



# Federal Environmental Review

Environmental Information Document

To be used for projects receiving funding from the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund

TWDB-0801  
5/22/2015

# Introduction: Full Environmental Review

When federal loan program funds are spent on a construction project, the project must be assessed for environmental impacts. The Environmental Information Document (EID) allows the Water Supply and Infrastructure Division, as well as other review agencies, to make determinations about the degree of impacts that can reasonably be expected to occur as a result of construction of a proposed project. For additional information about different types of impacts, see the scope of impacts section on the following page. Each sheet in the following template is intended to address a specific requirement needed to comply with the National Environmental Policy Act (NEPA). Information included in this template represents baseline information pertinent to the majority of projects. This template does not replace the necessity to submit a regulatory permit application to the U.S. Army Corps of Engineers (when applicable). Regulatory agencies and the TWDB may require additional information to determine project specific mitigation and permitting requirements as well as issue an environmental finding. Projects seeking funding through the Clean Water State Revolving Fund (CWSRF) or the Drinking Water State Revolving Fund (DWSRF) are subject to NEPA requirements. A full explanation of TWDB environmental requirements is provided in 31 TAC §375, Subchapter E (CWSRF), and 31 TAC §371, Subchapter E (DWSRF).

## **Timing**

Preparation of the EID is conducted during the planning phase of the project after a loan commitment has been secured. Please note that issuance of an environmental determination by TWDB environmental staff is required prior to TWDB approval of the Engineering Feasibility Report and release of design and/or construction funds. From beginning to end, this process can be completed in as few as 4 months but typically takes 8 to 10 months for most projects.

Example timeline for the preparation of an EID:

- Variable: Preparation of the base document (time varies by consultant).
- 2-3 months: Agency coordination & public meeting (agency coordination does not need to be complete prior to the public meeting).
- 1 month: Preliminary review of the EID by TWDB staff. After review, the TWDB will send a list of deficiencies to the consultant identifying any additional information required.
- Variable: Submission of supplemental information by the consultant as required by TWDB comments (time varies by consultant).
- 1 month: TWDB approval of the EID and issuance of an environmental determination.
- 1 month: 30-day public comment period.
- Board: Next available Board date for an affirmation of the original loan commitment.

## **Report Structure**

The structure of the EID is crucial in allowing for an efficient review of the document. Adhering to the provided structure will allow for ease of use by the project reviewer and others who may be unfamiliar with the project. For projects that contain multiple components, the EID must be prepared in a manner that addresses each component in an orderly fashion.

## **Submission**

Once completed, the EID, as well as any questions regarding the preparation of the document or review process, should be submitted to:

**Environmental Reviewer**  
**Texas Water Development Board, Regional Water Planning & Development**  
**P.O. Box 13231, Austin, Texas 78711-3231**  
**Telephone: (512) 936-0938**

# Scope of Impacts

When constructing a project, three types of impacts must be documented in the EID. These impacts are as follows:

- Direct impacts
- Secondary impacts
- Cumulative impacts

Benefits – Environmental impacts that result in a positive outcome.

Secondary and cumulative impacts are often assessed jointly. Environmental impacts can be both positive (hereafter known as benefits) and negative (hereafter known as impacts). The EID should include a discussion of both impacts and benefits. When considering cumulative impacts under NEPA, review and implement the information in *Considering Cumulative Effects Under the National Environmental Policy Act*, which is published by the Council of Environmental Quality.

## **Direct Impacts**

Direct impacts are effects on the environment that occur at the same time and place as the project. They are the most certain and predictable of the impacts and are typically the easiest to identify. Direct impacts include impacts from construction-related activities as well as impacts related to operation of a newly constructed or modified facility upon completion of construction. Construction impacts include such things as air emissions from construction vehicle traffic, soil disturbance, sedimentation and erosion, and land clearing activities. Operational impacts include such things as increased noise from generators or other equipment in use after construction is completed, odors associated with pump stations, and increased effluent discharge to a stream from a plant expansion.

Direct Impacts – Effects on the environment that occur at the same time and place as the project.

