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WETLAND MITIGATION PLAN

ORANGE COUNTY ADVANCED POWER STATION PROJECT, ORANGE COUNTY, TEXAS



Project Information

Date: June 20, 2022

Reference: SWG-2020-00266

Project Name: Entergy Texas, Inc. – Orange County Advanced Power Station (OCAPS) Project; SWG-2020-00266

Project Location: Located in Orange County, TX; 30.0322948, -93.8791162

Mitigation Site Location: Pineywoods Mitigation Bank

1. BASELINE INFORMATION

1.1 Project Description

This wetland mitigation plan presents solutions to offset unavoidable impacts (permanent and conversion impacts) to federally regulated wetlands from the Entergy Texas, Inc. (ETI) Orange County Advance Power Station (OCAPS) Project (Project; SWG-2020-00266). The Project includes a variety of components including the construction of a 1,215 megawatt (MW) electric generation facility and administrative building, transmission line and substation/switchyard modifications, re-routing existing transmission lines, utilizing an existing boat ramp, building and improving new and existing roads, and constructing several laydown yards, in Orange County near Bridge City, Texas (Project site; Figure 1, Attachment 1). The purpose of the Project is to increase ETI's generation capacity to serve its customers more reliably, including those that prefer more efficient and sustainable energy sources.

The Project will utilize approximately 94.9 acres (construction, laydown areas, transmission line, parking etc.) within the Sabine Power Plant, an ETI-owned property, to construct the Project. The main OCAPS (power block) facility and administration building will be located on 21.2 acres of previously disturbed industrial and undeveloped land located adjacent to the existing Sabine Plant. The transmission line and substation/switchyard modifications will take place at existing facilities on site, and will involve constructing and installing additional new infrastructure to accommodate the new OCAPS facility. The transmission line re-route will involve relocating and upgrading approximately 1,800 feet of an existing 138 kV transmission line approximately 500 feet east from its present location to accommodate construction of the new OCAPS facility. Other portions of the existing transmission line will be raised by replacing the existing h-frame towers with new steel monopole towers, as well as adding additional lines to the new towers. The existing substation/switchyard will be modified to tie-in the new transmission lines. An existing boat ramp along the Sabine discharge canal will be utilized as a barge unloading area for construction equipment and facility infrastructure. The Project will also require improving an existing haul road and temporary construction laydown/parking areas north, east, and west of the proposed OCAPS facility.

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1.2 Mitigation Site Selection

To offset unavoidable wetlands impacts during Project construction, ETI will purchase palustrine emergent (PEM) and palustrine forested (PFO) mitigation credits from Pineywoods mitigation bank (PMB) located in Orange County, Texas (Figure 2, Attachment 1). The Project is located in the PMB secondary service area.

1.3 Wetlands

Pedestrian surveys were conducted in December 2019 to determine the extent and approximate boundaries of potential jurisdictional wetlands and/or waters of the U.S. located within the Project corridor. The surveys were performed in accordance with the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual (USACE Manual)* as well as the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plains Region (Version 2.0)* in February 2020. Additional details are included in the Wetland Delineation Report submitted to the US Army Corps of Engineers (USACE) as part of a request of a Preliminary Jurisdictional Determination (PJD) and an Approved Jurisdictional Determination (AJD) on March 11, 2022 (Approved April 27, 2022 and amended on June 8, 2022; SWG-2020-00266).

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2. IMPACTS

2.1 Wetland Impacts

A total of 2.755 acres of wetland impacts (both permanent and temporary impacts) will result from Project construction. Of that, permanent wetland impacts from aboveground infrastructure will include 1.693 acres of palustrine emergent (PEM) and 0.114 acres of palustrine forested (PFO) wetlands. Temporary impacts will result from wood matting from access roads and pull points, and will include 0.600 acre of PEM and 0.128 acre of estuarine emergent (EEM) wetlands. Lastly, temporary conversion impacts will result from converting PFO and palustrine scrub-shrub (PSS) wetlands to PEM wetland. Conversion impacts will occur to 0.216 acre of PFO and 0.004 acre of PSS. ETI plans to offset the loss of wetland function as a result of permanent wetland impacts to PEM and PFO wetlands, and the conversion of PFO wetlands. The Project does not propose mitigation for the 0.004 acre PSS wetland as this area will be allowed to revegetate following construction. Mitigation for temporary impacts to PEM and EEM wetland is not proposed, as these areas will be returned to pre-construction contours and will be allowed to revegetate to their previous conditions. Additionally, the Project will permanently impact approximately 0.002 acre of jurisdictional man-made ditch from the installation of culverts. EIT does not propose to mitigate for these losses as the combined impacts are less than 3/100 acre. ETI proposes to purchase mitigation credits from PMB to offset permanent and conversion impacts to the PEM and PFO wetlands.

