of a wetland.

<u>T5-P3</u>: The Plot was collected in a tidal flat/marsh area. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T5-P4</u>: The Plot was collected in a marsh area on a microtopographic high. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot does not meet the hydrology criteria only one secondary indicator (C9). The vegetation consisted of FACW and FAC species within the herb stratum and FACU and UPL species in the woody vine stratum. The Plot meets the PI for hydrophytic vegetation. The loamy sandy soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>Transect 6</u>: This transect is situated north of the existing Gulf Marine Fabrication Facility and south of the man-made drainage feature closer in proximity to the GIWW. Area appears to be historic spoil placement site for adjacent industrial site(s).

<u>T6-P1</u>: The Plot was collected in a tidal flat/marsh area in proximity to the man-made drainage feature. Google Earth elevation at the Plot location is ± 2-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T6-P2</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  3-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T6-P3</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T6-P4</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW, FAC and FACU species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T6-P5</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  6-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum and UPL species in the woody vine stratum. The Plot





Date: 02/08/19

meets the DT and PI for hydrophytic vegetation. The sandy loam soils do not meet the hydric soil criteria. The Plot does not meet the criteria of a wetland.

<u>Transect 7</u>: This transect is situated north of the existing Gulf Marine Fabrication Facility and south of the man-made drainage feature closer in proximity to the tidal marsh. Area appears to be historic spoil placement site for adjacent industrial site(s).

<u>T7-P1</u>: The Plot was collected in a tidal flat/marsh area immediately adjacent to the man-made drainage feature. Google Earth elevation at the Plot location is  $\pm$  1-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and three secondary indicators (B10, C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the sapling/shrub stratum, and OBL, FACW and FAC species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The loamy sandy soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T7-P2</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW, FAC, FACU and UPL species within the herb stratum and FAC species within the woody vine stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T7-P3</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting one primary (A3) and two secondary indicators (C9 & D5). The vegetation consisted of FACW, FAC and FACU species within the herb stratum and UPL species in the woody vine stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T7-P4</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  4-ft. The Plot meets the hydrology criteria exhibiting two primary (A2 & A3) and two secondary indicators (C9 & D5). The vegetation consisted of FACW, FAC and FACU species within the herb stratum. The Plot meets the DT and Pl for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T7-P5</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  5-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of FACW, FAC and FACU species within the herb stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soils meet the hydric soil criteria (F3). The Plot meets the criteria of a wetland.

<u>T7-P6</u>: The Plot was collected in a high marsh area. Google Earth elevation at the Plot location is  $\pm$  6-ft. The Plot meets the hydrology criteria exhibiting two secondary indicators (C9 & D5). The vegetation consisted of OBL, FACW and FAC species within the herb stratum and FAC species in the woody vine stratum. The Plot meets the DT and PI for hydrophytic vegetation. The sandy loam soil does not meet the hydric soil criteria. The Plot meets the criteria of a wetland.





Date: 02/08/19

### 5.0 REFERENCES

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of Interior, Fish and Wildlife Service Office of Biological Services, Washington, D.C.
- Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.
- Federal Emergency Management Agency, FEMA Flood Map Service Center. Available online at: https://msc.fema.gov/portal/search?AddressQuery=van%2C%20texas#searchresultsanchor, accessed November 2018.
- Federal Register. 1982. Title 33: Navigation and Navigable Waters; Chapter II, Regulatory Programs of the Corps of Engineers, Vol. 47, No. 138, p. 31810, U.S. Government Printing Office.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-20. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- Vicksburg, MS: U.S. Army Engineer Research and Development Center. U. S. Army Corps of Engineers, 2005. Regulatory Guidance Letter No. 05-05; Ordinary High-Water Mark Identification, 3pp.
- U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey: San Patricio County. Available online at: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx, accessed November 2018.
- U.S. Geological Survey, National hydrography Dataset. Available online at: http://nhd.usgs.gov/data.html, accessed November 2018.
- U.S. Fish and Wildlife Service. National Wetlands Inventory; Wetland Mapper. Available online at: http://www.fws.gov/wetlands/Data/Mapper.html, accessed January 2019.
- U.S. climate data. Available online at https://www.usclimatedata.com/climate/port-aransas/texas/united-states/ustx1072, accessed January 2019.

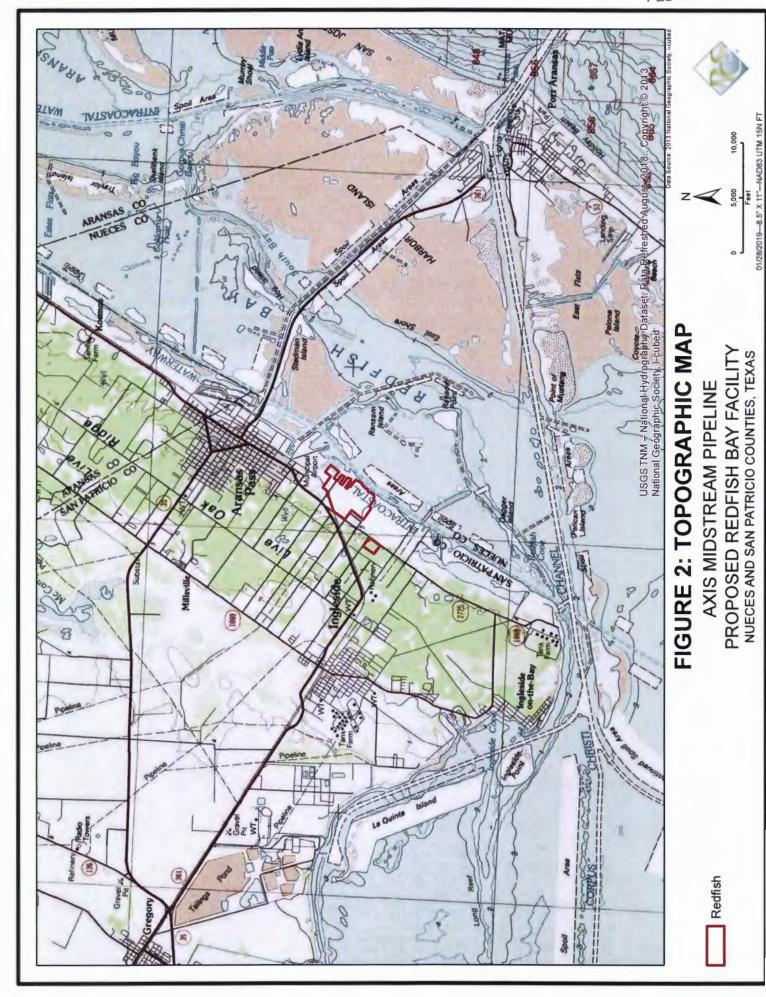


## **APPENDICES**



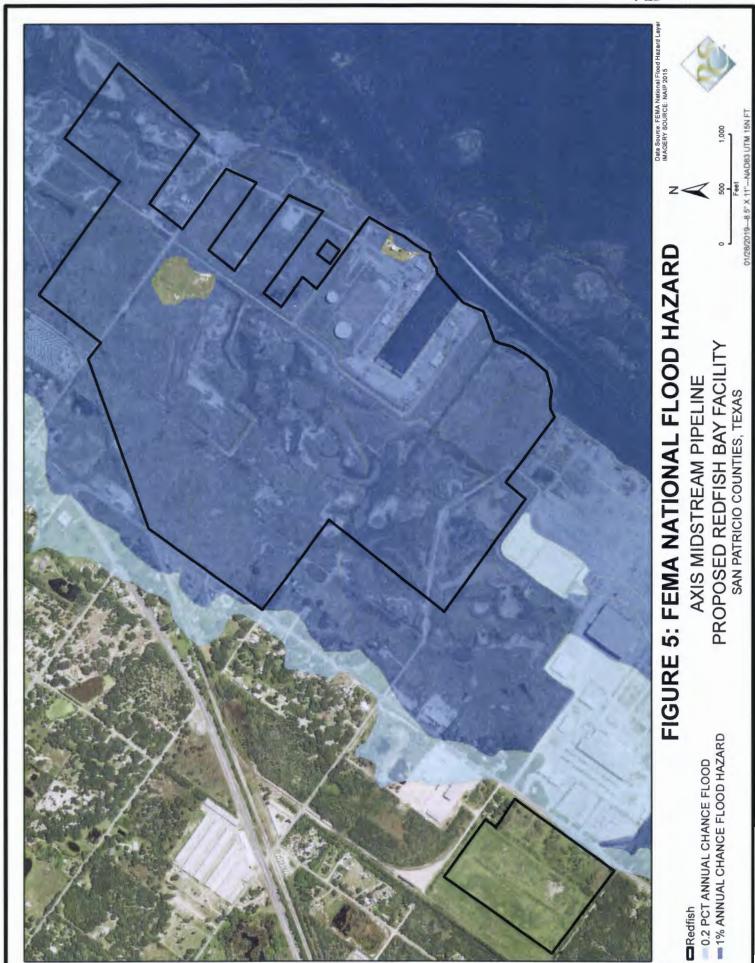
## **APPENDIX A – FIGURES**

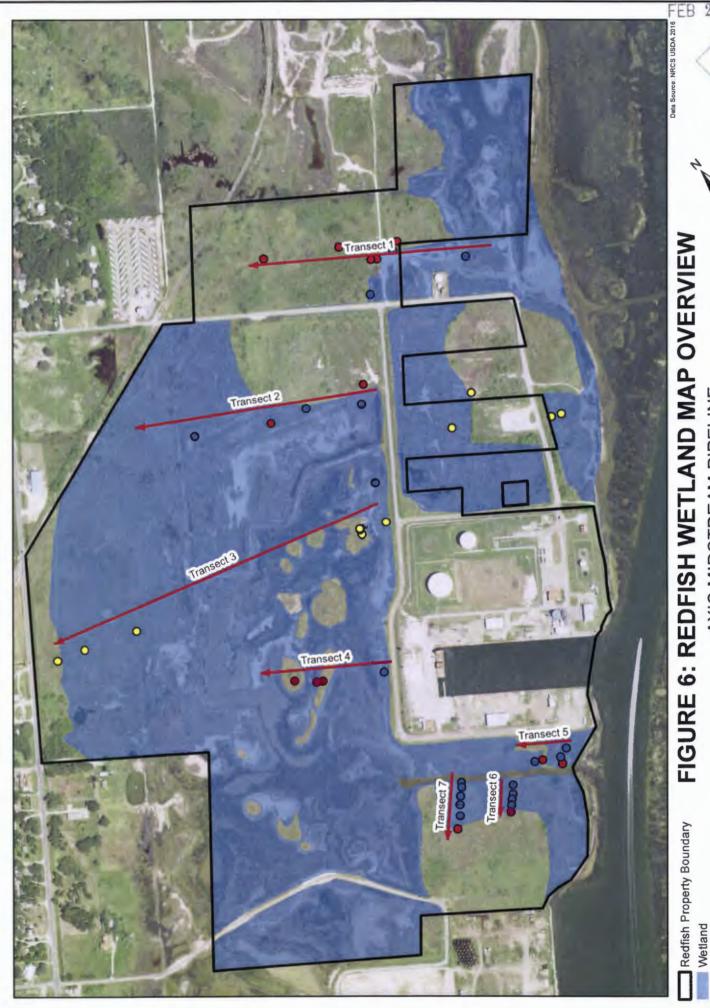






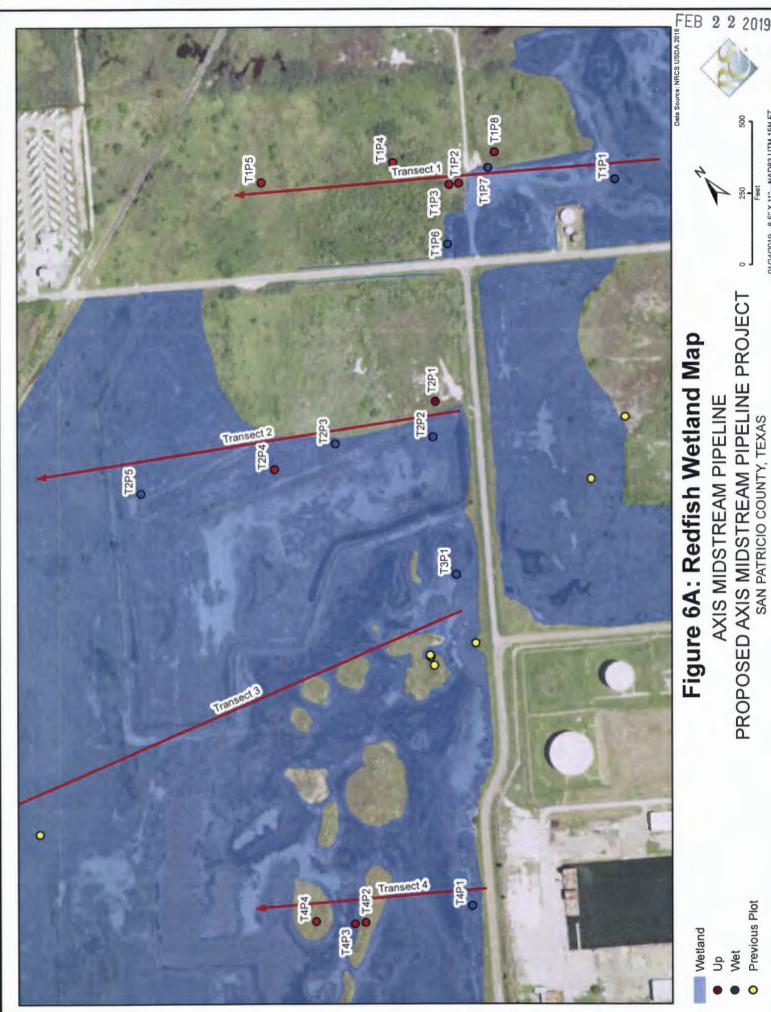






PROPOSED AXIS MIDSTREAM PIPELINE PROJECT SAN PATRICIO COUNTY, TEXAS AXIS MIDSTREAM PIPELINE

**Previous Plot** 



PROPOSED AXIS MIDSTREAM PIPELINE PROJECT SAN PATRICIO COUNTY, TEXAS AXIS MIDSTREAM PIPELINE

**Previous Plot** 

Wet

01/24/2010 B E" Y 11"



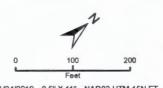
Redfish Property Boundary
Wetland

Up

Wet

# Figure 6B: Redfish Wetland Map

AXIS MIDSTREAM PIPELINE
PROPOSED AXIS MIDSTREAM PIPELINE PROJECT
SAN PATRICIO COUNTY, TEXAS



## APPENDIX B – DATA SHEETS & PHOTO LOG



### WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San F	Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	Oky/Oddrky	State: TX	Sampling Point: T1-P1
Investigator(s): R. Ganczak & A. Snellgrove	Section, Township,		- Camping i ont.
Landform (hillslope, terrace, etc.): tidal flat			Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat			Datum: WGS 84
Soil Map Unit Name: Ds - Dianola Soils		NWI classifi	
Are climatic / hydrologic conditions on the site typical for this t			
Are Vegetation, Soil, or Hydrology sig			present? Yes X No
Are Vegetation, Soil, or Hydrology nat	turally problematic? (If	needed, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map si	howing sampling poin	t locations, transects	s, important features, etc.
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No	within a Wet		No
Remarks:			
LIVEROL COV			
HYDROLOGY		Casandas India	-1/
Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all the	at apply)		ators (minimum of two required)
	auna (B13)		l Cracks (B6) egetated Concave Surface (B8)
, ,	osits (B15) (LRR U)		atterns (B10)
	Sulfide Odor (C1)	Moss Trim I	ines (B16)
	Rhizospheres along Living Ro	ots (C3) Dry-Season	Water Table (C2)
	of Reduced Iron (C4)	Crayfish Bu	
	on Reduction in Tilled Soils (C		/isible on Aerial Imagery (C9)
	s Surface (C7) plain in Remarks)	Shallow Aqu	Position (D2)
Inundation Visible on Aerial Imagery (B7)	plant in Nemarks)	FAC-Neutra	, ,
Water-Stained Leaves (B9)			moss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes X No Depth			
Water Table Present? Yes X No Depth	n (inches): 12		
Saturation Present? Yes X No Depth	n (inches): 0	Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, ae	rial photos, previous inspection	ons), if available:	
NRCS Soil Survey Data, Aerial Photog	raphy, NHD Data		
Remarks:			
Plot meets the hydrology criteria with five	e primary (A1,A2, A	3, B4 & C3) and tw	o secondary
indicators (C9 & D5).			
,			

### VEGETATION (Four Strata) - Use scientific names of plants.

% Cover	Dominant Species?	Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 1 (B)
			That Are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 1 (B)
			Total Number of Dominant Species Across All Strata: 1 (B)
			Species Across All Strata: 1 (B)
			(B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC: 100 (A/B
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
:	= Total Cov	er	OBL species 100 x 1 = 100
20% of	total cover:		FACW species x 2 =
			FAC species x 3 =
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: 100 (A) 100 (B)
			- 10
			Prevalence Index = B/A = 1.0
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.01
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
20% of	total cover:		
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
0			be present, unless disturbed or problematic.
0	No	OBL	Definitions of Four Vegetation Strata:
			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
			more in diameter at breast height (DBH), regardless of
			height.
			Sapling/Shrub – Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
			Woody vine - All woody vines greater than 3.28 ft in
			height.
00	T		
20% of	total cover:	20	
			Hydrophytic
=	= Total Cov	er	Vegetation
20% of	total cover:		Present? Yes X No
	20% of	= Total Cover:  20% of total cover:  = Total Cov  20% of total cover:  No  No  Total Cover:  20% of total cover:	= Total Cover  20% of total cover:  = Total Cover  20% of total cover:  O Yes OBL  O No OBL  OOD  = Total Cover  20% of total cover:  20% of total cover:  20% of total cover:  20% of total cover:

C		1
J	UI	ь

Sampling Point: T1-P1

Depth	Matrix			ox Feature	es		m the absence of i	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-7	10YR 6/2	80	10YR 5/1	_ 20	D	M	loamy sand	
7-14	10YR 5/1	97	10YR 4/4	3	С	M	loamy sand	
Fype: C=Colydric Soil III Histosol (III) Histosol (IIII) Histosol (IIIII) Histosol (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	10YR 6/2 10YR 5/1 10Y	80 97 	=Reduced Matrix, M LRRs, unless othe Polyvalue B Thin Dark S Loamy Muc Loamy Gley Depleted Matrix, M Redox Dark Depleted Dark Redox Depr Marl (F10) ( Depleted Or Iron-Mangal Umbric Surf Delta Ochric Reduced Ve	20 3  #S=Maske erwise no delow Surfa furface (Si ky Mineral wed Matrix atrix (F3) Surface ( eark Surface ressions (F LRR U) chric (F11) nese Mass face (F13) c (F17) (M ertic (F18) loodplain S Bright Loa	D C C d Sand G ted.) ace (S8) ( D) (LRR S (F1) (LRI (F2)  (MLRA 1 Ses (F12) (LRR P, T LRA 151) (MLRA 1 Soils (F19	M M M M M M M M M M M M M M M M M M M	loamy sand   loamy sand   loamy sand	=Pore Lining, M=Matrix. Problematic Hydric Soils³: k (A9) (LRR O) k (A10) (LRR S) Vertic (F18) (outside MLRA 150A,E Floodplain Soils (F19) (LRR P, S, T s Bright Loamy Soils (F20) 153B) nt Material (TF2) ow Dark Surface (TF12) oblain in Remarks) rs of hydrophytic vegetation and d hydrology must be present, disturbed or problematic.



### Supplemental Wetland Delineation Redfish Bay Facility PCS Project # 19012

Date: 01/30/19



Photo 1 Soil Sample - T1 - P1



Photo 2 - T-1 - P1 Facing North





### Supplemental Wetland Delineation Redfish Bay Facility PCS Project # 19012

Date: 01/30/19



Photo 3 -T1 - P1 Facing South



### WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San	Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Point: T1-P2
	Section, Township		
Landform (hillslope, terrace, etc.): tidal flat		ve, convex, none): none	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27			Datum: WGS 84
Soil Map Unit Name: Ds - Dianola Soils		NWI classific	eation: NA
Are climatic / hydrologic conditions on the site typical for this time	of voor2 Voc X	lo (If no explain in F	lemarks )
			present? Yes No X
Are Vegetation, Soil X, or Hydrology signific			
Are Vegetation, Soil, or Hydrology natural		If needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map show	ving sampling poi	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X No	In the Com	alad Assa	
Hydric Soil Present? Yes No _x	within a W		No X
Wetland Hydrology Present? Yes X No		stiano: 165	NO
Remarks:			
Overcast with intermittent, drizzling rain. A	djacent to spoil	oile that abuts Bead	le St.
HYDROLOGY		Secondari India	
Wetland Hydrology Indicators:	and a		Ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that ap			Cracks (B6) getated Concave Surface (B8)
Surface Water (A1) Aquatic Fauna High Water Table (A2) Marl Deposits	(B15) <b>(LRR U)</b>	Drainage Pa	
Saturation (A3)  Hydrogen Sulf		Moss Trim L	, ,
	ospheres along Living R		Water Table (C2)
	educed Iron (C4)	Crayfish Bur	
Promit	eduction in Tilled Soils (	C6) Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Sur	rface (C7)	Geomorphic	Position (D2)
☐ Iron Deposits (B5) ☐ Other (Explain	in Remarks)	Shallow Aqu	itard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutra	, ,
Water-Stained Leaves (B9)		☐ Sphagnum r	noss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes No _X Depth (in	ches):		
Water Table Present? Yes No X Depth (in		Made d Under Law Description	-40 V X N-
Saturation Present? Yes No X Depth (in (includes capillary fringe)	cnes):	Wetland Hydrology Prese	nt? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial		tions), if available:	
NRCS Soil Survey Data, Aerial Photograph	ohy, NHD Data		
Remarks:			
Plot meets the hydrology criteria with two s	econdary indica	tors (C9 & D5).	

Sampling Point: T1-P2

### VEGETATION (Four Strata) - Use scientific names of plants.

201	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: 30' )	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2.				Total Number of Dominant
3				Species Across All Strata: 4 (B)
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6.				
7				Prevalence Index worksheet:
8.				Total % Cover of: Multiply by:
		= Total Cov	/er	OBL species x 1 =
50% of total cover:	20% of	total cover	:	FACW species 20 x 2 = 40
Sapling/Shrub Stratum (Plot size: 30' )				FAC species 105 x 3 = 315
1. Baccharis halimifolia	40	Yes	FAC	FACU species x 4 =
2.				UPL species x 5 =
3.				Column Totals: 125 (A) 355 (B)
				2.24
4				Prevalence Index = B/A = 2.84
5				Hydrophytic Vegetation Indicators:
6.				1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
8.				3 - Prevalence Index is ≤3.0¹
	40	= Total Cov	/er	Problematic Hydrophytic Vegetation¹ (Explain)
	20% of	total cover	: 8	
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Andropogon glomeratus	20	Yes	FACW	be present, unless disturbed or problematic.
2. Andropogon virginicus	20	Yes	FAC	Definitions of Four Vegetation Strata:
3. Andropogon gerardii	40	Yes	FAC	Tree Woody plants evaluating visco 2 in (7.6 cm) as
4. Helianthus annuus	5	No	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5.				height.
6.				Sanling/Shrub Woody starts avaluation visus land
7				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
9				or size, and woody plants less than 5.20 it tall.
10				Woody vine - All woody vines greater than 3.28 ft in
11.				height.
12.	0E		-	
40.5		= Total Cov		
50% of total cover: 42.5	20% of	total cover	: 17	
Woody Vine Stratum (Plot size: 30' )				
1. none				
2.				
3				
4.				
5.				Hydrophytic
		= Total Cov	er	Vegetation
50% of total cover:				Present? Yes X No
Remarks: (If observed, list morphological adaptations beld				
Plot meets hydrophytic vegetation criter	ia (DT 8	š PI).		

Sampling Point: T1-P2

	Matrix			x Features				
(inches)	Color (moist)	100	Color (moist)	%	Type	_Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 5/2	100					loamy sand	
I-16 	10YR 6/2						sand	
Hydric Soil  Histosol  Histosol  Histic E  Black Hi  Hydroge  Stratified  Organic  5 cm Mu  Muck Pr  1 cm Mu  Deplete  Thick Da  Coast P  Sandy M  Sandy G  Sardy F  Stripped  Dark Su  Restrictive  Type:  Depth (in	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) Bodies (A6) (LRR F ucky Mineral (A7) (L resence (A8) (LRR P, T) d Below Dark Surface ark Surface (A12) trairie Redox (A16) (Mucky Mineral (S1) (Gleyed Matrix (S4) d Matrix (S6) urface (S7) (LRR P, S Layer (if observed)	cable to all Li P, T, U) RR P, T, U) Ce (A11) MLRA 150A) (LRR O, S) S, T, U)	RRs, unless othe  Polyvalue Be Thin Dark St Loamy Muck Loamy Gleyt Depleted Ma Redox Dark Depleted Da Redox Depre Marl (F10) (L Depleted Oc Iron-Mangan Umbric Surfa Delta Ochric Reduced Ve Piedmont Fle Anomalous f	rwise note elow Surface urface (S9) y Mineral (ed Matrix (If trix (F3) Surface (F- rk Surface essions (F8 LRR U) hric (F11) (esse Masse ace (F13) ((F17) (ML rtic (F18) (Io odplain So Bright Loan	ed.)  De (S8) (L  (LRR S,  F1) (LRR  6)  (F7)  3)  (MLRA 1:  LRR P, T  RA 151)  MLRA 15	RR S, T, I T, U) (O) (MLRA 14 (MLRA 14	Indicators for  U) 1 cm Muck 2 cm Muck Reduced \ Piedmont B Anomalous (MLRA 1 Red Paren Very Shalle Other (Exp , T) 3Indicator wetland unless () 49A) RA 149A, 153C, 153	nt Material (TF2) ow Dark Surface (TF12) blain in Remarks) rs of hydrophytic vegetation and d hydrology must be present, disturbed or problematic.



### Supplemental Wetland Delineation Redfish Bay Facility PCS Project # 19012

Date: 01/30/19



Photo 4 – Soil Sample, T1 - P2



Photo 5 - T1 - P2 Facing North





### Supplemental Wetland Delineation Redfish Bay Facility PCS Project # 19012

Date: 01/30/19



Photo 6-T1-P2 Facing South



### WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	_ City/County: San Patrio	icio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC			Sampling Point: T1-P3
	_ Section, Township, Rang		
Landform (hillslope, terrace, etc.): high marsh - spoil area	Local relief (concave, co	onvex. none); none	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B	7928298	ong: -97.15734005	Datum: WGS 84
Subregion (LRR or MLRA): LRRT/150B Lat: 27.8  Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slopes, or	casionally flooded, frequent	tly ponded NWI classific	ation: NA
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes X No	(If no, explain in R	emarks.)
Are Vegetation, Soil $\underline{X}$ , or Hydrology significant	ly disturbed? Are "N	Normal Circumstances" p	resent? Yes No X
Are Vegetation, Soil, or Hydrology naturally p		eded, explain any answe	
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point lo	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X No			
Hydric Soil Present? Yes No ×			No X
Wetland Hydrology Present? Yes x No	Within a wetiand	d? Yes	No
Remarks:			
Overcast with intermittent, drizzling rain. On	spoil pile that abu	its Beadle St. Pl	ot elevated ± 3'
above normal ground.	opon pilo maran		0.0.0.0.0
above normal ground.			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	()	Surface Soil	Cracks (B6)
Surface Water (A1)	313)	☐ Sparsely Veg	getated Concave Surface (B8)
High Water Table (A2)  Mari Deposits (B	15) (LRR U)	Drainage Pat	tterns (B10)
Saturation (A3) Hydrogen Sulfide	Odor (C1)	Moss Trim Li	nes (B16)
Water Marks (B1) Oxidized Rhizosp	oheres along Living Roots (	(C3) Dry-Season	Water Table (C2)
Sediment Deposits (B2)	uced Iron (C4)	Crayfish Buri	rows (C8)
Drift Deposits (B3)	uction in Tilled Soils (C6)	✓ Saturation Vi	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface	ce (C7)	☐ Geomorphic	Position (D2)
☐ Iron Deposits (B5) ☐ Other (Explain in	Remarks)	☐ Shallow Aqui	tard (D3)
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes No X Depth (inche			
Water Table Present?  Yes No x Depth (inche			
Saturation Present? Yes No _X Depth (inche includes capillary fringe)		tland Hydrology Presen	t? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial pho		), if available:	
NRCS Soil Survey Data, Aerial Photograph	y, NHD Data		
Remarks:		(2012-20	
Plot meets the hydrology criteria with two sec	ondary indicators	s (C9 & D5).	

### VEGETATION (Four Strata) - Use scientific names of plants.

				Sampling Point: T1-P3
Charter (District 30'		Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' ) none		Species?	Status	Number of Dominant Species
				That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant
				Species Across All Strata: 3 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 100 (A/B
				Prevalence Index worksheet:
•				
				Total % Cover of: Multiply by:
		= Total Cov	/er	OBL species x 1 = FACW species 5 x 2 = 10
50% of total cover:	20% of	total cover	:	FAC species 105 x 3 = 315
apling/Shrub Stratum (Plot size: 30' )				
Baccharis halimifolia	15	Yes	FAC	FACU species x 4 =
				UPL species x 5 =
				Column Totals: <u>110</u> (A) <u>325</u> (B)
				Prevalence Index = B/A = 2.95
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is ≤3.0¹
	4 =	= Total Cov	/er	
•	15	= Total Cov		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: 7.5	4 =			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: 7.5 erb Stratum (Plot size: 30' )	20% of	total cover	: 3	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus	15 20% of	total cover	FAC FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii	15 20% of 35 50	Yes Yes	FAC FAC	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must
50% of total cover: 7.5  erb Stratum (Plot size: 30' ) Andropogon virginicus Andropogon gerardii Helianthus annuus	15 20% of 35 50 5	Yes Yes No	FAC FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
50% of total cover: 7.5  lerb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	20% of 35 50 5	Yes Yes No No	FAC FAC	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of
50% of total cover: 7.5  lerb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	20% of 35 50 5 5	Yes Yes No	FAC FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
50% of total cover: 7.5    Stratum (Plot size: 30'	20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
50% of total cover: 7.5    Serb Stratum (Plot size: 30' )   Andropogon virginicus     Andropogon gerardii     Helianthus annuus     Andropogon glomeratus	35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
50% of total cover: 7.5    Serb Stratum (Plot size: 30' )   Andropogon virginicus     Andropogon gerardii     Helianthus annuus     Andropogon glomeratus	35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
50% of total cover: 7.5  lerb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree — Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb — All herbaceous (non-woody) plants, regardless
50% of total cover: 7.5  erb Stratum (Plot size: 30' ) Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  lerb Stratum (Plot size: 30') Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus	15 20% of 35 50 5 5	Yes Yes No No Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  erb Stratum (Plot size: 30' ) Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus  0	15 20% of 35 50 5 5	Yes Yes No No	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  erb Stratum (Plot size: 30' ) Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus  0	15 20% of 35 50 5 5	Yes Yes No No Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  erb Stratum (Plot size: 30' )  Andropogon virginicus  Andropogon gerardii  Helianthus annuus  Andropogon glomeratus  0	15 20% of 35 50 5 5 5 20% of	Yes Yes No No  Total Cover  Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  erb Stratum (Plot size: 30' ) Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus  0	15 20% of 35 50 5 5 5 20% of	Yes Yes No No  Total Cover  Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5    Serb Stratum (Plot size: 30' )	15 20% of 35 50 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Yes Yes No No  Total Cover  Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5  lerb Stratum (Plot size: 30') Andropogon virginicus Andropogon gerardii Helianthus annuus Andropogon glomeratus	15 20% of 35 50 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Yes Yes No No  Total Cover  Total Cover	FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 7.5    Serb Stratum (Plot size: 30' )	15 20% of 35 50 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Yes Yes No No Total Cover  Total Cover  Total Cover	FAC FAC FAC FACW  Ver 19	Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover: 7.5    Serb Stratum (Plot size: 30' )	15 20% of 35 50 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Yes Yes No No Total Cover  Total Cover  Total Cover	FAC FAC FAC FACW	Problematic Hydrophytic Vegetation¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree — Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb — All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine — All woody vines greater than 3.28 ft in height.

