

WETLAND DELINEATION REPORT
RIGHT-OF-WAY IMPROVEMENT AND PIPELINE
LOWERING PROJECT

POLK COUNTY, TEXAS

SUBMITTED TO:

TENNESSEE GAS PIPELINE COMPANY

DECEMBER 2011

PREPARED BY:
PERENNIAL ENVIRONMENTAL SERVICES, LLC



TABLE OF CONTENTS

INTRODUCTION.....	2
METHODOLOGY	2
Preliminary Data Gathering	2
Identification of Potential Waters of the United States.....	2
Data Points/Soil Stations.....	3
CONDITIONS DOCUMENTED AT PROJECT SITE	3
Vegetation	3
Soils.....	4
Hydrology	4
WATERS OF THE UNITED STATES SUMMARY	5
Wetlands and Waterbodies.....	5
CONCLUSIONS	6
REFERENCES.....	7

LIST OF TABLES

Table 1 Soil Mapping Units Located within the Project Survey Area –	4
Table 2 Wetlands Located within the Project Survey Area –.....	5

LIST OF APPENDICES

Appendix A – Project Location Map
 Aerial/NRCS Soils Map
 Topographic Excerpt Map

Appendix B - Data Sheets

Appendix C - Photographic Log

INTRODUCTION

Tennessee Gas Pipeline Company (Tennessee Gas) retained Perennial Environmental Services, LLC (Perennial) to conduct an environmental survey for the Right-of-Way Improvement and Pipeline Lowering Project (Project), including a wetland delineation. The proposed Project is located in Polk County, Texas (**Appendix A**). The Project consists of the installation of nine wetland (riverine and palustrine) crossings located within the existing Tennessee Gas right-of-way (ROW), as well as the lowering of an exposed 24-inch diameter pipe in Big Sandy Creek. The crossings are located within the Big Sandy Creek Unit of the Big Thicket National Preserve. The entire ROW was reviewed within the Big Sandy Creek Unit.

This wetland delineation included the identification and recording of physical features that may be considered “Waters of the United States,” as defined by the U.S. Army Corps of Engineers (USACE). “Waters of the United States” include most wetlands, rivers, creeks, streams, lakes, tributaries, etc. This report summarizes the results of the delineation within the surveyed area, and will be utilized to determine impacts to jurisdictional “Waters of the United States.”

METHODOLOGY

Preliminary Data Gathering

Prior to visiting the Project site, a resource review was conducted of available background site information, including historic aerial photography, National Wetland Inventory (NWI) mapping, and historic U.S. Geological Survey (USGS) topographic quadrangle maps.

Identification of Potential Waters of the United States

The delineation was conducted in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Region (Version 2.0) (USACE 2010) and the routine determination guidelines provided in the USACE Wetland Delineation Manual (Technical Report Y-87-1) (USACE 1987). Three wetland criteria were evaluated in a given sample area. These criteria include the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. Identification of dominant vegetative species and their U.S. Fish and Wildlife Service (USFWS) designated wetland indicator status dictates the presence of hydrophytic vegetation. A soil pit is dug to identify the presence or absence of hydric soils within each wetland and surrounding upland area. Location, inundation, saturation, and other physical indicators suggesting the presence of water are used to determine wetland hydrology at a site.

Waterbodies (i.e., creeks, streams, etc.) are typically identified by the presence of an ordinary high water mark (OHWM). OHWMs are established by physical characteristics such as “a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas”. Based on communication with the National Park Service, waterbodies were classified according to the Cowardin wetland classification system. Manmade ponds, lakes, and other bodies of

open water that may not have an OHWM were also included in this category. If present, on-site streams, open waters, and wetlands were delineated and the boundaries were surveyed.

Data Points/Soil Stations

Data point locations within the proposed Project area are depicted on the Aerial/Natural Resource Conservation Service (NRCS) Soils Map which is included within **Appendix A**. Data sheets representing each given site (soil station) or changes in vegetative communities and/or differences between wetland and non-wetland areas are provided in **Appendix B**. A photo log documenting the vegetative communities located at each soil station is included as **Appendix C**.

