

Deepwater Port License Application for the  
**Texas Gulf Terminals Project**

**Volume II – Environmental Evaluation (Public)**

Section 4:  
Wetlands and Waters of the U.S.

## TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS.....	ii
PROJECT OVERVIEW .....	iv
4.0 WETLANDS AND WATERS OF THE U.S.....	4-1
4.1 Applicable Laws and Regulations .....	4-1
4.1.1 Federal .....	4-1
4.1.2 State .....	4-3
4.2 Existing Environment .....	4-4
4.2.1 Wetlands .....	4-4
4.2.2 Other Waters of the U.S.....	4-6
4.2.3 Floodplains.....	4-9
4.3 Environmental Consequences .....	4-10
4.3.1 Construction .....	4-10
4.3.2 Operation.....	4-10
4.3.3 Decommissioning.....	4-10
4.4 Cumulative Impacts.....	4-11
4.5 Mitigation Measures .....	4-12
4.6 Summary of Potential Impacts .....	4-13
4.7 References.....	4-14

## LIST OF FIGURES

Vicinity Map.....	iv
Project Component Map .....	v
Figure 4-1: Wetland Delineation Map (Inshore) .....	4-7
Figure 4-2: Wetland Delineation Map (Onshore) .....	4-8
Figure 4-3: FEMA Flood Zone Map for the Action Area .....	4-9

## LIST OF TABLES

Table 4-1: Inshore Wetland Characteristics .....	4-4
Table 4-2: Onshore Wetland Characteristics .....	4-5
Table 4-3: Summary of Impacts to WOUS and Floodplains .....	4-13

## ACRONYMS AND ABBREVIATIONS

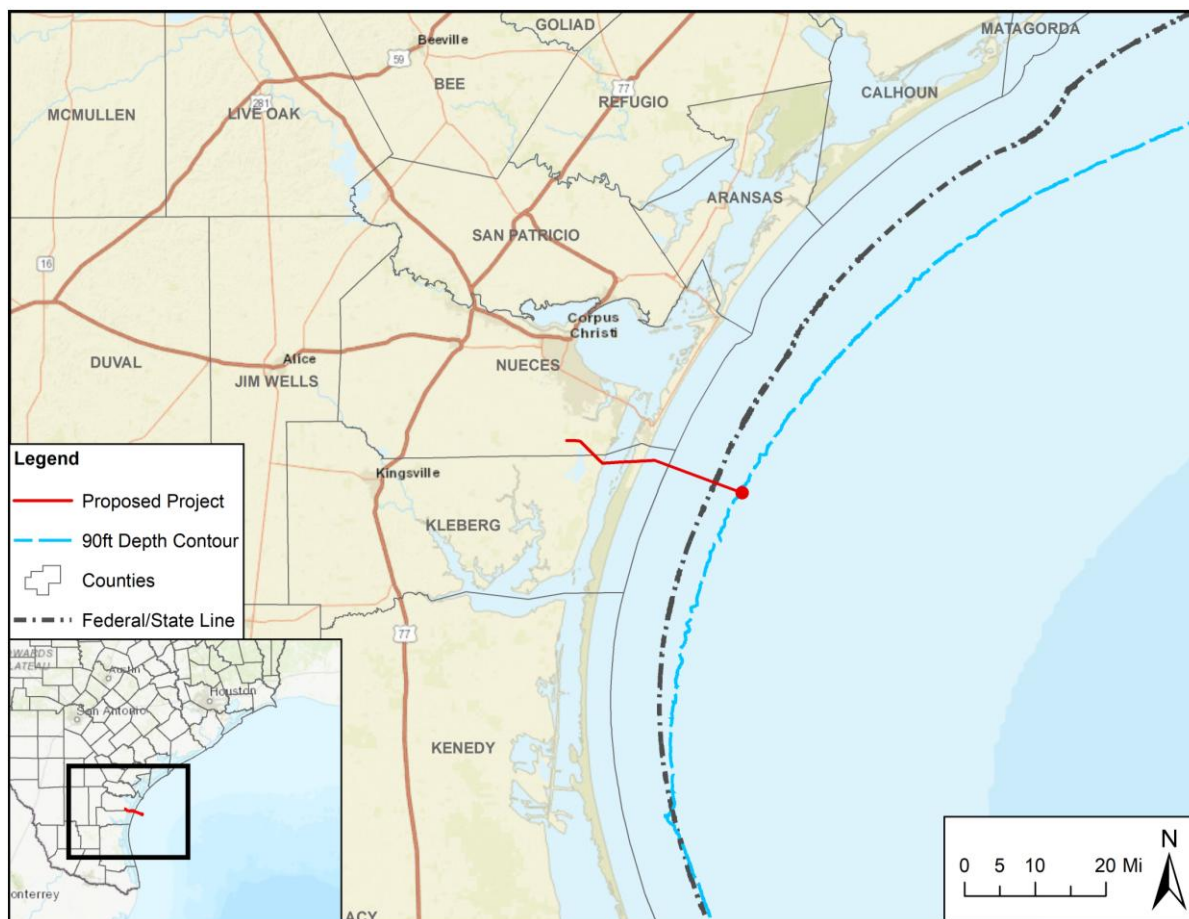
>	greater than
Applicant	Texas Gulf Terminals Inc.
BMP	Best Management Practices
BOEM	Bureau of Ocean Energy Management
bph	barrels per hour
CALM	Catenary Anchor Leg Mooring
CCSC	Corpus Christi Ship Channel
CFR	Code of Federal Regulations
CWA	Clean Water Act, as amended in 1977
DWP	deepwater port
DWPA	Deepwater Port Act of 1974, as amended
DWPL	Deepwater Port License
E2US	Estuarine Intertidal Unconsolidated Shore
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FRP	Facility Response Plan
ft.	feet
GIWW	Gulf Intracoastal Waterway
GOM	Gulf of Mexico
HDD	Horizontal Directional Drilling
i.e.	id est [Latin for <i>'in other words'</i> ]
km	kilometer
LNG	liquefied natural gas
m	meter
Manual	1987 USACE Wetlands Delineation Manual
MARAD	Maritime Administration
MHT	mean high tide
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System
OCS	Outer Continental Shelf
OSTF	onshore storage terminal facility
PLEM	pipeline end manifold
PEM	palustrine emergent
Project	Texas Gulf Terminals Project
Regional Supplement	2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region
ROW	right-of-way
RRC	Railroad Commission
SFHA	Special Flood Hazard Area
SPCC	Spill Prevention, Control, and Countermeasure
SPM	single point mooring
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality

TDEM	Texas [Department of Public Safety] Division of Emergency Management
TPDES	Texas Pollutant Discharge Elimination System
TXDPS	Texas Department of Public Safety
U.S.	United States [of America]
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
WB	waterbody
WETB	wetland boundary
VLCC	very large crude carrier
WOUS	Waters of the United States

## PROJECT OVERVIEW

Texas Gulf Terminals Inc. (TGTI; also referred to as Applicant) is proposing to construct and operate a deepwater port (DWP), associated pipeline infrastructure, booster station, and an onshore storage terminal facility (OSTF), collectively known as the Texas Gulf Terminals Project (Project), for the safe, efficient and cost-effective export of crude oil to support economic growth in the United States of America (U.S.). The Applicant is filing this Deepwater Port License (DWPL) application to obtain a license to construct, own, and operate the Project pursuant to the Deepwater Port Act of 1974, as amended (DWPA), and in accordance with the U.S. Coast Guard (USCG) and the Maritime Administration's (MARAD) implementing regulations.