Sampling Point: T1-P3

Depth	Matrix		Redo	x Features			
inches)	Color (moist)	%	Color (moist)	% T	vpe <sup>1</sup> Loc <sup>2</sup>		Remarks
)-4	10YR 5/2	100				loamy sand	
l-16	10YR 6/3	100				loamy sand	WANT WANT
ype: C=Coydric Soil Histosol Histosol Histic Ep Black Hi Hydroge Stratified Organic 5 cm Mu Muck Pr 1 cm Mu Depleted Thick Da Coast Pr Sandy M Sandy M Sandy G Stripped Dark Su estrictive I Type: Depth (inc	and the state of t	pletion, RM=f cable to all L P, T, U) RR P, T, U) J) Ce (A11) MLRA 150A) LRR O, S)	RRs, unless othe Polyvalue Be Thin Dark St Loamy Muck Loamy Gleye Depleted Ma Redox Dark Depleted Da Redox Depre Marl (F10) (I Depleted Oc Iron-Mangar Umbric Surfa Delta Ochric Reduced Ve Piedmont Fle Anomalous I	rwise noted.)  elow Surface ( urface (S9) (Li y Mineral (F1) ed Matrix (F2) trix (F3) Surface (F6) rk Surface (F7 essions (F8) LRR U) hric (F11) (ML ese Masses ( ince (F13) (LRI (F17) (MLRA rtic (F18) (ML codplain Soils Bright Loamy (S	S8) (LRR S, T, U) (LRR O)  RA 151) F12) (LRR O R P, T, U) 151) RA 150A, 150 (F19) (MLRA	2Location: Plindicators for T, U) 1 cm Muc 2 cm Muc Reduced Piedmont Anomalor (MLRA Red Pare Very Sha Other (Extended Piedmont Unless 198) 149A) 11RA 149A, 153C, 1	ent Material (TF2) Illow Dark Surface (TF12) kplain in Remarks) ors of hydrophytic vegetation and nd hydrology must be present, s disturbed or problematic.





Photo 7 – Soil Sample, T1 – P3



Photo 8 - T1 - P3 Facing North







Photo 9-T1-P3 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

City/	County: San Patricio Co	D	Sampling Date: 1/16/2019
LLC		State: TX	Sampling Point: T1-P4
	tion, Township, Range:		
- spoil area Loca	al relief (concave, convex,	none): none	Slope (%): 0
to 1 percent slopes, occasion	ally flooded, frequently pond	ded NWI classific	cation: NA
ypical for this time of year?	Yes X No	(If no, explain in F	temarks.)
gy naturally problem	natic? (If needed, e	explain any answe	ers in Remarks.)
site map showing sa	mpling point location	ons, transects	, important features, etc.
X* No	Is the Sampled Area within a Wetland?	Yes	No_X
videnced by the pro	esence of a clay l	ayer at appi	-
		Secondary Indica	ators (minimum of two required)
Aquatic Fauna (B13)  Marl Deposits (B15) (LF  Hydrogen Sulfide Odor  Oxidized Rhizospheres  Presence of Reduced Ir  Recent Iron Reduction i  Thin Muck Surface (C7)  Other (Explain in Rema	(C1) along Living Roots (C3) on (C4) n Tilled Soils (C6)	Sparsely Ve Drainage Pa Moss Trim L Dry-Season Crayfish Bur Saturation V Geomorphic Shallow Aqu FAC-Neutra	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) Position (D2) itard (D3)
X Donth (inches):			
Depth (inches): Depth (inches):	Wetland H		nt? Yes No X
gy criteria. Only pre	esents one secon	dary indicat	or (C9).
	LLC    Sector	Section, Township, Range:    Section   Section   Section   Section   Section	State: TX  State: TX  Section, Township, Range:  Section, Township, Range:  Local relief (concave, convex, none):none  Lat: _27.87977811

# VEGETATION (Four Strata) – Use scientific names of plants.

Tree Stratum (Plot size: 30' )	Absolute	Dominant		
Tree Stratum (Plot size: 30 )				Dominance Test worksheet:
	% Cover	Species?	Status	Number of Dominant Species
none				That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant
3,				Species Across All Strata: 4 (B)
4				Percent of Dominant Species
5.				That Are OBL, FACW, or FAC: 100 (A/B)
6				
7.				Prevalence Index worksheet:
B				Total % Cover of: Multiply by:
		= Total Cov	er	OBL species x 1 =
50% of total cover:	20% of	total cover		FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 30' )				FAC species 150 x 3 = 450
1. Baccharis halimifolia	30	Yes	FAC	FACU species x 4 =
lva annua	40	Yes	FAC	UPL species x 5 =
3.				Column Totals: 150 (A) 450 (B)
4.				2
				Prevalence Index = B/A = 3.0
5				Hydrophytic Vegetation Indicators:
6.				1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
B	70			3 - Prevalence Index is ≤3.01
0.5		= Total Cov		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: 35	20% of	total cover	14	
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Andropogon virginicus	20	Yes	FAC	be present, unless disturbed or problematic.
				Definitions of Four Vegetation Strata:
2				
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
2				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
22	20	= Total Cov	er	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20		er	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2		= Total Cover	er 4	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20	= Total Cov	er	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20 20% of	= Total Cov	er 4	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20 20% of	= Total Cov	er 4	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20 20% of	= Total Cov	er 4	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
2	20 20% of	= Total Cov	er 4	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
2	20 20% of	= Total Covers	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
2	20 20% of 60	= Total Covers	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

Sampling Point: T1-P4

Depth Mar			x Feature	es	-		
inches) Color (mois		Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-3 10YR 3/1	80	10YR 5/1	20	D	M	sandy loam	-1-110
3-10 10YR 5/3	100					sandy loam	shell & gravel debris in matrix
10-12 G1 2.5N	90	10YR 5/1	10	<u>C</u>	M	clay	
12-16 G1 4N	80	10YR 5/1	20	С	M	clay	
Type: C=Concentration, D Iydric Soil Indicators: (A  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (L  5 cm Mucky Mineral (A  Muck Presence (A8) (L  1 cm Muck (A9) (LRR R  Depleted Below Dark S  Thick Dark Surface (A1  Coast Prairie Redox (A  Sandy Mucky Mineral (S  Sandy Gleyed Matrix (S  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR  Restrictive Layer (if observable)	RR P, T, U) 7) (LRR P, T, U) 7) (LRR P, T, U) 9, T) surface (A11) 2) 16) (MLRA 156 S1) (LRR O, S) 64)	I LRRs, unless other  Polyvalue Be Thin Dark St. Loamy Muck Value Be Depleted Ma Redox Dark  Depleted Ma Redox Dark  Depleted Da Redox Depre Marl (F10) (L Depleted Oc Iron-Mangan Delta Ochric Reduced Ve Piedmont Flo	rwise no elow Surfi urface (SS y Mineral ed Matrix trix (F3) Surface ( rk Surface essions (I LRR U) hric (F11 ese Masiace (F13) (F17) (M rtic (F18) bodplain S	ted.) ace (S8) (I 9) (LRR S, I (F1) (LRI (F2) F6) e (F7) F8) ) (MLRA 1 ses (F12) (LRR P, 1 LRA 151) (MLRA 1 Soils (F19)	LRR S, T, T, U) R O) (LRR O, F F, U) 50A, 150E	Indicators  U) 1 cm l 2 cm l Reduct Reduct Anom (ML Red P Very S Other  P, T) 3Indi we un	PL=Pore Lining, M=Matrix.  In for Problematic Hydric Soils <sup>3</sup> :  Muck (A9) (LRR O)  Muck (A10) (LRR S)  In the Hoodplain Soils (F19) (LRR P, S, T)  In alous Bright Loamy Soils (F20)  RA 153B)  Parent Material (TF2)  Shallow Dark Surface (TF12)  (Explain in Remarks)  In the Hydrology must be present, less disturbed or problematic.  In the Hydrology must be present, less disturbed or problematic.
presence of	-	criterion (F2),	nowe	ver, the	e mate	TIAL IS ODVI	ously spoil due to the





Photo 10 Soil Sample - T1 - P4



Photo 11 - T-1 - P4 Facing North







Photo 12 - T1 - P4 Facing South



### WETLAND DETERMINATION DATA FORM -- Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/C	County: San Patricio Co. Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	San Patricio Co.         Sampling Date:         1/16/2019           State: TX         Sampling Point:         T1-P5
_ 0	on, Township, Range:
Landform (hillslope, terrace, etc.): high marsh - spoil area Local	
Subregion (LRR or MLRA): <u>LRRT/150B</u> Lat: <u>27.880397</u>	
Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slopes, occasional	ally flooded, frequently ponded NIM/ classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	
	rbed? Are "Normal Circumstances" present? Yes No X
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X*         No	Is the Sampled Area
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No X
Remarks:	
* Plot collected on fill area evidenced by shell & gr	avel debris in matrix.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (B13)  Marl Deposits (B15) (LR)	R U) Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)
High Water Table (A2)  Saturation (A3)  Hydrogen Sulfide Odor (	
Water Marks (B1)  Oxidized Rhizospheres a	
Sediment Deposits (B2)	
Drift Deposits (B3)	Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5) Under (Explain in Remark	
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9) Field Observations:	Sphagnum moss (D8) (LRR T, U)
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	V
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre NRCS Soil Survey Data, Aerial Photography, New York (1997)	
	ID Data
Remarks:	
Plot does not meet the hydrology criteria. Only pre	sents one secondary indicator (C9).

#### VEGETATION (Four Strata) - Use scientific names of plants.

			Sampling Point: T1-P5
	Dominant		Dominance Test worksheet:
	Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
			Total Number of Dominant Species Across All Strata: 2 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B
			That Are OBL, FACW, OF FAC.
	***************************************		Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	= Total Cov	er	OBL species x 1 =
			FACW species 5 x 2 = 10
			FAC species 90 x 3 = 270
30	Yes	FAC	FACU species 20 x 4 = 80
			UPL species x 5 =
			Column Totals: 115 (A) 360 (B)
			- 212
			Prevalence Index = B/A = 3.13
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
30	Total Cou		3 - Prevalence Index is ≤3.0¹
			Problematic Hydrophytic Vegetation¹ (Explain)
20% 01	total cover.		
60	Yes	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
			Definitions of Four Vegetation Strata:
			Definitions of Four Vegetation Strata:
			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) o
			more in diameter at breast height (DBH), regardless of height.
			Sapling/Shrub – Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb - All herbaceous (non-woody) plants, regardless
			of size, and woody plants less than 3.28 ft tall.
			Woody vine - All woody vines greater than 3.28 ft in
			Woody vine – All woody vines greater than 3.28 ft in height.
85	= Total Cov		
85			
85	= Total Cov		
85	= Total Cov		
85	= Total Cov		
85	= Total Cov		
85	= Total Cov		
85	= Total Cov		height.  Hydrophytic
85 20% of	= Total Cov	17	height.
	30 30 20% of 60 5 5 5	= Total Cov 20% of total cover: 30	= Total Cover 20% of total cover:  30

Sampling Point: T1-P5

(inches) 0-3	Matrix			ox Featur	es	. 2	-	B
	Color (moist) 10YR 3/1	100	Color (moist)	%	Type	Loc <sup>2</sup>	loamy sand	Remarks shell & gravel debris in matrix
			40VD 5/4	10		N.4		
3-10	10YR 6/2	90	10YR 5/1	10	- <u>C</u>	M	sandy loam	shell & gravel debris in matrix
0-17	10YR 6/4	70	10YR 5/1	30	<u>C</u>	М	loamy clay	
Hydric Soil Ir Histosol ( Histic Epi Black His Hydroger Stratified Organic E 5 cm Muc Muck Pre 1 cm Muc Depleted Thick Dan Coast Pra Sandy Mi Sandy GI Sandy GI Sandy Re Stripped Dark Surl Restrictive L Type: Depth (inc	indicators: (Applie (A1) Ipedon (A2) Istic (A3) In Sulfide (A4) Layers (A5) Bodies (A6) (LRR R Cky Mineral (A7) (Lesence (A8) (LRR R Ck (A9) (LRR P, T) Iselow Dark Surface Irk Surface (A12) In Selow Matrix (S4) In Sulface (A5) In Sulface	P, T, U) RR P, T, U) U) Pee (A11) MLRA 1500 LRR O, S) S, T, U) Hydric S	Redox Depi Marl (F10) ( Depleted O Iron-Manga  Umbric Surl Delta Ochri Reduced Vi Piedmont F Anomalous	erwise not selow Surface (Siky Mineral red Matrix (F3) a Surface (ark Surface (F11) chric (F11) nese Mas face (F13) a (F17) (Matrix (F18) loodplain Bright Los	(F2) (F6) (F6) (F6) (F6) (F6) (F6) (F6) (F6	LRR S, T, , T, U) R O) (LRR O, P T, U) 50A, 150B ) (MLRA 1 (F20) (MLI	Indicators  U) 1 cm M 2 cm M Reduct Piedm Anoma (MLI Red P Very S Other  7, T) 3Indicators	PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils³: Muck (A9) (LRR O) Muck (A10) (LRR S) Ped Vertic (F18) (outside MLRA 150A,E Pool ont Floodplain Soils (F19) (LRR P, S, Talous Bright Loamy Soils (F20) RA 153B) Barent Material (TF2) Bhallow Dark Surface (TF12) (Explain in Remarks)  Peators of hydrophytic vegetation and thand hydrology must be present, ess disturbed or problematic.  For the problematic of the special





Photo 13 - Soil Sample - T1 - P5



Photo 14 - T-1 - P5 Facing North







Photo 15-T1-P5 Facing South



### WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San Pa	atricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		atricio Co. State: TX	Sampling Point: T1-P6
	_ Section, Township, F		- Sumpany Cont.
Landform (hillslope, terrace, etc.): marsh - drainage feature	Local relief (concave	convex none). none	Slane (9/.): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.8	7883775	-97.15774992	Slope (%) WGS 84
Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slopes, oc	casionally flooded, frequ	uently ponded	Datum: 110001
Are climatic / hydrologic conditions on the site typical for this time of y			
Are Vegetation, Soil X, or Hydrology significant			
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If	needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point	locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes X No	1-4-0		
Hydric Soil Present? Yes X* No	to the comp.	land? Yes X	No
Wetland Hydrology Present? Yes x No	- Within a Weti	ialiu? Tes	NO
Remarks:			
Overcast with intermittent, drizzling rain. Adja	acent to spoil pi	le that abuts Bead	le St.
* Plot collected on fill area evidenced by shell	& gravel debris	s in matrix.	
			- minorio - control - minorio - mino
HYDROLOGY			
Wetland Hydrology Indicators:			ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply			Cracks (B6)
Surface Water (A1)  Aquatic Fauna (B			getated Concave Surface (B8)
High Water Table (A2)  High Water Table (A2)  Marl Deposits (B1)		Drainage Pa	
Saturation (A3) Hydrogen Sulfide		Moss Trim L	
	heres along Living Roo		Water Table (C2)
Sediment Deposits (B2)  Presence of Redu  Drift Deposits (B3)  Recent Iron Redu	uced from (C4) action in Tilled Soils (C6	Crayfish Bur	rows (C8) isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Thin Muck Surface			Position (D2)
Iron Deposits (B5)  Other (Explain in		Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)	rtemarks)	FAC-Neutra	
Water-Stained Leaves (B9)			moss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes No _X Depth (inche	es):		
Water Table Present? Yes No _x Depth (inche	es):		
Saturation Present? Yes X No Depth (inche	es): 0	Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aenal pho	itos previous inspectio	ns) if available:	
NRCS Soil Survey Data, Aerial Photograph		113), ir available.	
Remarks:	y, IVIID Data		
	non (A2) and th	broo socondon, in	dicators (P10, C0 8
Plot meets the hydrology criteria with one prin	nary (AS) and th	niee secondary in	dicators (BTO, C9 &
D5).			
			1

#### VEGETATION (Four Strata) - Use scientific names of plants.

201		Daminant	Indiantas	Deminera Test medicine
ee Stratum (Plot size: 30' )		Dominant Species?		Dominance Test worksheet:
none				Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant
				Species Across All Strata: 3 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 100 (A/E
			***************************************	Prevalence Index worksheet:
				Total % Cover of: Multiply by:  OBI species 45
		= Total Cov	/er	OBL species 45 x 1 = 45 FACW species 45 x 2 = 90
50% of total cover:	20% of	total cover	:	FAC species 30
apling/Shrub Stratum (Plot size: 30'				
Iva annua	30	Yes	FAC	FACU species x 4 =
				UPL species x 5 =
				Column Totals: 120 (A) 225 (B)
				Prevalence Index = B/A = 1.88
	-			Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				☑ 3 - Prevalence Index is ≤3.0¹
	00	= Total Cov	/er	Problematic Hydrophytic Vegetation (Explain)
	20% of	total cover	. 6	Problematic Hydrophytic Vegetation (Explain)
50% of total cover: 15	20 /0 UI			
50% of total cover: 15 erb Stratum (Plot size: 30'	20 /8 01			Indicators of hydric acil and watered hydroless and
erb Stratum (Plot size: 30' )	40	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
erb Stratum (Plot size: 30' ) Spartina patens				be present, unless disturbed or problematic.
erb Stratum (Plot size: 30' ) Spartina patens Spartina spartinae	40	Yes	FACW	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Spartina patens  Spartina spartinae  Distichlis spicata  Andropogon glomeratus	40 5	Yes No	FACW	be present, unless disturbed or problematic.
Spartina patens Spartina spartinae Distichlis spicata	40 5 40 5	Yes No Yes	OBL OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
erb Stratum (Plot size: 30' ) Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus  Distichlis spicata  Andropogon glomeratus	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus   50% of total cover: 45 none	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus  50% of total cover: 45 none	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens  Spartina spartinae  Distichlis spicata  Andropogon glomeratus	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Spartina patens Spartina spartinae Distichlis spicata Andropogon glomeratus  0	40 5 40 5	Yes No Yes No Total Cov	FACW OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Spartina patens  Spartina spartinae  Distichlis spicata  Andropogon glomeratus	90 20% of	Yes No Yes No  Total Cover	FACW OBL FACW  Ver 18	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Spartina patens  Spartina spartinae  Distichlis spicata  Andropogon glomeratus	90 20% of	Yes No Yes No Total Cover  Total Cover	FACW OBL FACW  Ver 18	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

Sampling Point: T1-P6

Depth	Matrix			c Feature		. 2	_	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
)-16	10YR 6/2	70	10YR 5/1	30	<u>C</u>	<u>M</u>	loamy clay	shell & gravel debris in matrix
ydric Soil Histoso Histic E Black H Hydrogo Stratifie Organic 5 cm Mi Muck P 1 cm Mi Deplete Thick D Coast F Sandy I Sandy I Sandy F Stripped Dork St Cestrictive Type: Depth (in	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) e Bodies (A6) (LRR P ucky Mineral (A7) (LI resence (A8) (LRR P, T) d Below Dark Surface ark Surface (A12) Prairie Redox (A16) (I Mucky Mineral (S1) (I Gleyed Matrix (S4) d Matrix (S6) urface (S7) (LRR P, S Layer (if observed)	P, T, U) RR P, T, U) Se (A11) MLRA 150A LRR O, S) S, T, U) :	RRs, unless other Polyvalue Be Thin Dark Su Loamy Mucky Loamy Gleye Depleted Mat Redox Dark S Depleted Dar Redox Depre Marl (F10) (L Depleted Och Iron-Mangan Umbric Surfa Delta Ochric Reduced Ver Piedmont Flo Anomalous B	wise no low Surfirface (SS y Mineral d Matrix (F3) Surface (k Surface (k Surface (F11) ese Massions (F17) (M tic (F18) odplain Siright Loa	ted.) ace (S8) (I b) (LRR S, (F1) (LRI (F2) F6) e (F7) F8) (MLRA 1 Ses (F12) (LRR P, 1 LRA 151) (MLRA 1: Soils (F19) amy Soils	51) (LRR O, P (LRR O, P (, U) 50A, 150B ) (MLRA 1: (F20) (MLF	Indicators  U) 1 cm M 2 cm M Reduct Piedm Anoma (MLI Red P Very S Other  , T) 3Indic we unl ) 49A) RA 149A, 153C	PL=Pore Lining, M=Matrix.  If for Problematic Hydric Soils <sup>3</sup> : Muck (A9) (LRR O) Muck (A10) (LRR S)  Bed Vertic (F18) (outside MLRA 150A,E Iont Floodplain Soils (F19) (LRR P, S, T Belous Bright Loamy Soils (F20)  RA 153B) Branch Material (TF2) Bhallow Dark Surface (TF12) (Explain in Remarks)  Cators of hydrophytic vegetation and tland hydrology must be present, less disturbed or problematic.  C., 153D)  I Present? Yes X No Poe Spoil as evidenced by the





Photo 16 - Soil Sample - T1 - P6



Photo 17 - T-1 - P6 Facing North







Photo 18-T1-P6 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San	Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Point: T1-P7
	Section, Township		
		ve, convex, none): none	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat:			
Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slo	pes, occasionally flooded, fre	quently ponded NIMI classific	ration: NA
Are climatic / hydrologic conditions on the site typical for this ti			
Are Vegetation, Soil X, or Hydrology sign			
Are Vegetation, Soil, or Hydrology nate	urally problematic? (	If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh	lowing sampling poi	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present?  Yes X  No	In the Com	atad Assa	
Hydric Soil Present? Yes X No	is the same	etland? Yes X	No
Wetland Hydrology Present? Yes x No	Within a wi	etianor res	NO
Remarks:			
HYDROLOGY		aninas aninas	and a manufacture of the second of the secon
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all tha	it apply)		Cracks (B6)
	una (B13)		getated Concave Surface (B8)
	sits (B15) (LRR U)	Drainage Pa	
Saturation (A3)	Sulfide Odor (C1)	Moss Trim L	ines (B16)
	Rhizospheres along Living R		Water Table (C2)
	of Reduced Iron (C4)	Crayfish Bur	, ,
	n Reduction in Tilled Soils ( Surface (C7)		isible on Aerial Imagery (C9) Position (D2)
	plain in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutra	
Water-Stained Leaves (B9)		☐ Sphagnum r	noss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes No X Depth			
Water Table Present? Yes X No Depth	(inches): 14		v
Saturation Present? Yes X No Depth (includes capillary fringe)	(inches):	Wetland Hydrology Preser	nt? Yes X No
Describe Recorded Data (stream gauge, monitoring well, ae		tions), if available:	
NRCS Soil Survey Data, Aerial Photog	raphy, NHD Data		
Remarks:			
Plot meets the hydrology criteria with two	primary (A2 & A3	) and two secondar	y indicators (C9 &
D5).			
	ř		
	'		

### VEGETATION (Four Strata) - Use scientific names of plants.

ree Stratum (Plot size: 30' )		Dominant	Indicator	Dominance Test worksheet:
	% Cover			Number of Dominant Species
none				That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant Species Across All Strata: 3 (B)
				Species Across All Strata: 3 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 100 (A/B
			***************************************	Prevalence Index worksheet:
				Total % Cover of: Multiply by:
				OBL species 40 x 1 = 40
		= Total Co		FACW species $\frac{20}{20}$ $\frac{20}{20}$ $\frac{20}{20}$
50% of total cover:	20% of	total cover	:	
apling/Shrub Stratum (Plot size: 30' )				
none				FACU species x 4 =
				UPL species x 5 =
				Column Totals: 110 (A) 230 (B)
				Decualment Is to 21
				Prevalence Index = B/A = 2.1
and the second s				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
		= Total Co		Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% of	total cover	:	
erb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Iva annua	15	No	FAC	be present, unless disturbed or problematic.
Distichlis spicata	40	Yes	OBL	Definitions of Four Vegetation Strata:
Andropogon glomeratus	20	Yes	FACW	
Andropogon virginicus	15	No	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of
		Yes	FAC	
Andropogon gerardii	20	103		height.
				Sapling/Shrub – Woody plants, excluding vines, less
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
).				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
		= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55 oody Vine Stratum (Plot size: 30' )	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55 oody Vine Stratum (Plot size: 30' )	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55 none	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55/200dy Vine Stratum (Plot size: 30')	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon gerardii  0. 1. 2. 50% of total cover: 55 Noody Vine Stratum (Plot size: 30') none	110	= Total Cov		Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover: 55/200dy Vine Stratum (Plot size: 30')	110 20% of	= Total Cov total cover	/er . 22	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic
50% of total cover: 55 none	110 20% of	= Total Cover	ver 22	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

Sampling Point: T1-P7

epth _	Matrix			lox Feature				
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
	10YR 5/2	50					sandy loamy clay	
	2.5Y 4/2	50						
	10YR 7/1	98	7.5YR 6/8	_ 2	C	M	loamy clay	
1-17	10YR 4/1	100					loamy sand	
ydric Soil In  Histosol (/ Histic Epip Black Hist Hydrogen Stratified I Organic B 5 cm Muc Muck Pres 1 cm Muc Depleted Thick Dan Coast Pra Sandy Mu Sandy Gle Sandy Re	Adicators: (Appli A1) pedon (A2) tic (A3) Sulfide (A4) Layers (A5) sodies (A6) (LRR I ky Mineral (A7) (L sence (A8) (LRR P, T) Below Dark Surfa k Surface (A12) tirie Redox (A16) ucky Mineral (S1) eyed Matrix (S4)	P, T, U) LRR P, T, U U) Ce (A11)	Redox Dep Marl (F10) Depleted C Iron-Manga  H) Umbric Sur Delta Ochri Reduced V Piedmont F	erwise no Below Surface (SS Cky Mineral yed Matrix latrix (F3) k Surface ( ark Surface (LRR U) Dehric (F11 anese Mass face (F13) ic (F17) (M lertic (F18)	ted.) ace (S8) (I b) (LRR S (F1) (LRI (F2) F6) e (F7) F8) (MLRA 1 ses (F12) (LRR P, T LRA 151) (MLRA 1 Soils (F19)	LRR S, T, , T, U) R O) (LRR O, F T, U) 50A, 150B	Indicators for F U) 1 cm Muck 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1: Very Shallo Other (Expl	Material (TF2) w Dark Surface (TF12) ain in Remarks) s of hydrophytic vegetation and hydrology must be present, listurbed or problematic.
	ace (S7) (LRR P, ayer (if observed				8111		Hydric Soil Pres	sent? Yes <sup>X</sup> No
emarke:		hydric	soil criterion	(F3). Pl	ot loca	ited adj	jacent to spoil	





Photo 19 - Soil Sample - T1 - P7



Photo 20 - T1 - P7 Facing North







Photo 21 - T-1 - P7 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/Cou	Inty: San Patricio Co. Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	San Patricio Co.         Sampling Date:         1/16/2019           State:         TX         Sampling Point:         T1-P8
D. Consult R. A. Conflorers	Township, Range:
Landform (hillslope, terrace, etc.): high marsh - spoil pile Local rei	
Subregion (LRR or MLRA): LRRT/150B Lat: 27.87926193	
Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slopes, occasionally	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation, Soil X, or Hydrology significantly disturbe	
Are Vegetation, Soil, or Hydrology naturally problematic	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing samp	ling point locations, transects, important features, etc.
V	Allow .
Hydrophytic Vegetation Present?  Yes X  No	s the Sampled Area
	vithin a Wetland? Yes No X
Wetland Hydrology Present? Yes No X  Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (LRR U	
Saturation (A3)  Hydrogen Sulfide Odor (C1)	
☐ Water Marks (B1) ☐ Oxidized Rhizospheres alor ☐ Sediment Deposits (B2) ☐ Presence of Reduced Iron (	
Drift Deposits (B3)  Recent Iron Reduction in Ti	
Algal Mat or Crust (B4)  Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present?  Yes No X Depth (inches):  Saturation Present?  Yes No X Depth (inches):	
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous	
NRCS Soil Survey Data, Aerial Photography, NHD	) Data
Remarks:	
Plot does not meet the hydrology criteria with one se	econdary indicator (C9).

# VEGETATION (Four Strata) - Use scientific names of plants.

ree Stratum (Plot size: 30' )				
CC Otratorii (1 lot oleo.		Dominant Species?		Dominance Test worksheet: Number of Dominant Species
none				That Are OBL, FACW, or FAC: 2 (A)
				Total Number of Dominant
				Species Across All Strata: 2 (B)
				Persont of Dominant Coopies
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B
				`
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Co	/er	OBL species x 1 =
50% of total cover:	20% of	total cover	:	FACW species x 2 =
apling/Shrub Stratum (Plot size: 30' )				FAC species 75 x 3 = 225
none				FACU species 5 x 4 = 20
				UPL species 15 x 5 = 75
				Column Totals: 95 (A) 320 (B)
				Prevalence Index = B/A = 3.37
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is \$3.01
	20	= Total Cov	er	Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover: 15	20% of	total cover	. 6	- 1 Toblematic Hydrophytic Vegetation (Explain)
50% of total cover: 10				
			*	1
erb Stratum (Plot size: 30' )	10	No	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
erb Stratum (Plot size: 30' ) Andropogon gerardii				be present, unless disturbed or problematic.
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus	10	No	FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Andropogon yirginicus  erb Stratum (Plot size: 30' )  Andropogon gerardii  Helianthus annuus  Andropogon virginicus	10 20	No Yes	FAC FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta	10 20 45	No Yes Yes	FAC FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No	FAC FAC UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine	10 20 45 15 5	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5 5 95 20% of	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5 5 95 20% of	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5 	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5 	No Yes Yes No No Total Cov	FAC FAC UPL FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Andropogon gerardii Helianthus annuus Andropogon virginicus Opuntia stricta Galium aparine  0	10 20 45 15 5 5 95 20% of	No Yes Yes No No Total Cover Total Cover	FAC FAC UPL FACU  FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree — Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb — All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine — All woody vines greater than 3.28 ft in height.