Examples of direct impacts include the following:

- Displacement of wildlife due to vegetation clearing associated with construction projects
- Air emissions from open burning during construction
- Aquatic habitat degradation from installation of a sewer pipe crossing a stream
- Increased nutrient loading in a river from a wastewater treatment plant discharge
- Odors from a wastewater treatment plant

## **Secondary Impacts**

Secondary impacts are effects to the environment and natural resources that are removed in time and distance from a project's construction and operation activities. Secondary impacts are also called "indirect impacts" and are often thought of as chain reaction processes where one action or result leads to another action or result. Guidelines for implementing NEPA (40 CFR §1508.8) broadly define secondary impacts as:

Secondary impacts (indirect impacts) – Effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities.

*...indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.*

Secondary impacts associated with infrastructure projects are often related to residential, commercial, and industrial growth that the infrastructure project supports. For example, after sewer service is extended into

an unsewered area, a subdivision might be built. The paved roads and other impervious services in the new subdivision may increase the level of pollutants in a nearby stream due to runoff. The decreased water quality that results in the stream is not directly related to the construction or operation of the sewer system, but it is indirectly related to the project because the expanded sewer system supported development of the new subdivision.

### **Cumulative Impacts**

Cumulative impacts are effects that result from the project's direct impacts when added together with impacts from other past, present, and future projects that can be reasonably predicted. NEPA regulations define cumulative impacts as "environmental impacts which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Cumulative impacts – Effects that result from the project's direct impacts added together with impacts from other past, present, and future projects that can be reasonably predicted.

Evaluating cumulative impacts requires analysis of the "big picture" in terms of time and space. Consider the following example: run-off from parking areas surrounding a single shopping center might not be a significant stressor to the receiving stream, but the combined run-off from multiple shopping centers located in the same watershed can become a significant stressor. Another example would be where a combination of wastewater infrastructure projects in the same river basin could create nutrient issues downstream. Note: In some cases, cumulative impacts may be positive. For example, if, in a watershed, several stream and wetland restorations are implemented in the headwaters of the watershed, then nutrient loadings and siltation may be reduced downstream. Cumulative impacts are an issue that must be considered any time that growth is anticipated in the project area, even if that growth is not facilitated by or connected to the proposed project. If impacts from a proposed project are minor and limited to construction only, they are less likely to contribute to cumulative impacts in the broader project area.

Cumulative impacts must be considered and discussed for any project that takes place in an area experiencing growth and development, even if the proposed project is not an expansion project.

## **Environmental Information Document**

The following pages, beginning with the Table of Contents, contain the template EID. The following nine (9) sections should be completed to the maximum extent practicable. To expedite the review of this document, please provide all requested information in a clear and concise manner. If a section does not apply to the project, please indicate that it does not apply by writing "Not Applicable" in the space provided.

Sections 1, 3, 4, and 5 request specific information regarding the proposed project; alternatives considered; the environmental setting of the project; potential direct, secondary, and cumulative impacts; and proposed mitigation. Section 2 provides a list of attachments that should be included in Section 9 of the EID. As noted in Section 2, documents lacking required attachments will not be accepted. Section 6 describes the public participation process and the materials that must be submitted by the applicant after a public meeting has occurred. In order to facilitate agency coordination, Section 7 provides a rubric for the applicant to determine whether agency coordination is required. Example coordination and notification letters are conveniently provided within the document. Section 8 contains a certification statement whereby the applicant confirms that the information contained in this document is accurate and complete to the applicant's knowledge, and that this document describes the complete project.

**\*To update the Table of Contents: (1) Click on Table, (2) Choose Update Table, (3) Select Update Entire Table**

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## Section 1: General Information