The Applicant is proposing to construct and operate the Project to allow direct and full loading of very large crude carriers (VLCC) at the DWP, via a single point mooring (SPM) buoy system. The proposed Project consists of the construction of a DWP, onshore and inshore pipeline infrastructure, offshore pipelines, and an OSTF. The proposed DWP would be positioned outside territorial seas of the Outer Continental Shelf (OCS) Mustang Island Area TX3 (Gulf of Mexico [GOM]), within the Bureau of Ocean Energy Management (BOEM) block number 823. The proposed DWP is positioned at Latitude N27° 28' 42.60" and Longitude W97° 00' 48.43", approximately 12.7 nautical miles (nm) (14.62 statute miles [mi]) off the coast of North Padre Island in Kleberg County, Texas. Refer to the Vicinity Map depicting the location of the proposed Project.



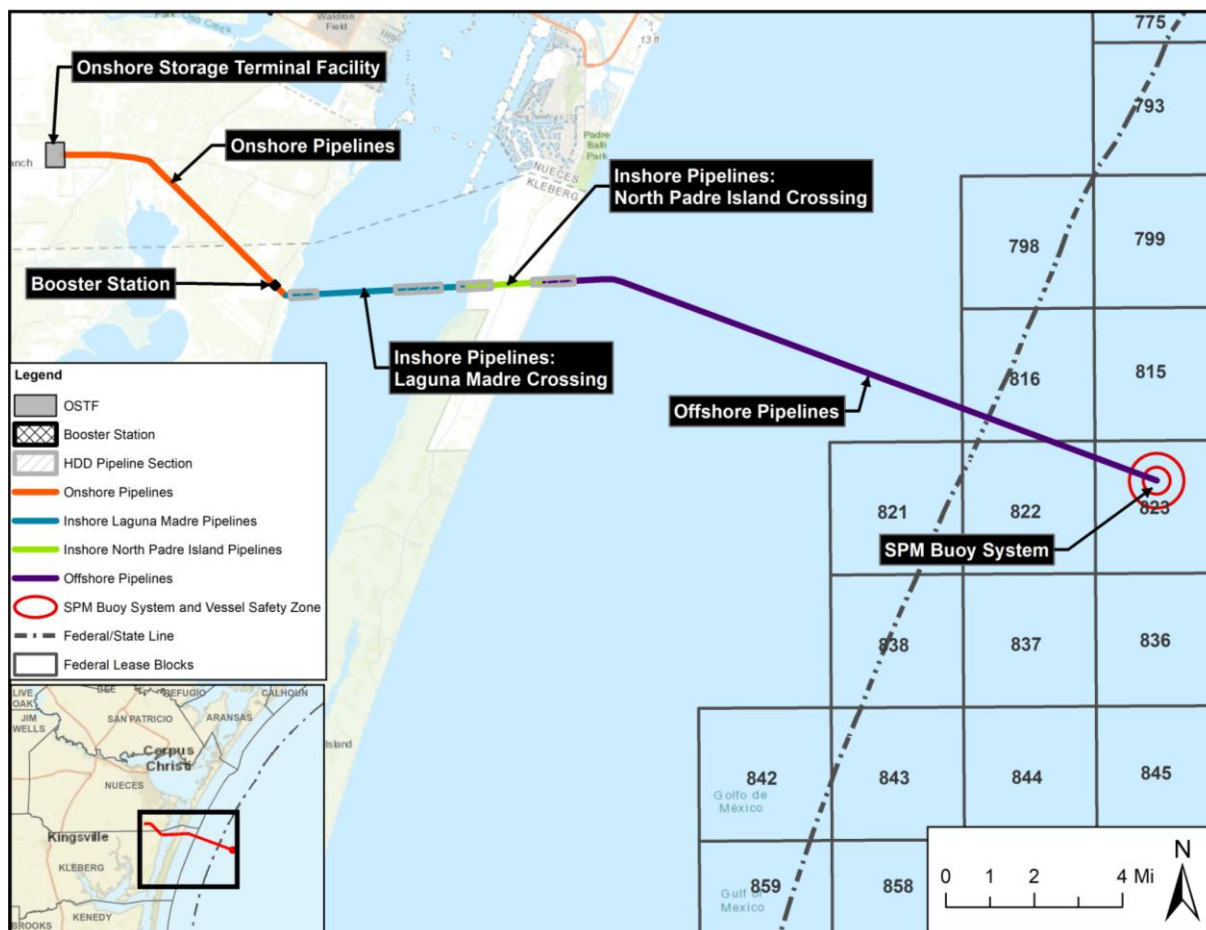
Vicinity Map

The proposed Project involves the design, engineering, and construction of a DWP, 26.81 miles of pipeline infrastructure, booster station, and an OSTF. For the purposes of this DWPL application, the proposed Project is described in three distinguishable segments by locality including “offshore”, “inshore”, and “onshore”.

Onshore Project components includes an approximate 150-acre (ac) (60.7 hectares [ha]) OSTF, an 8.25 ac (3.3 ha) booster station, and approximately 6.36 mi of two (2) new 30-inch-diameter crude oil pipelines extending from the OSTF located in Nueces County, to the booster station located in Kleberg County, and continue to the landward side of the mean high tide (MHT) line of the Laguna Madre. The proposed OSTF will serve as the primary collection and storage terminal of crude oil to be directly pumped through the proposed pipeline infrastructure to the DWP. Outbound flow rates from the OSTF to the DWP are anticipated to be approximately 60,000 barrels per hour (bph).

Inshore components associated with the proposed Project are defined as those components located between the western Laguna Madre MHT line and the MHT line located at the interface of North Padre Island and the GOM; this includes approximately 5.74 mi of two (2) new 30-inch-diameter crude oil pipelines and an onshore block valve station located on North Padre Island. The onshore valve station will serve as the primary conjunction between the proposed onshore and offshore pipeline infrastructure.

Offshore components associated with the proposed Project include the DWP and offshore pipelines. Principle structures associated with the proposed DWP includes one SPM buoy system consisting of the SPM buoy, pipeline end manifold (PLEM), sub-marine hoses, mooring hawsers, and floating hoses to allow for the loading of crude oil to vessels moored at the proposed DWP. The proposed SPM buoy system will be of the Catenary Anchor Leg Mooring (CALM) type permanently moored with a symmetrically arranged six-leg anchor chain system extending to pile anchors fixed on the seafloor. Offshore pipeline infrastructure associated with the proposed Project consist of approximately 14.71 mi of two (2) new 30-inch-diameter pipelines extending from MHT line on North Padre Island to the SPM buoy system located at the proposed DWP. Refer to the Project Components Map below for a depiction of the location of the Project components discussed above.