Sampling Point: T1-P8

Depth	Matrix		Redo	x Feature				
(inches) 0-7	Color (moist) 10YR 4/2	100	Color (moist)	%	Type	_Loc <sup>2</sup>	loamy sand	shell & gravel debris in matrix
7-17	10YR 5/3	94	10YR 4/1	3	С	М	loamy sand	shell & gravel debris in matrix
	10111.070		10YR 7/6	3	D	М		
Hydric Soil  Histosol  Histosol  Histic Er  Black Hi  Hydroge  Stratifier  Organic  5 cm Mt  Muck Pr  1 cm Mt  Depletee  Thick Da  Coast P  Sandy M  Sandy M  Stripped  Dark Su  Restrictive  Type:  Depth (in  Remarks:	Indicators: (Applie (A1) (A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) Bodies (A6) (LRR I) ucky Mineral (A7) (L resence (A8) (LRR I) uck (A9) (LRR P, T) uck (A16) (Mucky Mineral (S1) (Bleyed Matrix (S4) ucky Mineral (S1) (Bleyed Matrix (S6) urface (S7) (LRR P, Layer (if observed) uches):	P, T, U) RR P, T, U U) ce (A11) (MLRA 150 (LRR O, S) S, T, U)	Redox Depre	rwise no elow Surface (St y Minera ed Matrix (F3) Surface (for k Surface (F1) hric (F11) ese Masace (F13) (F17) (Matrix (F18) bodplain Seright Loa	ted.) ace (S8) (I 9) (LRR S, I (F1) (LRI (F2) F6) e (F7) F8) ) (MLRA 1 ses (F12) (LRR P, T LRA 151) (MLRA 1: Soils (F19) amy Soils	51) (LRR O, P (LRR O, P (, U) (MLRA 1	Indicators  U) 1 cm f 2 cm f Reduct Piedm Anoma (ML) Reduct Other  7, T) 3 Indicators	PL=Pore Lining, M=Matrix.  If for Problematic Hydric Soils <sup>3</sup> : Muck (A9) (LRR O) Muck (A10) (LRR S) Ded Vertic (F18) (outside MLRA 150A, Broot Floodplain Soils (F19) (LRR P, S, Talous Bright Loamy Soils (F20) RA 153B) Branch Material (TF2) Challow Dark Surface (TF12) Clexplain in Remarks) Cators of hydrophytic vegetation and tland hydrology must be present, ess disturbed or problematic.  In the present of the spoil as evidenced by





Photo 22 - Soil Sample - T1 - P8



Photo 23 - T-1 - P8 Facing North







Photo 24 -T1 - P8 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City	/County: San Patricio Co. Sam	pling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sam	pling Point: T2-P1
D 0	tion, Township, Range:	
	al relief (concave, convex, none): none	Slone (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.87772		
Soil Map Unit Name: IS - Ijam soils, rarely ponded	NWI classification:	NA
Are climatic / hydrologic conditions on the site typical for this time of year?		
Are Vegetation, Soil X, or Hydrology significantly dist		nt? Yes No _^
Are Vegetation, Soil, or Hydrology naturally problem	matic? (If needed, explain any answers in F	Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sa	mpling point locations, transects, imp	portant features, etc.
Hydrophytic Vegetation Present? Yes X No		
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes No _x         No _x	Is the Sampled Area	
Wetland Hydrology Present? Yes No x	within a Wetland? Yes	No ^
Remarks:		
Overcast with intermittent, drizzling rain. Spoil dis	· · · · · · · · · · · · · · · · · · ·	
Beasley St. Spoil pile elevation ± 12'. Google Ea	irth imagery shows area filled in 1	985.
HADBOLOGA		
HYDROLOGY	Cocondon Indicators (	minimum of hun maning)
Wetland Hydrology Indicators:		minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  Aquatic Fauna (B13)	Surface Soil Crack	d Concave Surface (B8)
Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (B13)  Marl Deposits (B15) (LI		
Saturation (A3)  Hydrogen Sulfide Odor		' '
	along Living Roots (C3) Dry-Season Water	,
Sediment Deposits (B2)	ron (C4)	(C8)
Drift Deposits (B3)	in Tilled Soils (C6)	on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7		ion (D2)
☐ Iron Deposits (B5) ☐ Other (Explain in Rema		
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (	, ,
☐ Water-Stained Leaves (B9) Field Observations:	Spriagrum moss (	D6) (LKK 1, U)
Surface Water Present? Yes No _X Depth (inches):		
Water Table Present? Yes No X Depth (inches):		
Saturation Present? Yes No X Depth (inches):		Yes No X
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p		
NRCS Soil Survey Data, Aerial Photography, N	HD Data	
Remarks:		
Plot does not meet the hydrology criteria presenti	ng only one secondary indicator (	C9).
·		

#### VEGETATION (Four Strata) - Use scientific names of plants.

	mes of p			Sampling Point: T2-P1
Charles (District 30'		Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' )		Species?		Number of Dominant Species
				That Are OBL, FACW, or FAC: 1 (A)
				Total Number of Dominant
				Species Across All Strata: 1 (B)
				Demont of Deminent Species
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/E
				(ACC)
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
				OBL species <u>5</u> x 1 = <u>5</u>
		= Total Cov		FACW species x 2 =
50% of total cover:	20% of	total cover		FAC species 85 x 3 = 255
apling/Shrub Stratum (Plot size: 30' )				FACU species x 4 =
none		*****		UPL species 5 x 5 = 25
			-	Column Totals: 95 (A) 285 (B
				Prevalence Index = B/A = 3.0
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
	20			3 - Prevalence Index is ≤3.0¹
		= Total Cov		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: 15	20% of	total cover	6	
erb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Andropogon virginicus	80	Yes	FAC	be present, unless disturbed or problematic.
Helianthus annuus	5	No	FAC	Definitions of Four Vegetation Strata:
Opuntia stricta	5	No	UPL	
Bornichia frutescens	5	No	OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of
			***	more in diameter at breast height (DBH), regardless o height.
•				noight.
				Sapling/Shrub - Woody plants, excluding vines, less
				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb - All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft tall.
0				Wasterland All and discussion of the control
1.				Woody vine – All woody vines greater than 3.28 ft in height.
2.			+0.	neight.
	95			
47.5	-	= Total Cov		
50% of total cover: 47.5	20% of	total cover:	13	
Voody Vine Stratum (Plot size: 30' )				
none		***************************************		
				Hydrophytic
			er	Vegetation
		= Total Cov		Present? Yes ^ No
•				Present? Yes X No
4550% of total cover:	20% of		***************************************	Present? Yes No
4 5	20% of	total cover:		Present? Yes _^ No
	20% of	total cover:		Present? Yes No
	20% of	total cover:		Present? Yes No

# SOIL

Sampling Point: T2-P1





Photo 25 - Soil Sample - T2 - P1



Photo 26 - T-2 - P1 Facing North







Photo 27 - T2 - P1 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San Patricio Co		_ Sampling Date:	1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	S	tate: TX	Sampling Point:	T2-P2
	Section, Township, Range:		_ camping r cint.	
	Local relief (concave, convex, r		Slor	ne (%). 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.87	747084 Long: -9			
Soil Map Unit Name: Is - Ijam soils, rarely flooded			cation: L2USCh	
Are climatic / hydrologic conditions on the site typical for this time of ye				****
				. Y
Are Vegetation, Soil X, or Hydrology significantly				No _^
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, ex	kplain any answ	ers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing	sampling point location	ns, transect	s, important fe	eatures, etc.
Hydrophytic Vegetation Present? Yes X No				
Hydric Soil Present? Yes X No	Is the Sampled Area	~		
Wetland Hydrology Present? Yes X No	within a Wetland?	Yes _^_	No	_
Remarks:				
HYDROLOGY				
Wetland Hydrology Indicators:			ators (minimum of	two required)
Primary Indicators (minimum of one is required; check all that apply)			l Cracks (B6)	
Surface Water (A1) Aquatic Fauna (B1:	· ·		egetated Concave	Surface (B8)
High Water Table (A2)  High Water Table (A2)  High Water Table (A2)			atterns (B10)	
Saturation (A3)  Hydrogen Sulfide C	eres along Living Roots (C3)	Moss Trim I		
☐ Water Marks (B1) ☐ Oxidized Rhizospho ☐ Sediment Deposits (B2) ☐ Presence of Reduc		Crayfish Bu	Water Table (C2)	
			/isible on Aerial Im	agery (C9)
Algal Mat or Crust (B4)  Thin Muck Surface	, ,		Position (D2)	
Iron Deposits (B5) Other (Explain in R	emarks)	Shallow Aqu	uitard (D3)	
Inundation Visible on Aerial Imagery (B7)		FAC-Neutra	I Test (D5)	
Water-Stained Leaves (B9)		Sphagnum	moss (D8) (LRR T	, U)
Field Observations:				
Surface Water Present? Yes No _X Depth (inches)				
Water Table Present? Yes X No Depth (inches)			v	
Saturation Present? Yes X No Depth (inches)	: Wetland H	ydrology Prese	nt? Yes ^	No
Describe Recorded Data (stream gauge, monitoring well, aerial photo		able:		
NRCS Soil Survey Data, Aerial Photography	, NHD Data			
Remarks:				
Plot meets the hydrology criteria with two prima	ary (A2 & A3) and two	secondar	y indicators	(C9 &
D5).				

#### VEGETATION (Four Strata) - Use scientific names of plants.

/EGETATION (Four Strata) – Use scientific na	mes of pl	ants.		Sampling Point: T2-P2
Tree Stratum (Plot size: 30' )		Dominant		Dominance Test worksheet:
none (Flot size)		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2.				(1)
3.				Total Number of Dominant Species Across All Strata: 3 (B)
l,				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
5.				(7/6)
7.				Prevalence Index worksheet:
3				Total % Cover of: Multiply by:
		= Total Cov		OBL species 70 x 1 = 70
50% of total cover:	20% of	total cover		FACW species 25 x 2 = 50
Sapling/Shrub Stratum (Plot size: 30' )				FAC species 15 x 3 = 45
lva annua	15	Yes	FAC	FACU species x 4 =
2.				UPL species x 5 =
3				Column Totals: 110 (A) 165 (B)
1.				Prevalence Index = B/A = 1.5
5.				Hydrophytic Vegetation Indicators:
3.				1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
8				✓ 3 - Prevalence Index is ≤3.0¹
		= Total Cov	er	Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover: 7.5	20% of	total cover	3	- Problematic Hydrophytic Vegetation (Explain)
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Distichlis spicata	60	Yes	OBL	be present, unless disturbed or problematic.
2. Andropogon glomeratus	25	Yes	FACW	Definitions of Four Vegetation Strata:
3. Fimbristylis castanea	10	No	OBL	
4				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5				height.
6				Sapling/Shrub - Woody plants, excluding vines, less
7.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
В				Herb – All herbaceous (non-woody) plants, regardless
9.				of size, and woody plants less than 3.28 ft tall.
10				
11				Woody vine – All woody vines greater than 3.28 ft in height.
12.			***************************************	
	95	= Total Cov	er	
50% of total cover: 47.5				
Woody Vine Stratum (Plot size: 30' )				
1. none				
2.				
3.				
4.				
5				Hydrophytic
		= Total Cov	er	Vegetation
50% of total cover:	20% of	total cover		Present? Yes X No
Remarks: (If observed, list morphological adaptations belo				
Plot meets hydrophytic vegetation criter		& PI).		
, , , , , , , , , , , , , , , , , , , ,	,	,		

Sampling Point: T2-P2

Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Featur %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
-3	10YR 5/2	80	10YR 5/1	20	D	M	loamy sand	shell debris in matrix
-12	G1 5N	95	10YR 5/2	5	С	M	loamy sand	shell debris in matrix
ydric Soil  Histoso Histoso Histic E Black H Hydrog Stratifie Organic 5 cm M Muck F Thick D Coast F Sandy Sandy Strippe Dark So estrictive Type: Depth (in	Indicators: (Applia Indicators: (Applia I (A1) Indicators: (A2) Indicators: (A3) Indicators: (A5) Indicators: (A5) Indicators: (A6) (LRR ucky Mineral (A7) (LRR uck (A9) (LRR p, T) Indicators: (A12) Indicators: (A12) Indicators: (A12) Indicators: (A13) Indicators: (A14) Indicators: (A15) Indicators: (A16) Indicators: (A16) Indicators: (A16) Indicators: (A17) (LRR p, Indicators: (A	P, T, U) LRR P, T, U U) Icce (A11) (MLRA 150 (LRR O, S) S, T, U)	Redox Depre	rwise no elow Surface (S y Minera ed Matrix trix (F3) Surface rk Surface rk Surface essions ( .RR U) (F17) (Mrtic (F18) podplain Bright Lo	oted.) face (S8) (I 9) (LRR S, al (F1) (LRF c (F2) (F6) ce (F7) F8) (I) (MLRA 1 Sees (F12) (I) (MLRA 151) (MLRA 151) (MLRA 15)	51) (LRR O, P (LRR O, P (, U) (MLRA 1 (F20) (MLI	Indicators  U) 1 cm M 2 cm M Reduct Piedm Anoma (MLI Red P Very S Other  7, T) 3Indic we unl  1) 49A) RA 149A, 153C  Hydric Soil	Present? Yes X No  De spoil as evidenced by th





Photo 28 - Soil Sample - T2 - P2



Photo 29 - T-2 - P2 Facing North







Photo 30 - T2 - P2 Facing South



## WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/C	County: San Patricio Co. Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T2-P3
Investigator(s): 11. Carrozat 4 7. Carrozat	ion, Township, Range:
Landform (hillslope, terrace, etc.): high marsh Loca	I relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.877993	03 Long: -97.16002628 Datum: WGS 84  NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil X, or Hydrology significantly distu	rbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sar	npling point locations, transects, important features, etc.
Linda - India Vandalian Baranati Van X	
Hydrophytic Vegetation Present?  Yes X No No Yes No X	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes No X
Remarks:	
Overcast with intermittent, drizzling rain. Normal I permit #11867. Google Earth images show area to	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)  Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (LR	
Saturation (A3) Hydrogen Sulfide Odor (  Water Marks (B1) Oxidized Rhizospheres	
Sediment Deposits (B2)  Sediment Deposits (B2)  Presence of Reduced Inc.	
Drift Deposits (B3)  Recent Iron Reduction in	
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5) Other (Explain in Remar	
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
☐ Water-Stained Leaves (B9)	☐ Sphagnum moss (D8) (LRR T, U)
Field Observations:  Surface Water Present?  Yes No X Depth (inches):	
Water Table Present?  Yes No _x Depth (inches):  Saturation Present?  Yes No _x Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr NRCS Soil Survey Data, Aerial Photography, N	
Remarks:	
Plot meets the hydrology criteria with two secondary	ary indicators (C9 & D5).
Thormood the hydrology emond than the edding	mandations (GG at 2G).

# **VEGETATION** (Four Strata) – Use scientific names of plants.

201	Absoluto		In dia store	
		Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' ) none		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant Species Across All Strata: 3 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov	ver	OBL species 15 x 1 = 15
50% of total cover:	20% of	total cover		FACW species 20 x 2 = 40
apling/Shrub Stratum (Plot size: 30' )				FAC species 70 x 3 = 210
Iva annua	60	Yes	FAC	FACU species x 4 =
Borrichia frutescens	10	No	OBL	UPL species x 5 =
				Column Totals: 105 (A) 265 (B)
•				Prevalence Index = B/A = 2.52
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
*				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0¹
	70	= Total Cov	/er	Problematic Hydrophytic Vegetation¹ (Explain)
500/ () 35	20% of	total cover	. 14	Trobemate Hydrophytic vegetation (Explain)
50% of total cover:				
				Indicators of hydric call and wallend hydroless and
lerb Stratum (Plot size: 30' )	5	No	OBL	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
lerb Stratum (Plot size: 30' ) Avicennia germinans				be present, unless disturbed or problematic.
Avicennia germinans  Ambrosia artemisiifolia	5	No	OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Avicennia germinans  Ambrosia artemisiifolia  Helianthus annuus	5 20 10	No Yes Yes	OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Aerb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
Herb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
lerb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
Avicennia germinans  Ambrosia artemisiifolia  Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
lerb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus  0	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus  0.	5 20 10	No Yes Yes	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes  Total Cov	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10	No Yes Yes  Total Cov	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus  0.	5 20 10 35 20% of	Yes Yes  Total Cover total cover	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' Avicennia germinans Ambrosia artemisiifolia Helianthus annuus  0. 1. 2. 50% of total cover: 17.5 woody Vine Stratum (Plot size: 30') none	5 20 10 35 20% of	No Yes Yes  Total Cover total cover	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Avicennia germinans  Ambrosia artemisiifolia  Helianthus annuus  0.  1.  2.  50% of total cover: 17.5  none	5 20 10 35 20% of	No Yes Yes  Total Cover total cover	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Avicennia germinans   Ambrosia artemisiifolia   Helianthus annuus   Ambrosia artemisiifolia   Helianthus annuus   Ambrosia artemisiifolia   Helianthus annuus   Ambrosia artemisiifolia   Helianthus annuus   Ambrosia artemisiifolia   Ambrosia artemisiifolia   Helianthus annuus   Ambrosia artemisiifolia   Ambrosia artemisiifolia	5 20 10 35 20% of	No Yes Yes  Total Cover total cover	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10 35 20% of	No Yes Yes  Total Cover total cover	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Herb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10 35 20% of	No Yes Yes  Total Cover total cover	OBL FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Herb Stratum (Plot size: 30' ) Avicennia germinans Ambrosia artemisiifolia Helianthus annuus	5 20 10 35 20% of	No Yes Yes  Total Cover  Total Cover	OBL FACW FAC PACE PACE PACE PACE PACE PACE PACE PA	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

SOIL

Sampling Point: T2-P3

Profile Description: (Describe	to the depth			dicator	or contirn	n the absence of in	idicators.)
Depth Matrix (inches) Color (moist)	%	Color (moist)	Features %	Type	Loc <sup>2</sup>	Texture	Remarks
0-16 10YR 6/3	95 1	0YR 2/2	5	С	М	loamy sand	
Type: C=Concentration, D=Deplydric Soil Indicators: (Application of Indicators: (Appli	, T, U) RR P, T, U) () e (A11) MLRA 150A)	educed Matrix, MS RRs, unless other Polyvalue Bel Thin Dark Sur Loamy Mucky Loamy Gleyer Depleted Mat Redox Dark S Depleted Dari Redox Depreted Depleted Och Iron-Mangane Umbric Surfac Delta Ochric ( Reduced Veri Piedmont Floor	i=Masked swise noted low Surface (S9) of Mineral (Fd Matrix (F7)) Surface (F6) of K Surface (F1) (If the see Masses (F1)) (If the see (F1)	Sand Gr d.) e (S8) (L (LRR S, F1) (LRF 2) ) MLRA 1 s (F12) ( RR P, T (A 151) ILRA 15 ils (F19)	ains.  RR S, T, U T, U) CO)  51) LRR O, P, T, U) (00A, 150B) (MLRA 14	2Location: PL= Indicators for F U) 1 cm Muck 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1: Red Parent Very Shallo Other (Expl	Material (TF2) w Dark Surface (TF12) ain in Remarks) s of hydrophytic vegetation and hydrology must be present, isturbed or problematic.
Restrictive Layer (if observed): Type: Depth (inches): Plot does not m		 nydric soil cri	terion.	Plot lo	ocated		sent? Yes No X





Photo 31 - Soil Sample - T2 - P3



Photo 32 - T-2 - P3 Facing North







Photo 33 - T2 - P3 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San I	Patricio Co.	Sampling Date:	1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Point:	T2-P4
D. Connecte & A. Continuous	Section, Township,			
	Local relief (concav	e, convex, none): non	e Slo	pe (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.87	7815766	Long: -97.160711	98 Da	tum: WGS 84
Soil Map Unit Name: Ds - Dianola soils		NWI cl	assification: PUSCh	
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes X N			
Are Vegetation, Soil X, or Hydrology significantly		re "Normal Circumstar		No
Are Vegetation, Soil, or Hydrology naturally pr		f needed, explain any a		
SUMMARY OF FINDINGS - Attach site map showing		nt locations, trans	ects, important f	eatures, etc.
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No           Remarks:	within a We	oled Area stland? Yes	X No	
Overcast with intermittent, drizzling rain. Norn permit #11867.	nal Marsh with	nin spoil dispos	al area associat	ted with
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary	Indicators (minimum of	two required)
Primary Indicators (minimum of one is required; check all that apply)		Surfac	e Soil Cracks (B6)	
Surface Water (A1)  Aquatic Fauna (B1)			ely Vegetated Concave	Surface (B8)
☐ High Water Table (A2) ☐ Marl Deposits (B19 ☐ Saturation (A3) ☐ Hydrogen Sulfide (A2)			ge Patterns (B10) Frim Lines (B16)	
	heres along Living Ro		ason Water Table (C2)	
Sediment Deposits (B2)  Presence of Reduction			h Burrows (C8)	
	ction in Tilled Soils (0	C6) Satura	tion Visible on Aerial In	nagery (C9)
Algal Mat or Crust (B4)	` '	Geom	orphic Position (D2)	
☐ Iron Deposits (B5) ☐ Other (Explain in F	Remarks)		w Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7)			eutral Test (D5)	
Water-Stained Leaves (B9) Field Observations:		Sphag	num moss (D8) (LRR T	, 0)
Surface Water Present? Yes No _X Depth (inches	s)·			
Water Table Present? Yes No X Depth (inches				
Saturation Present? Yes X No Depth (inches		Wetland Hydrology P	resent? Yes X	No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial phot	too provious inspect	ans) if available:		
NRCS Soil Survey Data, Aerial Photography		ons), ii avallable.		
Remarks:				
Plot meets the hydrology criteria with one prim	nary (A3) and	two secondary	indicators (C9 &	§ D5).
Burrowing crab holes observed.				

## VECETATION (Four Strata) - Use scientific names of plants

Tree Stratum       (Plot size: 30' )       % C.         1. none	======================================	= Total Cov	Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  100 (A/B)  Prevalence Index worksheet:  Total % Cover of:  Multiply by: OBL species  5 x 1 = 5
1. none 2	== 0% of	= Total Covertotal cover	er	That Are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet: Total % Cover of: Multiply by:
3	======================================	= Total Cover	er	Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  Multiply by:
3	======================================	= Total Cover	er	Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  Multiply by:
4	== 0% of	= Total Cov	er	Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet: Total % Cover of: Multiply by:
5	======================================	= Total Cov	er	That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
50% of total cover: 20  Sapling/Shrub Stratum (Plot size: 30')  1. none  2	9% of	= Total Cov	er	Prevalence Index worksheet:
7	======================================	= Total Cov total cover	er	Total % Cover of: Multiply by:
50% of total cover: 20  Sapling/Shrub Stratum (Plot size: 30')  1. none  2  3  4  5  6	9% of	total cover		
50% of total cover: 20  Sapling/Shrub Stratum (Plot size: 30')  1. none  2  3  4  5  6	= 0% of	total cover		OBL species 5 x 1 = 5
50% of total cover: 20  Sapling/Shrub Stratum (Plot size: 30')  1. none 2 3 4 5 6	0% of	total cover		
Sapling/Shrub Stratum (Plot size: 30' )				FACW species 5 x 2 = 10
1. none 2				FAC species 90 x 3 = 270
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: 100 (A) 285 (B)
5				
3				Prevalence Index = B/A = 2.85
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
8				3 - Prevalence Index is ≤3.0¹
	=	= Total Cov	er	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover: 20	% of	total cover		
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Iva annua 90		Yes	FAC	be present, unless disturbed or problematic.
2. Lycium carolinianum 5		No	FACW	Definitions of Four Vegetation Strata:
3. Suaeda linearis 5		No	OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
4				more in diameter at breast height (DBH), regardless of
5				height.
6				Sapling/Shrub - Woody plants, excluding vines, less
7				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8				Mark All harbonous (non-woods) alonto consultana
9				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
10				Woody vine - All woody vines greater than 3.28 ft in
11				height.
12		T-4-1 O-		
		= Total Cov		
	% of	total cover		
Woody Vine Stratum (Plot size: 30' )				
1. none				
2				
3			-	
4				
5				Hydrophytic
		= Total Cov	er	Vegetation
50% of total cover: 20	1% of	total cover		Present? Yes X No
Remarks: (If observed, list morphological adaptations below).				

SOIL

Sampling Point: T2-P4

Depth	Matrix		Redo	x Features	S			
inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
)-4	10YR 5/1	50					loamy clay	
	2.5Y 6/4	50						
l-16	2.5Y 4/1	100					clay	
Histosol Histosol Histic E Black H Hydroge Stratifie Organic 5 cm Mi Muck P 1 cm Mi Deplete Thick D Coast P Sandy N Sandy R Strippec Dark Su Restrictive Type: Depth (in	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) E Bodies (A6) (LRR ucky Mineral (A7) (I resence (A8) (LRR P, T) d Below Dark Surfa ark Surface (A12) Prairie Redox (A16) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) d Matrix (S6) Inface (S7) (LRR P, Layer (if observed	P, T, U) LRR P, T, U) U) Icce (A11) (MLRA 150A) (LRR O, S) S, T, U)	RRs, unless othe Polyvalue Be Thin Dark St Loamy Muck Loamy Gleye Depleted Ma Redox Dark Depleted Da Redox Depre Marl (F10) (L Depleted Oc Iron-Mangan Umbric Surfa Delta Ochric Reduced Ve Piedmont Fle Anomalous B	rwise note alow Surface urface (S9) by Mineral of ed Matrix (F3) Surface (F rk Surface essions (F6) LRR U) hric (F11) dese Masso ace (F13) ( (F17) (ML rtic (F18) ( podplain S Bright Loar	ed.) ce (S8) (L (LRR S, (F1) (LRR F2) 66) ((F7) 88) (MLRA 1. es (F12) (LRR P, T, RA 151) MLRA 15 oils (F19) my Soils (	RR S, T, ( T, U) (O) (ST) (D) (D) (M) (M) (M) (M) (M) (M) (M) (M) (M) (M	Indicators for I  Indicators f	t Material (TF2)  by Dark Surface (TF12)  lain in Remarks)  s of hydrophytic vegetation and hydrology must be present, disturbed or problematic.  BD)  sent? Yes X No





Photo 34 - Soil Sample - T2 - P4



Photo 35 - T-2 - P4 Facing North







Photo 36 - T2 - P4 Facing South



## WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/C	County: San Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX	Sampling Point: T2-P5
	on, Township, Range:	
	relief (concave, convex, none): none	Slone (%). 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.8787599		
Soil Map Unit Name: Mu - Mustang fine sand, 0 to 1 percent slopes, occasional	lly flooded, frequently ponded	L2USCh
Are climatic / hydrologic conditions on the site typical for this time of year? Y		
Are Vegetation, Soil X, or Hydrology significantly distur		present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing same	pling point locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes X No		
Hydric Soil Present? Yes X No	Is the Sampled Area	
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X	No
Remarks:		
Overcast with intermittent, drizzling rain. Normal N	Marsh within spoil disposal a	rea associated with
permit #11867.	aron within spon disposar ar	ca associated with
permit #11001.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1) Aquatic Fauna (B13)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (LRF		atterns (B10)
Saturation (A3)		
☐ Water Marks (B1) ☐ Oxidized Rhizospheres a		Water Table (C2)
Sediment Deposits (B2)  Presence of Reduced Iro		
Drift Deposits (B3)		/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Iron Deposits (B5)  Thin Muck Surface (C7)  Other (Explain in Remark	Annual Control of the	Position (D2)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral	
Water-Stained Leaves (B9)		moss (D8) (LRR T, U)
Field Observations:		
Surface Water Present? Yes No _X Depth (inches):		
Water Table Present? Yes X No Depth (inches): 4		
Saturation Present? Yes x No Depth (inches): 0	Wetland Hydrology Preser	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vieus inspections) if available:	
NRCS Soil Survey Data, Aerial Photography, NF		
Remarks:	ID Data	
	A2 & A3) and two secondar	v indicators (CO 8
Plot meets the hydrology criteria with two primary (	AZ & AS) and two secondar	y indicators (C9 &
D5). Burrowing crab holes observed.		
		A

### VEGETATION (Four Strata) - Use scientific names of plants.

Dominance Test worksheet:   Number of Dominant Species     Total Number of Dominan
That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  Multiply by:  OBL species 90 x 1 = 90  FACW species x 2 =  FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  Note that Are OBL, FACW, or FAC:  1 - Rapid Test for Hydrophytic Vegetation  Problematic Hydrophytic Vegetation  (Explain over:  Over
Species Across All Strata: 1   Percent of Dominant Species That Are OBL, FACW, or FAC: 100
Species Across All Strata: 1   Percent of Dominant Species That Are OBL, FACW, or FAC: 100
Percent of Dominant Species That Are OBL, FACW, or FAC:    Prevalence Index worksheet:   Total % Cover of:
That Are OBL, FACW, or FAC:    Prevalence Index worksheet:   Total % Cover of:
Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 90 x 1 = 90  FACW species x 2 =  FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 90 x 1 = 90  FACW species x 2 = FACU species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  Note: The species of the s
OBL species 90 x 1 = 90  FACW species x 2 =  FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%  Tover  Over: Problematic Hydrophytic Vegetation¹ (Explain over:
OBL species 90 x 1 = 90  FACW species x 2 =  FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%  Tover  Over: Problematic Hydrophytic Vegetation¹ (Explain over:
FACW species x 2 =  FAC species x 3 =  FACU species x 4 =  UPL species x 5 =  Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
FAC species
FACU species x 4 =
UPL species x 5 = Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
Column Totals: 90 (A) 90  Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
Prevalence Index = B/A = 1.0  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain over:
1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% √ 3 - Prevalence Index is ≤3.0¹ Problematic Hydrophytic Vegetation¹ (Explain over:
2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain
Cover  Diver:  Cover  Problematic Hydrophytic Vegetation¹ (Explain
Cover Problematic Hydrophytic Vegetation¹ (Explain
over:
Indicators of hydric soil and wetland hydrology m
OBL be present, unless disturbed or problematic.
OBL Definitions of Four Vegetation Strata:
OBL Tree - Woody plants, excluding vines, 3 in. (7.6 c
more in diameter at breast height (DBH), regardle
height.
Sapling/Shrub - Woody plants, excluding vines,
than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regard of size, and woody plants less than 3.28 ft tall.
Woody vine – All woody vines greater than 3.28
height.
Cover
over: 18
Hydrophytic
Cover Vegetation
Cover Vegetation Present? Yes X No
Cov

#### SOIL

Sampling Point: T2-P5

Depth	cription: (Describe Matrix	o to the dep		ox Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 5/2	93	10YR 4/6	7	С	<u>M</u>	loamy sand	
		***************************************		···			***************************************	
Tune: C=C	oncentration, D=De	nletion DM-	-Poducod Matrix N		d Sand G	rains	<sup>2</sup> Leastion: DL:	=Pore Lining, M=Matrix.
. ) [	Indicators: (Appli	1				iallis.		Problematic Hydric Soils <sup>3</sup> :
Histoso	. ,		Polyvalue B					(A9) (LRR O)
	pipedon (A2) istic (A3)		Thin Dark S Loamy Muc					(A10) (LRR S) √ertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gley			(0)		Floodplain Soils (F19) (LRR P, S, T)
THE REAL PROPERTY.	d Layers (A5)		✓ Depleted M					s Bright Loamy Soils (F20)
	Bodies (A6) (LRR		Redox Dark Depleted Da	,	,		(MLRA 1	153B) nt Material (TF2)
	ucky Mineral (A7) (L resence (A8) (LRR		Redox Dep					ow Dark Surface (TF12)
	uck (A9) (LRR P, T)	•	Marl (F10) (		-,			plain in Remarks)
	d Below Dark Surfa	ce (A11)	Depleted O		•		2	
_	ark Surface (A12) rairie Redox (A16)	(MI DA 150/	Iron-Manga Umbric Sur					rs of hydrophytic vegetation and
_	Mucky Mineral (S1)		Delta Ochrid					d hydrology must be present, disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Ve					
	Redox (S5)		Piedmont F		,			
_	f Matrix (S6) Irface (S7) (LRR P,	e T III	Anomalous	Bright Loa	my Soils	(F20) <b>(MLF</b>	RA 149A, 153C, 15	3D)
	Layer (if observed	-						***************************************
Type:								
Depth (in	ches):						Hydric Soil Pre	esent? Yes X No
	lot meets the							





Photo 37 - Soil Sample - T2 - P5



Photo 38 - T-2 - P5 Facing North







Photo 39 - T2 - P5 Facing South



## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City	//County: San Patricio Co	0.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Date: 1/16/2019  Sampling Point: T3-P1
D. Constale 9 A. Challetous	ction, Township, Range:		
	al relief (concave, convex,	none): none	Slope (%): 0
Subregion (LRR or MLRA):         LRRT/150B         Lat:         27.87629	898 Long: -	97.15987406	Datum: WGS 84
Soil Map Unit Name: Is - Ijam soils, rarely flooded		NWI classific	ation: E2EM1P
Soil Map Unit Name: Is - Ijam soils, rarely flooded  Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No	(If no explain in R	emarks ) ·
Are Vegetation, Soil X, or Hydrology significantly dist			present? Yes No X
Are Vegetation, Soil, or Hydrology naturally problem		explain any answe	
SUMMARY OF FINDINGS – Attach site map showing sa			
Hydrophytic Vegetation Present?  Yes X No  Hydric Soil Present?  Yes X No	Is the Sampled Area		
Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No	within a Wetland?	Yes X	No
Remarks:			
Overcast with intermittent, drizzling rain.			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondan/Indica	itors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil	
Surface Water (A1)  Aquatic Fauna (B13)			getated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (L	RR III	Drainage Par	, , ,
Saturation (A3)  Hydrogen Sulfide Odor		Moss Trim Li	
	along Living Roots (C3)		Water Table (C2)
Sediment Deposits (B2)  Presence of Reduced I		Crayfish Buri	
Drift Deposits (B3)	• •		sible on Aerial Imagery (C9)
Algai Mat or Crust (B4) Thin Muck Surface (C7	)		Position (D2)
Iron Deposits (B5) Other (Explain in Rema	ırks)	☐ Shallow Aqui	itard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T, U)
Field Observations:			
Surface Water Present? Yes No X Depth (inches):			
Water Table Present? Yes X No Depth (inches): 3	*****		
Saturation Present? Yes X No Depth (inches): 0	Wetland H	lydrology Preser	it? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections) if ava	ilable:	
NRCS Soil Survey Data, Aerial Photography, N		nabio.	
Remarks:			
Plot meets the hydrology criteria with two primary	(A2 & A3) and tw	o secondar	/ indicators (CQ &
D5).	(AZ & AO) and tw	o secondary	/ Indicators (C3 &
D3).			