All data points were collected using a Trimble GeoXH global positioning system (GPS) equipped with a zephyr antenna to geographically reference features, such as data points and wetland boundaries obtained during the field survey. These units typically have real-time and post-processed sub-meter accuracy. Geographic Information System (GIS) software was used to analyze collected features, calculate the extent of delineated areas, and generate the attached mapping.

CONDITIONS DOCUMENTED AT PROJECT SITE

Perennial biologists conducted the wetland and waterbody delineation of the Project area July 20-21 and November 22, 2011 to ascertain conditions within the 32.19-acre survey area. The survey area was located entirely within the Big Sandy Creek Unit of the Big Thicket National Preserve. Of the 32.19-acre total survey area, 30.77 acres consisted of uplands, 1.31 acres consisted of palustrine emergent (PEM) wetlands, and 0.12 acre consisted of riverine wetlands. Land use in the upland areas is characterized entirely as pipeline right-of-way (ROW). A summary of the vegetation, soils, and hydrology observed in the survey area is presented below.

Vegetation

Appendix B presents the Data Forms which includes the vegetation observed during site investigations. Below is a description of the dominant vegetation species observed in each vegetative community during the field surveys.

Wetlands

Vegetation associated within PEM wetlands consisted of swamp smartweed (*Polygonum hydropiperoides*), cypress swamp sedge (*Carex jorii*), soft rush (*Juncus effusus*), lizard's tail, (*Saururus cernuus*), climbing hempvine (*Mikania scandens*), shortbristle horned beaksedge (*Rhynchospora corniculata*), sweetscent (*Pluchea odorata*), anglestem beaksedge (*Rhynchospora caduca*), sand spikerush (*Eleocharis montevidensis*), ovate false fiddleleaf (*Hydrolea ovata*), savannah panicgrass (*Phanopyrum gymnocarpon*), floating primrose-willow (*Ludwigia peploides*) and common buttonbush (*Cephalanthus occidentalis*).

Uplands

Dominant herbaceous vegetation within the maintained ROW consisted of bermudagrass (*Cynodon dactylon*), dallisgrass (*Paspalum dilatatum*), bahiagrass (*Paspalum notatum*), Johnson grass (*Sorghum halepense*), southern dewberry (*Rubus trivialis*), sawtooth blackberry (*Rubus argutus*), Indian woodoats (*Chasmanthium latifolium*), slender aster (*Eurybia compacta*), sweetgum (*Liquidambar styraciflua*), cuman ragweed (*Ambrosia psilostachya*), American beautyberry (*Callicarpa americana*) bracken fern (*Pteridium aquilinum*), poison ivy (*Toxicodendron radicans*), fall panicgrass (*Panicum dichotomiflorum*) yaupon holly (*Ilex vomitoria*) and loblolly pine (*Pinus taeda*). Dominant shrub vegetation included American beautyberry, sweetgum, loblolly pine, and blackjack oak (*Quercus marilandica*).

Soils

According to the U.S. Department of Agriculture (USDA) NRCS Web Soil Survey for Polk County, Texas the Project lies within the five mapping units summarized in **Table 1**.

Table 1 Soil Mapping Units Located within the Project Survey Area – Polk County, Texas			
Mapping Unit	Texture and Drainage	General Location	NRCS Hydric Rating
Dallardsville loamy very fine sand, 0 to 2 percent slopes (DaA)	Moderately well drained, moderately high permeable soils with a loamy very fine sand surface layer and a very fine sandy loam subsoil	Flats	Not Hydric
Doucette loamy fine sand, 1 to 5 percent slopes (DoB)	Well drained, moderately high permeable soils that have a loamy fine sand surface layer subsoil	Interfluves	Not Hydric
Hatliff loam, frequently flooded (Hf)	Moderately well drained, high permeable soils that have a loam surface layer and a fine sandy loam subsoil	Flood plains	Partially Hydric
Pinetucky fine sandy loam, 1 to 5 percent slopes (PfB)	Well drained, moderately high permeable soils that have a fine sandy loam surface layer and a sandy clay loam subsoil	Interfluves	Not Hydric
Stringtown-Bonwier association, strongly sloping (STE)	Well drained, moderately low to moderately high permeable soils that have a fine sandy loam surface layer and a sandy clay subsoil	Interfluves	Not Hydric