Project Component Map

## 4.0 WETLANDS AND WATERS OF THE U.S.

Section 4.0 describes the Wetlands and Waters of the U.S. (WOTUS) that occur within and adjacent to the proposed Project. Due to the location of the various Project components, wetlands and WOTUS are discussed in terms of onshore, and inshore habitats. Onshore habitats refer to water bodies located landward from the western shore of the Laguna Madre. Inshore habitat refers to water bodies located landward from the mean high tide (MHT) line of North Padre Island. The framework for the evaluation of environmental consequences and cumulative impacts in the Introduction of Volume II of the Deepwater Port License (DWPL) application.

Section 4.0 is structured as follows:

- Section 4.1 Applicable Laws and Regulations: Background on relevant regulatory laws for consideration;
- Section 4.2 Existing Conditions: Information on the existing onshore and inshore environment;
- Section 4.3 Environmental Consequences: An analysis of environmental consequences;
- Section 4.4 Cumulative Impacts: An analysis of cumulative impacts;
- Section 4.5 Mitigation Measures: Proposed mitigation measures;
- Section 4.6 Summary of Potential Impacts: A summary of potential impacts; and
- Section 4.7 References.

### 4.1 Applicable Laws and Regulations

#### 4.1.1 Federal

The Applicant has reviewed the following laws and statutes that relate to wetlands and WOTUS required to comply with the Deepwater Port (DWP) Act during construction and operation of the proposed Project. These regulations and statutes include; Clean Water Act of 1977 (CWA), Pub. L. 95–217, 33 United States Code (USC). 1251, *et. seq.*, Protection of Wetlands, E.O. 11990, 42 FR 26961; National Environmental Policy Act of 1969 (NEPA), Pub. L. 91–190, 42 U.S.C. 4321, *et. seq.*, Wild and Scenic Rivers Act, Pub. L. 90–542, 16 U.S.C. 1271, *et. seq.* Flood Disaster Protection Act, 42 U.S.C. 4001, *et. seq.*; and Flood Plain Management and Protection, E.O. 11988, 42 FR 26951. The applicable regulations to the proposed Project are discussed below.

##### 4.1.1.1 Clean Water Act

The Clean Water Act (CWA), as amended in 1977, establishes the basic structure for regulating discharges of dredged or fill material into waters of the U.S. (WOUS), including wetlands and other “special aquatic sites.” The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters (33 U.S. Code [U.S.C.] 12151) and gives the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA also sets water quality standard requirements for all contaminants in surface waters and makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit is obtained under its provisions. Three sections of the CWA are applicable to the proposed Project:

- Section 404, which regulates the placement of dredge or fill materials into WOUS, including special aquatic sites such as wetlands;
- Section 402, which requires permittees to obtain a National Pollutant Discharge Elimination System (NPDES) Permit for a point source discharge into a surface waterbody; and
- Section 401, which requires CWA Section 404 and 402 permittees to comply with all federal and state-established water quality standards.

The definition of WOUS currently in effect is the definition promulgated in 1986/1988. WOUS are currently defined as:

- 1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- 2) All interstate waters including interstate wetlands;
- 3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
  - i. which are or could be used by interstate or foreign travelers for recreational or other purposes; or
  - ii. from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
  - iii. which are used or could be used for industrial purposes by industries in interstate commerce;
- 4) All impoundments of waters otherwise defined as WOUS under this definition;
- 5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
- 6) The territorial sea; and
- 7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section (40 Code of Federal Regulations [CFR] 230.3(s)).

*Wetlands* are transitional areas between terrestrial and aquatic habitats. Wetlands are differentiated from terrestrial habitats typically by the presence of water at the ground surface or within the root zone of vegetation for a significant portion of the growing season. Wetlands are some of the most common special aquatic resources present and are defined by the U.S. Army Corps of Engineers (USACE) as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (40 CFR 230.3(t)). Based on this definition, for an area to be considered a wetland it must possess the following parameters under normal circumstances: 1) a predominance of plants adapted to live in water or saturated soils (i.e., hydrophytic vegetation), 2) soil characteristics of frequent saturation (i.e., hydric soils), and 3) the presence of hydrology showing evidence of regular flooding or ponding (i.e., wetland hydrology). Wetlands can support a diverse assemblage of plants and animals, and help maintain or improve water quality, contribute to flood control, provide wildlife habitat, and have recreational or aesthetic value.

*Special aquatic sites* are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites are defined as sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes (40 CFR 230.40 – 230.45). Section 404 of the CWA does not allow the discharge of dredged or fill into special aquatic sites, unless it can be demonstrated that the proposed action is the least damaging practicable alternative.

#### 4.1.1.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires all federal agencies to consider the potential environmental consequences of their proposals, document the environmental analysis, and make this information available to the public for comment prior to making a permit decision on any major federal action. Issuing permits for construction of the Project would qualify as a major federal action and trigger the requirement for NEPA analysis. Under the DWPA, the USCG would initiate the NEPA process and have federal jurisdiction over the entire Project under NEPA. The USCG and Maritime Administration



(MARAD) have determined that an environmental impact statement (EIS) will be prepared to support the NEPA process.

#### 4.1.1.3 Flood Disaster Protection Act

The National Flood Insurance Act of 1968 establishes the federal framework to provide flood insurance for structures and their contents in communities that adopt and enforce an ordinance outlining minimal floodplain management standards. The Federal Emergency Management Agency (FEMA) has promulgated regulations (44 CFR 60) that:

- Require the development of floodplain management programs by states and their political subdivisions;
- Require permits for all proposed construction and other developments within Zone A of the Flood Insurance Rate Maps (FIRMs); and
- Ensure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

Additionally, FEMA regulations require that when a base flood elevation has been established there is a prohibition of encroachment, including fill, new construction, substantial improvements and other development within the regulatory floodway unless that it has been demonstrated through hydrologic and hydraulic analyses (which must be performed in accordance with standard engineering practice) that the encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

#### 4.1.2 State

One of the requirements for obtaining a USACE Section 404 permit is certification from the Texas Commission on Environmental Quality (TCEQ) that the discharge to be permitted will comply with state water quality standards. Because these reviews are done under the authority of Section 401 of the federal CWA, they are referred to as Section 401 certification reviews. However, the Railroad Commission of Texas (RRC) has jurisdictional authority over the transportation and storage of crude oil in the State of Texas per TEXAS NATURAL RESOURCE CODE, '91.101 and TEX. WATER CODE, Section 26.131 for projects that require:

- dredging an access channel to conduct drilling or production operations in critical area;
- in connection with construction of a drilling pad or installation of a production platform in a critical area; or
- in connection with construction, operation, or maintenance of a crude oil or natural gas pipeline facility in a critical area.