#### VEGETATION (Four Strata) - Use scientific names of plants.

			Indicator	Dominance Test worksheet:
ree Stratum (Plot size: 30' )	% Cover	Species?	Status	Number of Dominant Species
none				That Are OBL, FACW, or FAC: 2 (A)
•				Total Number of Dominant
•				Species Across All Strata: 2 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 100 (A/B
				Prevalence Index worksheet:
•				
				Total % Cover of:         Multiply by:           OBL species         50         x 1 = 50
		= Total Co	ver	
50% of total cover:	20% of	total cover		FACW species x 2 =
apling/Shrub Stratum (Plot size: 30' )				FAC species 40 x 3 = 120
none				FACU species x 4 =
				UPL species x 5 =
				Column Totals: 90 (A) 170 (B)
				Prevalence Index = B/A = 1.88
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%
•		= Total Co		✓ 3 - Prevalence Index is ≤3.0¹
				Problematic Hydrophytic Vegetation¹ (Explain)
EOO/ of total accord		total cover		
50% of total cover:			-	
lerb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
lerb Stratum (Plot size: 30' ) lva annua	40	Yes	FAC	be present, unless disturbed or problematic.
lerb Stratum (Plot size: 30' ) lva annua				
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes	FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes	FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
erb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	50	Yes Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
erb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	50	Yes Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
erb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
erb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes	FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua   Monanthochloe littoralis	40 50 	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' )  Iva annua   Monanthochloe littoralis	40 50 	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua   Monanthochloe littoralis	40 50 	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	40 50	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Iva annua Monanthochloe littoralis	90 20% of	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
lerb Stratum (Plot size: 30'   )   Iva annua   Monanthochloe littoralis	90 20% of	Yes Yes  Total Cov	FAC OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic Vegetation
lerb Stratum (Plot size: 30'   )   Iva annua   Monanthochloe littoralis	90 20% of	Yes Yes  Total Cover  Total Cover	FAC OBL  Ver 18	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

Sampling Point: T3-P1





Photo 40 - Soil Sample - T3 - P1



Photo 41 - T3 - P1 Facing North







Photo 42 - T-3 - P1 Facing South



## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San	Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Point: T4-P1
	Section, Township		
Landform (hillslope, terrace, etc.): tidal marsh		ve, convex, none): none	Slone (%). 0
Subregion (LRR or MLRA): LRRT/150B Lat:			
Soil Map Unit Name: Is - Ijam soils, rarely flooded		NWI classific	
	Y .		
Are climatic / hydrologic conditions on the site typical for this tin			
Are Vegetation, Soil, or Hydrology signi		Are "Normal Circumstances" (	present? Yes No
Are Vegetation, Soil, or Hydrology natu	rally problematic? (	If needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map she	owing sampling poi	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present?  Yes X  No			
Hydric Soil Present? Yes X No	is the outil		N.
Wetland Hydrology Present? Yes X No _	within a We	etiand? Yes	No
Remarks:			***************************************
Overcast with intermittent, drizzling rain.			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that			Cracks (B6)
Surface Water (A1)  Aquatic Fau  Marl Depos		Sparsely Ve	getated Concave Surface (B8)
Tigit Water Table (AZ)	its (B15) <b>(LRR U)</b> Sulfide Odor (C1)	Moss Trim L	
= Catalation (xio)	hizospheres along Living R	Personal Comments	Water Table (C2)
- Inner	f Reduced Iron (C4)	Crayfish Bur	rows (C8)
Drift Deposits (B3)	Reduction in Tilled Soils (	C6) Z Saturation V	isible on Aerial Imagery (C9)
	Surface (C7)		Position (D2)
	ain in Remarks)	Shallow Aqu	, ,
Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)		F	moss (D8) (LRR T, U)
Field Observations:		opriagram i	1033 (20) (ERR 1, 0)
Surface Water Present? Yes No X Depth	(inches):		
Water Table Present? Yes X No Depth	(inches): 8		
Saturation Present? Yes X No Depth	(inches): 0	Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aeri	al photos previous inspec	tions) if available:	
NRCS Soil Survey Data, Aerial Photogr		ions), ii avaliable.	
Remarks:	apily, itil Data		
Plot meets the hydrology criteria with two	primary (A2 & A3	) and two secondar	v indicators (C9 &
D5).	printary (riz arto	, and two occorridar	y maioatoro (oo a
55).			

ames of pl		t Indicator	Sampling Point: T4-P1  Dominance Test worksheet:
			Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
			Total Number of Dominant
			Species Across All Strata: 3 (B)
			B
			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B
			THATAIC ODE, TAOW, OF TAO.
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	Tatal O		OBL species 90 x 1 = 90
			FACW species x 2 =
20% of	total cove	r:	FAC species 5 x 3 = 15
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: 95 (A) 105 (B)
			B. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
			Prevalence Index = B/A = 1.1
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
		-	2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0¹
	= Total Co	ver	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
20% of	total cove	r:	
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
25	Yes	OBL	be present, unless disturbed or problematic.
40	Yes	OBL	Definitions of Four Vegetation Strata:
25	Yes		Definitions of Four Vegetation Strata.
			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
			more in diameter at breast height (DBH), regardless of
			height.
			Sapling/Shrub - Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb - All herbaceous (non-woody) plants, regardless
			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
			Woody vine - All woody vines greater than 3.28 ft in
		***************************************	height.
05			
20% of	total cove	r: <u>19</u>	
			Hydrophytic
			Vegetation
20% of	total cove	r:	riesellt fes NO
low).			
rio (DT 9	S DIV		
eria (DT 8	& PI).		
ria (DT &	& PI).		
	20% of 25 40 25 5 5 20% of 20% of 20% of 25 40 25 5 5 20% of 20%	Absolute Dominan % Cover Species   = Total Co 20% of total cove  = Total Co 20% of total cove  25	= Total Cover 20% of total cover:

SOIL

Sampling Point: T4-P1

Depth	Matrix			lox Feature		. 2		
inches)	Color (moist)	<u>%</u> 85	Color (moist) 7.5YR 5/3	<u>%</u> 15	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
)-5	10YR 6/1		7.518 5/3			IVI	loamy sand	
-17	10YR 5/1	100					loamy sand	
						-	-	
[vmo: C=0	Concentration, D=D	onlotion PM-	Deduced Matrix I	MS=Maska	d Sand G	rains	<sup>2</sup> l ocation:	PL=Pore Lining, M=Matrix.
	Indicators: (Appl					Idilis.		for Problematic Hydric Soils <sup>3</sup> :
Histoso			☐ Polyvalue I			LRR S, T,		luck (A9) (LRR O)
_	pipedon (A2)		Thin Dark					luck (A10) (LRR S)
THE REAL PROPERTY.	listic (A3)		Loamy Mu	cky Mineral	(F1) (LR	RO)		ed Vertic (F18) (outside MLRA 150A,E
Hydrog	en Sulfide (A4)		Loamy Gle	yed Matrix	(F2)		Piedmo	ont Floodplain Soils (F19) (LRR P, S, T
Stratifie	ed Layers (A5)		Depleted N	latrix (F3)			Anoma	lous Bright Loamy Soils (F20)
Organi	Bodies (A6) (LRR	P, T, U)	Redox Dar	k Surface (	F6)			RA 153B)
	lucky Mineral (A7) (		Depleted D	ark Surfac	e (F7)			arent Material (TF2)
	resence (A8) (LRR		Redox Dep		F8)			hallow Dark Surface (TF12)
1 cm N	uck (A9) (LRR P, T	)	Marl (F10)				Other (	Explain in Remarks)
= '	ed Below Dark Surfa	ace (A11)	Depleted C			-	2	
	ark Surface (A12)		Iron-Manga			-		ators of hydrophytic vegetation and
	Prairie Redox (A16)							and hydrology must be present,
	Mucky Mineral (S1)	(LRR O, S)	Delta Ochr					ess disturbed or problematic.
	Gleyed Matrix (S4)		Reduced V	, ,			-	
	Redox (S5)		Piedmont F					4520)
	d Matrix (S6)	C T III	Anomalous	Bright Loa	amy Solls	(F20) (ML	RA 149A, 153C,	, 1530)
	urface (S7) (LRR P Layer (if observe							
	Layer (ii observe	۵).						
Type:			_					
Depth (ii	nches):						Hydric Soil	Present? Yes X No
lemarks:	Plot meets the	e hydric s	oil criterion	(S5).				





Photo 43 - Soil Sample - T4 - P1



Photo 44 - T-4 - P1 Facing North







Photo 45 - T4 - P1 Facing South



## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San Patricio	o Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	_ City/County: San Patricio	State: TX	Sampling Point: T4-P2
D Canadak 9 A Capilarova	Section, Township, Range		
Landform (hillslope, terrace, etc.): pimple mound	_		Slone (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.8			
Soil Map Unit Name: Ds - Dianola soils		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of			
Are Vegetation, Soil, or Hydrology significant			
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needs	ed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	ng sampling point loca	ations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X No	- Is the Sampled Ar	****	
Hydric Soil Present? Yes No _x	within a Wetland?		No X
Wetland Hydrology Present? Yes x No	- Within a Wetland:	163	
Remarks:			
	ALCOHOL TO THE PARTY OF THE PAR		
HYDROLOGY			
Wetland Hydrology Indicators:			ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply		Surface Soil	, ,
Surface Water (A1) Aquatic Fauna (B			getated Concave Surface (B8)
High Water Table (A2)  Saturation (A3)  Hydrogen Sulfide		Drainage Pa  Moss Trim L	. ,
	oheres along Living Roots (C		Water Table (C2)
Sediment Deposits (B2)		Crayfish Bur	
	uction in Tilled Soils (C6)	✓ Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	ce (C7)		Position (D2)
☐ Iron Deposits (B5) ☐ Other (Explain in	Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	, ,
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T, U)
Field Observations:  Surface Water Present?  Yes No _X Depth (inche	oe).		
Water Table Present? Yes No X Depth (inche			
Saturation Present? Yes No X Depth (inche		nd Hydrology Preser	nt? Yes X No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial pho NRCS Soil Survey Data, Aerial Photograph		r available:	
Remarks:			
Plot meets the hydrology criteria with two sec	ondary indicators (	C9 & D5).	
,,	,	,	

#### VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 30' ) 1. none 2	A STATE OF THE PARTY OF THE PAR			Sampling Point: T4-P2
1. none		Dominant		Dominance Test worksheet:
	% Cover	Species?	Status	Number of Dominant Species
2				That Are OBL, FACW, or FAC: 2 (A)
				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5.			***************************************	That Are OBL, FACW, or FAC: 100 (A/B)
6	***************************************	***************************************		
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
		= Total Co	/er	OBL species 40 x 1 = 40
50% of total cover:		total cover	:	FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 30' )				FAC species 45 x 3 = 135
1. none				FACU species 5 x 4 = 20
2.				UPL species x 5 =
				Column Totals: 90 (A) 195 (B)
3				
4				Prevalence Index = B/A = 2.17
5				Hydrophytic Vegetation Indicators:
6				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
8				3 - Prevalence Index is ≤3.0¹
		= Total Cov	er er	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50% of total cover:	20% of	total cover		
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Spartina spartinae	40	Yes	OBL	be present, unless disturbed or problematic.
2. Andropogon virginicus	40	Yes	FAC	Definitions of Four Vegetation Strata:
3. Helianthus annuus	5	No	FAC	Tree Wests between the tree to a 1 (7 and 1)
4. Ambrosia artemisiifolia	5	No	FACU	Tree Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5.				height.
6				Continuit Charles March at the Continuity of the
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
7				
8				Herb – All herbaceous (non-woody) plants, regardless
9				of size, and woody plants less than 3.28 ft tall.
10				Woody vine - All woody vines greater than 3.28 ft in
11				height.
12.				
		Total Cov		
50% of total cover: 45	_ 20% of	total cover	18	
Woody Vine Stratum (Plot size: 30' )				
1. none				1
1. none				
1. <u>none</u> 2				
1. none 2				
1. none 2				Mudaabata
1. none 2		= Total Cov	er	Hydrophytic Vegetation
1. none 2		= Total Cov		Hydrophytic Vegetation Present? Yes X No

Sampling Point: T4-P2

Depth	Matrix	%		x Features	pe¹ Loc²	Tauton	Day-
inches) )-16	Color (moist) 10YR 6/3	100	Color (moist)	<u>% Tyr</u>	e Loc	Texture loamy sand	Remarks
	10111070					,	
***************************************				-			
						2	
	oncentration, D=Dep				Grains.		PL=Pore Lining, M=Matrix.  for Problematic Hydric Soils <sup>3</sup> :
		able to all	_	elow Surface (St	) / I DD C T I		•
Histosol	oipedon (A2)			irface (S9) (LRF	, ,		Muck (A9) (LRR O) Muck (A10) (LRR S)
₫ .	stic (A3)			y Mineral (F1) (			ed Vertic (F18) (outside MLRA 150A,E
	n Sulfide (A4)			ed Matrix (F2)			ont Floodplain Soils (F19) (LRR P, S, T
	Layers (A5)		Depleted Ma	,			alous Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR P	P, T, U)	Redox Dark	Surface (F6)			RA 153B)
] 5 cm Μι	icky Mineral (A7) (L	RR P, T, U)	Depleted Da	rk Surface (F7)			arent Material (TF2)
=	esence (A8) (LRR L	J)	Redox Depre				hallow Dark Surface (TF12)
=	ick (A9) (LRR P, T)		Marl (F10) (L			U Other	(Explain in Remarks)
	d Below Dark Surface	e (A11)	percent	hric (F11) (MLR		3	
	ark Surface (A12)	MI DA 4504		ese Masses (F1	, .		ators of hydrophytic vegetation and
	rairie Redox (A16) (l lucky Mineral (S1) (			ce (F13) (LRR (F17) (MLRA 1	•		land hydrology must be present, ess disturbed or problematic.
	Gleyed Matrix (S4)	LKK 0, 3)		rtic (F18) (MLR/			ess disturbed or problematic.
	Redox (S5)			oodplain Soils (F			
=							
Stripped	Matrix (S6)		Anomalous E	Bright Loamy So	ils (F20) ( <b>ML</b> F	(A 149A, 153C	, 153D)
-	rface (S7) <b>(LRR P, S</b>	S, T, U)		Bright Loamy So	ils (F20) (MLF	(A 149A, 153C	, 153D)
Dark Su			☐ Anomalous E	Bright Loamy So	ils (F20) (MLF	(A 149A, 153C	, 153D)
Dark Su	rface (S7) (LRR P,		Anomalous E	3right Loamy So	ils (F20) (MLF	RA 149A, 153C	
Dark Su	rface (S7) (LRR P, S Layer (if observed)		Anomalous E	Bright Loamy So	ils (F20) (MLF	Hydric Soil	
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Su estrictive I Type: Depth (incemarks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incommerks:	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incommerks)	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		
Dark Suestrictive I Type: Depth (incommerks)	rface (S7) (LRR P, S Layer (if observed)	•			ils (F20) (MLF		





Photo 46 - Soil Sample - T4 - P2



Photo 47 - T-4 - P2 Facing North







Photo 48 - T4 - P2 Facing South



## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San F	Patricio Co.	Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC		State: TX	Sampling Point: T4-P3
Investigator(s): R. Ganczak & A. Snellgrove	Section, Township,		
	Local relief (concave	e, convex, none): none	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.			Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soils		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of			
Are Vegetation, Soil, or Hydrology significan			
Are Vegetation, Soil, or Hydrology naturally		needed, explain any answe	
SUMMARY OF FINDINGS - Attach site map showi		t locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes X No			
Hydric Soil Present? Yes X No	is the samp		N
Wetland Hydrology Present? Yes x No	within a wei	tland? Yes ^	No
Remarks:			***************************************
		annuntai (in thick annuntai (in th	
HYDROLOGY			
Wetland Hydrology Indicators:			ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app			Cracks (B6)
Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (  Marl Deposits (I	. ,		getated Concave Surface (B8) utterns (B10)
Saturation (A3)  Hydrogen Sulfid		Moss Trim L	, ,
	spheres along Living Ro		Water Table (C2)
Sediment Deposits (B2)		Crayfish Bur	' '
	duction in Tilled Soils (C	6) Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surfa	ace (C7)	☐ Geomorphic	Position (D2)
☐ Iron Deposits (B5) ☐ Other (Explain i	n Remarks)	Shallow Aqu	iitard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutra	, ,
Water-Stained Leaves (B9)		☐ Sphagnum r	moss (D8) (LRR T, U)
Field Observations:  Surface Water Present? Yes No X Depth (inch	200):		
Water Table Present? Yes X No Depth (incl Saturation Present? Yes X No Depth (incl		Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial ph NRCS Soil Survey Data, Aerial Photograph		ons), if available:	
Remarks:			
Plot meets the hydrology criteria with three p	orimary indicator	rs (A2, A3, & C3) tv	vo secondary
indicators (C9 & D5).			

## VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: T4-P3

201			nt Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' )	% Cover	Species	? Status	Number of Dominant Species
1. none				That Are OBL, FACW, or FAC: 3 (A)
2.	-		···	Total Number of Dominant
3.				Species Across All Strata: 3 (B)
4.				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6.				That Ale OBL, FACW, of FAC.
7.				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
8.		T-4-1 O		OBL species 70 x 1 = 70
	***************************************	= Total Co		FACW species 30 x 2 = 60
50% of total cover:	20% o	total cove	er:	FAC species x 3 =
Sapling/Shrub Stratum (Plot size: 30' )				FACU species x 4 =
1. none				
2				
3			_	Column Totals: 100 (A) 130 (B)
4				Prevalence Index = B/A = 1.3
5.				Hydrophytic Vegetation Indicators:
6.				
7.				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
8.				3 - Prevalence Index is ≤3.0¹
		= Total Co		Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% o	f total cove	er:	
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Spartina patens	30	Yes	FACW	be present, unless disturbed or problematic.
2. Batis maritima	40	Yes	OBL	Definitions of Four Vegetation Strata:
3. Monanthochloe (Distichlis) littoralis	30	Yes	OBL	Tree Meady plants avaluation visco 2 in (7.5 pm) and
4				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5.				height.
6.				Carlling/Object 10/and at the state of the
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
7				ordino ini. Dorrana greater (nan o.2011 (1111) tali.
8				Herb - All herbaceous (non-woody) plants, regardless
9				of size, and woody plants less than 3.28 ft tall.
10.				Woody vine All woody vines greater than 3.28 ft in
11.				height.
12.				
	100	= Total Co	over	
50% of total cover: 50	20% of	f total cove	er: 20	
Woody Vine Stratum (Plot size: 30' )				
. 2020				
2.				
3.			-	
4				
5				Hydrophytic
		= Total Co	over	Vegetation
50% of total cover:	20% of	f total cove	er:	Present? Yes X No
Remarks: (If observed, list morphological adaptations bel	ow).			
Plot meets hydrophytic vegetation crite		8. DI)		
Flot meets hydrophytic vegetation chie	na (DT	α F1).		

Sampling Point: T4-P3

Depth	Matrix			ox Feature			m the absence of ir	raioutors.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-4	10YR 5/1	80	10YR 3/6	20	D	М	loamy sand	
4-16	2.5Y 6/1	85	10YR 5/8	15	PL	M	loamy sand	
Histosol Histosol Histic E Black Hi Hydroge Stratifier Organic Tom Mu Depleter Thick De Coast P Sandy M Sandy G Stripped Dark Su Restrictive Type: Depth (in	Indicators: (Appl (A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) Bodies (A6) (LRR ucky Mineral (A7) ( resence (A8) (LRR P, T d Below Dark Surfa ark Surface (A12) rrairie Redox (A16) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) d Matrix (S6) urface (S7) (LRR P, Layer (if observed	P, T, U) LRR P, T, U) U) ) ace (A11) (MLRA 150A (LRR O, S)	Delta Ochric Reduced Ve	erwise no elow Surface (Si ky Mineral ed Matrix atrix (F3) Surface ( ark Surface essions (I LRR U) chric (F11 nese Mass ace (F13) c (F17) (M ertic (F18) oodplain si Bright Loa	ted.) ace (S8) ( b) (LRR S (F1) (LR (F2)  F6) e (F7) F8)  (MLRA (LRR P, LRA 151) (MLRA 1 Soils (F19)	LRR S, T, , T, U) R O) (LRR O, F T, U) 50A, 150B	Indicators for I  I cm Muck 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1 Red Parent Very Shallo Other (Expl	t Material (TF2) bw Dark Surface (TF12) lain in Remarks) s of hydrophytic vegetation and hydrology must be present, disturbed or problematic.





Photo 49 - Soil Sample - T4 - P3



Photo 50 - T-4 - P3 Facing North







Photo 51 - T4 - P3 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/C	County: San Patricio Co. Sampling Date: 1/16/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T4-P4
	on, Township, Range:
	I relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.874515	91 Long: -97.16336235 Datum: WGS 84  NWI classification: NA
Soil Map Unit Name: Ds - Dianola soils	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly disturb	rbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problem	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	
Hydrophytic Vegetation Present?  Yes X  No  Hydric Soil Present?  Yes X  No  X	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes No X
Remarks:	
LIVED OLO COV	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (B13)  Marl Deposits (B15) (LR)	R U) Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)
High Water Table (A2)  Saturation (A3)  Hydrogen Sulfide Odor (	
Water Marks (B1)  Water Marks (B1)  Oxidized Rhizospheres a	
Sediment Deposits (B2)  Presence of Reduced Iro	
Drift Deposits (B3)	
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5) Other (Explain in Remark	ks) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes X No Depth (inches): 15	
Saturation Present? Yes X No Depth (inches): 15 (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
NRCS Soil Survey Data, Aerial Photography, NI	-ID Data
Remarks:	
Plot meets the hydrology criteria with one primary	indicators (A2 & A3) two secondary indicators (C9
& D5).	

		Dominant		Dominance Test wo	nameet.		
ree Stratum (Plot size: 30' )	% Cover	Species?	Status	Number of Dominant	Species		
none				That Are OBL, FACW		2	(A)
			***************************************	Total Number of Dom	vinant		
				Species Across All St		2	(B)
				Percent of Dominant		100	(A/E
				That Are Obl., FAOV	, or rac.	***************************************	(//
				Prevalence Index wo	orksheet:	11/1/	77
				Total % Cover of	:	Multiply b	V:
				OBL species 30	x	(1 = 30	
		= Total Cov		FACW species 20	×	(2 = 40	
	r: 20% o	f total cover	:			3 = 90	-
apling/Shrub Stratum (Plot size: 30'	)			FACU species			
none							
						(5=	
				Column Totals: 80	(/	A) 100	(B)
				Prevalence Inde	ex = R/A =	2.0	
				Hydrophytic Vegeta			
				1 - Rapid Test for			ND.
				2 - Dominance To			)11
4		= Total Cov	vor	3 - Prevalence In			
500/-51-1-				Problematic Hydr	rophytic Ve	egetation' (E	xplain)
		ir total cover					
50% of total cover	20700						
erb Stratum (Plot size: 30' )		Von	OPI	Indicators of hydric s			
erb Stratum (Plot size: 30' ) Juncus effusus	30	Yes	OBL	be present, unless dis	sturbed or	problematic.	
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus	30 30	Yes	FAC		sturbed or	problematic.	
Andropogon glomeratus  erb Stratum (Plot size: 30' )  Juncus effusus  Andropogon virginicus	30 30 15	Yes No	FAC FACW	be present, unless dis	sturbed or Vegetation	problematic. n Strata:	
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus	30 30	Yes	FAC	Definitions of Four V  Tree Woody plants, more in diameter at b	sturbed or Vegetation , excluding	problematic.  n Strata:  n vines, 3 in.	(7.6 cm) o
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four \ Tree Woody plants,	sturbed or Vegetation , excluding	problematic.  n Strata:  n vines, 3 in.	(7.6 cm) o
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V Tree — Woody plants, more in diameter at b height.	sturbed or Vegetation , excluding preast heigh	problematic.  n Strata:  y vines, 3 in.  ht (DBH), reg	(7.6 cm) o
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V  Tree Woody plants, more in diameter at b	sturbed or Vegetation , excluding reast height	problematic. n Strata: g vines, 3 in. ht (DBH), reg	(7.6 cm) o gardless o
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wo than 3 in. DBH and gr	sturbed or Vegetation, excluding reast height oddy plants reater than	problematic.  n Strata: g vines, 3 in. ht (DBH), reg s, excluding v	(7.6 cm) o gardless o ines, less ) tall.
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V Tree – Woody plants, more in diameter at b height.  Sapling/Shrub – Woothan 3 in. DBH and griller before the property of	vegetation vegetation vexcluding reast height ody plants reater than	problematic.  n Strata: g vines, 3 in. ht (DBH), reg , excluding v n 3.28 ft (1 m ody) plants,	(7.6 cm) o gardless of ines, less ) tall.
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and grundle and gru	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	Definitions of Four V Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and grundle and gru	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens	30 30 15 5	Yes No No  Total Cov	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5	Yes No No	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5	Yes No No  Total Cov	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
Andropogon virginicus  Andropogon glomeratus  Iva frutescens  1	30 30 15 5 5	Yes No No  Total Cov	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
Andropogon virginicus Andropogon glomeratus Iva frutescens  50% of total cover anone  (Plot size: 30'	30 30 15 5 5 80 r: 40 20% o	Yes No No Total Cover total cover	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless o ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5 80 7: 40 20% o	Yes No No Total Cover for total cover	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gilled by the plants of size, and woody plants of size, and woody vine — All woody vine — A	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5 80 7: 40 20% o	Yes No No The second of total cover	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wothan 3 in. DBH and gither beautiful of size, and woody play  Woody vine — All woody vine — Al	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5 80 7: 40 20% o	Yes No No The second of total cover	FACW FACW	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wo than 3 in. DBH and gi  Herb — All herbaceou of size, and woody plants, and woody plants.  Woody vine — All wo height.	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5 80 7: 40 20% o	Yes No No Total Cover for total cover	FACW FACW Ver 16	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wo than 3 in. DBH and gr  Herb — All herbaceou of size, and woody plants, and woody plants.  Woody vine — All wo height.	vegetation vegetation , excluding preast height ody plants reater than us (non-wo ants less the	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless
erb Stratum (Plot size: 30' ) Juncus effusus Andropogon virginicus Andropogon glomeratus Iva frutescens  0	30 30 15 5 5 80 7: 40 20% o	Yes No No Total Cover total cover = Total Cover	FACW FACW Ver	be present, unless dis  Definitions of Four V  Tree — Woody plants, more in diameter at b height.  Sapling/Shrub — Wo than 3 in. DBH and gr  Herb — All herbaceou of size, and woody plants, and woody plants.  Woody vine — All wo height.  Hydrophytic Vegetation	sturbed or Vegetation, excluding reast height ody plants reater than as (non-wo ants less the ody vines	problematic. n Strata: g vines, 3 in. ht (DBH), reg s, excluding v n 3.28 ft (1 m ody) plants, i han 3.28 ft ta	(7.6 cm) o gardless of ines, less ) tall. regardless III.

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.   All Coations   PL=Pore Lining, M=Matrix   Plant   Pl	Depth	Matrix			x Features	- 1	. 2	<b>T</b> .	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Thick Dark Surface (S9) (LRR S, T, U)  Thin Dark Surface (S9) (LRR S, T, U)  Type: C=Concentration, D=Depletion for Problematic Muck (A9) (LRR S)  Type: C=Concentration, D=Depletion for Problematic Muck (A9) (LRR S, T, U)  Type: C=Concentration, D=Depletion for Problematic Muck (A9) (LRR S, T, U)  Ton-Manganese Masses (F12) (LRR O, P, T)  Umbric Surface (F13) (MLRA 150A, 150B)  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion for Problematic Muck (A9) (LRR S, T, U)  Ton-Manganese Masses (F12) (LRR O, P, T)  Umbric Surface (F13) (MLRA 150A, 150B)  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Thin Dark Surface (S9) (LRR S, T, U)  Ton-Manganese Masses (F12) (LRR O, P, T)  Umbric Surface (F13) (MLRA 150A, 150B)  Type: C=Concent	(inches)	Color (moist)		olor (moist)		ype	Loc <sup>2</sup>	Texture loamy sand	Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.									
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)  Delta Ochric (F18) (MLRA 150A, 150B)  Piedmont Floodplain Soils (F20) (MLRA 149A)  Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)  Type:  Depth (inches):  Deta Ochric (F17) (MLRA 151)  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.  Wetland hydrology must be present unless disturbed or problematic.	Type: C=C  ydric Soil  Histoso  Histic E  Black H  Hydrogo  Stratifie  Organic  5 cm M	Concentration, D=Dep Indicators: (Applications) Indicators: (Applications) Indicators: (Applications) Indicators: (A2) Indicators: (A3) Indicators: (A4) Indicators: (A5) Indicators: (A5) Indicators: (A5) Indicators: (A6) (LRR Foucky Mineral (A7) (L	oletion, RM=Recable to all LRR	s, unless other Polyvalue Be Thin Dark Su Loamy Muck Loamy Gleye Depleted Ma Redox Dark	low Surface rface (S9) (L y Mineral (F1 d Matrix (F2) trix (F3) Surface (F6) rk Surface (F	) (S8) (LI RR S, ` ) (LRR	RR S, T, L T, U)	²Location: Indicators  J) 1 cm M 2 cm M Reduce Piedmo Arioma (MLR Red Pa	for Problematic Hydric Soils <sup>3</sup> : luck (A9) (LRR O) luck (A10) (LRR S) ed Vertic (F18) (outside MLRA 150A ont Floodplain Soils (F19) (LRR P, S, lous Bright Loamy Soils (F20) (A 153B) urent Material (TF2) hallow Dark Surface (TF12)
Thick Dark Surface (A12)	1 cm M	uck (A9) (LRR P, T)	Ţ	Marl (F10) (L	RR U)				
Restrictive Layer (if observed):  Type:  Depth (inches): Hydric Soil Present? Yes No	Deplete Thick D Coast F Sandy I Sandy I Strippe	ed Below Dark Surface Park Surface (A12) Prairie Redox (A16) ( Mucky Mineral (S1) ( Gleyed Matrix (S4) Redox (S5) d Matrix (S6)	MLRA 150A) [ LRR O, S) [	Depleted Oci Iron-Mangan Umbric Surfa Delta Ochric Reduced Vei Piedmont Flo	nric (F11) (M ese Masses ce (F13) (LR (F17) (MLRA tic (F18) (ML oodplain Soils	(F12) (I R P, T, A 151) RA 156 6 (F19)	RR O, P, U) 0A, 150B) (MLRA 14	wetl unle	ators of hydrophytic vegetation and land hydrology must be present, ess disturbed or problematic.
Type: Hydric Soil Present? Yes No  Remarks:								1	
Remarks:									
Plot does not meet the hydric soil criterion.	Depth (in	nches):	***************************************					Hydric Soil	Present? Yes No X
		iot does not n	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						





Photo 52 - Soil Sample - T4 - P4



Photo 53 - T-4 - P4 Facing North







Photo 54 - T4 - P4 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/C	county: San Patricio Co. Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T5-P1
	on, Township, Range:
investigator(s):	
	relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): <u>LRRT/150B</u> Lat: <u>27.8706855</u>	Long: -97.10030627 Datum: WGS 64
Soil Map Unit Name: Is - Ijam soils, rarely flooded	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturb	bed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vegetation Present? Yes X No	
Hydric Soil Present? Yes X No	Is the Sampled Area
Wetland Hydrology Present? Yes X No	within a Wetland? Yes X No
Remarks:	
Area appears to be historic spoil placement site for than normal marsh elevation.	adjacent industrial site(s). Area is ± 2-ft. higher
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)  Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)  Saturation (A3)  High Water Table (A2)  Hydrogen Sulfide Odor (C	
☐ Saturation (A3) ☐ Hydrogen Sulfide Odor (C	
Sediment Deposits (B2)  Sediment Deposits (B2)  Presence of Reduced Iron	
Drift Deposits (B3)  Recent Iron Reduction in	
Algal Mat or Crust (B4)  Thin Muck Surface (C7)	Geomorphic Position (D2)
☐ Iron Deposits (B5) ☐ Other (Explain in Remark	
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
NRCS Soil Survey Data, Aerial Photography, NF	
Remarks:	
Plot meets the hydrology criteria with one primary (	(C3) and two secondary indicators (B8 & C9).