2.2 Avoidance and Minimization of Impacts

The primary focus for developing the Project is to increase ETI's generation capacity to serve its customers more reliably, including those that prefer more efficient and sustainable energy sources. The need for this project is in response to a projected increase in demand of electricity by customers and retirement of aging, less-efficient infrastructure. ETI designed the Project to support the smallest footprint practical, as well as be installed within the least environmentally damaging footprint possible. By constructing adjacent to the existing Sabine Plant on previously disturbed upland areas, the Project's wetland impacts will be limited.

The Project site encumbers a total of 24.020 acres of wetlands and 0.189 acres (1,952.014 linear ft.) of non-wetland waterbodies, of which 21.265 acres of wetlands and 0.185 acres (1,921.759) of waterbodies will be avoided and not impacted by the Project. In addition, ETI will use a variety of construction techniques that will avoid or minimize impacts, including the use of temporary matting, the use of existing roadways for access roads, the use of existing culverts for waterbody crossings, and the implementation of best management practices such as installing erosion control devices and managing stormwater flow. To compensate for the Project's unavoidable permanent wetland loss, ETI will purchase wetland mitigation credits from an approved mitigation bank within the Lower Neches Hydrological Unit Code (HUC).

Appropriate measures, including Best Management Practices (BMPs) approved by the Texas Commission on Environmental Quality (TCEQ), will be implemented throughout the Project corridor. Should fill (e.g., excavated trenching materials) be temporarily stored in wetland areas, it will be placed in a manner, and consist of materials that will withstand erosion from expected high flows or dispersion by natural forces (e.g., wind). BMPs, including the use of silt fencing and erosion controls, will be outlined in a Project-specific stormwater pollution prevention plan (SWPPP) that will be

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implemented to further minimize temporary impacts from construction activity and protect surface water quality.

2.3 Preliminary Jurisdictional determination (PJD) & Approved Jurisdictional Determination (AJD)

ETI requested to utilize both the PJD and AJD request process for this Project review. A PJD/AJD request form was submitted to the USACE on March 11, 2022, and was approved April 27, 2022 (SWG-2020-00266), and a subsequent amended AJD/PJD package was provided on June 8, 2022.

3. DETERMINATION OF MITIGATION QUANTITIES

Wetland mitigation will take place at a single approved wetland mitigation bank. PFO and PEM mitigation credits purchased through PMB to offset PFO and PEM wetland impacts are explained in the following sections.

3.1 IHGM: Pineywoods Mitigation Bank

PFO and PEM wetland mitigation credits were determined using the USACE Southwestern Galveston District (SWG) Riverine Forested and Riverine Herbaceous/Shrub Interim Hydrogeomorphic (iHGM) model formulas. The Riverine Forested and Riverine Herbaceous/Shrub iHGM's were utilized for the following reasons: 1) the majority of the wetland areas are within or adjacent to the 100-year floodplain; 2) wetland habitats are dominated by vegetation species most often observed in freshwater wetland habitats; and 3) this model is most applicable to the characteristics of the PEM and PFO wetland habitats found within the Project site. The iHGM formulas are utilized to quantify functional capacity units (FCU) for the impacts on wetlands so that proper mitigation compensation can be achieved.

The Project will mitigate for the permanent impacts to PEM wetlands, and the permanent and temporary conversion impacts to PFO wetlands within the Project site.

The FCUs were calculated for three different wetland functions including:

- Temporary storage and detention of surface water (TSSW; i.e., physical);
- Maintenance of plant and animal communities (MPAC; i.e., biological); and
- Removal and sequestration of elements and compounds (RSEC; i.e., chemical).

3.2 IHGM Variable Model

As previously stated, the iHGM formulas use several variables to assess the three main functions (physical, biological, and chemical) that best describe and measure the functional value of wetlands in this region. Each variable within the iHGM model has been assessed and assigned sub-index values based on information collected during the pedestrian survey. Tables 1 and 2 (Attachment 2) show the pre-construction and post-construction sub-indices associated with the permanent and temporary impacts to PEM and PFO wetlands.