The proposed Project requires construction, operation and maintenance of a crude oil pipeline; therefore, the RRC will issue the water quality certification for the proposed Project concurrent with the processing of a U.S. Army Corps of Engineers (USACE) permit application, under Section 401 of the Clean Water Act (CWA) and Title 16, Texas Administrative Code, Section 3.93.

The State of Texas sets its own water quality standards, which act as a measure of whether the quality of each waterbody in the state is kept at the level necessary to perpetuate the human and aquatic life that has historically existed there. In allowing pollutants to be added to state water (which includes a broad range of substances such as chemicals, concrete, rock, sand, or other materials), both the federal government and the State of Texas are required to be sure that the discharge will not create a condition that will impair the ability of life existing in or depending on the water to survive and reproduce. The state is charged with confirming that the federal permit accomplishes this. The TCEQ is the agency with primary responsibility for making sure the State of Texas adopts and enforces state water quality standards. It typically conducts 401 certification reviews to ensure that Texas is involved in decisions made by the federal government that affect the quality of the water resources of this state. For the

proposed Project RRC will be responsible for issuing the water quality certification which enforces state water quality standards.

The Texas Disaster Act, which is administered by the Texas Department of Public Safety (TXDPS) Division of Emergency Management (TDEM), requires that, to participate in the National Flood Insurance Program (NFIP), all political subdivisions of the state must adopt rules that address the above summarized federal requirements. There are no additional state or local regulations that would pertain to wetlands, WOUS or floodplains.

## 4.2 Existing Environment

### 4.2.1 Wetlands

SWCA Environmental Consultants (SWCA) conducted field surveys of the Project area within the inshore pipelines North Padre Island crossing location (action area) (Figure 4-1) during January 2018, following the wetland delineation guidelines provided in both the 1987 USACE Wetlands Delineation Manual (Manual) (USACE 1987) and the 2010 Regional Supplement to the Manual: Atlantic and Gulf Coastal Plain Region (Regional Supplement) (USACE 2010). As part of the delineation efforts, SWCA traversed and assessed the Project area for the presence or absence of the three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology). The Inshore Project Components Wetland Delineation Report can be referenced in Appendix C.

SWCA delineated 16 distinct wetland areas totaling 35.286 acres within the 500-foot (ft.) Project survey area (Figure 4-1: Please refer to Appendix C for a more detailed wetland delineation map). Fourteen of the 16 wetlands mapped were palustrine emergent (PEM) wetlands. Two of the 16 wetlands (wetland boundary (WETB) 10 and WETB11) adjacent to the bay mud flat area of the Laguna Madre are classified as estuarine intertidal unconsolidated shore (E2US) brackish emergent wetlands (Table 4-1). Eleven of the 16 wetlands mapped are within the 75-ft. construction corridor (see Table 4-1). Refer to Appendix A for a detailed description of construction procedures and designated workspaces that will be impacted during construction and installation of the Project.

**Table 4-1: Inshore Wetland Characteristics**

Wetland ID	Vegetation Community Type	Acreage within 500 ft. Survey corridor*	Acreage within 75 ft. construction corridor and HDD boxes (Project Area) **
WETB01	PEM	0.157	Not within 75 ft. corridor
WETB02	PEM	0.356	Not within 75 ft. corridor
WETB03	PEM	0.218	Avoided by HDD
WETB04	PEM	0.204	Not within 75 ft. corridor
WETB05	PEM	2.042	0.168
WETB06	PEM	0.209	Not within 75 ft. corridor
WETB07	PEM	0.254	Not within 75 ft. corridor
WETB08	PEM	14.703	2.217
WETB09	PEM	4.068	0.657
WETB10	E2US	0.623	Avoided by HDD
WETB11	E2US	1.202	Avoided by HDD

Wetland ID	Vegetation Community Type	Acreage within 500 ft. Survey corridor*	Acreage within 75 ft. construction corridor and HDD boxes (Project Area) **
WETB12	PEM	5.710	Avoided by HDD
WETB13	PEM	1.588	0.244
WETB14	PEM	2.711	0.265
WETB15	PEM	0.056	0.021
WETB16	PEM	1.187	Avoided by HDD
<i>PEM Wetlands Subtotal</i>		<b>32.921</b>	<b>3.572</b>
<i>E2US Wetland Subtotal</i>		<b>1.825</b>	<b>0.000</b>
<b>Total</b>		<b>34.746</b>	<b>3.572</b>
* Acreages derived from survey areas in SWCA Wetland Delineation Report (February 2018)			
** Impact acreages rounded to the nearest 0.001 acre.			

The inshore PEM wetland community consists of a prevalence of hydrophytic, non-woody vegetation less than 3 ft. in height and is found in depressional areas within the Project area. Dominant herbaceous species include saltgrass (*Distichlis spicata*), bushy bluestem (*Andropogon glomeratus*), fragrant flatsedge (*Cyperus odoratus*), bushy seaside-tansy (*Borrchia frutescens*), small spike-rush (*Eleocharis minima*), floating marsh pennywort (*Hydrocotyle ranunculoides*), marsh seedbox (*Ludwigia palustris*), little bluestem (*Schizachyrium scoparium*), gulf cordgrass (*Spartina spartinae*), coastal plain panicgrass (*Dichanthelium longiligulatum*), and broadleaf cattail (*Typha latifolia*).

The inshore E2US wetland community consists of a prevalence of hydrophytic non-woody vegetation less than 3 ft. in height and is found along tidally influenced islands within the Laguna Madre portion of the Project area. Dominant herbaceous species include annual sea-purslane (*Sesuvium maritimum*), Carolina wolfberry (*Lycium carolinianum*), gulf cordgrass, and bushy seaside tansy.

Lloyd Engineering, Inc. (LEI) conducted field surveys of the onshore Project area located west of the Laguna Madre, which included an onshore storage terminal facility (OSTF) and booster station, (Figure 4-2) during May 2018, following the wetland delineation guidelines provided in both the Manual (USACE 1987) and the Regional Supplement (USACE 2010). As part of the delineation efforts, LEI traversed and assessed the Project area for the presence or absence of the three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology). The Onshore Project Components Wetland Delineation Report can be referenced in Appendix D.

LEI delineated 3 distinct wetland areas totaling 0.573 acres within a 150-foot survey area (Figure 4-2: Please refer to Appendix D for a more detailed wetland delineation map). All three wetlands mapped were PEM wetlands. The pond and 2 of the 3 wetlands mapped are within the 75-ft. construction corridor (see Table 4-2). The E2US shore area will not be impacted because it is avoided with HDD pipeline installation. Refer to Appendix A for a detailed description of construction procedures and designated workspaces that will be impacted during construction and installation of the Project.