### VEGETATION (Four Strata) – Use scientific names of plants.

Free Stratum (Plot size: 30' )	Absolute	D	Indicator	D
rice Stratum (Flot Size.		Species?		Dominance Test worksheet:
none				Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
				(1)
				Total Number of Dominant Species Across All Strata: 4 (B)
				Species Across All Strata: 4 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 50 (A/B
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov		OBL species 50 x 1 = 50
50% of total cover:				FACW species x 2 =
apling/Shrub Stratum (Plot size: 30' )	20 % 01	total cover		FAC species x 3 =
Automotion and a secondaria	20	Yes	OBL	FACU species 30 x 4 = 120
				UPL species 30 x 5 = 150
				Column Totals: 110 (A) 320 (B)
				Prevalence Index = B/A = 2.9
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
	0.0			3 - Prevalence Index is ≤3.0 <sup>1</sup>
40		= Total Cov		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	20% of	total cover	4	
				1.
erb Stratum (Plot size: 30 )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Eragrostis spectabilis	30	Yes	FACU	be present, unless disturbed or problematic.
Eragrostis spectabilis Distichlis spicata	30	Yes	OBL	
Eragrostis spectabilis Distichlis spicata				be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Eragrostis spectabilis Distichlis spicata Heterotheca subaxillaris (?)	30	Yes Yes	OBL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
lerb Stratum (Plot size: 30' Eragrostis spectabilis Distichlis spicata Heterotheca subaxillaris (?)	30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of
Eragrostis spectabilis Distichlis spicata Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis Distichlis spicata Heterotheca subaxillaris (?)	30 30	Yes Yes	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis Distichlis spicata Heterotheca subaxillaris (?)	30 30	Yes Yes  Total Cov	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)  0	30 30 30 90	Yes Yes  Total Cov	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)  0	30 30 30 90 20% of	Yes Yes  Total Covertotal cover:	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Distichlis spicata  Heterotheca subaxillaris (?)  Distichlis spicata  Heterotheca subaxillaris (?)	30 30 30 90 20% of	Yes Yes  Total Covertotal cover:	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Distichlis spicata  Heterotheca subaxillaris (?)  D	30 30 30 90 20% of	Yes Yes  Total Covertotal cover:	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)  0	30 30 30 90 20% of	Yes Yes  Total Coversion	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)   0.  1.  2.  50% of total cover: 45 none  none	90 20% of	Yes Yes  Total Coversion	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)  0	90 20% of	Yes Yes  Total Covers	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
Eragrostis spectabilis  Distichlis spicata  Heterotheca subaxillaris (?)  0. 1. 2. 50% of total cover: 45 none	90 20% of	Yes Yes  Total Covers  Total Covers	OBL NI/UPL	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

	cription: (Describ	e to the dep				or confir	m the absence of	indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	ox Feature %	Type <sup>1</sup>	Loc²	Texture	Remarks
0-16	10YR 5/2	60	10YR 6/4	20	C	M	loarny sand	7 170-1110
-			10YR 7/6	20	С	M	loamy sand	
			1011/1/0			IVI	loanly sand	
						-	-	
					-			
				_				
	oncentration, D=De					rains.		=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	icable to all	_				r	r Problematic Hydric Soils <sup>3</sup> :
Histosol	, ,		Polyvalue E					k (A9) (LRR O)
	pipedon (A2)		Thin Dark S					k (A10) (LRR S)
	istic (A3)		Loamy Muc			K ()	1	Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4) d Layers (A5)		Depleted M		(Г2)		1	Floodplain Soils (F19) (LRR P, S, T) us Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P. T. U)	Redox Dark	. ,	F6)		(MLRA	
-	ucky Mineral (A7) (I		=	,				nt Material (TF2)
	resence (A8) (LRR		Redox Dep	ressions (F	F8)			low Dark Surface (TF12)
1 cm Mi	uck (A9) (LRR P, T)		Marl (F10)	(LRR U)			Other (Ex	plain in Remarks)
Deplete	d Below Dark Surfa	ce (A11)	Depleted O					
	ark Surface (A12)		Iron-Manga		, ,			ors of hydrophytic vegetation and
	Prairie Redox (A16)				-			d hydrology must be present,
	Mucky Mineral (S1)	(LRR 0, 5)	Delta Ochri					disturbed or problematic.
-	Gleyed Matrix (S4) Redox (S5)		Piedmont F				•	
	Matrix (S6)				,		RA 149A, 153C, 15	53D)
	urface (S7) (LRR P,	S. T. U)		g	,	(, (	, , , , , , , , , , , , , , , , , ,	,
_	Layer (if observed							
Type:		•						
Depth (in	ches):						Hydric Soil Pre	esent? Yes X No
Remarks:								
P	lot does mee	ets the h	ydric soil crite	erion (F	3).			
					,			





Photo 55 - Soil Sample - T5 - P1



Photo 56 - T-5 - P1 Facing North







Photo 57 - T5 - P1 Facing South



# WETLAND DETERMINATION DATA FORM -- Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/Cou	unty: San Patricio Co.		Sampling Date: 1/17/2019
Project/Site: Axis - Redfish Facility  Applicant/Owner: Axis Midstream Partners, LLC				Sampling Point: T5-P2
	Section	, Township, Range:		Sampling Folia.
				Slope (%): 1
Landrorm (nillslope, terrace, etc.):				
Subregion (LRR or MLRA): LRRT/150B Soil Map Unit Name: Is - Ijam soils, rarely flooded	_ Lat: 27.07070004	Long:	7.10032444	Datum: VVGS 64
Are climatic / hydrologic conditions on the site typical for				
Are Vegetation, Soil, or Hydrology	_ significantly disturbed	d? Are "Normal C	circumstances" p	resent? Yes X No
Are Vegetation, Soil, or Hydrology	_ naturally problematic	? (If needed, ex	plain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site ma	p showing samp	ling point location	s, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes X	No .			
Hydric Soil Present? Yes X	No	s the Sampled Area	. Y	
Wetland Hydrology Present?  Yes X	No	vithin a Wetland?	Yes ^	No
Remarks:				***************************************
Area appears to be historic spoil plac	ement site for a	adjacent industri	al site(s).	Area is ± 2-ft. higher
than normal marsh elevation.			( )	9
HADBOLOCA				
HYDROLOGY			d(d:	1(
Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check a	all that apply)		Surface Soil	tors (minimum of two required)
	itic Fauna (B13)		7	letated Concave Surface (B8)
	Deposits (B15) (LRR U	J) [	Drainage Pat	
	ogen Sulfide Odor (C1)		Moss Trim Li	
	zed Rhizospheres alon	Tr.		Water Table (C2)
Sediment Deposits (B2)	ence of Reduced Iron (	(C4)	Crayfish Burr	rows (C8)
Drift Deposits (B3)	nt Iron Reduction in Til	lled Soils (C6)	Saturation Vi	sible on Aerial Imagery (C9)
	Muck Surface (C7)	Ļ		Position (D2)
	r (Explain in Remarks)	Ļ	Shallow Aqui	, ,
Inundation Visible on Aerial Imagery (B7)		+	FAC-Neutral	lest (D5) loss (D8) (LRR T, U)
Water-Stained Leaves (B9) Field Observations:		<u></u>	Spriagnum m	loss (Do) (LRR 1, U)
Surface Water Present? Yes No X	Denth (inches):			
Water Table Present? Yes X No I				
Saturation Present? Yes X No [		Wetland Hy	drology Presen	t? Yes X No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring we			ible:	
NRCS Soil Survey Data, Aerial Pho	tography, NHL	Dala		
Remarks:		l' / / / / / / / / / /	0)	
Plot meets the hydrology criteria with	two primary inc	dicators (A2 & A	3) and two	secondary indicators
(B8 & D5).				

### VEGETATION (Four Strata) - Use scientific names of plants.

EGETATION (Four Strata) -	Use scientific na	ames of pl	ants.		Sampling Point: T5-P2
30'			Dominant		Dominance Test worksheet:
none	)		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:  4 (A)
					Total Number of Dominant
					Species Across All Strata: 4 (B)
					Percent of Dominant Species
					That Are OBL, FACW, or FAC: 100 (A/E
					Prevalence Index worksheet:
					Total % Cover of: Multiply by:
					OBL species 70 x 1 = 70
			= Total Cov	/er	FACW species 30 x 2 = 60
50%	of total cover:	20% of	total cover	:	FAC species x 3 =
apling/Shrub Stratum (Plot size: 30	·)				
Avicennia germinans		20	Yes	OBL	FACU species x 4 =
					UPL species x 5 =
					Column Totals: 100 (A) 130 (B
					Prevalence Index = B/A = 1.3
					Hydrophytic Vegetation Indicators:
					1 - Rapid Test for Hydrophytic Vegetation
					2 - Dominance Test is >50%
					3 - Prevalence Index is ≤3.0¹
			= Total Cov		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
50%	of total cover: 10	20% of	total cover	: 4	
erb Stratum (Plot size: 30'	)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Lycium carolinianum		30	Yes	FACW	be present, unless disturbed or problematic.
Monanthochloe (Distichlis) littoralis		30	Yes	OBL	Definitions of Four Vegetation Strata:
Batis maritima		20	Yes	OBL	
					Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
					height.
•					
					Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
					than 3 in. DBH and greater than 3.20 it (1 in) tail.
					Herb - All herbaceous (non-woody) plants, regardles
					of size, and woody plants less than 3.28 ft tall.
0					Woody vine - All woody vines greater than 3.28 ft in
1					height.
2.					
		80	= Total Co	ver	allations distance di
50%	of total cover: 40				
Voody Vine Stratum (Plot size: 30'	)	2076 0	i total cover		
	/				
none					
-					
-				***	
•					
i					Hydrophytic
			= Total Co	ver	Vegetation
50%	of total cover:				Present? Yes X No
Remarks: (If observed, list morphological			50.01		
Plot meets the hydrophyt			DT & P	1).	

# SOIL

Profile Desc	cription: (Describ	e to the de	oth needed to docu			or confir	m the absence of i	ndicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	x Feature %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-5	10YR 6/2	40	Color (Inoist)			LUC	sandy loam	Remains
	G1 2.5N	60						
5-9			7 EVD 4/6	15		- M		
	10YR 6/2	85	7.5YR 4/6	15	С	M	sandy loam	
9-16	10YR 3/2	100	***************************************		-		sandy loam	
						-		
				_	_			***
			=Reduced Matrix, M			rains.		=Pore Lining, M=Matrix.
		icable to al	LRRs, unless othe					Problematic Hydric Soils <sup>3</sup> :
Histosol	. ,		Polyvalue B				The same of the sa	(A9) (LRR O)
	pipedon (A2) istic (A3)		Thin Dark So Loamy Muck					c (A10) <b>(LRR S)</b> /ertic (F18) ( <b>outside MLRA 150A,i</b>
	en Sulfide (A4)		Loamy Gley			K O)		Floodplain Soils (F19) (LRR P, S, T
	d Layers (A5)		Depleted Ma		(12)			s Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P, T, U)	Redox Dark		F6)		(MLRA 1	
	ucky Mineral (A7) (				. ,			nt Material (TF2)
	resence (A8) (LRR		Redox Depr		F8)			ow Dark Surface (TF12)
	uck (A9) (LRR P, T		Marl (F10) (I	,			Other (Exp	olain in Remarks)
_	d Below Dark Surfa	ace (A11)	Depleted Oc				31 - 1: - 1 1	Charles to the constation and
	ark Surface (A12) rairie Redox (A16)	/MI DA 150	Iron-Mangar  A) Umbric Surfa		, ,	•	. ,	rs of hydrophytic vegetation and I hydrology must be present,
	Mucky Mineral (S1)			. ,				disturbed or problematic.
	Gleyed Matrix (S4)	(=1111 0, 0)	Reduced Ve					arotarboa or problematic
	Redox (S5)		Piedmont Flo					
The second secon	Matrix (S6)						RA 149A, 153C, 15	3D)
	rface (S7) (LRR P,							
	Layer (if observed	d):						
Type:								
Depth (in	ches):						Hydric Soil Pre	sent? Yes X No
Remarks:	lot does mee	ets the h	ydric soil crite	rion (S	34)			
	iot does mee	oto trie ri	yanc son chie	11011 (0	) <del>-</del> ).			
				*				





Photo 58 - Soil Sample - T5 - P2



Photo 59 - T-5 - P2 Facing North







Photo 60 - T5 - P2 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San Patricio Co. Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T5-P3
	Section, Township, Range:
Landform (hillslope, terrace, etc.): high marsh - spoil mound	Local relief (concave, convex, none):
Are Vegetation, Soil, or Hydrology significantly	<b>V</b>
Are Vegetation, Soil, or Hydrology naturally pr	
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Area appears to be historic spoil placement sit 1.5-ft. elevation above adjacent marsh.	within a Watland? Yes X No
HYDROLOGY	
Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)	Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)  Dry-Season Water Table (C2)  Ced Iron (C4)  Ction in Tilled Soils (C6)  C(7)  Sparsely Vegetated Concave Surface (B8)  Drainage Patterns (B10)  Moss Trim Lines (B16)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Geomorphic Position (D2)
Field Observations:  Surface Water Present? Yes No _X Depth (inches Water Table Present? Yes No _X Depth (inches Saturation Present? Yes No _X Depth (inches (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial phot NRCS Soil Survey Data, Aerial Photography Remarks:  Plot meets the hydrology criteria with two seconds.	wetland Hydrology Present? Yes X No  No, previous inspections), if available:  NHD Data

### VEGETATION (Four Strata) - Use scientific names of plants.

VEGETATION (Four Strata) - Use scientific na	mes of pl	ants.		Sampling Point: T5-P3
		Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30' ) 1. none		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2				
3.				Total Number of Dominant Species Across All Strata: 1 (B)
4.				Openies / tologo / ill ottata.
				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100 (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
8				OBL species x 1 =
	-	= Total Cov	/er	FACW species $\frac{25}{25}$ $\times 2 = \frac{50}{25}$
50% of total cover:	20% of	total cover	:	FAC species 70 x 3 = 210
Sapling/Shrub Stratum (Plot size: 30' )				
1. none				FACU species x 4 =
2.				UPL species x 5 =
3.				Column Totals: 95 (A) 260 (B)
4				Prevalence Index = B/A = 2.7
5				Hydrophytic Vegetation Indicators:
6				1 - Rapid Test for Hydrophytic Vegetation
7				2 - Dominance Test is >50%
8				3 - Prevalence Index is ≤3.0¹
		= Total Cov	/er	Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% of	total cover	:	
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1. Andropogon virginicus	70	Yes	FAC	be present, unless disturbed or problematic.
2 Andropogon glomeratus	10	No	FACW	Definitions of Four Vegetation Strata:
3. Iva frutescens	15	No	FACW	Definitions of Four Vegetation Strata.
				Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
4				more in diameter at breast height (DBH), regardless of
5				height.
6				Sapling/Shrub - Woody plants, excluding vines, less
7.				than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8				Herb - All herbaceous (non-woody) plants, regardless
9.				of size, and woody plants less than 3.28 ft tall.
10.				
				Woody vine – All woody vines greater than 3.28 ft in
11.				height.
12.	95			
47.5		= Total Cov		
50% of total cover: 47.5	20% of	total cover	. 19	
Woody Vine Stratum (Plot size: 30' )				
1. none				
2.				
3				
4.				
5.				
0.				Hydrophytic Vegetation
F00/ 5		= Total Cov		Present? Yes X No
50% of total cover:		total cover	:	
Remarks: (If observed, list morphological adaptations below Plot meets the hydrophytic vegetation of		OT & PI	).	

(inches) 0-2	Matrix		Redo	x Feature	es		n the absence of in	
0-2	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
- L	10YR 3/1	100	- 100	-			loamy sand	
2-7	10YR 5/2	90	10YR 6/2	10	D	M	loamy sand	
7-14	10YR 6/2	100					loamy sand	
							******	
Type: C=C	oncentration, D=D	epletion, RM	=Reduced Matrix, M	S=Maske	d Sand G	rains.	<sup>2</sup> Location: PL=F	Pore Lining, M=Matrix.
			LRRs, unless othe					roblematic Hydric Soils <sup>3</sup> :
Histoso	I (A1)		Polyvalue Be	elow Surfa	ace (S8) (	LRR S, T,	U) 1 cm Muck (	A9) (LRR O)
Histic E	pipedon (A2)		Thin Dark S	urface (S9	) (LRR S	, T, U)		A10) (LRR S)
Black F	listic (A3)		Loamy Muck	ky Mineral	(F1) (LRI	R O)		ertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gley	ed Matrix	(F2)			oodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		✓ Depleted Ma	, ,				Bright Loamy Soils (F20)
	Bodies (A6) (LRR		Redox Dark	,	,		(MLRA 15	
	ucky Mineral (A7) (		· )== ·		. ,			Material (TF2) w Dark Surface (TF12)
	resence (A8) (LRR uck (A9) (LRR P, 1	•	Redox Depr		-6)			w Dark Surface (TF12) ain in Remarks)
=	ed Below Dark Surf	-	Depleted Oc		/MI RA 1	151)	Other (Expire	all il Kellaks)
	ark Surface (A12)	acc (/////)	Iron-Mangar	,		•	. T) <sup>3</sup> Indicators	of hydrophytic vegetation and
	Prairie Redox (A16)	(MLRA 150	-		, ,		. ,	hydrology must be present,
Sandy	Mucky Mineral (S1	(LRR O, S)						sturbed or problematic.
Sandy	Gleyed Matrix (S4)		Reduced Ve	rtic (F18)	(MLRA 1	50A, 150B	)	
	Redox (S5)		Piedmont Fl					
	d Matrix (S6)		Anomalous	Bright Loa	my Soils	(F20) (MLI	RA 149A, 153C, 153	D)
	urface (S7) (LRR P							
	Layer (if observe	d):						
Туре:								· · · · · · · · · · · · · · · · · · ·
Depth (ir	nches):						Hydric Soil Pres	ent? Yes X No
Remarks:	Plot does me	ets the h	ydric soil crite	rion (F	3).			
			,		- /-			





Photo 61 - Soil Sample - T5 - P3



Photo 62 - T-5 - P3 Facing North







Photo 63 - T5 - P3 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility		City/	County San	Patricio Co.		Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream P	artners, LLC	Oity/	ooding.	Stat	e. TX	Sampling Point: T5-P4
Investigator(s): R. Ganczak & A. Sr		Sec	tion Townshir			
Landform (hillslope, terrace, etc.): high				-		Slope (%): 1
Subregion (LRR or MLRA): LRRT/15	0B	27.870934	182	-97.	16061235	Datum: WGS 84
Soil Map Unit Name: Is - Ijam soils,	rarely flooded	Lat:		Long	NIA/I alaqaif	Datum: WGS 84
Are climatic / hydrologic conditions on						
Are Vegetation, Soil, or						present? Yes X No
Are Vegetation, Soil, or	Hydrology	naturally problem	natic?	(If needed, expla	ain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - A	ttach site n	nap showing sa	mpling poi	int locations	, transects	s, important features, etc
Hydrophytic Vegetation Present?	Yes X	No	1. (1. 0	oted Asses		
Hydric Soil Present?		No x	Is the Sam		Van	No X
Wetland Hydrology Present?		No x	within a W	etiand?	162	NO
Remarks:			1			
						,
HYDROLOGY				*****		
Wetland Hydrology Indicators:				Se		ators (minimum of two required)
Primary Indicators (minimum of one is			Operation to			Cracks (B6)
Surface Water (A1)		uatic Fauna (B13)	DD 11)	H		getated Concave Surface (B8) atterns (B10)
High Water Table (A2) Saturation (A3)		arl Deposits (B15) (LI drogen Sulfide Odor			Moss Trim L	
Water Marks (B1)		idized Rhizospheres	. ,	Roots (C3)		Water Table (C2)
Sediment Deposits (B2)		esence of Reduced I			Crayfish Bu	
Drift Deposits (B3)	L Re	ecent Iron Reduction	in Tilled Soils	(C6)	Saturation \	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		in Muck Surface (C7		Ц		Position (D2)
Iron Deposits (B5)	_	her (Explain in Rema	rks)	님	Shallow Aqu	
Inundation Visible on Aerial Imag Water-Stained Leaves (B9)	ery (B7)			H	Sphagnum	moss (D8) (LRR T, U)
Field Observations:		1.00			Opriagriam	11000 (20) (211111)
	No X	_ Depth (inches):				
		_ Depth (inches):				
Saturation Present? Yes		Depth (inches):		Wetland Hydr	rology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gau				tions) if availab	lo:	
NRCS Soil Survey Data					ic.	
Remarks:	, Acriai i i	lotography, iv	IIID Data			
Plot does not meet the hy	(drology or	itorio with ove	roccina o	nly one so	condany i	ndicators (CQ)
Mound area ± 2-ft. higher			-	illy one se	Condary	ndicators (Oo).
Would area 1 2-it. Higher	ulali Sulli	Juliuling Illaisi	lialiu.			

# VEGETATION (Four Strata) - Use scientific names of plants.

Tree Stratum (Plot size: 30' )			t Indicator	Dominance Test worksheet:
none	% Cover		? Status	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
•				Total Number of Dominant Species Across All Strata: 4 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/E
•				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
				OBL species x 1 =
		= Total Co	over	FACW species 60 x 2 = 120
50% of total cover:	20% o	f total cove	er:	FAC species 40 x 3 = 120
apling/Shrub Stratum (Plot size: 30' )				FACU species 5 x 4 = 20
none				UPL species 5 x 5 = 25
•				Column Totals: 110 (A) 285 (B
				Column Totals (A)
				Prevalence Index = B/A = 2.59
				Hydrophytic Vegetation Indicators:
•				1 - Rapid Test for Hydrophytic Vegetation
•				2 - Dominance Test is >50%
-				3 - Prevalence Index is ≤3.01
		= Total Co		Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% 0	f total cove	er:	
lerb Stratum (Plot size: 30' ) Spartina patens	60	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Andropogon virginicus	35	Yes	FAC	Definitions of Four Vegetation Strata:
Helianthus annuus	5	No	FAC	
				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless of
				height.
5.				
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
3.				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
)				or size, and woody plants less than 3.20 it tail.
0				Woody vine - All woody vines greater than 3.28 ft in
11		-		height.
2.	400		-	
50	100	= Total C		
50% of total cover: 50	20% c	of total cove	er:	
201				
	-	V	FACIL	
Vicia sativa(?)	5	Yes	FACU	
Vicia sativa(?)	5 5	Yes Yes	FACU	
Vicia sativa(?) Cucurbita foetidissima (?)	5			
Vicia sativa(?) Cucurbita foetidissima (?)	5			
Noody Vine Stratum (Plot size: 30' ) Vicia sativa(?) Cucurbita foetidissima (?)  4.	5			Hydrophytic
Vicia sativa(?) Cucurbita foetidissima (?)	5	Yes = Total C	NI	Hydrophytic Vegetation Present? Yes X No

### SOIL

epth Matrix			x Features				
<u>Color (moist)</u> 16 10YR 4/2	100	Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	loamy sand	Remarks
ype: C=Concentration, D=Depler of the Soil Indicators: (Application of Soil Indicators: (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, 5 cm Mucky Mineral (A7) (LR)  Muck Presence (A8) (LRR P, T)  Depleted Below Dark Surface (A12)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (M)  Sandy Mucky Mineral (S1) (LI)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)	t, u) (A11)  LRA 150A)	S, unless other Polyvalue Be Thin Dark St. Loamy Muck Loamy Gleye Depleted Ma Redox Dark Depleted Da Redox Depre Marl (F10) (L Depleted Oc Iron-Mangan Umbric Surfa Delta Ochric Reduced Ve	rwise noted elow Surface urface (S9) (I y Mineral (F ed Matrix (F2 trix (F3) Surface (F6) rk Surface (F6) rk Surface (F8) .RR U) hric (F11) (N ese Masses ace (F13) (LI (F17) (MLR rtic (F18) (M podplain Soil	(S8) (LI (S8) (LI (LRR S, 1 1) (LRR 2) ) =7) MLRA 15 (F12) (L (RR P, T, A 151) LRA 15 (IS (F19) (IS (IS (F19) (IS (F19) (IS (IS (F19) (IS	RR S, T, U F, U) O) ARR O, P, U) DA, 150B) (MLRA 14	Indicators for I  I) 1 cm Muck 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1 Red Parent Very Shallo Other (Expl	Material (TF2) by Dark Surface (TF12) lain in Remarks) s of hydrophytic vegetation and hydrology must be present, listurbed or problematic.
Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, estrictive Layer (if observed):	Τ, U)	Anomalous E	Bright Loamy	/ Soils (F	(MLR	A 149A, 153C, 153	SD)
Type:	***************************************					Hydric Soil Pres	sent? Yes No X
Plot does not m	eet the hy	dric soil cr	iterion.				





Photo 64 - Soil Sample - T5 - P4



Photo 65 - T-5 - P4 Facing North







Photo 66 - T5 - P4 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facili	ty	City/0	County: San Patrici	o Co.	Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream		Oity			Sampling Point: T5-P5
Investigator(s): R. Ganczak & A.	0 11	Secti	on, Township, Range		
Landform (hillslope, terrace, etc.): h					Slope (%): 1
Subregion (LRR or MLRA): LRRT/					
Soil Map Unit Name: Is - Ijam soils	s. rarely flooded	Lat	Lon	NIA/Labasi6	NA
			. Y	NWI classifi	cation: 100
Are climatic / hydrologic conditions of					
Are Vegetation, Soil,					
Are Vegetation, Soil,	or Hydrology	naturally problem	atic? (If need	ed, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS -	Attach site m	ap showing sar	npling point loc	ations, transects	s, important features, etc.
Hydrophytic Vegetation Present?	Yes X	_ No			
Hydric Soil Present?		No	Is the Sampled Ar		AL X
Wetland Hydrology Present?	Yes x		within a Wetland?	Yes	No X
Remarks:					
HYDROLOGY					
Wetland Hydrology Indicators:					ators (minimum of two required)
Primary Indicators (minimum of one	[]			[]	Cracks (B6)
Surface Water (A1)  High Water Table (A2)		latic Fauna (B13)	D III	Learned .	egetated Concave Surface (B8)
Saturation (A3)		l Deposits (B15) (LR lrogen Sulfide Odor (		Moss Trim I	ines (B16)
Water Marks (B1)			along Living Roots (C		Water Table (C2)
Sediment Deposits (B2)		sence of Reduced Iro		Crayfish Bu	
Drift Deposits (B3)	☐ Rec	cent Iron Reduction in	Tilled Soils (C6)	✓ Saturation \	/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		n Muck Surface (C7)			Position (D2)
Iron Deposits (B5)		er (Explain in Remar	ks)	Shallow Aqu	
Inundation Visible on Aerial Im Water-Stained Leaves (B9)	agery (B7)			FAC-Neutra	moss (D8) (LRR T, U)
Field Observations:				Spriagrium	moss (DO) (ERR 1, O)
	s No_X	Depth (inches):			
Water Table Present? Yes		Depth (inches): 8			
		Depth (inches): 0	Wetla	nd Hydrology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream g	auge monitoring w	vall parial photos pre	wieue inspections) if	available:	
NRCS Soil Survey Dat				available.	
Remarks:		3 1 7,			
Plot meets the hydrolog	v criteria with	n two primary	indicators (A2	& A3) and two	secondary indicators
(C9 & D5).	,	, p,		,	,

# VEGETATION (Four Strata) - Use scientific names of plants.

			Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' none	)		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
3					Total Number of Dominant Species Across All Strata: 4 (B)
					Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A
5					Prevalence Index worksheet:
					Total % Cover of: Multiply by:
					OBL species 70 x 1 = 70
			= Total Cov		FACW species 20 x 2 = 40
	50% of total cover:	20% of	f total cover	*	FAC species 60 x 3 = 180
Sapling/Shrub Stratum (Plot size		60	Yes	FAC	FACU species x 4 =
					UPL species x 5 =
					Column Totals: 150 (A) 290 (I
					Prevalence Index = B/A = 1.93
					Hydrophytic Vegetation Indicators:
					1 - Rapid Test for Hydrophytic Vegetation
•					2 - Dominance Test is >50%
					3 - Prevalence Index is ≤3.0¹
			= Total Co		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	50% of total cover: 30	20% of	f total cover	: 12	
lerb Stratum (Plot size: 30' Juncus effusus	)	30	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Spartina patens		20	Yes	FACW	Definitions of Four Vegetation Strata:
Monanthochloe (Distichlis) litto	ralis	40	Yes	OBL	Tree – Woody plants, excluding vines, 3 in. (7.6 cm)
ł					more in diameter at breast height (DBH), regardless
5,					height.
3.					Sapling/Shrub - Woody plants, excluding vines, les
7					than 3 in. DBH and greater than 3.28 ft (1 m) tall.
3.					Herb - All herbaceous (non-woody) plants, regardle
9.					of size, and woody plants less than 3.28 ft tall.
10.					Woody vine – All woody vines greater than 3.28 ft ii
11.					height.
12.					
		90	= Total Co	ver	
	50% of total cover: 45	-			
Woody Vine Stratum (Plot size:					
-					
2.					
3.					
3 4					Hydrophytic
3 4				ver	Hydrophytic Vegetation
3			= Total Co		
2				Ver	

### SOIL

Type: C=Cor ydric Soil In Histosol ( Histic Epi Black His		% 100 100	Color (moist) % Type¹ Le	sandy clay loam	Remarks
Type: C=Coi ydric Soil In Histosol (, Histic Epi Black His Hydrogen	10YR 6/1	100			
ype: C=Cor ydric Soil In Histosol ( Histic Epi Black His Hydrogen	ncentration, D=D			sanoy ciay loam	
ydric Soil In  Histosol (  Histic Epi  Black His  Hydrogen					
ydric Soil In  Histosol (  Histic Epi  Black His  Hydrogen					
ydric Soil In  Histosol (  Histic Epi  Black His  Hydrogen					
ydric Soil In  Histosol (  Histic Epi  Black His  Hydrogen					
ydric Soil In Histosol ( Histic Epi Black His Hydrogen					
ydric Soil In Histosol ( Histic Epi Black His Hydrogen					
ydric Soil In Histosol ( Histic Epi Black His Hydrogen		epietion, RM=1	Reduced Matrix, MS=Masked Sand Grains.	<sup>2</sup> Location: PL=Pore Lini	ing, M=Matrix.
Histic Epi Black His Hydrogen			RRs, unless otherwise noted.)	Indicators for Problems	
Black His Hydrogen			Polyvalue Below Surface (S8) (LRR	S, T, U) 🔲 1 cm Muck (A9) (LR	R O)
Hydrogen	pedon (A2)		Thin Dark Surface (S9) (LRR S, T, U		
			Loamy Mucky Mineral (F1) (LRR O)		B) (outside MLRA 150A,E
Stratified	Sulfide (A4)		Loamy Gleyed Matrix (F2)		Soils (F19) (LRR P, S, T
Organic F	Bodies (A6) (LRR	P T II)	Depleted Matrix (F3) Redox Dark Surface (F6)	Anomalous Bright Lo (MLRA 153B)	Jamy Solis (F20)
	ky Mineral (A7)		Depleted Dark Surface (F7)	Red Parent Material	(TF2)
	sence (A8) (LRR		Redox Depressions (F8)	Very Shallow Dark S	Surface (TF12)
1 cm Muc	k (A9) (LRR P, 1	Γ)	Marl (F10) (LRR U)	Other (Explain in Re	marks)
	Below Dark Surf	ace (A11)	Depleted Ochric (F11) (MLRA 151)	3	
	k Surface (A12)	/841 DA 4504	Iron-Manganese Masses (F12) (LRR		ophytic vegetation and
	nirie Redox (A16) ucky Mineral (S1)		Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151)	unless disturbed	y must be present,
neres.	eyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A,		or problemade.
Sandy Re	. ,		Piedmont Floodplain Soils (F19) (ML		
	Matrix (S6)		Anomalous Bright Loamy Soils (F20)	(MLRA 149A, 153C, 153D)	
	ace (S7) (LRR P				
	ayer (if observe	d):			
Type:			Manager .		. Y N
Depth (incl	nes):			Hydric Soil Present?	Yes X No
emarks:	ot meets the	e hydric s	oil criterion (S6).		
		, ·	c(20).		