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3.3 Calculated Wetland Functional Capacity Units

FCU's were calculated using the assigned sub-index values in Tables 1 and 2 (**Attachment 2**) and input into the Riverine Herbaceous/Shrub iHGM formulas. To determine the FCU's required to offset the temporary conversion of PFO to PEM wetlands, the FCU's calculated for pre-Project impacts are subtracted from the post-Project FCU's. The net FCU's are used to determine the level of required mitigation, as these wetland areas will retain ecological wetland function, though at a lower level.

For PFO wetlands, a total of 0.09 FCU's will be needed to mitigate losses for TSSW functions; 0.11 FCU's will be needed for the MPAC functions; and 0.14 FCU's will be needed to mitigate for the RSEC functions.

For PEM wetlands, a total of 0.91 FCU's will be needed to mitigate losses for TSSW functions; 0.99 FCU's will be needed for the MPAC functions; and 0.63 FCU's will be needed to mitigate for the RSEC functions.

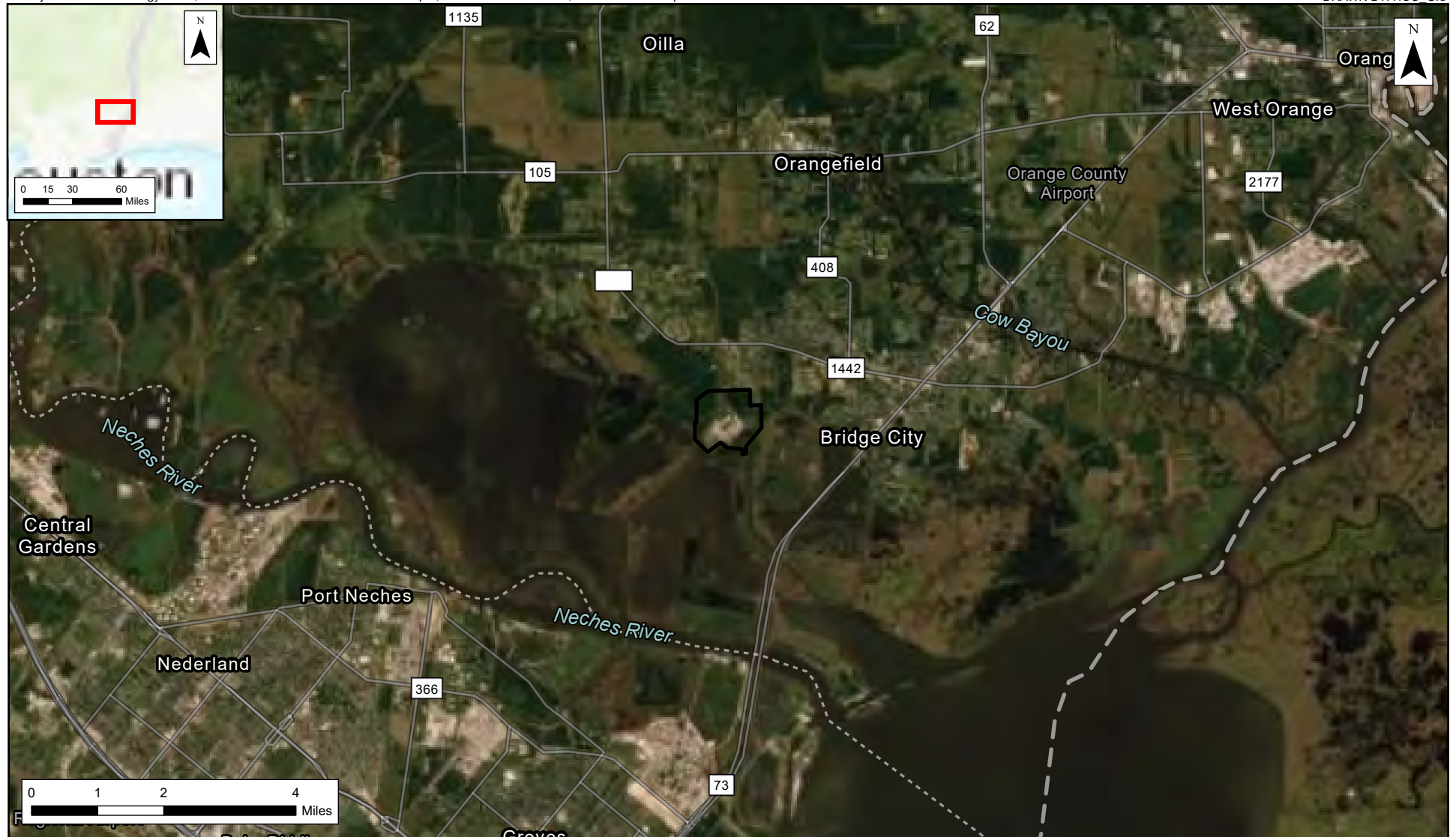
3.4 Required Mitigation Credits

The Project is located in the secondary service area of the PMB. Per the PMB mitigation banking instrument (MBI), Project impacts located within the bank's secondary service area will apply a 1:1.5 mitigation to impact ratio. As a result, to offset for PFO wetland impacts, the Project will require 0.52 FCU's, distributed as 0.14 TSSW; 0.17 MPAC; 0.21 RSEC FCUs. To offset for PEM wetland impacts, the Project will require 3.80 FCU's, distributed as 1.37 TSSW; 1.49 MPAC; 0.95 RSEC FCUs.

ATTACHMENT 1 FIGURES

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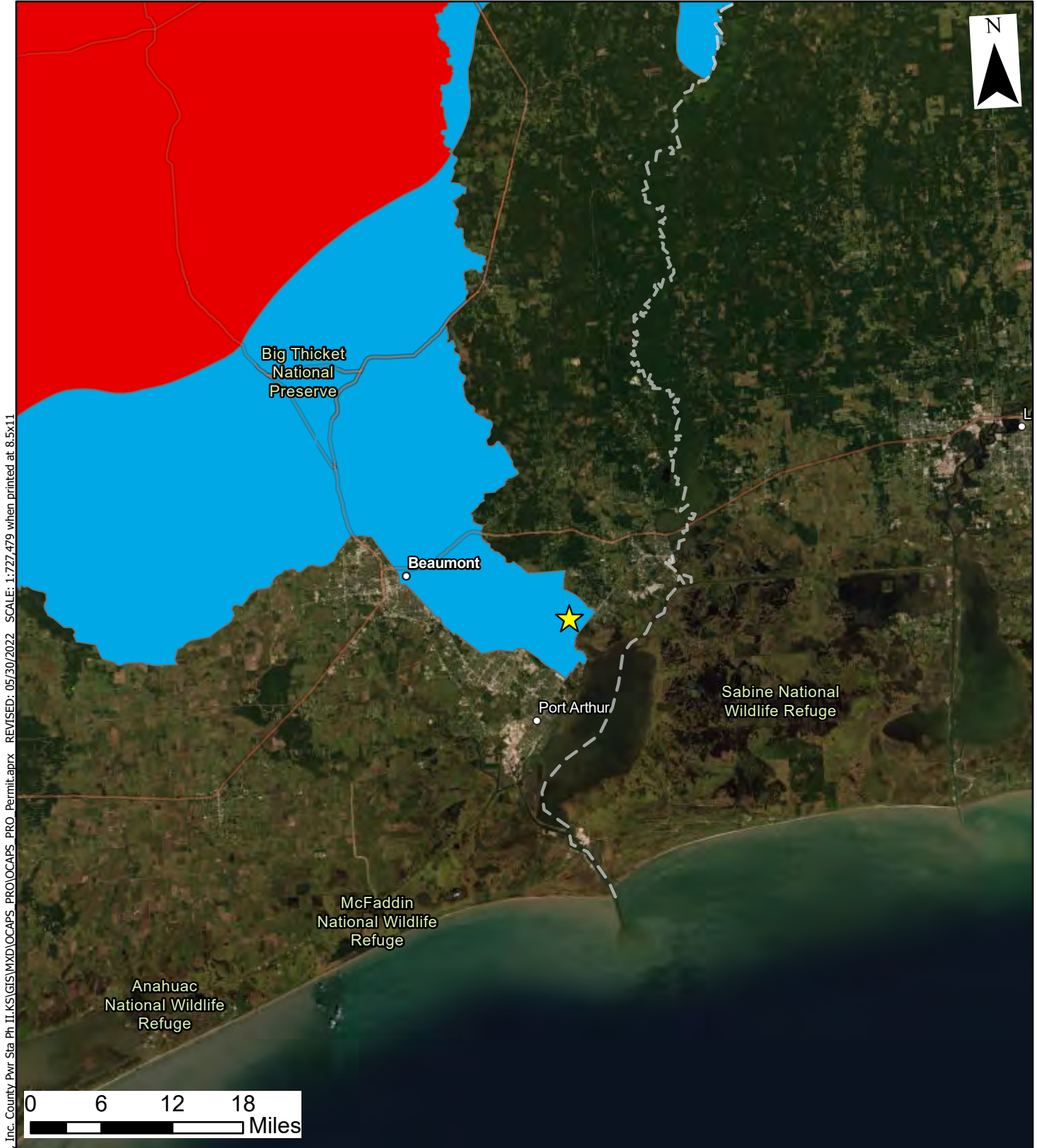
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Legend