**Table 4-2: Onshore Wetland Characteristics**

Wetland ID	Vegetation Community Type	Acreage within 150 ft. Survey corridor*	Acreage within 75 ft. construction corridor and HDD boxes (Project Area) **
WET-01	PEM	0.205	0.0734 ac

Wetland ID	Vegetation Community Type	Acreage within 150 ft. Survey corridor*	Acreage within 75 ft. construction corridor and HDD boxes (Project Area)**
WET-02	PEM	0.055	Not within 75 ft. corridor
WET-03	PEM	0.313	0.147 ac
<b>Total</b>		<b>0.573</b>	<b>0.22 ac</b>
<small>* Acreages derived from survey areas in LEI Wetland Delineation Report (June 2018)                      ** Impact acreages rounded to the nearest 0.001 acre.</small>			

The onshore PEM wetland community consists of a prevalence of hydrophytic, non-woody vegetation less than 3 ft. in height and is found in depressional areas within the Project area. Dominant herbaceous species include bushy seaside-tansy, saltmeadow cordgrass (*Spartina patens*), bushy bluestem, and marsh bristlegrass (*Setaria parvifloa*).

#### 4.2.2 Other Waters of the U.S.

In January 2018, SWCA delineated one waterbody within the proposed inshore Project area. The waterbody, WB001, is a large (8.031 acres), tidally influenced mudflat inlet from the Laguna Madre. This mud flat inlet necks down into a small tidal stream that that connects to WETB12.

In addition, a 0.5-acre freshwater pond is located within the middle portion of WETB12. This feature can be clearly seen on the wetland mapping in Figure 4-1. The pond is mapped as part of the larger PEM wetland WETB12 because the two features function as part of the same ecological system.

In May 2018, LEI delineated two waterbodies within the proposed Project area. One waterbody, POND-01, is a 0.621-acre pond which spans the width of the 150-foot survey area. The second is an E2US shore adjacent to the bay mud flat area of the Laguna Madre. The E2US shore will be avoided using HDD Pipeline installation and the pond will be temporarily impacted during pipeline installation and returned to preexisting conditions. Refer to Appendix A for a detailed description of construction procedures and designated workspaces that will be impacted during construction and installation of the Project.

Other components of the proposed Project are also located in inshore estuarine waters of the Laguna Madre and in marine waters of the Gulf of Mexico. The environmental consequences of the project with respect to inshore and offshore waters such as the Laguna Madres and the Gulf of Mexico are discussed in Section 5.0: Inshore and Offshore Aquatic Environment.

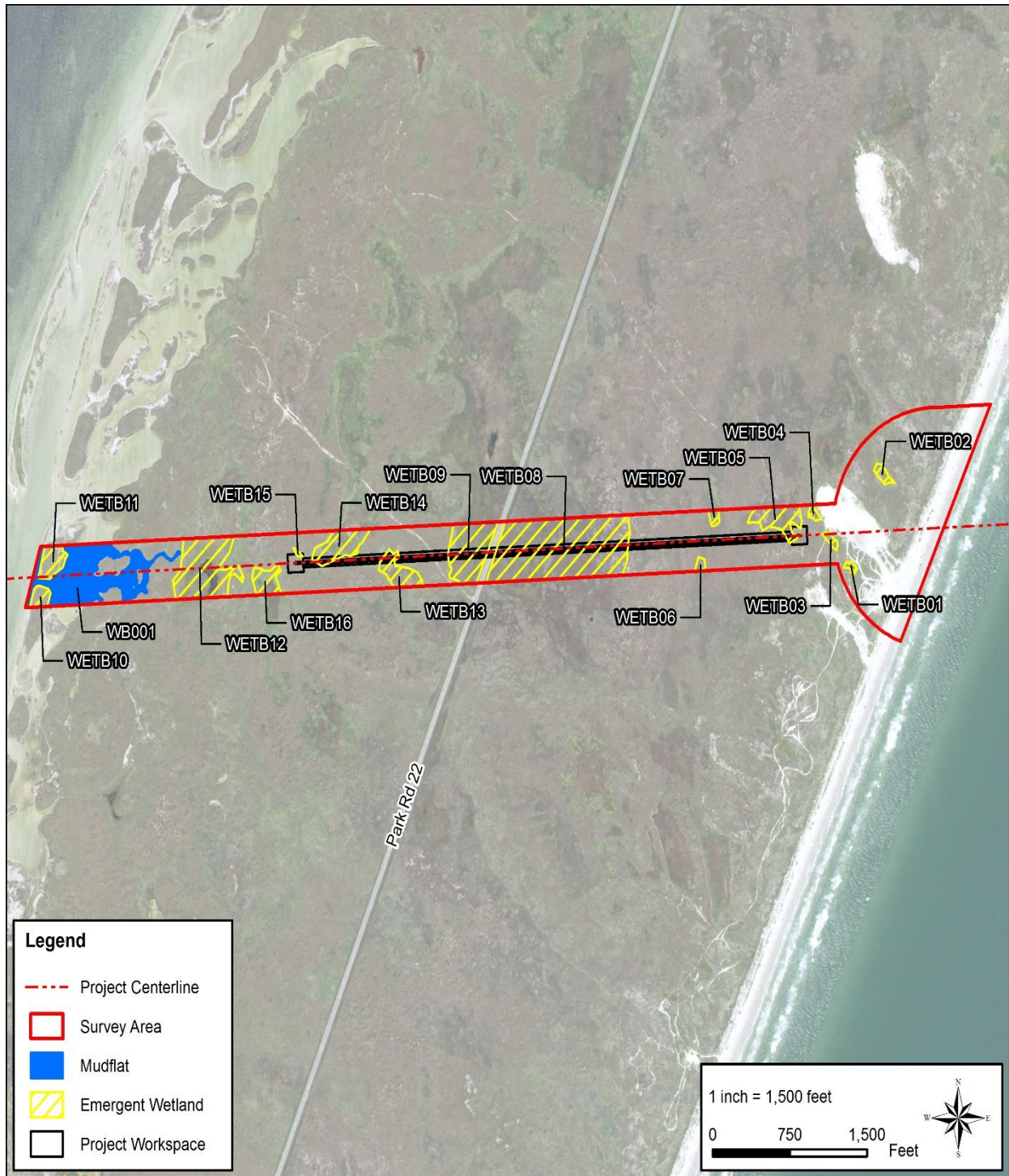


Figure 4-1: Wetland Delineation Map (Inshore)