Photo 67 - Soil Sample - T5 - P5



Photo 68 - T-5 - P5 Facing North







Photo 69 - T5 - P5 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/Co	ounty: San Patricio Co. Sampling Date: 1/17/20	019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T6-P1	
Investigator(s): R. Ganczak & A. Snellgrove Section		
	elief (concave, convex, none): concave Slope (%):	1
	4 Long: -97.16134681 Datum: W	
Soil Map Unit Name: Ds - Dianola soils	NWI classification: NA	
Are climatic / hydrologic conditions on the site typical for this time of year? Ye		
Are Vegetation, Soil, or Hydrology significantly disturb	~	o
Are Vegetation, Soil, or Hydrology naturally problemate		
SUMMARY OF FINDINGS - Attach site map showing sam	pling point locations, transects, important feature	s, etc.
Hydrophytic Vegetation Present? Yes X No		
Hydric Soil Present? Yes X No	Is the Sampled Area within a Wetland? Yes X No	
Wetland Hydrology Present? Yes x No	within a Wetland? Yes ^ No	
Remarks:		
Area appears to be historic spoil placement site for	adjacent industrial site(s). Plot located near	
man-made tidal drainage feature.		
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two req	uired)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)	
Surface Water (A1) Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface	(B8)
High Water Table (A2)  Marl Deposits (B15) (LRR	U) Drainage Patterns (B10)	
Saturation (A3) Hydrogen Sulfide Odor (C		
Water Marks (B1) United States and Oxidized Rhizospheres ale		
Sediment Deposits (B2)  Presence of Reduced Iron  Presence of Reduced Iron  Recent Iron Reduction in		29)
Algal Mat or Crust (B4)  Thin Muck Surface (C7)	Geomorphic Position (D2)	,
Iron Deposits (B5) Other (Explain in Remarks		
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)	
☐ Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)	
Field Observations:		
Surface Water Present? Yes No X Depth (inches):		
Water Table Present? Yes X No Depth (inches): 12	Mathed Hadesless Bressett Ves X	
Saturation Present? Yes X No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes X No_	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous		
NRCS Soil Survey Data, Aerial Photography, NH	D Data	
Remarks:	W (ACC ACC)	
Plot meets the hydrology criteria with two primary in	idicators (A2 & A3) and two secondary indicators	ators
(C9 & D5).		

#### VEGETATION (Four Strata) - Use scientific names of plants.

tor JS  Number of Dominant Species That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Total % Cover of:  OBL species  FACW species  FAC species  FAC species  UPL species  Column Totals:  85  (A)  Multiply by:  A 3 = 30  FACU species  V 4 = UPL species  Column Totals:  B5  (A)  Prevalence Index = B/A = 1.29  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹  Problematic Hydrophytic Vegetation¹ (Explain)
Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  100  Prevalence Index worksheet:  Total % Cover of:  OBL species 70  FACW species 5  FAC species 10  FAC uspecies 10  FAC uspecies x 4 = UPL species  UPL species x 5 = Column Totals: 85  Column Totals: 85  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  (B)
Species Across All Strata: 2 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
Percent of Dominant Species That Are OBL, FACW, or FAC:  Total % Cover of:  OBL species 70  FACW species 5  FAC species 10  FACU species  x 4 =  UPL species  x 5 =  Column Totals: 85  Prevalence Index = B/A = 1.29  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%
That Are OBL, FACW, or FAC: 100 (A/B)   Prevalence Index worksheet:   Total % Cover of: Multiply by:     OBL species 70
Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 70
Total % Cover of:
Total % Cover of:
OBL species 70
FACW species 5 x 2 = 10  FAC species 10 x 3 = 30  FACU species x 4 =
FAC species 10 x 3 = 30  FACU species x 4 =  UPL species x 5 =  Column Totals: 85 (A) 110 (B)  Prevalence Index = B/A = 1.29  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹
FACU species x 4 =
UPL species x 5 =
Column Totals: 85 (A) 110 (B)  Prevalence Index = B/A = 1.29  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹
Prevalence Index = B/A = 1.29  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹
Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is ≤3.0¹
1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹
2 - Dominance Test is >50%  2 - Prevalence Index is ≤3.0¹
3 - Prevalence Index is ≤3.0¹
Problematic Hydrophytic Vegetation (Evoluin)
L_ Floblematic Hydrophytic vegetation (Explain)
<sup>1</sup> Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.
Definitions of Four Vegetation Strata:
Tree – Woody plants, excluding vines, 3 in. (7.6 cm) of
more in diameter at breast height (DBH), regardless of height.
-
Sapling/Shrub - Woody plants, excluding vines, less
than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb - All herbaceous (non-woody) plants, regardless
of size, and woody plants less than 3.28 ft tall.
Woody vine - All woody vines greater than 3.28 ft in
height.
_
Hydrophytic
Vegetation

### SOIL

	Matrix	%		dox Featur		Loc <sup>2</sup>	Texture	Remarks
nches) -6	Color (moist) 10YR 6/2	90	Color (moist) 10YR 6/4	10	Type¹ D	M	sandy loam	Nemarks
-11	10YR 6/1	100	.011(0/4				sandy loam	
	4000		10.75 -11					
1-17	10YR 8/1	60	10YR 5/1	40	С	М	sandy loam	
	***************************************							
							2	N. B I M. M. A.
			I=Reduced Matrix, I LRRs, unless oth			rains.		PL=Pore Lining, M=Matrix. or Problematic Hydric Soils <sup>3</sup> :
_		iicabie to ai				DDCT		uck (A9) (LRR O)
Histosol	pipedon (A2)		Thin Dark			LRR S, T,		uck (A10) (LRR S)
=======================================	istic (A3)		Loamy Mu					d Vertic (F18) (outside MLRA 150A,
=	en Sulfide (A4)		Loamy Gle		, , ,	,		nt Floodplain Soils (F19) (LRR P, S, T
	d Layers (A5)		Depleted N		(/		7	ous Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR	P, T, U)	Redox Da	, ,	(F6)			A 153B)
= -	ucky Mineral (A7) (		Depleted [	Oark Surfac	e (F7)		Red Par	rent Material (TF2)
	resence (A8) (LRR		Redox De		, ,		Very Sh	allow Dark Surface (TF12)
	uck (A9) (LRR P, 1		Marl (F10)					explain in Remarks)
Deplete	d Below Dark Surf	ace (A11)	Depleted (	Ochric (F11	) (MLRA	151)		
Thick Da	ark Surface (A12)					(LRR O, P	. ,	tors of hydrophytic vegetation and
=	rairie Redox (A16)			rface (F13	(LRR P,	T, U)		and hydrology must be present,
=	Mucky Mineral (S1)			, ,				ss disturbed or problematic.
-	Gleyed Matrix (S4)					50A, 150B		
Sandy F	Redox (S5)					) (MLRA 1		
7								
Stripped		0 7 10	Anomalous	s Bright Lo	amy Soils	(F20) <b>(ML</b>	RA 149A, 153C,	153D)
Dark Su	ırface (S7) (LRR P		Anomalous	s Bright Lo	amy Soils	(F20) (MLF	RA 149A, 153C,	153D)
Dark Suestrictive			Anomalous	s Bright Lo	amy Soils	(F20) <b>(MLF</b>	RA 149A, 153C,	153D)
Dark Suestrictive	urface (S7) (LRR P Layer (if observe		Anomalous	s Bright Lo	amy Soils	(F20) <b>(MLI</b>		
Dark Suestrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) <b>(ML</b> i	Hydric Soil F	
Dark Suestrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):	soil criterion		amy Soils	(F20) <b>(ML</b> F		
Dark Suestrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Sustrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Sustrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Sustrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Sustrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Suestrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		
Dark Suestrictive Type: Depth (in	urface (S7) (LRR P Layer (if observed	d):			amy Soils	(F20) (MLF		





Photo 70 - Soil Sample - T6 - P1



Photo 71 - T-6 - P1 Facing North







Photo 72 - T6 - P1 Facing South



## WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility		City/C	county: San Patricio	o Co.	Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Pa	artners, LLC	Oity/ O			Sampling Point: T6-P2
Investigator(s): R. Ganczak & A. Sn		Section			
Landform (hillslope, terrace, etc.): high					Slope (%): 0
Subregion (LRR or MLRA): LRRT/150					Datum: WGS 84
Soil Map Unit Name: Ds - Dianola so	ils	Lat	LOI	y	cation: NA
Are climatic / hydrologic conditions on t		- 4hi- 4i 5 2 - V			
		1			
Are Vegetation, Soil, or					present? Yes X No
Are Vegetation, Soil, or				ed, explain any answ	
SUMMARY OF FINDINGS – A	ttach site m	ap snowing sam	ipling point loca	ations, transect	s, important features, etc.
Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Ar	ea	
Hydric Soil Present?	Yes x	No	within a Wetland?		No
Wetland Hydrology Present?  Remarks:	Yes X	_ No			
Area appears to be histor	c spoil pla	cement site for	r adjacent indu	ustrial site(s).	
HYDROLOGY					
Wetland Hydrology Indicators:					ators (minimum of two required)
Primary Indicators (minimum of one is  Surface Water (A1)					Cracks (B6)
High Water Table (A2)		iatic Fauna (B13) 1 Deposits (B15) <b>(LRF</b>	8119		getated Concave Surface (B8) atterns (B10)
Saturation (A3)		lrogen Sulfide Odor ((		Moss Trim I	. ,
Water Marks (B1)		dized Rhizospheres a	•		Water Table (C2)
Sediment Deposits (B2)	Pre	sence of Reduced Iro	n (C4)	Crayfish Bu	` '
Drift Deposits (B3)		ent Iron Reduction in	Tilled Soils (C6)	_	/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)  Iron Deposits (B5)		n Muck Surface (C7) er (Explain in Remark	· ~ )	Shallow Aqu	Position (D2)
Inundation Visible on Aerial Image		er (Explain in Remark	.5)	FAC-Neutra	` '
Water-Stained Leaves (B9)	, (,				moss (D8) (LRR T, U)
Field Observations:					
Surface Water Present? Yes _		Depth (inches):			
Water Table Present? Yes X		Depth (inches): 5			
Saturation Present? Yes X (includes capillary fringe)	No	Depth (inches): 0	Wetlar	nd Hydrology Prese	nt? Yes X No
Describe Recorded Data (stream gaug	e, monitoring w	ell, aerial photos, pre	vious inspections), if	available:	
NRCS Soil Survey Data,	Aerial Pho	otography, NF	ID Data		
Remarks:					
Plot meets the hydrology	criteria with	n two primary i	ndicators (A2	& A3) and two	secondary indicators
(C9 & D5).					

/EGETATION (Four Strat	ta) - Use scientific na	mes of pl	ants.		Sampling Point: T6-P2
		Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30'	)	% Cover			Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2.					
3.					Total Number of Dominant Species Across All Strata: 2 (B)
4.					Species Across Air Strata.
					Percent of Dominant Species That Are ORL FACW or FAC: 100 (A/B)
5					That Are OBL, FACW, or FAC: 100 (A/B)
6				***************************************	Prevalence Index worksheet:
7.			****	***************************************	Total % Cover of: Multiply by:
8					OBL species 15 x 1 = 15
	500/ 5/ / /		= Total Cov		FACW species 45 x 2 = 90
0 11 101 1 01 1 1 101	50% of total cover:	20% of	total cover		FAC species 20 x 3 = 60
Sapling/Shrub Stratum (Plot siz					FACU species x 4 =
					UPL species x 5 =
2					Column Totals: 80 (A) 165 (B)
3.					
4					Prevalence Index = B/A = 2.06
5					Hydrophytic Vegetation Indicators:
6					1 - Rapid Test for Hydrophytic Vegetation
7					2 - Dominance Test is >50%
8					3 - Prevalence Index is ≤3.0¹
			= Total Cov	/er	Problematic Hydrophytic Vegetation¹ (Explain)
	50% of total cover:	20% of	total cover	:	
Herb Stratum (Plot size: 30'	)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Spartina patens		40	Yes	FACW	be present, unless disturbed or problematic.
Hydrocotyle umbellata		10	No	OBL	Definitions of Four Vegetation Strata:
3. Andropogon glomeratus		20	Yes	FAC	Tree Woody plants evaluding vines 2 in (7.6 cm) or
4. Andropogon virginicus		5	No	FACW	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
5. Fimbristylis castanea		5	No	OBL	height.
6.					Sapling/Shrub - Woody plants, excluding vines, less
7.					than 3 in. DBH and greater than 3.28 ft (1 m) tall.
8.					Herb – All herbaceous (non-woody) plants, regardless
9.					of size, and woody plants less than 3.28 ft tall.
10.					Mark and the second sec
11.					Woody vine – All woody vines greater than 3.28 ft in height.
12.					Troight.
		80	= Total Co	ver	
	50% of total cover: 40	20% of			
Woody Vine Stratum (Plot size		20 /0 01	total cover		
1. none					
2.					
2					
4					
4					
5.			T-4-1 O-		Hydrophytic Vegetation
	COOK of total account		= Total Co		Present? Yes X No
	50% of total cover:		total cover		
Remarks: (If observed, list mor					
Plot meets the hydror	ohytic vegetation	criteria (l	DT & P	l).	

SOIL

Sampling Point: T6-P2

Color (moist)   %   Color (moist)   %   Type   Los   Texture   Remarks   Sandy loam	
5-16 10YR 5/2 85 10YR 8/1 15 D M sandy loam  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histic Soil (A1) Polyvalue Below Surface (S8) (LRR S, T, U) 1 cm Muck (A9) (LRR O)  Black Histic (A3) Loamy Mucky Mineral (F1) (LRR O)  Stratified Layers (A5) Peleted Matrix (F2) Peleted Matrix (F2)  Stratified Layers (A5) Depleted Matrix (F2)  Muck Presence (A8) (LRR P, T, U) Redox Dark Surface (F6)  Muck Presence (A8) (LRR P, T) Depleted Dark Surface (F6)  Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151)  Thick Dark Surface (A12) Umbric Surface (F13) (LRR P, T, U) Depleted Dehix (F13) (LRR P, T, U) Depleted Matrix (F3)  Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F13) (MLRA 150)  Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F13) (MLRA 151)  Sandy Redox (S5) Reduced Vertic (F18) (MLRA 150)  Sandy Redox (S5) Pledmont Floodplain Soils (F20) (MLRA 149A)  Anomalous Bright Loamy Soils (F20) (MLRA 149A)  Anomalous Bright Loamy Soils (F20) (MLRA 149A)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X   ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  ### Hydric Soil Present? Yes X  #### Hydric Soil Present? Yes X  #### Hydric Soil Present? Yes X  #### Hydric Soil Present? Yes X  ###################################	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.    Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.     Histosol (A1)	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Depleted Matrix (F3)  Tem Muck (A9) (LRR P, T, U)  Depleted Below Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Dark Surface (S7) (LRR P, S, T, U)  Sandy Mucky Mineral (S1) (LRR O, S)  Dark Surface (S7) (LRR P, S, T, U)  Depleted Matrix (F1) (MLRA 150A)  Delta Ochric (F13) (MLRA 150A)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Marl (F10) (LRR U)  Depleted Below Dark Surface (A11)  Depleted Ochric (F11) (MLRA 151)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Stratified Layers (A5)  Delta Ochric (F18) (MLRA 150A)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Reduced Vertic (F18) (MLRA 150A, 150B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X   Hydric Soil Present? Yes X   Hydric Soil Present? Yes X	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Depleted Matrix (F3)  Tem Muck (A9) (LRR P, T, U)  Depleted Below Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Dark Surface (S7) (LRR P, S, T, U)  Sandy Mucky Mineral (S1) (LRR O, S)  Dark Surface (S7) (LRR P, S, T, U)  Depleted Matrix (F1) (MLRA 150A)  Delta Ochric (F13) (MLRA 150A)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Marl (F10) (LRR U)  Depleted Below Dark Surface (A11)  Depleted Ochric (F11) (MLRA 151)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Stratified Layers (A5)  Delta Ochric (F18) (MLRA 150A)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Reduced Vertic (F18) (MLRA 150A, 150B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X   Hydric Soil Present? Yes X   Hydric Soil Present? Yes X	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Depleted Matrix (F3)  Tem Muck (A9) (LRR P, T, U)  Depleted Below Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Dark Surface (S7) (LRR P, S, T, U)  Sandy Mucky Mineral (S1) (LRR O, S)  Dark Surface (S7) (LRR P, S, T, U)  Depleted Matrix (F1) (MLRA 150A)  Delta Ochric (F13) (MLRA 150A)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Marl (F10) (LRR U)  Depleted Below Dark Surface (A11)  Depleted Ochric (F11) (MLRA 151)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Stratified Layers (A5)  Delta Ochric (F18) (MLRA 150A)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Reduced Vertic (F18) (MLRA 150A, 150B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X   Hydric Soil Present? Yes X   Hydric Soil Present? Yes X	
Hydric Soil 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)  Hydrogen Sulfide (A4)  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 P, T)  Depleted Below Dark Surface (A11)  Thin Dark Surface (S9) (LRR S, T, U)  Redox Dark Surface (F6)  Muck Presence (A8) (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)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Dark Surface (F11)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Sandy Redox (S5)  Fiedmont Floodplain Soils (F19) (MLRA 149A)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks:	
Hydric Soil 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)  Hydrogen Sulfide (A4)  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 P, T)  Depleted Below Dark Surface (A11)  Thin Dark Surface (F6)  Redox Dark Surface (F7)  Marl (F10) (LRR U)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Depleted Dark Surface (F1)  Marl (F10) (LRR U)  Depleted Dark Surface (F1)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Depleted Below Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Depleted Dark Surface (F1)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Stratified Layers (A5)  Delta Ochric (F18) (MLRA 150A, 150B)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks:	
Hydric Soil 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)  Hydrogen Sulfide (A4)  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 P, T)  Depleted Below Dark Surface (A11)  Thin Dark Surface (S9) (LRR S, T, U)  Redox Dark Surface (F6)  Muck Presence (A8) (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)  Stratified Layers (A5)  Depleted Matrix (F3)  Depleted Dark Surface (F11)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Stratified Layers (A5)  Delta Ochric (F17) (MLRA 151)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Ochric (F17) (MLRA 151)  Sandy Redox (S5)  Fiedmont Floodplain Soils (F19) (MLRA 149A)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks:	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Histosol (A1)  Histosol (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Depleted Matrix (F3)  Depleted Below Dark Surface (A1)  Depleted Obric (F11) (MLRA 151)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRR 150A)  Sandy Mucky Mineral (S1) (LRR O, S)  Sandy Redox (S5)  Sandy Redox (S5)  Dark Surface (S7) (LRR P, S, T, U)  Reduced Vertic (F18) (outside Meldicable Matrix (F2)  Depleted Dark Surface (F6)  Marl (F10) (LRR U)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Wery Shallow Dark Surface (T12)  Very Shallow Dark Surface (T12)  Other (Explain in Remarks)  Depleted Dark Surface (F12) (LRR O, P, T)  Depleted Below Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Depleted Obric (F13) (LRR P, T, U)  Sandy Mucky Mineral (S1) (LRR O, S)  Delta Obric (F17) (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):  Remarks:	
Histosol (A1)  Histosol (A2)  Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Muck Presence (A8) (LRR P, T)  Depleted Matrix (F3)  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)  Dark Surface (S7) (LRR P, S, T, U)  Derivalue Below Surface (S8) (LRR S, T, U)  Loamy Mucky Mineral (F1) (LRR O)  Loamy Mucky Mineral (F1) (LRR O)  Depleted Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Redox Dark Surface (F7)  Muck Presence (A8) (LRR U)  Depleted Dark Surface (F7)  Marl (F10) (LRR U)  Depleted Dorric (F11) (MLRA 151)  Thick Dark Surface (A12)  Coast Prairie Redox (A16) (MLRA 150A)  Sandy Mucky Mineral (S1) (LRR O, S)  Sandy Bedox (S5)  Depleted Ochric (F17) (MLRA 151)  Reduced Vertic (F18) (MLRA 150A, 150B)  Sandy Redox (S5)  Depleted Ochric (F17) (MLRA 150A, 150B)  Sandy Redox (S5)  Derival Muck (F10) (LRR O, F10)  Derival Muck (F10) (MLRA 149A, 153C, 153D)  Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks:	
Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Muck Presence (A8) (LRR U)  1 cm Muck (A10) (LRR P, T)  Depleted Dark Surface (F7)  Marl (F1) (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 Redox (S5)  Stripped Matrix (S4)  Sandy Redox (S5)  Dark Surface (S9) (LRR P, T, U)  Delta Ochric (F17) (MLRA 151)  Reduced Vertic (F18) (outside M  Piedmont Floodplain Soils (F19)  Anomalous Bright Loamy Soils (F  (MLRA 153B)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Other (Explain in Remarks)  Depleted Ochric (F11) (MLRA 151)  Iron-Manganese Masses (F12) (LRR O, P, T)  Sandy Mucky Mineral (S1) (LRR O, S)  Sandy Redox (S5)  Stripped Matrix (S4)  Sandy Redox (S5)  Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks:	
Hydrogen Sulfide (A4)  Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Storm Mucky Mineral (A7) (LRR P, T, U)  Depleted Dark Surface (F6)  Muck Presence (A8) (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)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Redux Depressions (F8)  Marl (F10) (LRR U)  Depleted Ochric (F11) (MLRA 151)  Iron-Manganese Masses (F12) (LRR O, P, T)  Jelta Ochric (F13) (LRR P, T, U)  Delta Ochric (F17) (MLRA 151)  Reduced Vertic (F18) (MLRA 150A, 150B)  Piedmont Floodplain Soils (F19)  Anomalous Bright Loamy Soils (F19)  MLRA 153B)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12  Other (Explain in Remarks)  Other (Explain in Remarks)  Jelta Ochric (F11) (MLRA 151)  unless disturbed or problemat  Reduced Vertic (F18) (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)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X	
Stratified Layers (A5)  Organic Bodies (A6) (LRR P, T, U)  Redox Dark Surface (F6)  Mucky Mineral (A7) (LRR P, T, U)  Depleted Dark Surface (F7)  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)  Sandy Redox (S5)  Sandy Redox (S7)  Sandy Redox (S7)  Depleted Matrix (F3)  Redox Dark Surface (F7)  Redox Depressions (F8)  Wery Shallow Dark Surface (TF12)  Very Shallow Dark Surface (TF12)  Pepleted Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Pepleted Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Wetpleted Dark Surface (TF12)  Pepleted Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Neth Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (F7)	
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 (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 Depressions (F8)  Depleted Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  Indicators of hydrophytic vegeta wetland hydrology must be proving unless disturbed or problemate	
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)  Depleted Dark Surface (F7)  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12  Incom-Manganese Masses (F12) (LRR O, P, T)  Jepleted Ochric (F11) (MLRA 151)  Iron-Manganese Masses (F12) (LRR O, P, T)  Very Shallow Dark Surface (TF12  Wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided or problemate of the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided or problemate of the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided or problemate of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology must be provided by the following of hydrophytic vegets wetland hydrology following of hydrophytic vegets wetland hydrology following of hydrophytic vegets wetland hydrology following of h	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 (S7)  Stripped Matrix (S6)  Dark Surface (S7) (LRR P, S, T, U)  Redox Depressions (F8)  Wery Shallow Dark Surface (TF12  Other (Explain in Remarks)  In Other (Explain in Remarks)  Other (Explain in Remarks)  Other (Explain in Remarks)  In Other (Explain in Remarks)  Other (Explain in Remarks)  Other (Explain in Remarks)  In Other (Explain in Remarks)  Other (Explain in Remarks)  In Other (Expla	
1 cm Muck (A9) (LRR P, T)	.)
Thick Dark Surface (A12)	
Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be proposed for the property of the property o	
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):  Temarks:	
Sandy Gleyed Matrix (S4) Sandy Redox (S5) Siripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed): Type: Depth (inches):  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 X	
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed): Type: Depth (inches):  Remarks:  Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)  Hydric Soil Present? Yes X	0.
Dark Surface (S7) (LRR P, S, T, U)  Restrictive Layer (if observed):  Type:  Depth (inches):  Hydric Soil Present? Yes X  Remarks:	
Restrictive Layer (if observed):  Type:  Depth (inches):  Remarks: Hydric Soil Present? Yes X	
Type:  Depth (inches): Hydric Soil Present? Yes X  Remarks:	
Depth (inches): Hydric Soil Present? Yes X  Remarks:	
Remarks:	No
Plot meets the hydric soil criterion (F3).	NO





Photo 73 - Soil Sample - T6 - P2



Photo 74 - T-6 - P2 Facing North







Photo 75 – T6 – P2 Facing South



## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/Co	ounty: San Patricio (	Co.	Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners,	LLC		State: TX	Sampling Point: T6-P3
Investigator(s): R. Ganczak & A. Snellgrove				
Landform (hillslope, terrace, etc.): high marsh				Slope (%): 0
				Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soils	Lat.	Long.	NWI classific	nation: NA
Are climatic / hydrologic conditions on the site ty	migal for this time of ward V			
Are Vegetation, Soil, or Hydrolo				present? Yes X No
Are Vegetation, Soil, or Hydrolo	gy naturally problema	tic? (If needed,	explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach	site map showing sam	pling point locati	ons, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes	x No			
Hydric Soil Present? Yes	x No	Is the Sampled Area	V X	N-
Wetland Hydrology Present? Yes	x No	within a Wetland?	Yes	No
Remarks:				
Area appears to be historic spo	il placement site for	adjacent indus	trial site(s).	
	A Contraction Total Con-			
HYDROLOGY				
Wetland Hydrology Indicators:	,		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required	d; check all that apply)		Surface Soil	Cracks (B6)
Surface Water (A1)	Aquatic Fauna (B13)		Sparsely Veg	getated Concave Surface (B8)
High Water Table (A2)	Marl Deposits (B15) (LRR		Drainage Pat	tterns (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C		Moss Trim Li	
Water Marks (B1)	Oxidized Rhizospheres al			Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron		Crayfish Burn	
Drift Deposits (B3)	Recent Iron Reduction in	Tilled Soils (C6)		isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Iron Deposits (B5)	Thin Muck Surface (C7)	-\		Position (D2)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks	S)	Shallow Aqui	
Water-Stained Leaves (B9)			FAC-Neutral	noss (D8) (LRR T, U)
Field Observations:			Opilagilali II	1005 (100) (11111 1, 0)
Surface Water Present? Yes No	Depth (inches):			
	Depth (inches): 9			
	Depth (inches): 0	Wetland	Hydrology Presen	it? Yes X No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, moni			ailable:	
NRCS Soil Survey Data, Aeria	al Photography, NH	Data Data		
Remarks:				
Plot meets the hydrology criteri	a with two primary in	ndicators (A2 &	A3) and two	secondary indicators
(C9 & D5).				
-				

A I I - 4 -			
	Dominant		Dominance Test worksheet:
% Cover		Status	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
			Total Number of Dominant
			Species Across All Strata: 3 (B)
			Descent of Deminant Species
			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
	= Total Cov	er	OBL species 10 x 1 = 10
20% of	total cover		FACW species $\frac{70}{20}$ x 2 = $\frac{140}{60}$
			FAC species 20 x 3 = 60
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: 100 (A) 210 (B)
			Describered Index = D/A = 2.1
			Prevalence Index = B/A = 2.1
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0¹
			Problematic Hydrophytic Vegetation (Explain)
20% of	total cover	:	
40	Voc	EACW	¹Indicators of hydric soil and wetland hydrology must
			be present, unless disturbed or problematic.
			Definitions of Four Vegetation Strata:
			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of
10	Yes	OBL	more in diameter at breast height (DBH), regardless o
			height.
			Sapling/Shrub – Woody plants, excluding vines, less
			than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb - All herbaceous (non-woody) plants, regardless
			of size, and woody plants less than 3.28 ft tall.
			Woody vine – All woody vines greater than 3.28 ft in
			Woody vine – All woody vines greater than 3.28 ft in height.
	= Total Co		
100	= Total Co	ver	
	= Total Co	ver	
100	= Total Co	ver	
100 20% of	= Total Co	ver	
100 20% of	= Total Co	ver	
100 20% of	= Total Co	ver	
100 20% of	= Total Co	ver	height.
100 20% of	= Total Cor	ver 20	height.  Hydrophytic
100 20% of	= Total Cover	ver 20	height.
	20% of 40 30 20 10	= Total Cover 20% of total cover = Total Cover 20% of total cover = Total Cover 20% of total cover = 40	= Total Cover 20% of total cover: = Total Cover 20% of total cover: = Total Cover 20% of total cover: 40

## SOIL

Sampling Point: T6-P3

Depth	Matrix			ox Feature				
(inches)	Color (moist)	400	Color (moist)	%	Type	Loc <sup>2</sup> _	Texture	Remarks
)-8	10YR 4/2	100					sandy loam	
3-16	10YR 5/1	85	10YR 6/2		D	<u>M</u>	sandy loam	
ydric Soil  Histoso Histic E Black H Hydrogo Stratifie Organic Tom M Muck P Thick D Sandy I Sandy I Stripped Dark St estrictive Type: Depth (ir	pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) E Bodies (A6) (LRR ucky Mineral (A7) (LR resence (A8) (LRR P, T) d Below Dark Surfa ark Surface (A12) Prairie Redox (A16) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) d Matrix (S6) urface (S7) (LRR P, Layer (if observed	P, T, U)  RR P, T, U U)  (MLRA 150 (LRR O, S)  S, T, U)	LRRs, unless oth Polyvalue E Thin Dark S Loamy Muc Loamy Gley Depleted M Redox Dark Depleted D Redox Dep Marl (F10) Depleted O Iron-Manga A) Umbric Sur Delta Ochri Reduced V Piedmont F Anomalous	Below Surface (Selow Surface (Selow Surface (Selow Surface) (S	ted.) ace (S8) ( b) (LRR S (F1) (LR (F2)  F6) be (F7) F8)  (MLRA 1 (LRR P, LRA 151) (MLRA 1 Soils (F19)	LRR S, T, , T, U) R O) (LRR O, F T, U) ) 50A, 150E	U) 1 cm Mi 2 cm Mi 2 cm Mi Reduce Piedmo (MLR Red Pa Very Sh Other (6 very Sh United Parts of the control of th	





Photo 76 - Soil Sample - T6 - P3



Photo 77 - T-6 - P3 Facing North







Photo 78 - T6 - P3 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility City/Cour	nty: San Patricio Co. Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners, LLC	nty: San Patricio Co. Sampling Date: 1/17/2019 State: TX Sampling Point: T6-P4
Investigator(s): R. Ganczak & A. Snellgrove Section,	
	ief (concave, convex, none): none Slope (%): 0
	Long: -97.16161106 Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soils	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation, Soil, or Hydrology significantly disturbed	
Are Vegetation, Soil, or Hydrology naturally problematic	? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sample	ing point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Yes X  No le	
Hudrio Soil Proport?	the Sampled Area
Wetland Hydrology Present?  Yes X  No	ithin a Wetland? Yes X No
Remarks:	
Area appears to be historic spoil placement site for a	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (LRR U  Saturation (A3)  Hydrogen Sulfide Odor (C1)	
Figure 5 and 10	
☐ Water Marks (B1) ☐ Oxidized Rhizospheres alon ☐ Sediment Deposits (B2) ☐ Presence of Reduced Iron (	
Drift Deposits (B3)  Recent Iron Reduction in Till	
Algal Mat or Crust (B4) Thin Muck Surface (C7)	Geomorphic Position (D2)
Iron Deposits (B5)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:  Surface Water Present? Yes No X Depth (inches):	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present?  Yes X No Depth (inches): 13  Saturation Present?  Yes X No Depth (inches): 13	Wetland Hydrology Present? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previo	
NRCS Soil Survey Data, Aerial Photography, NHD	
Remarks:	
Plot meets the hydrology criteria with two primary inc	licators (A2 & A3) and two secondary indicators
(C9 & D5).	