 Project Area

Figure 1
Site Location and Vicinity Map
 Wetland Delineation Report
 Orange County Power Station
 Entergy
 Orange County, Texas



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-  OCAPS Facility
-  Primary Service Area
-  Secondary Service Area

Figure 2
Pineywoods Mitigation Bank
Service Area Map

OCAPS
 Entergy Texas, Inc.
 Orange County, Texas



Spatial Reference: NAD 1983 2011 StatePlane Texas Central FIPS 4203 Ft US

ATTACHMENT 2 HGM TABLES

Wetland ID	Cowardin Class	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)														FCU Pre-Construction			FCU Post-Construction			FCU Differential							
					Vdur	Vfreq	Vtopo	Vcwd	Vwood	Vtree	Vrich	Vbasal	Vdensity	Vmid	Vherb	Vdetritus	Vredox	Vsorpt	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value			
WAOR003	PFO	0.04	12020003	Lower Neches	0.25	0.25	0.10	0.50	1.00	0.30	0.60	0.60	0.40	1.00	0.50	0.30	1.00	0.50	0.50	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.04			
WAOR007	PFO	0.17	12020003	Lower Neches	0.25	0.25	0.10	0.50	1.00	0.30	0.60	0.60	0.40	1.00	0.50	0.30	1.00	0.50	0.50	0.06	0.09	0.09	0.03	0.03	0.03	0.04	0.06	0.06	0.16			
WAOR007_Perm	PFO	0.10	12020003	Lower Neches	0.25	0.25	0.10	0.50	1.00	0.30	0.60	0.60	0.40	1.00	0.50	0.30	1.00	0.50	0.50	0.04	0.04	0.05	0.00	0.00	0.00	0.04	0.04	0.05	0.13			
WBOR001_Perm	PFO	0.01	12020003	Lower Neches	0.25	0.25	0.10	0.50	1.00	0.30	0.60	0.60	0.40	1.00	0.50	0.30	1.00	0.50	0.50	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.02			
TOTAL ACREAGE		0.33																		iHGM TOTALS			0.12	0.16	0.17	0.03	0.04	0.03	0.09	0.11	0.14	0.34
																				Secondary Service Area Multiplier (x1.5)			0.14	0.17	0.21	0.52						

Wetland ID	Cowardin Class	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)										FCU Pre-Construction			FCU Post-Construction			FCU Differential			
					Vdur	Vfreq	Vtopo	Vwood	Vmid	Vherb	Vdetritus	Vredox	Vsorp	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value
WAOR001	PEM	0.04	12020003	Lower Neches	1.00	0.75	0.40	0.10	0.25	1.00	0.50	0.10	0.50	0.50	0.03	0.02	0.02	0.00	0.00	0.00	0.03	0.02	0.02	0.07
SAOR002	PEM	0.04	12020003	Lower Neches	0.50	0.50	0.40	0.25	0.25	0.75	0.50	0.10	0.50	0.50	0.02	0.02	0.02	0.00	0.00	0.00	0.02	0.02	0.02	0.06
SBOR001	PEM	0.27	12020003	Lower Neches	0.50	0.50	0.40	0.25	0.25	0.75	0.50	0.10	0.50	0.50	0.15	0.14	0.11	0.00	0.00	0.00	0.15	0.14	0.11	0.41
WAOR009	PEM	1.34	12020003	Lower Neches	0.50	0.50	0.10	0.10	0.10	1.00	0.30	0.10	0.50	0.75	0.71	0.81	0.48	0.00	0.00	0.00	0.71	0.81	0.48	2.00
ACREAGE TOTALS		1.69	iHGM TOTALS										0.91	0.99	0.63	0.00	0.00	0.00	0.91	0.99	0.63	2.53		
Secondary Service Area Multiplier (x1.5)																					1.37	1.49	0.95	3.80