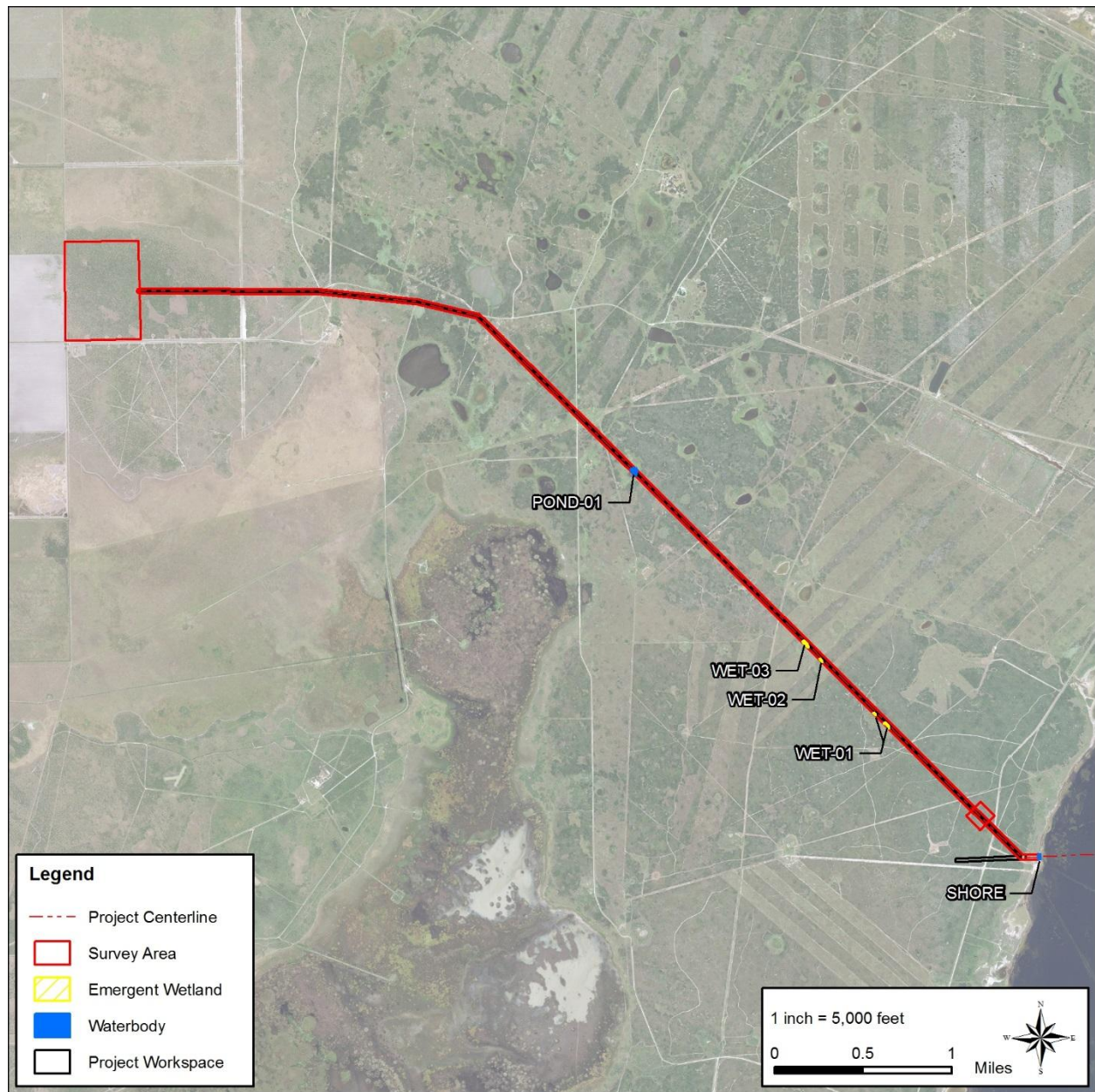


Figure 4-2: Wetland Delineation Map (Onshore)

### 4.2.3 Floodplains

The current FEMA FIRM for the Project area were accessed and reviewed using the FEMA website (FEMA 2018). Refer to Figure 4-3 for the FEMA Flood Zone Map for the portions of the Project located within Special Flood Hazard Areas (SFHAs). FEMA FIRM panels No. 48273C0225E and 48273C0250E in Kleberg County, both effective on March 17, 2014, depict 44.6 percent of the action area within the SFHA Zone VE classified as having a 1 percent-annual-chance flood and 55.4 percent of the action area within Zone X classified as having a 0.2 percent-annual-chance flood (FEMA 2018). Digital data for Nueces county is not currently available from FEMA, and is therefore not displayed on the figure below. FEMA FIRM panels No. 48355C0725G and 48355C0730G for Nueces County, both issued October 23, 2015, do not show any of the onshore components of the project within a 100-yr Flood Hazard Area (zone AE) (FEMA 2018).