		ants.		Sampling Point: T6-P4
0.01		Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' ) none			Status	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
•				T to I M and a conf Description
3.				Total Number of Dominant Species Across All Strata: 3 (B)
J				
5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
6				That Ale OBL, FACW, OF FAC.
7.				Prevalence Index worksheet:
3				Total % Cover of: Multiply by:
		= Total Co	/er	OBL species 10 x 1 = 10
50% of total cover:	***************************************			FACW species 50 x 2 = 100
Sapling/Shrub Stratum (Plot size: 30' )	20 /8 UI	total cover	•	FAC species 35 x 3 = 105
none				FACU species 5 x 4 = 20
				UPL species x 5 =
2				Column Totals: 100 (A) 235 (B)
3.				
				Prevalence Index = B/A = 2.35
5.				Hydrophytic Vegetation Indicators:
5				1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 <sup>1</sup>
3.		T 1 O	VOI	Ducklamatic Undershutin Vagotation (Evaluin)
5		= Total Co	ACI	Problematic Hydrophytic Vegetation (Explain)
50% of total cover:				Problematic Hydrophytic Vegetation (Explain)
50% of total cover: Herb Stratum (Plot size: _ <sup>30'</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
50% of total cover: )  1. Spartina patens				
50% of total cover:	20% of	total cover	:	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
50% of total cover:	20% of	total cover	FACW	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
50% of total cover:	20% of 25 25	Yes Yes	FACW	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
50% of total cover:	20% of 25 25 35	Yes Yes Yes	FACW FACW	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
50% of total cover:	25 25 35 10 5	Yes Yes Yes No No	FACW FACW FAC OBL FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
50% of total cover:	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FACOBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
50% of total cover:	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FAC OBL FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
50% of total cover:  Herb Stratum (Plot size: 30')  1. Spartina patens 2. Andropogon glomeratus 3. Andropogon virginicus 4. Hydrocotyle umbellata 5. Ambrosia artemisiifolia 6 7 8	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FAC OBL FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FACOBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover:	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FACOBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:	25 25 25 35 10 5	Yes Yes Yes No No	FACW FACW FACOBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover:	25 25 35 10 5	Yes Yes Yes No No	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Hydrocotyle umbellata Ambrosia artemisiifolia  6.	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' )  Spartina patens  Andropogon glomeratus  Andropogon virginicus  Hydrocotyle umbellata  Ambrosia artemisiifolia  6.  7.  8.  9.  10.  11.  12.  50% of total cover: 50  Woody Vine Stratum (Plot size: 30' )	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' )  1. Spartina patens 2. Andropogon glomeratus 3. Andropogon virginicus 4. Hydrocotyle umbellata 5. Ambrosia artemisiifolia 6 7 8	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Hydrocotyle umbellata Ambrosia artemisiifolia  6. 7. 8. 9. 110. 111. 122. 50% of total cover: 50 Woody Vine Stratum (Plot size: 30' ) 1. none 2.	25 25 35 10 5 	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' )  1. Spartina patens 2. Andropogon glomeratus 3. Andropogon virginicus 4. Hydrocotyle umbellata 5. Ambrosia artemisiifolia 6	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' )  1. Spartina patens 2. Andropogon glomeratus 3. Andropogon virginicus 4. Hydrocotyle umbellata 5. Ambrosia artemisiifolia 6	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FAC OBL FACU	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
50% of total cover:  Herb Stratum (Plot size: 30' )  1. Spartina patens 2. Andropogon glomeratus 3. Andropogon virginicus 4. Hydrocotyle umbellata 5. Ambrosia artemisiifolia 6	25 25 35 10 5	Yes Yes Yes No No  Total Cover  Total Cover	FACW FACW FAC OBL FACU  FACU  Yer 20	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
50% of total cover:  Herb Stratum (Plot size: 30' )  Spartina patens  Andropogon glomeratus  Andropogon virginicus  Hydrocotyle umbellata  Ambrosia artemisiifolia  6.  7.  8.  9.  10.  11.  12.  50% of total cover: 50  Woody Vine Stratum (Plot size: 30' )  1. none  2.  3.  4.	25 25 35 10 5	Yes Yes Yes No No  Total Cover	FACW FACW FAC OBL FACU  FACU  Yer 20	¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

Sampling Point: T6-P4

Type: C=Cor ydric Soil In Histosol (A Histic Epil Black Hist Hydrogen Stratified	ndicators: (Applio A1) pedon (A2)		Thin Dark Surf	vise noted.) w Surface (S8) (L	Loc²		_=Pore Lining, M=Matrix.
Type: C=Cor ydric Soil In Histosol (A Histic Epil Black Hist Hydrogen Stratified	ncentration, D=Department (Applied A1) pedon (A2) tic (A3) sulfide (A4)	100	RRs, unless otherw Polyvalue Belo Thin Dark Surf	vise noted.) w Surface (S8) (L	ains.	sandy loam	
ype: C=Cor ydric Soil In Histosol (A Histic Epil Black Hist Hydrogen	ncentration, D=De ndicators: (Applio A1) pedon (A2) tic (A3) s Sulfide (A4)	pletion, RM=R	RRs, unless otherw Polyvalue Belo Thin Dark Surf	vise noted.) w Surface (S8) (L	ains.	²Location: PL	
Histosol (A) Histosol (A) Histic Epin Black Hist Hydrogen Stratified	ndicators: (Applio A1) pedon (A2) tic (A3) Sulfide (A4)		RRs, unless otherw Polyvalue Belo Thin Dark Surf	vise noted.) w Surface (S8) (L	ains.		
Histosol (A) Histosol (A) Histic Epin Black Hist Hydrogen Stratified	ndicators: (Applio A1) pedon (A2) tic (A3) Sulfide (A4)		RRs, unless otherw Polyvalue Belo Thin Dark Surf	vise noted.) w Surface (S8) (L	ains.		
ydric Soil In  Histosol (A  Histic Epip  Black Hist  Hydrogen  Stratified	ndicators: (Applio A1) pedon (A2) tic (A3) Sulfide (A4)		RRs, unless otherw Polyvalue Belo Thin Dark Surf	vise noted.) w Surface (S8) (L	ains.		
Histosol (A Histic Epil Black Hist Hydrogen Stratified	A1) pedon (A2) tic (A3) s Sulfide (A4)	cable to all Li	Polyvalue Belo	w Surface (S8) (L		indicators to	
Histic Epip Black Hist Hydrogen Stratified	pedon (A2) tic (A3) Sulfide (A4)		Thin Dark Surf		DD 0		r Problematic Hydric Soils <sup>3</sup> :
Black Hist Hydrogen Stratified	tic (A3) Sulfide (A4)			200 (CO) /I DD C		The state of the s	ck (A9) <b>(LRR O)</b> ck (A10) <b>(LRR S)</b>
Hydrogen Stratified	Sulfide (A4)		Loamy Mucky	ace (S9) (LKK S, Mineral (F1) (LRR			Vertic (F18) (outside MLRA 150A,B
Stratified	, ,		Loamy Gleyed		. 0)		Floodplain Soils (F19) (LRR P, S, T
			Depleted Matri				us Bright Loamy Soils (F20)
I Organic D	Bodies (A6) (LRR F	P, T, U)	Redox Dark Si			(MLRA	
_	ky Mineral (A7) (L		Depleted Dark	, ,		Red Pare	nt Material (TF2)
Muck Pre	sence (A8) (LRR I	J)	Redox Depres			☐ Very Shal	llow Dark Surface (TF12)
1 cm Muc	k (A9) (LRR P, T)		Marl (F10) (LR	R U)		Other (Ex	plain in Remarks)
Depleted	Below Dark Surface	ce (A11)	☐ Depleted Ochr	ic (F11) (MLRA 1	51)		
=	k Surface (A12)		_	se Masses (F12) (		,	ors of hydrophytic vegetation and
	airie Redox (A16) (		Umbric Surfac	e (F13) (LRR P, T	, U)	wetlan	nd hydrology must be present,
	ucky Mineral (S1) (	LRR O, S)		17) (MLRA 151)			disturbed or problematic.
	eyed Matrix (S4)			c (F18) (MLRA 15			
Sandy Re			The same of the sa	dplain Soils (F19)			
=	Matrix (S6)		Anomalous Bri	ght Loamy Soils (	F20) (MLR	A 149A, 153C, 1	53D)
	ace (S7) (LRR P,					1	
	ayer (if observed)	):					
Type:			-				v
Depth (inch	nes):				durant in	Hydric Soil Pr	esent? Yes X No
emarks: Plo	ot meets the	hydric so	oil criterion (F	3).			





Photo 79 - Soil Sample - T6 - P4



Photo 80 - T-6 - P4 Facing North







Photo 81 - T6 - P4 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility		City/0	County: San	Patricio Co.		Sampling Date: 1/	17/2019
Applicant/Owner: Axis Midstream Pa	rtners, LLC					Sampling Point: T	
Investigator(s): R. Ganczak & A. Sne		Section					
Landform (hillslope, terrace, etc.): high						Slope	(%). 0
Subregion (LRR or MLRA): LRRT/150		1 at: 27.870565	03	Lang: -97.1	16170248	Datus	WGS 84
Soil Map Unit Name: Ds - Dianola soil	ls	Lat: 27.870565		Long	NIM/I alaasifis	Datui	III
Are climatic / hydrologic conditions on the							***************************************
						oresent? Yes X	Ma
Are Vegetation, Soil, or I							No
Are Vegetation, Soil, or I				If needed, expla			turos oto
SOMMAN OF FINDINGS - A			inpling poli	nt locations	, transects	, important lea	tures, etc.
Hydrophytic Vegetation Present?	Yes X	No x	Is the Sam	pled Area			
Hydric Soil Present?	Yes	No x	within a We		Yes	No X	
Wetland Hydrology Present? Remarks:	Yes x	No					
Area appears to be histori		0	,				
HYDROLOGY							
Wetland Hydrology Indicators:				Sec		ators (minimum of tw	vo required)
Primary Indicators (minimum of one is  Surface Water (A1)					Surface Soil		(00)
High Water Table (A2)		uatic Fauna (B13) rl Deposits (B15) <b>(LR</b>	R III		Drainage Pa	getated Concave Su	іпасе (В8)
Saturation (A3)		drogen Sulfide Odor (			Moss Trim L		
Water Marks (B1)		dized Rhizospheres a	,	toots (C3)		Water Table (C2)	
Sediment Deposits (B2)		sence of Reduced Iro	, , ,		Crayfish Bur	, ,	
Drift Deposits (B3)	Lund	cent Iron Reduction in	Tilled Soils (	C6)		isible on Aerial Imag	gery (C9)
Algal Mat or Crust (B4)  Iron Deposits (B5)		n Muck Surface (C7) er (Explain in Remar	ke)	H	Shallow Agu	Position (D2)	
Inundation Visible on Aerial Image		ici (Expiaii) iii i (einaii	n3)		FAC-Neutral		
☐ Water-Stained Leaves (B9)	. , ,					noss (D8) (LRR T, L	J)
Field Observations:							
		Depth (inches):					
		Depth (inches):	-			~	
Saturation Present? Yes (includes capillary fringe)	No X	Depth (inches):		Wetland Hydr	ology Preser	nt? Yes X	No
Describe Recorded Data (stream gaug				tions), if availabl	e:		
NRCS Soil Survey Data,	Aerial Ph	otography, Ni	HD Data				
Remarks:							
Plot meets the hydrology	criteria with	h two seconda	ry indica	tors (C9 &	D5).		

Sampling Point: T6-P5 VEGETATION (Four Strata) - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: \_\_\_\_) Tree Stratum (Plot size: 30' % Cover Species? Status **Number of Dominant Species** 1. none That Are OBL, FACW, or FAC: **Total Number of Dominant** 2 (B) Species Across All Strata: Percent of Dominant Species 50 (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 10 x 1 = 10 = Total Cover FACW species 20 x 2 = 40 50% of total cover: 20% of total cover: x 3 = 165FAC species Sapling/Shrub Stratum (Plot size: 30') FACU species  $\times 4 =$ 1 none x5 = 10UPL species (A) 225 (B) Column Totals: 87 Prevalence Index = B/A = 2.59Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% √ 3 - Prevalence Index is ≤3.0¹ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) 50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_ Herb Stratum (Plot size: 30' \_\_\_\_) Indicators of hydric soil and wetland hydrology must 1 Spartina patens **FACW** be present, unless disturbed or problematic. 10 Andropogon glomeratus No **FACW** Definitions of Four Vegetation Strata: 3 Andropogon virginicus Yes FAC Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 4. Hydrocotyle umbellata 10 No OBL more in diameter at breast height (DBH), regardless of 5. Helianthus annuus 5 FAC Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in 85 = Total Cover 50% of total cover: 42.5 \_\_ 20% of total cover: 17 Woody Vine Stratum (Plot size: 30' 1. Cucurbita foetidissima (?) Hydrophytic 2 \_\_\_\_ = Total Cover Vegetation Yes X No \_\_ Present? 50% of total cover: \_\_\_ 20% of total cover: \_\_\_ Remarks: (If observed, list morphological adaptations below). Plot meets the hydrophytic vegetation criteria (DT & PI).

### SOIL

Sampling Point: T6-P5

Depth	Matrix		Redo	ment the indicato ox Features			
(inches)	Color (moist)	400	Color (moist)	% Type	Loc <sup>2</sup>	Texture	Remarks
)-2	10YR 5/2					sandy loam	
2-12	10YR 6/2	100				sandy loam	
2-16	10YR 4/2	100				sandy loam	
	***************************************	-				-	
	*						
			Reduced Matrix, M RRs, unless other	S=Masked Sand (	Brains.		PL=Pore Lining, M=Matrix. For Problematic Hydric Soils <sup>3</sup> :
_		licable to all L	_		(IDD C T I		
Histosol	oipedon (A2)		******	elow Surface (S8) urface (S9) (LRR \$			uck (A9) <b>(LRR O)</b> uck (A10) <b>(LRR S)</b>
Black Hi			The same of the sa	ky Mineral (F1) (LF			d Vertic (F18) (outside MLRA 150A,
=	en Sulfide (A4)			ed Matrix (F2)	(K O)		nt Floodplain Soils (F19) (LRR P, S, 1
	d Layers (A5)		Depleted Ma	. ,			ous Bright Loamy Soils (F20)
_	Bodies (A6) (LRR	P. T. U)		Surface (F6)			A 153B)
the state of the s	icky Mineral (A7) (			rk Surface (F7)			rent Material (TF2)
	esence (A8) (LRR		The same of the sa	essions (F8)		- property	nallow Dark Surface (TF12)
_	ick (A9) (LRR P, T		Marl (F10) (			- Janes .	Explain in Remarks)
Depleted	Below Dark Surfa	ace (A11)	☐ Depleted Oc	chric (F11) (MLRA	151)		
Thick Da	ark Surface (A12)		Iron-Mangar	nese Masses (F12)	(LRR O, P,	T) <sup>3</sup> Indica	itors of hydrophytic vegetation and
	rairie Redox (A16)		Umbric Surf	ace (F13) (LRR P,	T, U)	wetla	and hydrology must be present,
	lucky Mineral (S1)			(F17) (MLRA 151	•		ss disturbed or problematic.
	Sleyed Matrix (S4)			ertic (F18) (MLRA			
	Redox (S5)			oodplain Soils (F19			
Strippod					(E20) /MI D	A 140A 153C	153D)
	Matrix (S6)	0 7 11)	II Anomalous	Bright Loamy Soils	(FZO) (MILK	M 145M, 133C,	1000/
Dark Su	rface (S7) (LRR P		Anomalous	Bright Loamy Soils	(FZO) (WILK	TA 149A, 1330,	1000/
Dark Sur Restrictive I			Anomalous	Bright Loamy Solls	(F20) (MLN	A 149A, 1330,	
Dark Sur Restrictive I Type:	rface (S7) (LRR P Layer (if observed		Anomaious	Bright Loamy Solis	(F20) (MEN		V
Dark Sur Restrictive I Type: Depth (inc	rface (S7) (LRR P Layer (if observed		Anomalous	Bright Loamy Solls	(FZO) (WEN		Present? Yes No X
Dark Sur Restrictive I Type: Depth (inc	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLN		V
Dark Surestrictive I Type: Depth (included)	rface (S7) (LRR P Layer (if observed	d):	hydric soil ci		(F20) (MLN		V
Dark Sure Lestrictive Lestric	rface (S7) (LRR P Layer (if observed	d):			(F20) (MER		V
Dark Surestrictive I Type: Depth (included)	rface (S7) (LRR P Layer (if observed	d):			(F20) (MER		V
Dark Surestrictive I Type: Depth (included)	rface (S7) (LRR P Layer (if observed	d):			(F20) (MER		V
Dark Surestrictive I Type: Depth (included)	rface (S7) (LRR P Layer (if observed	d):			(F20) (MER		V
Dark Surestrictive I Type: Depth (included)	rface (S7) (LRR P Layer (if observed	d):			(F20) (MER		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MEN		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MEN		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MEN		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incomerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V
Dark Surestrictive I Type: Depth (incommerks:	rface (S7) (LRR P Layer (if observed	d):			(F20) (MLR		V





Photo 82 - Soil Sample - T6 - P5



Photo 83 - T-6 - P5 Facing North







Photo 84 - T6 - P5 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	,	City/County: Sa	n Patricio Co.		Sampling Date: 1/	17/2019
Applicant/Owner: Axis Midstream F		Oity/Oddity.			Sampling Point: T7	
Investigator(s): R. Ganczak & A. S		Section, Townsl			odnipinig r ont.	
Landform (hillslope, terrace, etc.): ma		Local relief (con-	-		Slone (	%). 0
Subregion (LRR or MLRA): LRRT/15						
Soil Map Unit Name: Ds - Dianola s	ioils		Long:		F2USN	1.
		Y			ation: E2USN	
Are climatic / hydrologic conditions on						
Are Vegetation, Soil,			Are "Normal C	ircumstances" p	present? Yes X	No
Are Vegetation, Soil,	r Hydrology natur	ally problematic?	(If needed, exp	olain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS -	Attach site map sho	owing sampling p	oint location	s, transects	, important feat	ures, etc.
Hydrophytic Vegetation Present?	Yes X No	1- 4- 0-	ment of Asses			
Hydric Soil Present?	Yes x No		mpled Area Wetland?	V X	No	
Wetland Hydrology Present?	Yes X No		wettand?	res	NO	
Remarks:						
Area appears to be histo man-made drainage feat				al site(s).	Plot between	
HYDROLOGY	***************************************					
Wetland Hydrology Indicators:			<u>S</u>	econdary Indica	tors (minimum of two	o required)
Primary Indicators (minimum of one	is required; check all that	apply)		Surface Soil	Cracks (B6)	
Surface Water (A1)	Aquatic Fau	, ,		Sparsely Ve	getated Concave Sur	rface (B8)
High Water Table (A2)		ts (B15) (LRR U)	F	Drainage Pa		
Saturation (A3)	mm	ulfide Odor (C1)	- · · · · · · · · · · ·	Moss Trim L		
Water Marks (B1) Sediment Deposits (B2)		nizospheres along Living Reduced Iron (C4)	Roots (C3)	Crayfish Bur	Water Table (C2)	
Drift Deposits (B3)		Reduction in Tilled Soil	s (C6)		isible on Aerial Imag	erv (C9)
Algal Mat or Crust (B4)	Thin Muck S		Ī	=	Position (D2)	., (,
Iron Deposits (B5)	Other (Expla	ain in Remarks)		Shallow Aqu		
Inundation Visible on Aerial Ima	gery (B7)		<u> </u>	FAC-Neutral	Test (D5)	
☐ Water-Stained Leaves (B9)				Sphagnum n	noss (D8) (LRR T, U	)
Field Observations:	v					
	No X Depth (		-			
	× No Depth (				v	.5.
(includes capillary fringe)	X No Depth (			-	nt? Yes X	No
Describe Recorded Data (stream ga NRCS Soil Survey Data				ible:		
Remarks:	i, Aeriai Friologia	apriy, NID Dat	a			
	e anitania cuith tura		(AO O A	0\l 4l		
Plot meets the hydrology		primary indicate	ors (AZ & A	3) and thre	e secondary	
indicators (B10, C9 & D5	)-					
-1						

## VEGETATION (Four Strata) - Use scientific names of plants.

Sampling Point: T7-P1

<u>Tree Stratum</u> (Plot size: 30'		Dominant	Indicator	Dominance Test worksheet:			
	% Cover	Species?	Status	Number of Dominant Species			
1. none				That Are OBL, FACW, or FAC: 5 (A)			
				Total Number of Dominant			
				Species Across All Strata: 5 (B)			
l				Percent of Dominant Species			
				That Are OBL, FACW, or FAC: 100 (A/B			
				Prevalence Index worksheet:			
•				Total % Cover of: Multiply by:			
		***************************************		OBL species 60 x 1 = 60			
		= Total Co		FACW species 40 x 2 = 80			
50% of total cover:	20% of	total cover	:	FAC species 30 x 3 = 90			
Sapling/Shrub Stratum (Plot size: 30' ) Avicennia germinans	20	Vaa	OBL	FACU species x 4 =			
Iva frutescens	10	Yes	OBL	UPL species x 5 =			
			FACW	Column Totals: 130 (A) 230 (B)			
				Prevalence Index = B/A = 1.77			
				Hydrophytic Vegetation Indicators:			
				1 - Rapid Test for Hydrophytic Vegetation			
-				2 - Dominance Test is >50%			
				3 - Prevalence Index is ≤3.0¹			
		= Total Co		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
50% of total cover: 20	20% of	total cover	: 8				
Herb Stratum (Plot size: 30' )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must			
Spartina patens	30	Yes	FACW	be present, unless disturbed or problematic.			
Andropogon glomeratus		Yes	FAC	Definitions of Four Vegetation Strata:			
Andropogon virginicus	10	No	FAC	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) o			
Salicomia bigelovii	30	Yes	OBL	more in diameter at breast height (DBH), regardless of			
6.				height.			
				height.  Sapling/Shrub – Woody plants, excluding vines, less			
8.							
				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.			
)				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.			
)				Sapling/Shrub — Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb — All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.			
0				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless			
0				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
0				Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
5	90	= Total Co	ver	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
0	90	= Total Co	ver	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
0	90 20% of	= Total Cover	ver : 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
0	90 20% of	= Total Cover	ver : 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
0	90 20% of	= Total Cover	ver : 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
50% of total cover: 45 Noody Vine Stratum (Plot size: 30') none	90 20% of	= Total Cor	ver : 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in			
10	90 20% of	= Total Cor	ver : 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.			
Woody Vine Stratum (Plot size: 30' )	90 20% of	= Total Cover	ver 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic			
10	90 20% of	= Total Cover	ver 18	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.			

Sampling Point: T7-P1

)-16	Color (moist) 10YR 6/2	85 85	Color (moist) 10YR 5/1	15	Type <sup>1</sup>	M Loc²	loamy sand	Remarks
F-10	10111 0/2		101K 5/1	15	ע	IVI	oamy sand	
					-			
					-			
				***************************************				
	<del></del>							
			Reduced Matrix, M			rains.		=Pore Lining, M=Matrix.
		icable to all	LRRs, unless othe					Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1) ipedon (A2)		Polyvalue B		. , ,			k (A9) <b>(LRR O)</b> k (A10) <b>(LRR S</b> )
Black His			Thin Dark S Loamy Mucl					Vertic (F18) (outside MLRA 150A,E
=	n Sulfide (A4)		Loamy Gley	-		,		Floodplain Soils (F19) (LRR P, S, T
	Layers (A5)		✓ Depleted Ma		( )			s Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P, T, U)	Redox Dark	Surface (I	F6)		(MLRA	153B)
	cky Mineral (A7) (I				, ,			nt Material (TF2)
-	esence (A8) (LRR		Redox Depr	,	8)		The same of the sa	ow Dark Surface (TF12)
-	ck (A9) (LRR P, T)		Marl (F10) (I			m41	U Other (Exp	olain in Remarks)
	l Below Dark Surfa rk Surface (A12)	ice (A11)	Depleted Oc				T) 3Indicate	es of budges budge upgetation and
	rairie Redox (A12)	/MI PA 150/	Iron-Mangar Umbric Surf					rs of hydrophytic vegetation and dhydrology must be present,
-	lucky Mineral (S1)		Delta Ochric			-		disturbed or problematic.
	leyed Matrix (S4)	(LIGIT 0, 0)	Reduced Ve					distarbed of problematio.
_	edox (S5)		Piedmont Fl	, ,	•			
	Matrix (S6)						RA 149A, 153C, 15	(3D)
Dark Sur	face (S7) (LRR P,	S, T, U)						
estrictive L	ayer (if observed	l):						
Туре:								
Depth (inc	:hes):						Hydric Soil Pre	esent? Yes X No
emarks:	-44- 41-	1	.11 .11 .1 .71	E0)				
PI	ot meets the	nyanc s	oil criterion (	F3).				





Photo 85 - Soil Sample - T7 - P1



Photo 86 - T-7 - P1 Facing North







Photo 87 - T7 - P1 Facing South



Photo 88 - T7 - P1, Oysters in Man-Made Tidal Drainage Feature



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility Cit	y/County: San Patricio Co. Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners, LLC	State: TX Sampling Point: T7-P2
D. Conorok & A. Cnollerous	ction, Township, Range:
	cal relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat: 27.87139	2761 Long: -97.1621362 Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soils	NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year?	
	sturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally proble  SUMMARY OF FINDINGS – Attach site map showing sa	ematic? (If needed, explain any answers in Remarks.)  ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present?         Yes x         No           Wetland Hydrology Present?         Yes x         No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No No Remarks:	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)  Aquatic Fauna (B13)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)  Marl Deposits (B15) (I	
Saturation (A3) Hydrogen Sulfide Odo	r (C1) Moss Trim Lines (B16)
	s along Living Roots (C3) Dry-Season Water Table (C2)
Sediment Deposits (B2)  Presence of Reduced	
☐ Drift Deposits (B3) ☐ Recent Iron Reduction ☐ Algal Mat or Crust (B4) ☐ Thin Muck Surface (C)	
Algal Mat or Crust (B4)  Iron Deposits (B5)  Thin Muck Surface (C'	
Inundation Visible on Aerial Imagery (B7)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)	Sphagnum moss (D8) (LRR T, U)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No _x Depth (inches): _	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	previous inspections), if available:
NRCS Soil Survey Data, Aerial Photography, N	NHD Data
Remarks:	
Plot meets the hydrology criteria with two second	dary indicators (C9 & D5).

# VEGETATION (Four Strata) - Use scientific names of plants

001				
		Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 30' ) none		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
				Total Number of Dominant
s				Species Across All Strata: 4 (B)
l				Percent of Dominant Species
5.				That Are OBL, FACW, or FAC: 75 (A/B)
5				
7				Prevalence Index worksheet:
3				Total % Cover of: Multiply by:  OBL species 15 x 1 = 15
		= Total Cov	rer	OBE species x i
50% of total cover:	20% of	total cover		FACW species $\frac{30}{15}$ $x = \frac{60}{45}$
Sapling/Shrub Stratum (Plot size: 30' )				TAC species AC
none				FACU species 20 x 4 = 80
2.				UPL species 5 x 5 = 25
3.				Column Totals: <u>85</u> (A) <u>225</u> (B)
				Prevalence Index = B/A = 2.65
5				
5				Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation
7				
B		= Total Cov		✓ 3 - Prevalence Index is ≤3.01
500/ -54-A-1				Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% 01	total cover		
Herb Stratum (Plot size: 30' ) 1 Juncus effusus	15	Yes	OBL	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
			FACW	
Spartina patens	20	Yes		Definitions of Four Vegetation Strata:
3. Ambrosia artemisiifolia	20	Yes	FACU	
	40	N.L.	FAO	
Andropogon virginicus	10	No	FAC	more in diameter at breast height (DBH), regardless of
4. Andropogon virginicus 5. Andropogon glomeratus	10	No	FACW	more in diameter at breast height (DBH), regardless of height.
Andropogon virginicus Andropogon glomeratus Opuntia stricta	10	No No	FACW UPL	more in diameter at breast height (DBH), regardless of
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7.	10 5	No No	FACW UPL	Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7	5	No No	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Andropogon virginicus Andropogon glomeratus Opuntia stricta  Andropogon glomeratus Opuntia stricta  Andropogon glomeratus Opuntia stricta	10 5	No No	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7. 8. 9. 110.	10 5	No No	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Andropogon virginicus Andropogon glomeratus Opuntia stricta  B.  10.  11.	10 5	No No	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7.  8.  9.  11.  12.	10 5	No No = Total Cov	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
4. Andropogon virginicus 5. Andropogon glomeratus 6. Opuntia stricta 7	10 5	No No	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
4. Andropogon virginicus 5. Andropogon glomeratus 6. Opuntia stricta 7	10 5 	No No Total Cover total cover	FACW UPL  ver 16	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
4. Andropogon virginicus 5. Andropogon glomeratus 6. Opuntia stricta 7	10 5	No No = Total Cov	FACW UPL	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7. 8. 9. 110. 111. 122.  50% of total cover: 40  Woody Vine Stratum (Plot size: 30')  Rubus argutus 2.	10 5 	No No Total Cover total cover	FACW UPL  ver 16	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon virginicus Andropogon glomeratus Copuntia stricta Andropogon glomeratus Copuntia stricta Andropogon glomeratus Copuntia stricta Andropogon virginicus Andropogon virginicus  Sopuntia stricta  Sopuntia	10 5 	No No Total Cover total cover	FACW UPL  ver 16	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Andropogon virginicus Andropogon glomeratus Copuntia stricta Andropogon glomeratus Copuntia stricta Andropogon glomeratus Copuntia stricta Andropogon virginicus Andropogon virginicus  Sopuntia stricta  Sopuntia	10 5 	No No Total Cover total cover	FACW UPL  ver 16	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
4. Andropogon virginicus 5. Andropogon glomeratus 6. Opuntia stricta 7	80 20% of	No No Total Cover total cover	FACW UPL  ver 16	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.
4. Andropogon virginicus 5. Andropogon glomeratus 6. Opuntia stricta 7	80 20% of	No No Total Cover Yes Total Cover	Ver 16 FAC	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic Vegetation
Andropogon virginicus Andropogon glomeratus Opuntia stricta  7. 8. 9. 11.	80 20% of	No No Total Cover Yes Total Cover	Ver 16 FAC	more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

SOIL

Sampling Point: T7-P2

Depth	Matrix			x Featur		_Loc <sup>2</sup>	Taytura	Remarks
(inches) 0-3	Color (moist) 10YR 3/1	100	Color (moist)	%	Type	LUC	Texture sandy loam	T/GIIId/N3
	-		10VP 7/2			M		
ype: C=Cydric Soil Histosol Histic E Black Hi Hydroge Stratifier Organic 5 cm Mu Muck Pr 1 cm Mu	10YR 4/1	epletion, RM licable to all (LRR P, T, U) (LRR P, T, U	=Reduced Matrix, M LRRs, unless other Polyvalue B Thin Dark S Loamy Mucl Loamy Gley Depleted Ma Redox Dark Depleted Dark Redox Depr Marl (F10) (	erwise no elow Surf urface (Si ky Minera ed Matrix atrix (F3) Surface ( ark Surface essions ( LRR U)	(F6) (F6) (F7) (F6) (F6) (F6) (F7) (F8)	LRR S, T, ( T, U) R O)	2Location: Pt Indicators for U) 1 cm Muc Reduced Piedmont Anomalou (MLRA Red Pare Very Sha	L=Pore Lining, M=Matrix.  r Problematic Hydric Soils <sup>3</sup> :  ck (A9) (LRR 0)  ck (A10) (LRR S)  Vertic (F18) (outside MLRA 150A,B  t Floodplain Soils (F19) (LRR P, S, T)  us Bright Loamy Soils (F20)  153B)  th Material (TF2)  llow Dark Surface (TF12)  kplain in Remarks)
Coast P Sandy M Sandy C Sandy F Stripped Dark Su	ark Surface (A12) rairie Redox (A16) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) Matrix (S6) Inface (S7) (LRR P Layer (if observe	(LRR O, S)	Delta Ochrid Reduced Ve	ace (F13) (F17) <b>(N</b> ertic (F18) oodplain	(LRR P, 1 ILRA 151) (MLRA 1: Soils (F19	r, U) 50A, 150B ) (MLRA 1	wetlan unless	ors of hydrophytic vegetation and hydrology must be present, s disturbed or problematic.
Туре:		a):	_				Mandala Call Dra	was X No
Depth (in Remarks:	ches):						Hydric Soil Pr	resent? Yes X No
			soil criterion (					