Hydrology

The ephemeral drainages and smaller perennial streams eventually flow into Big Sandy Creek within the Big Thicket National Preserve. The general topography of the site is characterized by rolling hills with drainages and/or wetlands in lower areas surrounded by upland areas at higher elevations. The following three primary wetland hydrology indicators were observed within the PEM wetlands: saturation at soil surface, standing

water, and sediment deposits. Hydrology indicators were not observed within the uplands.

WATERS OF THE UNITED STATES SUMMARY

Wetlands and Waterbodies

Perennial biologists delineated eleven wetland areas along the extent of the survey area that exhibited positive indicators for the three required criteria of a wetland as defined by the USACE. Five wetlands surveyed (Wetlands 1 through 5) were characterized as PEM wetlands (based on Cowardin classification). The five PEM wetlands represent 1.31 acres within the 32.19-acre survey area. The other six wetlands (Streams 1 through Stream 6) were classified as riverine wetlands associated with perennial and ephemeral streams. Perennial biologists delineated the six streams by their Ordinary High Water Mark (OHWM) per USACE guidelines. The streams were later classified as riverine wetlands at the direction of the National Park Service.

The Survey Area Aerial/NRCS Soils Maps (**Appendix A**) depict the location of the delineated wetlands. Photographic documentation of the representative conditions and vegetation is included as **Appendix C**. The type, classification, acreage, and location of the wetlands within the Project survey area is summarized in **Table 2**.

Table 2 Wetlands Located within the Project Survey Area – Polk County, TX					
Wetland ID	Wetland Class	Acreage	Location		Class of Aquatic Resource
			Latitude	Longitude	
Wetland 1	PEM	0.54	30.659641314°N	94.679550750°W	§ 404
Wetland 2	PEM	0.06	30.653825592°N	94.690805187°W	§ 404
Wetland 3	PEM	0.02	30.653130689°N	94.692811724°W	§ 404
Wetland 4	PEM	0.18	30.651484299°N	94.695441736°W	§ 404
Wetland 5	PEM	0.51	30.648934213°N	94.700980461°W	§ 404
Stream 1	Riverine	0.03	30.659469235°N	94.679974731°W	§ 404
Stream 2	Riverine	0.01	30.658061403°N	94.682145166°W	§ 404
Stream 3	Riverine	0.002	30.654204422°N	94.690053581°W	§ 404
Stream 4	Riverine	0.003	30.653842028°N	94.690786093°W	§ 404
Stream 5	Riverine	0.04	30.653458008°N	94.692195312°W	§ 404
Stream 6	Riverine	0.03	30.650111972°N	94.698989158°W	§ 404
Total Acreage		1.43			

CONCLUSIONS

Perennial biologists conducted an on-site wetland and waterbody delineation of the Project area July 20-21, 2011. Perennial returned to the site on November 22, 2011 due to modifications to the original scope of work. The entirety of the 32.19 acres surveyed lies within the maintained ROW. Perennial biologists delineated five wetlands that exhibited PEM wetland characteristics. The PEM wetlands encompassed approximately 1.31 acres of the total survey area. Perennial biologists also identified six riverine wetlands that comprised approximately 0.12 acre of the total survey area. It is Perennial's professional opinion that these wetlands and waterbodies would be subject to the USACE Clean Water Act jurisdiction based on adjacency to other "Waters of The United States". This report is based on Perennial's professional opinion, the USACE has complete jurisdiction concerning all §10 and §404 wetlands and waterbodies.

REFERENCES

- U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region. Version 2.0. U.S. Army Engineers Research and Development Center, Vicksburg, MS.
- U.S. Army Corps of Engineers Environmental Laboratory (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS.
- U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS). Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov>. Accessed August 15, 2011.
- U.S. Geological Survey (USGS). 1984. 7.5-Minute Topographic Quadrangle Map. Dallardsville, TX.