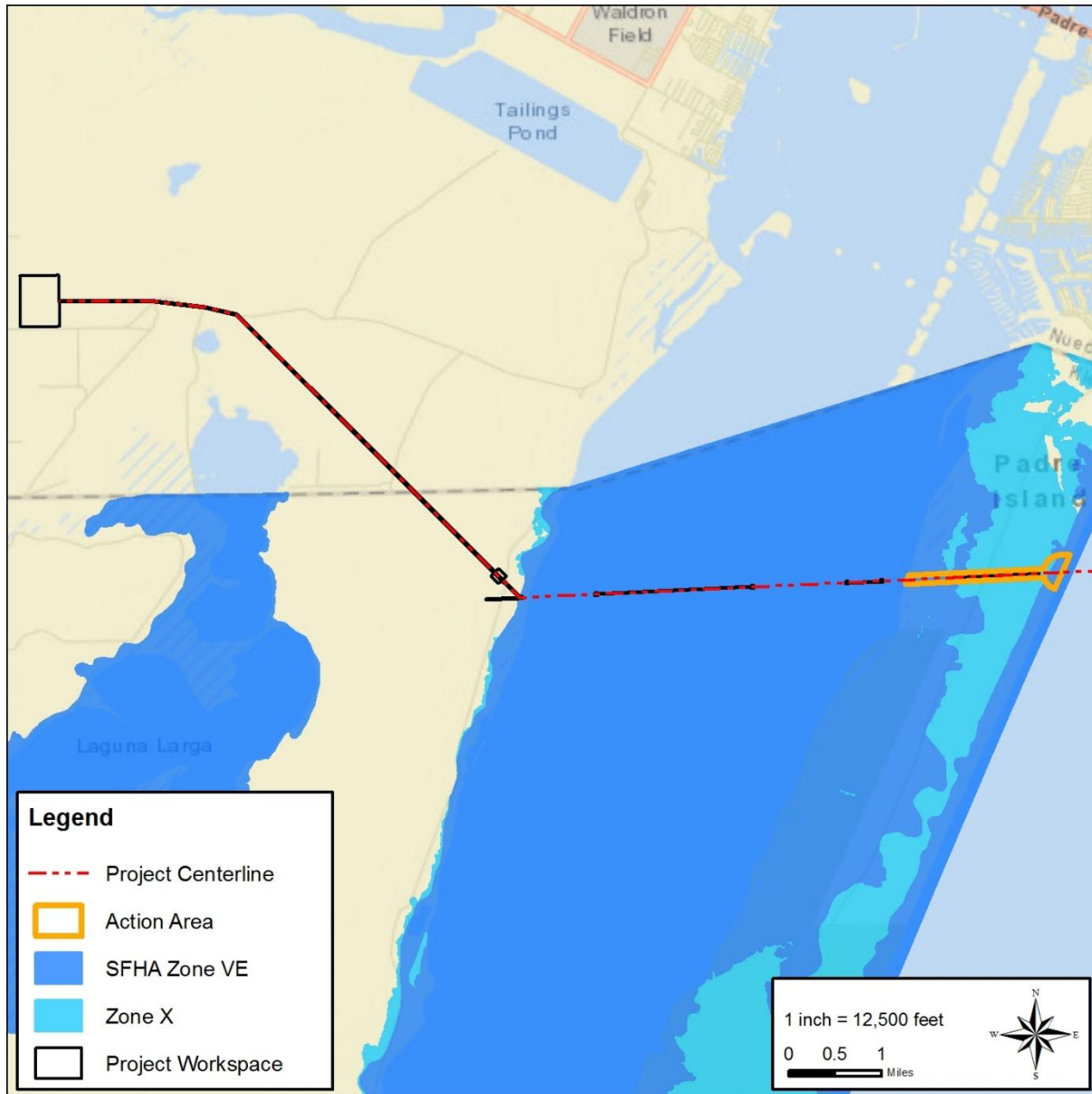


Figure 4-3: FEMA Flood Zone Map for the Action Area

### 4.3 Environmental Consequences

Significant impacts on wetlands and waters of the US identified above are those that measurably impact the ecological viability and sustainability of the resource. As proposed, the Project would include installation of approximately 26.8 mi (43.1 km) of dual, of which 7.29 miles are located within onshore or inshore lands. Impacts on wetlands and waters of the US for the purposes of this analysis are limited to those located onshore in Kleberg or Nueces Counties, or located inshore on North Padre Island within Kleberg County; those impacts are discussed below. Refer to Appendix A: Construction, Operation and Decommissioning Procedures, for a detailed description of techniques, procedures, and phases of the Project that were used to evaluate environmental consequences in the following sections.

#### 4.3.1 Construction

Refer to Appendix A for a detailed description of construction procedures and designated workspaces that will be impacted during construction and installation of the Project. Construction of the proposed pipeline would result in temporary impacts to approximately 3.792 acres of PEM wetlands, assuming construction would take place on a 75 ft. right-of-way (ROW). Temporary impacts to wetlands are those associated with short-term minor adverse activities that may disturb the wetland structure and function present but would be allowed to naturally revegetate and recover. Impacts would include temporary vegetation and soil impacts associated with pipeline trenching, placement of side-cast soil into the wetlands, placement of timber mats within the wetlands for construction equipment crossing, and removal of the timber mats once the pipeline has been constructed.

No impacts are anticipated for the SHFA Zone VE present along the shorelines of the action area, as horizontal directional drilling (HDD) will be utilized; however, construction of the proposed onshore pipelines would result in temporary impacts to 7.986 acres of Zone X floodplains. Temporary impacts to Zone X floodplains are those associated with short-term minor adverse activities that may disturb the topography and present floodplain function. After construction, all portions of the impacted ROW, including wetlands and floodplains, are to be restored to preconstruction conditions and contours.

#### 4.3.2 Operation

Operation of the proposed onshore pipelines would result in long-term, minor, adverse impacts. Post construction maintenance and monitoring of the entire action area could generate impacts related to turbidity and sediments. Though the time frame is anticipated to impact the action area for greater than (>) 20 years, the effect of these activities is projected to remain minor by implementing proper operating procedures and best management practices (BMP).

Accidental fuel spills are unlikely but still possible during the construction and operation periods of the proposed Project. In the event of a fuel spill, the associated impacts are projected to be temporary and minor through the implementation of the Spill Prevention, Control, and Countermeasure (SPCC) Plan and the Emergency Response Plan detailing emergency procedures for addressing accidental releases and spills during construction and releases.

#### 4.3.3 Decommissioning

Decommissioning of the proposed onshore pipelines would result in short-term, minor, adverse impacts. Short-term direct minor adverse effects to the inshore environment near the Project site, which supports wetlands and aquatic biological communities, are expected in connection with decommissioning of the pipeline which crosses North Padre Island. The proposed pipeline is designed for a 30-year life. Refer to Appendix A for a detailed description of decommissioning procedures that will be impacted during construction and installation of the Project.

Decommissioning may involve the removal of all aboveground structures and leaving in place facilities below ground. The decommissioning procedure will be a reversal of the installation procedure. The proposed pipeline facilities would be decommissioned in place following termination of their service. Decommissioning of the proposed pipelines facilities would consist of purging the pipe of crude oil liquids and filling it with saltwater or brackish water, cutting all piping at the ground surface or mud line, and removing risers, piping, platforms, valves, metering equipment, buildings and associated equipment.



Such activities will cause sediment displacement and temporary increased water turbidities in wetlands and adjacent waters. It is expected that no blasting would be required for removing structures during decommissioning. Typically, piping is cut at or below the ground surface or mud line, with infrastructure removed and transported to a construction and demolition debris site. Noise impacts would be limited to decommissioning equipment and vessels in the shallow waters of waterbody 001 (WB 001). Noise levels expected during decommissioning would be similar to those levels occurring during construction.

Overall, impacts to wetlands and waters of the U.S. are anticipated to be minor and short-term during the decommissioning phase of the Project.

#### **4.4 Cumulative Impacts**

A summary of the projects, and their contribution to potential cumulative impacts, is provided in the Volume II Introduction, Section 4.0: Cumulative Impacts Framework. Most of the projects considered for the cumulative impacts analysis are located on shore, but within the 20-mile radius used in the assessment. These include current and recently proposed liquefied natural gas (LNG) processing facilities (Sabine Pass LNG, Golden Pass LNG, Waller Point LNG, Gasfin Development USA, Venture Global LNG and SCT&E LNG); deepwater dredging of the Corpus Christi Ship Channel (CCSC) and Harbor, and the Lydia Ann Mooring Project in the Lydia Ann Channel. The primary coastal/marine projects considered in the assessment include nearshore oil and gas exploration and production activities, and the USACE's maintenance dredging programs for the CCSC and Gulf Intracoastal Waterway (GIWW).

Construction activities associated with the proposed Project will generally be concentrated about 14.71 nautical miles offshore at the proposed SPM buoy site in water at a depth of approximately 93 ft. (28 meters (m)). Alternatively, construction of the proposed pipelines will be sequential along the 14.71 nautical miles and will include a brief 12-week period of onshore construction. At two locations the pipelines will be installed via the HDD method, which will occur over about 4 weeks at each location. Impacts on water quality associated with in-water construction will be associated with disturbance of the seabed, possible discharges of waters, and inadvertent spills. Onshore construction activities that will impact water quality will be primarily associated with sedimentation from construction, and in the event of an inadvertent leak or spill.

Offshore oil and gas exploration and production, including the decommissioning of existing infrastructure, and associated marine traffic will also impact water quality in a similar manner as the proposed Project. Assuming regulatory requirements are followed, BOEM predicts that discharges associated with these activities would rapidly dilute, thus the discharge areas would not overlap and therefore would not have an additive impact on water quality (BOEM 2017). However, given to the localized nature of such impacts relative to the proximity of these other activities to the proposed Project, ranging from 0.7 to 245.4 miles (1.1 to 394.9 kilometers (km)), cumulative effects from these projects are not likely.