Photo 89 - Soil Sample - T7 - P2



Photo 90 - T-7 - P2 Facing North







Photo 91 - T7 - P2 Facing South



## WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility			City/County: Sar	Patricio Co.		Sampling Date:	1/17/2019
Applicant/Owner: Axis Midstream P	artners, LLC		only, occ).	Sta		Sampling Point:	
Investigator(s): R. Ganczak & A. Sr							
Landform (hillslope, terrace, etc.): high		Section, Township, Range:  Local relief (concave, convex, none): none Slope (%): 0					
Subregion (LRR or MLRA): LRRT/15		27.871	29478	-97	.16226063	Do	WGS 84
	nile	Lat:	20170	Long:		ation: NA	turn.
Soil Map Unit Name: Ds - Dianola so					_ NWI classific	ation:	
Are climatic / hydrologic conditions on	the site typical for	or this time of year					
Are Vegetation, Soil, or				Are "Normal Ci	ircumstances" p	resent? Yes X	No
Are Vegetation, Soil, or	Hydrology	naturally pro	blematic?	(If needed, exp	lain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS - A	Attach site m	nap showing	sampling po	int locations	s, transects	, important fe	eatures, etc.
Hydrophytic Vegetation Present?	Yes X	No					
Hydric Soil Present?		No		npled Area	V X	No	
Wetland Hydrology Present?		No	within a v	Vetland?	Yes	No	-
Remarks:							
Area appears to be histor	ic spoil pla	icement site	e for adjace	THE HIGGSTIE	ar 51t0(5).		
HYDROLOGY							
Wetland Hydrology Indicators:				Se	econdary Indica	tors (minimum of	two required)
Primary Indicators (minimum of one is	s required; chec	k all that apply)			Surface Soil		
Surface Water (A1)		uatic Fauna (B13	,	-	7	getated Concave	Surface (B8)
High Water Table (A2)		rl Deposits (B15)		-	Drainage Pa		
Saturation (A3)		drogen Sulfide O	. ,	D	Moss Trim Li		
Water Marks (B1)			eres along Living	Roots (C3)	Crayfish Burn	Water Table (C2)	
Sediment Deposits (B2)  Drift Deposits (B3)		esence of Reduct	ion in Tilled Soils	(C6)	7	isible on Aerial In	nagery (C9)
Algal Mat or Crust (B4)		in Muck Surface			=	Position (D2)	, (,
Iron Deposits (B5)		her (Explain in Re		Ē	Shallow Aqui		
Inundation Visible on Aerial Imag					FAC-Neutral	Test (D5)	_
☐ Water-Stained Leaves (B9)					Sphagnum n	noss (D8) (LRR T	', U)
Field Observations:				1			
Surface Water Present? Yes _	No X	_ Depth (inches)	:				
		_ Depth (inches)					
	K No	Depth (inches)	8	Wetland Hyd	drology Preser	t? Yes X	No
(includes capillary fringe)  Describe Recorded Data (stream gau	uge, monitoring	well, aerial photo	s, previous inspe	ctions), if availa	ble:		
NRCS Soil Survey Data	_						
Remarks:		0 1 3					
Plot meets the hydrology	criteria wit	h one prima	ary (A3) and	d two seco	ndary indi	cators (C9 8	k D5).
, icomicolo uno my unorigy		ar one print	, (, , , , , , , , , , , , , , , , ,		, , , , , , , , , , , , , , , , , , , ,	( )	,

## VEGETATION (Four Strata) - Use scientific names of plants.

Ominance Test worksheet:  Jumber of Dominant Species  That Are OBL, FACW, or FAC: 3 (A)
2
(A)
otal Number of Dominant
Species Across All Strata: 4 (B)
Percent of Dominant Species
hat Are OBL, FACW, or FAC: 75 (A/B)
revalence Index worksheet:
Total % Cover of: Multiply by:
DBL species x 1 =
ACW species 60 x 2 = 120
AC species 20 x 3 = 60
ACU species 10 x 4 = 40
JPL species 2 x 5 = 10
Column Totals: 92 (A) 230 (B)
( )
Prevalence Index = B/A = 2.5
lydrophytic Vegetation Indicators:
1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test is >50%
7 3 - Prevalence Index is ≤3.01
Problematic Hydrophytic Vegetation¹ (Explain)
_ Problematic Hydrophytic Vegetation (Explain)
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Definitions of Four Vegetation Strata:
ree - Woody plants, excluding vines, 3 in. (7.6 cm) or
nore in diameter at breast height (DBH), regardless of
eight.
Sapling/Shrub - Woody plants, excluding vines, less
han 3 in. DBH and greater than 3.28 ft (1 m) tall.
lerb - All herbaceous (non-woody) plants, regardless
f size, and woody plants less than 3.28 ft tall.
Voody vine - All woody vines greater than 3.28 ft in
eight.
lydrophytic
/egetation
Present? Yes X No No No
1

## SOIL

Sampling Point: T7-P3

Depth	Matrix			x Feature				
inches) )-3	Color (moist) 10YR 3/1	100	Color (moist)	%	_Type <sup>1</sup>	_Loc <sup>2</sup>	Texture sandy loam	Remarks
3-6	10YR 4/1	85	10YR 7/2	15	D	М	loamy clay	
6-16	10YR 4/1	100					sandy loam	
Histosol Histosol Histic E Black Hi Hydroge Stratified Organic 5 cm Mu Muck Pr 1 cm Mu Depleter Thick Da Coast P Sandy M Sandy G Sandy F Stripped	Indicators: (Appl (A1) bipedon (A2) stic (A3) in Sulfide (A4) d Layers (A5) Bodies (A6) (LRR icky Mineral (A7) ( esence (A8) (LRR P, T d Below Dark Surfa ark Surface (A12) rairie Redox (A16) flucky Mineral (S1) fileyed Matrix (S4) tedox (S5) Matrix (S6)	P, T, U) LRR P, T, U U) ) ace (A11) (MLRA 150 (LRR O, S)	Redox Depre	rwise no elow Surf urface (St ty Minera ed Matrix (F3) Surface ( rk Surface essions (I LRR U) hric (F11 lese Mas ace (F13) (F17) (M rtic (F18)	red.) ace (S8) (I 9) (LRR S, I (F1) (LRF (F2) F6) e (F7) F8) ) (MLRA 1 ses (F12) (LRR P, 1 LRA 151) (MLRA 1 Soils (F19)	ERR S, T, T, U) R O) 51) (LRR O, P T, U) 50A, 150B	Indicators for I  I cm Muck 2 cm Muck Reduced V Piedmont F Anomalous (MLRA 1 Red Parent Very Shallo Other (Exp	t Material (TF2) bw Dark Surface (TF12) lain in Remarks) s of hydrophytic vegetation and hydrology must be present, disturbed or problematic.
strictive	rface (S7) (LRR P Layer (if observed							
Type: Depth (in	ches):						Hydric Soil Pres	sent? Yes X No
P	lot meets the	e hydric	soil criterion (I	=3).				





Photo 92 - Soil Sample - T7 - P3



Photo 93 - T-7 - P3 Facing North







Photo 94 - T7 - P3 Facing South



# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility	City/County: San I	Patricio Co.	Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream Partners, LLC		Patricio Co.  State: TX	Sampling Point: T7-P4
D. Constale 9 A. Challerous	Section, Township,		
		e, convex, none): none	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150B Lat:	27.87118763	Long: -97.16236789	Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soils		NWI classific	
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes X		
Are Vegetation, Soil, or Hydrology signif			present? Yes X No
Are Vegetation, Soil, or Hydrology natur		f needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map sho			
Hydrophytic Vegetation Present? Yes X No			
Hydric Soil Present? Yes X No No	is all sump		No
Wetland Hydrology Present? Yes x No No	WILLIA	tiand? res	
Remarks:			
	311		
HYDROLOGY			
Wetland Hydrology Indicators:			ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that			Cracks (B6)
Surface Water (A1) Aquatic Fau High Water Table (A2) Marl Deposi	na (B13) ts (B15) ( <b>LRR U)</b>	- In-mail	egetated Concave Surface (B8) atterns (B10)
	ulfide Odor (C1)	Moss Trim L	
= Tydrogen o	izospheres along Living R	Times 1	Water Table (C2)
	Reduced Iron (C4)	Crayfish Bu	rrows (C8)
Drift Deposits (B3)	Reduction in Tilled Soils (	C6) Saturation \	/isible on Aerial Imagery (C9)
	Surface (C7)		Position (D2)
	ain in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)  Water-Stained Leaves (B9)		FAC-Neutra	moss (D8) (LRR T, U)
Field Observations:		Spriagrium	noss (DO) (ERRY 1, O)
Surface Water Present? Yes No X Depth	inches):		
Water Table Present? Yes No X Depth (			
Saturation Present? Yes X No Depth	,	Wetland Hydrology Prese	nt? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aeria	al photos, previous inspect	ione) if available:	
NRCS Soil Survey Data, Aerial Photogra		ions), ii avallabic.	
Remarks:	aprily, itilib bata		
Plot meets the hydrology criteria with one	primary (A3) and	two secondary indi	cators (C9 & D5)
Plot fleets the flydrology chteria with one	primary (AS) and	two secondary man	cators (oo a bo).

#### VEGETATION (Four Strata) - Use scientific names of plants.

***				
ree Stratum (Plot size: 30' ) none	% Cover	Dominant Species		Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
				That Ale OBE, I AOV, OI I AO.
Pione -				Total Number of Dominant Species Across All Strata: 3 (B)
				Species Across All Strata: 3 (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 100 (A/B
- and the second				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Co	ver	OBL species x 1 =
50% of total cover:	20% 0	f total cove	r:	FACW species $\frac{65}{30}$ x 2 = $\frac{130}{60}$
apling/Shrub Stratum (Plot size: 30' )				FAC species 20 x 3 = 60
none				FACU species 5 x 4 = 20
				UPL species x 5 =
				Column Totals: 90 (A) 210 (B)
				Prevalence Index = B/A = 2.33
				Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0¹
	***************************************	= Total Co	ver	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
E00/ -54-4-1	20% 0	f total cove	r:	
50% of total cover:				
			***************************************	Indicators of hydric soil and wotland hydrology must
erb Stratum (Plot size: 30' )	35	Yes	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
erb Stratum (Plot size: 30' ) Spartina patens	35		FACW	be present, unless disturbed or problematic.
erb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus	35 25	Yes	FACW	
erb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus	35 25 20	Yes Yes	FACW FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
Spartina patens   Spartina patens   Andropogon glomeratus   Andropogon virginicus   Iva frutescens	35 25 20 5	Yes Yes No	FACW FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No	FACW FAC FAC FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Spartina patens   Spartina patens     Andropogon glomeratus     Andropogon virginicus     Iva frutescens     Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FAC FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
Spartina patens   Spartina patens     Andropogon glomeratus     Andropogon virginicus     Iva frutescens     Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FAC FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No	FACW FAC FAC FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FAC FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Spartina patens   Spartina patens	35 25 20 5 5	Yes Yes No No	FACW FAC FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
erb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia	35 25 20 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia 0	35 25 20 5 5	Yes Yes No No	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia  0	35 25 20 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
erb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia  0	35 25 20 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Perb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia  0 1 2 50% of total cover: 45 Noody Vine Stratum (Plot size: 30' ) none	35 25 20 5 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Perb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia  0 1 2 50% of total cover: 45 Noody Vine Stratum (Plot size: 30' ) none	35 25 20 5 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens   Spartina patens   Andropogon glomeratus   Andropogon virginicus   Iva frutescens   Ambrosia artemisiifolia   Spartina patenisiifolia   Spartina patenisiif	35 25 20 5 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Spartina patens   Spartina patens   Andropogon glomeratus   Andropogon virginicus   Iva frutescens   Ambrosia artemisiifolia   Spartina patenis   Spartina patenis	35 25 20 5 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
lerb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Iva frutescens Ambrosia artemisiifolia 0	35 25 20 5 5 5	Yes Yes No No  = Total Co	FACW FAC FACW FACU FACU FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic Vegetation
Spartina patens   Spartina patens   Andropogon glomeratus   Andropogon virginicus   Iva frutescens   Ambrosia artemisiifolia   Spartina patenis   Spartina patenis   Iva frutescens   Ambrosia artemisiifolia   Spartina patenis   Spartina pat	35 25 20 5 5 5	Yes Yes No No  Total Co f total cove	FACW FAC FACW FACU FACU FACU FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

### SOIL

Sampling Point: T7-P4

Depth (inches)	Matrix			x Features	0.00	n the absence of indicators.)	
(inches)	Color (moist)	%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-3	10YR 3/1	100				sandy loam	
3-16	10YR 4/1	100				sandy loam	
	*****						
				****			
			****				
	oncentration, D=De				Grains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
_	Indicators: (Appli	cable to all LF	_			Indicators for Problematic Hydric So	oils":
Histosol			= '	low Surface (S8)			
	pipedon (A2)			rface (S9) (LRR S		2 cm Muck (A10) (LRR S)	DA 4504 D
Black Hi	, ,			y Mineral (F1) (LR	IR O)	Reduced Vertic (F18) (outside MI	
	n Sulfide (A4)			d Matrix (F2)		Piedmont Floodplain Soils (F19) (I	
_	Layers (A5)		✓ Depleted Mar			Anomalous Bright Loamy Soils (F	20)
=	Bodies (A6) (LRR I		Redox Dark			(MLRA 153B)	
	icky Mineral (A7) (L			k Surface (F7)		Red Parent Material (TF2)	
	esence (A8) (LRR I		Redox Depre	, ,		Very Shallow Dark Surface (TF12)	
=	ick (A9) (LRR P, T)		Marl (F10) (L			Other (Explain in Remarks)	
	Below Dark Surface	ce (A11)		nric (F11) (MLRA			
	ark Surface (A12)		Iron-Mangan	ese Masses (F12)	(LRR O, P,		
	rairie Redox (A16) (		Umbric Surfa	ce (F13) (LRR P,	T, U)	wetland hydrology must be pre	sent,
	lucky Mineral (S1)	(LRR O, S)	Delta Ochric	(F17) (MLRA 151	)	unless disturbed or problematic	<b>.</b>
Sandy G	ileyed Matrix (S4)		Reduced Ver	tic (F18) (MLRA 1	150A, 150B)		
Sandy R	ledox (S5)		Piedmont Flo	odplain Soils (F19	9) (MLRA 14	19A)	
Stripped	Matrix (S6)		Anomalous B	right Loamy Soils	(F20) (MLR	RA 149A, 153C, 153D)	
Dark Su	rface (S7) (LRR P,	S, T, U)					
Restrictive	Layer (if observed)	):					
Type:							
Depth (in	ches).		-			Hydric Soil Present? Yes X	No
Remarks:	51100).					Trydric controscite. Tos	
veillains.	lot meets the	hydric so	il criterion (F	3).			
Р	iot iniooto tiro	my and do	ii ontonon (i	0).			
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
Р							
P							
P							
Р							
P							
P							
P							
P							
P							
P							
P							
P							





Photo 95 - Soil Sample - T7 - P4



Photo 96 - T-7 - P4 Facing North







Photo 97 - T7 - P4 Facing South



#### WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facilit	y	City/C	county: San Patricio	Co.	Sampling Date: 1/17/2019
Applicant/Owner: Axis Midstream		Oltyro			Sampling Point: T7-P5
Investigator(s): R. Ganczak & A. S		Section			Outripling Forte.
Landform (hillslope, terrace, etc.): hi					Slope (%): 0
Subregion (LRR or MLRA): LRRT/1		27 8710355	relier (concave, conve	-97 16249657	Slope (%). WGS 84
Soil Map Unit Name: Ds - Dianola	enile	Lat:	Long		Datum: WGS 84
					cation: NA
Are climatic / hydrologic conditions or					
Are Vegetation, Soil,				nal Circumstances"	present? Yes X No
Are Vegetation, Soil,	or Hydrology	naturally problema	atic? (If needed	d, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS -	Attach site m	nap showing san	pling point loca	tions, transects	s, important features, etc.
Hydrophytic Vegetation Present?	Yes X	No			
Hydric Soil Present?		No	Is the Sampled Are		No
Wetland Hydrology Present?		No	within a Wetland?	res	
Area appears to be histo	oric spoil pla	cement site for	r adjacent indu	strial site(s).	
HYDROLOGY					
Wetland Hydrology Indicators:	***************************************			Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one	is required; check	k all that apply)		Surface Soi	Cracks (B6)
Surface Water (A1)	L Aqu	uatic Fauna (B13)		Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2)		rl Deposits (B15) (LRI			atterns (B10)
Saturation (A3)		drogen Sulfide Odor (0	,	Moss Trim I	
Water Marks (B1) Sediment Deposits (B2)		idized Rhizospheres a esence of Reduced Iro		Crayfish Bu	Water Table (C2)
Drift Deposits (B3)		cent Iron Reduction in	1 '		/isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		n Muck Surface (C7)	Tilled Colle (Co)		Position (D2)
Iron Deposits (B5)		ner (Explain in Remark	(S)	Shallow Aqu	uitard (D3)
Inundation Visible on Aerial Ima	agery (B7)			FAC-Neutra	l Test (D5)
Water-Stained Leaves (B9)				Sphagnum	moss (D8) (LRR T, U)
Field Observations:					
		Depth (inches):			
	No <u>x</u>	Depth (inches):			
(includes capillary fringe)		Depth (inches):		d Hydrology Prese	nt? Yes A No
Describe Recorded Data (stream ga NRCS Soil Survey Data				available:	
Remarks:	a, Acriai Fil	otograpny, Ni	ID Data		
	u oritorio valt	h tua cacanda	er indicators (C	00 8 DE)	
Plot meets the hydrolog	y chiteria witi	n two seconda	ry indicators (C	θ α D5).	1

### VEGETATION (Four Strata) - Use scientific names of plants

201		Dominant		Dominance Test worksheet:
ree Stratum (Plot size: 30' ) none		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
•				
				Total Number of Dominant Species Across All Strata: 3 (B)
				(-)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
•				That Are OBL, FACW, or FAC: 100 (A/B)
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
·		= Total Co		OBL species x 1 =
F00/ of total account				FACW species 65 x 2 = 130
50% of total cover:	20% or	total cover		FAC species 20 x 3 = 60
Sapling/Shrub Stratum (Plot size: 30' )				FACU species 10 x 4 = 40
none				UPL species x 5 =
•				Column Totals: 95 (A) 230 (B)
				Prevalence Index = B/A = 2.42
j				Hydrophytic Vegetation Indicators:
),				1 - Rapid Test for Hydrophytic Vegetation
				☑ 2 - Dominance Test is >50%
)				3 - Prevalence Index is ≤3.0¹
		= Total Co	ver	Problematic Hydrophytic Vegetation¹ (Explain)
50% of total cover:	20% of	total cover		
	20% of	total cover	·	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Herb Stratum (Plot size: 30' )	20% of	total cover	FACW	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: 30' ) Spartina patens				¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus	40	Yes	FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus	40 20	Yes Yes	FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia	40 20 20	Yes Yes Yes	FACW FAC	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens	40 20 20 10 5	Yes Yes Yes No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens S.	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACU	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3. 7.	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens S	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens S. J.	40 20 20 10 5	Yes Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens S. J.	40 20 20 10 5	Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' ) Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  3.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in
Herb Stratum (Plot size: 30' )  Spartina patens Andropogon glomeratus Andropogon virginicus Ambrosia artemisiifolia Iva frutescens  6. 7. 8. 9. 110.	40 20 20 10 5	Yes Yes No No  Total Co	FACW FAC FACU FACW	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine - All woody vines greater than 3.28 ft in height.
Herb Stratum   (Plot size: 30'	95 20% of	Yes Yes No No  Total Co	FACW FAC FACU FACW  Ver 19	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.  Hydrophytic Vegetation
Herb Stratum (Plot size: 30'	95 20% of	Yes Yes No No  = Total Co total cover	FACW FAC FACU FACW  Ver 19	be present, unless disturbed or problematic.  Definitions of Four Vegetation Strata:  Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody vine – All woody vines greater than 3.28 ft in height.

SOIL

Sampling Point: T7-P5

Depth   Matrix   Redox Features   Color (moist)   %   Color (moist)   %   Type¹   Loc²   Texture   Remarks
0-2 10YR 3/1 100 sandy loam
2-16 10YR 4/1 100 sandy loam
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)  Indicators for Problematic Hydric Soils <sup>3</sup> :
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)  Black Histic (A3)  Thin Dark Surface (S9) (LRR S, T, U)  Loamy Mucky Mineral (F1) (LRR O)  Reduced Vertic (F18) (outside MLRA 150A,B)
Black Histic (A3)
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)
Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12)
1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Under (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)  Iron-Manganese Masses (F12) (LRR O, P, T)  Indicators of hydrophytic vegetation and
Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic.
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)
Restrictive Layer (if observed):
Type:
Depth (inches): No
Plot meets the hydric soil criterion (F3).
Plot meets the hydric soil chterion (F3).





Photo 98 - Soil Sample - T7 - P5



Photo 99 - T-7 - P5 Facing North







Photo 100 - T7 - P5 Facing South



# WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Axis - Redfish Facility		_ City/County: San	Patricio Co.	Sampling Da	ate: 1/17/2019
Applicant/Owner: Axis Midstream Pa	rtners, LLC	_ 0.0,7000,.	State: TX		
Investigator(s): R. Ganczak & A. Sne		Section, Township			
Landform (hillslope, terrace, etc.): high			ve, convex, none): none	е	Slope (%): 0
Subregion (LRR or MLRA): LRRT/150	B Lat. 27.8	37088744	Long: -97.162684	19	Datum: WGS 84
Soil Map Unit Name: Ds - Dianola soi	ls		NWI cla	agaification: NA	Dataiii.
		2 × X			100
Are climatic / hydrologic conditions on th					Χ ν.
Are Vegetation, Soil, or h			Are "Normal Circumstan		
Are Vegetation, Soil, or h	lydrology naturally p	problematic?	(If needed, explain any a	inswers in Remarks	s.)
SUMMARY OF FINDINGS - At	tach site map showir	ng sampling po	nt locations, trans	ects, importar	nt features, etc.
Hydrophytic Vegetation Present?	Yes X No	- Is the Sam	unland Area		
Hydric Soil Present?	Yes No Yes No _x	within a W	•	No X	
Wetland Hydrology Present?	Yes X No	_ Within a W	enandr	NO	
Area appears to be historic	spoil placement s	site for adjacer	nt industriai site(s	5).	
HYDROLOGY					
Wetland Hydrology Indicators:	***************************************	William	Secondary	Indicators (minimus	m of two required)
Primary Indicators (minimum of one is	required; check all that apply	y)	Surface	e Soil Cracks (B6)	
Surface Water (A1)	Aquatic Fauna (E	B13)	Sparse	ely Vegetated Conc	ave Surface (B8)
High Water Table (A2)	Marl Deposits (B	15) (LRR U)	Draina	ge Patterns (B10)	
Saturation (A3)	Hydrogen Sulfide	, ,		Trim Lines (B16)	
Water Marks (B1)		pheres along Living F		eason Water Table	(C2)
Sediment Deposits (B2)	Presence of Red			sh Burrows (C8) tion Visible on Aeria	al Imagen, (CQ)
Drift Deposits (B3) Algal Mat or Crust (B4)	Thin Muck Surfa	uction in Tilled Soils		orphic Position (D2)	
Iron Deposits (B5)	Other (Explain in			w Aquitard (D3)	
Inundation Visible on Aerial Image		,	-	leutral Test (D5)	
Water-Stained Leaves (B9)			☐ Sphagi	num moss (D8) (LF	RR T, U)
Field Observations:					
Surface Water Present? Yes	No X Depth (inche	es):			
	No X Depth (inch	,			
(includes capillary fringe)	No X Depth (inch		Wetland Hydrology P	resent? Yes X	No
Describe Recorded Data (stream gaug NRCS Soil Survey Data,					
Remarks:	/ toriai i flotograpi	19, 11110 0010			
Plot meets the hydrology	criteria with two sec	condary indica	tors (C9 & D5)		
Thormodo the riyarology (	ATTOTIC WITH TWO SCO	soridary marce	1010 (00 a Do).		

### VEGETATION (Four Strata) - Use scientific names of plants

ver .	Total Cov	Status	Dominance Test worksheet:  Number of Dominant Species That Are OBL, FACW, or FAC:  Total Number of Dominant Species Across All Strata:  Percent of Dominant Species That Are OBL, FACW, or FAC:  Prevalence Index worksheet:  Total % Cover of:  Multiply by:
	: Total Cov		That Are OBL, FACW, or FAC: 3 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
	- Total Cov		Species Across All Strata: 3 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
	- Total Cov		Species Across All Strata: 3 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
	· Total Cov		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
	· Total Cov		That Are OBL, FACW, or FAC: 100 (A/B)  Prevalence Index worksheet:
	: Total Cov		Prevalence Index worksheet:
	Total Cov		
=	Total Cov		Total % Cover of: Multiply by:
=	Total Cov		Triangly of
			OBL species <u>5</u> x 1 = <u>5</u>
6 of t			FACW species 25 x 2 = 50
	total cover:		FAC species 75 x 3 = 225
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: 105 (A) 280 (B)
			Column rotals. (7)
			Prevalence Index = B/A = 2.67
			Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 <sup>1</sup>
			Problematic Hydrophytic Vegetation¹ (Explain)
— 6 of 1	total cover		Troblematic Tryalophytic Vegetation (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
	Yes	FACW	be present, unless disturbed or problematic.
	No	FACW	Definitions of Four Vegetation Strata:
	Yes	FAC	Definitions of Four Togotation of the
			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
_			more in diameter at breast height (DBH), regardless of height.
			Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			than 3 in. DBH and greater than 3.20 it (1 iii) tan.
			Herb - All herbaceous (non-woody) plants, regardless
_		-	of size, and woody plants less than 3.28 ft tall.
			Woody vine - All woody vines greater than 3.28 ft in
			height.
=	Total Cov	er	
6 of i	total cover	19	
	Yes	FAC	
-			
			Understadio
_	- Total Cov	/Or	Hydrophytic Vegetation
-			Present? Yes X No
70 OI	total cover	. —	
	======================================	= Total Covers Yes No Yes No = Total Covers No Yes No = Total Covers Yes = Total Covers	= Total Cover % of total cover:

Sampling Point: T7-P6





Photo 101 - Soil Sample - T7 - P6



Photo 102 - T-7 - P6 Facing North







Photo 103 - T7 - P6 Facing South



# Axis Midstream Partners, LLC – Redfish Supplemental Delineation Plant List

Scientific Name	Common Name	AGCP Indicator Status		
Andropogon gerardii	Big Bluestem	FAC		
Andropogon glomeratus	Bushy Bluestem	FACW		
Andropogon virginicus	Broomsedge Bluestem	FAC		
Ambrosia artemisiifolia	Annual Ragweed	FACU		
Avicennia germinans	Black Mangrove	OBL		
Baccharis halimifolia	Eastern Baccharis	FAC		
Batis maritima	Turtleweed	OBL		
Borrichia frutescens	Bushy Seaside-Tansy	OBL		
Cucurbita foetidissima	Missouri Gourd	NI/UPL		
Distichlis spicata	Saltgrass	OBL		
Eragrostis spectabilis	Purple Lovegrass	FACU		
Fimbristylis castanea	Marsh Fimbry	OBL		
Galium aparine	Stickywilly	FACU		
Helianthus annuus	Common Sunflower	FAC		
Hydrocotyle umbellata	Many-Flower Marsh-Pennywort	OBL		
Iva annua	Annual Marsh-Elder	FAC		
Iva frutescens	Jesuit's Bark	FACW		
Juncus effusus	Common Rush	OBL		
Lycium carolinianum	Carolina Desert-Thorn	FACW		
Opuntia stricta	Erect Prickly-Pear	UPL		
Monanthochloe (Distichlis) littoralis	Shore Grass	OBL		
Rubus argutus	Sawtooth Blackberry	FAC		
Salicornia bigelovii	Dwarf Saltwort	OBL		
Schinus terebinthifolia	Brazilian Peppertree	FAC		
Spartina alterniflora	Smooth Cordgrass	OBL		
Spartina patens	Salt-Meadow Cordgrass	FACW		
Spartina spartinae	Gulf Cord Grass	OBL		
Suaeda linearis	Annual Seepweed	OBL		

# APPENDIX C - DATA VALIDATION TABLE



# DATA VALIDATION TABLE

Position I	D Comment	Northing	Easting	Max PDOP	Max HDOP	<b>GPS Date</b>	Avg Vert Prec	Avg Horz Prec	No. of Satellites
POINTS									
0	T1P1	3085093.477	681537.012	1.6	0.9	1/16/2019	0.7	0.5	12
1	T1P2	3085188.839	681403.121	1.3	0.7	1/16/2019	0.7	0.5	19
2	T1P3	3085194.305	681394.198	1.3	0.7	1/16/2019	0.7	0.5	20
3	T1P4	3085248.677	681360.749	1.3	0.7	1/16/2019	0.7	0.4	20
4	T1P5	3085315.446	681237.455	1.2	0.6	1/16/2019	0.8	0.4	22
5	T1P6	3085144.363	681354.585	1.1	0.5	1/16/2019	0.6	0.4	23
6	T2P1	3085019.396	681243.201	1.1	0.6	1/16/2019	0.6	0.4	23
7	T2P2	3084990.814	681217.993	1	0.5	1/16/2019	0.7	0.5	24
8	T2P3	3085047.396	681131.857	1	0.5	1/16/2019	0.6	0.4	26
9	T2P4	3085064.623	681064.068	1	0.5	1/16/2019	0.7	0.4	25
10	T2P5	3085129.461	680936.904	1.1	0.5	1/16/2019	0.6	0.4	25
11	T1P7	3085183.641	681437.551	1.2	0.6	1/16/2019	0.6	0.4	20
12	T1P8	3085192.858	681453.147	1.1	0.6	1/16/2019	0.7	0.4	22
13	T3P1	3084859.91	681149.665	1.1	0.6	1/16/2019	0.8	0.5	21
14	T4P1	3084570.789	680950.267	1	0.6	1/16/2019	0.6	0.4	21
15	T4P2	3084625.011	680850.036	1	0.6	1/16/2019	0.7	0.4	22
16	T4P3	3084630.649	680840.402	1.1	0.7	1/16/2019	0.7	0.5	22
17	T4P4	3084657.182	680809.159	1.1	0.7	1/16/2019	0.6	0.4	21
18	T5P1	3084237.178	681110.344	1.5	0.9	1/17/2019	0.9	0.6	15
19	T5P2	3084248.602	681114.489	1.1	0.7	1/17/2019	0.7	0.4	21
20	T5P3	3084255.207	681132.746	1.1	0.6	1/17/2019	0.7	0.4	22
21	T5P4	3084264.44	681085.894	1.2	0.6	1/17/2019	0.7	0.4	22
22	T5P5	3084270.611	681072.119	1.1	0.5	1/17/2019	0.8	0.5	25
23	T6P1	3084259.955	681013.624	1	0.5	1/17/2019	0.6	0.4	24
24	T6P2	3084246.787	681003.242	0.9	0.5	1/17/2019	0.7	0.5	27
25	T6P3	3084239.992	680996.013	1	0.6	1/17/2019	0.6	0.4	26
26	T6P4	3084231.773	680988.022	1.1	0.6	1/17/2019	0.7	0.5	25
27	T6P5	3084221.854	680979.166	1.1	0.6	1/17/2019	0.6	0.4	25
28	T7P1	3084320.974	680940.111	1	0.5	1/17/2019	0.5	0.4	27
29	T7P2	3084313.468	680935.075	1.1	0.5	1/17/2019	0.5	0.4	26
30	T7P3	3084301.89	680922.993	1.1	0.5	1/17/2019	0.7	0.4	26
31	T7P4	3084289.859	680912.61	1	0.5	1/17/2019	0.6	0.4	28
32	T7P5	3084272.812	680900.191	1	0.5	1/17/2019	0.6	0.4	27
33	T7P6	3084256.129	680881.963	1	0.5	1/17/2019	0.7	0.4	27