Other on or nearshore projects, such as the waterway improvement projects and commercial and residential development projects, will involve modification of surface water resources and placement of fill, and some may require dredging. Current or future maintenance dredging associated with these projects will temporarily impact water quality by increasing turbidity and sedimentation. If these projects were to occur concurrent with construction of the proposed Project, cumulative impacts on water quality in the Project area would be short-term, and minor, given the localized nature of these activities.

Also, construction equipment and support vessels associated with these projects could affect water quality from inadvertent spills, releases of hazardous materials, and discharge of ballast water. Generally, these impacts are expected to be localized and short-term. Once installed the pipeline trench will naturally backfill from tidal and current movement. Since the pipelines will be buried, they will not contribute to cumulative effects on water quality during operation.

Overall, the cumulative impacts of the proposed Project when considered with other projects will be short-term (during construction) to permanent (within the footprint of the SPM system), and minor. Temporary, minor impacts on water quality in nearshore locations of Padre Island could occur if construction of the

proposed Project and the projects discussed above are concurrent. The proposed Project and other projects will be required to comply with the CWA to minimize impacts on surface water quality. Therefore, while the proposed Project will contribute to cumulative impacts on water quality along with other projects in the geographic range, this impact is anticipated to be insignificant.

#### **4.5 Mitigation Measures**

Construction of the proposed Project will employ BMPs during Project construction activities, including the clearing of vegetation, excavating the pipeline trench, welding and laying the pipe, backfilling the pipeline trench, re-establishing pre-construction contours, and restoring permanent vegetation. After clearing is completed but before grading begins, erosion/sediment control measures will be installed where necessary to minimize runoff and sedimentation into adjacent lands, wetlands, waterbodies, roads, or other areas. After completion of construction, the Project site will be graded, and disturbed areas will be revegetated. Refer to Appendix A for a detailed description of construction procedures and designated workspaces that will be impacted during construction and installation of the Project.

Impacts have been avoided and minimized, to the extent practicable, by reducing the construction ROW to 75 ft. from an original width of 150 ft. to reduce the temporary impacts to wetlands, as well as the use of HDDs to reduce the impacts to some of both PEM and E2US wetlands, where practicable. In addition, the amount of permanent impacts has been reduced to PEM Wetland B08 (WETB08) by situating the proposed valve and metering station site (originally within WETB08) to an area that would avoid wetland impacts altogether.

The following BMPs will be utilized to further reduce the potential impacts to wetlands:

- Employ temporary erosion/sediment controls, where necessary or required, including but not limited to silt fencing, matting, and hay bales. These controls are designed to keep sediment from flowing off the Project site and into places where it may harm the environment. These temporary erosion controls will be properly placed and maintained throughout construction and will be reinstalled as necessary until they are replaced by permanent erosion/sediment controls or until construction activities have ceased and permanent vegetation has become established.
- Prior to construction and operation, prepare and submit for approval a construction and operation SPCC Plan and Emergency Response Plan detailing emergency procedures for addressing accidental releases and spills during construction and releases.
- During construction, implement an approved SPCC for Construction to prevent spills, leaks, and other releases of hazardous materials that could impact onshore water quality. A Stormwater Pollution Prevention Plan (SWPPP) will also be approved to minimize impacts on surface waters. All work will be conducted in accordance with a Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000 for stormwater and TPDES General Permit No. TXR050000 for industrial waste water meeting all provisions within the respective permit.
- As part of Project restoration, all portions of the pipeline ROW impacted, including wetlands and floodplains, will be restored to preconstruction conditions and elevation contours.
- Work with the USACE and other State and local agencies during the permitting process to ensure wetlands are protected during construction and operation of the proposed Project according to permit requirements and conditions.
- Minimize impacts to wetlands, waterbodies, and SFHAs by utilizing HDD on the shorelines of North Padre Island. If wetland and waterbody impacts cannot be avoided, impacts to wetlands should be minimized and fully mitigated per the requirements of the USACE.

#### 4.6 Summary of Potential Impacts

Wetland impacts for pipeline construction would include temporary impacts to approximately 3.792 acres of PEM wetlands. Temporary impacts are those associated with short-term activities that may disturb the wetland, waterbody, and/or floodplain structure and function present. These impacts are not representative of direct losses but reflect temporary disturbance. Mitigation would be required to restore these areas of temporary impacts on conditions reflecting a stable post-construction environmental setting. This restoration activity would require monitoring of the post-construction areas that were restored for several seasons to ensure that wetland functions and values are consistent with the mitigation plan for the area are being fulfilled. In areas of temporary disturbance, seeding and mulching would be used to enhance restoration and recovery.

The Project will be constructed in compliance with all USACE conditions for authorization under an Individual Permit for CWA Section 404 Dredge and Fill. An Individual Permit application to the USACE Galveston District will be submitted. As such, the Project will undergo a complete and thorough review by all pertinent state and federal agencies, to obtain authorization from the USACE Galveston District. Impacts to wetlands would need to be avoided to the extent practicable, and adequately mitigated by the Applicant through design modifications and implementation of mitigation measures recommended by Federal and State agencies. For those unavoidable impacts, the Applicant would need to develop a comprehensive mitigation plan or buy credits from an approved mitigation bank within the area to compensate for loss of wetlands functions and values.

Based on implementation of the BMPs identified in Section 4.5, impacts would be as described in Table 4-3.

**Table 4-3: Summary of Impacts to WOUS and Floodplains**

Project Phase	Impact	Duration	Significance	Mitigation
Construction: Direct temporary filling of wetlands	Potential impacts to wetlands due to trenching, sidecasting of soils, placement of timber mats, and removal of timber mats during construction	Temporary	Minor	Erosion and sediment control; SPCC Plan, SWPPP, HDD, restoring to previous conditions
Construction: Accidental fuel spills	Potential impacts to wetlands due to accidental fuel spills from construction equipment	Temporary	Minor	SPCC Plan and SWPPP
Operation: Routine pipeline operations	Potential impacts to wetlands due to maintenance mowing of the right-of-way	Permanent	Minor	Erosion and sediment control; SPCC Plan, SWPPP
Operation: Accidental fuel spills	Potential impacts to wetlands due to accidental fuel spills from construction equipment	Temporary	Minor	SPCC Plan and SWPPP
Decommissioning	Potential impacts to wetlands due to trenching, sidecasting of soils, placement of timber mats, and removal of timber mats during decommissioning	Temporary	Minor	Erosion and sediment control; SPCC Plan, SWPPP, restoring to previous conditions
Cumulative	Potential impacts to wetlands and waters of the U.S.	Temporary	Negligible	Erosion and sediment control; SPCC Plan, SWPPP, restoring to previous conditions

#### 4.7 References

- Federal Emergency Management Agency (FEMA). 2018. FEMA Flood Map Service Center. Available at: <https://msc.fema.gov/portal>. Accessed on February 2018.
- U.S. Army Corps of Engineers (USACE). 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.
- . 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. ERDC/EL TR-10-20. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.