<b>Authority (Loan Applicant):</b>	Port O'Connor Improvement District		
<b>TWDB Project No:</b>	62893		
<b>Project Name:</b>	Port O'Connor Improvement District Water Line, Water Well, and Water Plant Improvements Project		
<b>Counties where project activities will occur:</b>	Calhoun County, Texas		
Funding Source/ Loan Number:	Not yet obtained / DWSRF	/	
		/	
		/	
Total Estimated Project Costs:	\$6,000,000		
TWDB Funded Phases:	<input type="checkbox"/> Planning	<input type="checkbox"/> Acquisition	
	<input checked="" type="checkbox"/> Design	<input checked="" type="checkbox"/> Construction	
Other Funding Source(s):	None		
Consultant Project Name/Number (if applicable):	Port O'Connor Water Supply Improvements EID & Regulatory Permitting Services/100068304		
Primary Contact for questions concerning the EID:	Company:	Atkins North America	
	Contact Person:	Lisa Mash	
	Mailing Address:	17220 Katy Freeway, Suite 200, Houston, TX 77094	
	Phone:	512.312.3314	
	Email:	Lisa.Mash@atkinsglobal.com	
Project Engineer:	Company:	John D. Mercer & Associates, Inc.	
	Contact Person:	John D. Mercer	
	Mailing Address:	118 E Main St., Edna, TX 77957	
	Phone:		
	Email:	jmercercer@jdmercercer.com	
List of Preparers:	<ol style="list-style-type: none"> <li>1. Lisa Mash</li> <li>2. Kathryn Saucier</li> <li>3. Christina Powell</li> <li>4. Krista McClanahan  </li> <li>5. Katherine Turner-Pearson</li> </ol>		



## Section 2: List of Attachments

**Documents lacking required attachments will not be accepted**

<p><b>Appendix B3</b> Biological Resources (Section 5.7)</p> <p>Page: B-3</p>	<p><u>County List of Rare, Candidate, Threatened and Endangered Species</u> (Required)</p> <p><input checked="" type="checkbox"/> USFWS: County List of Federal Candidate, Threatened and Endangered Species</p> <p><input checked="" type="checkbox"/> TPWD: County List of State and Federal Rare, Threatened and Endangered Species</p> <p><input checked="" type="checkbox"/> Potential Impacts Table [provided in Technical Memo]</p>
<p><b>Appendix B4</b> Cultural Resources (Section 5.8)</p> <p>Page: B-4</p>	<p><u>Cultural Resources Report</u> (If Applicable)</p> <p>Cultural Resources Report <span style="float: right;">Attached <input checked="" type="checkbox"/>   N/A <input type="checkbox"/></span></p>
<p><b>Appendix B5</b> Hazardous Materials (Section 5.9)</p> <p>Page: B-5</p>	<p><u>Hazardous Materials</u> (If Applicable)</p> <p>Formal Site Assessment <span style="float: right;">Attached <input checked="" type="checkbox"/>   N/A <input type="checkbox"/></span></p>
<p><b>Appendix B6</b> Social Implications &amp; Environmental Justice (Section 5.10)</p> <p>Page: B-6</p>	<p><u>All maps &amp; reports should be generated through the EPA's EJ View Website</u> (Required)</p> <p><input checked="" type="checkbox"/> EJ View Map (add a 0.5 mile buffer around the construction area) [A-7]</p> <p><input checked="" type="checkbox"/> ACS Summary Report [replaced by data.census.gov]</p> <p><input checked="" type="checkbox"/> Census Summary Report</p> <p><input checked="" type="checkbox"/> Environmental Report</p> <p><u>Census QuickFacts Summary</u> (Required)</p> <p><input checked="" type="checkbox"/> City vs. State</p> <p><input checked="" type="checkbox"/> County vs. State</p>
<p><b>Appendix B7</b> Public Meeting (Section 6)</p> <p>Page: B-7</p>	<p><u>Public Meeting Documentation</u> <b>Virtual Meeting, not scheduled yet</b></p> <p><input type="checkbox"/> Publisher's affidavit and a copy of the Public Meeting Notice</p> <p><input type="checkbox"/> Statement signed by applicant - meeting was held in conformance with the Public Meeting Notice.</p> <p><input type="checkbox"/> List of witnesses</p> <p><input type="checkbox"/> Written summary of the meeting</p>

### Section 3: Project Description Preferred Action Alternative

For the purposes of this document the project site includes all areas that will be disturbed by the project, including construction staging area(s). The project area includes surrounding areas which may, directly or indirectly, be impacted by the project.

1. **Background:** Briefly describe the existing system (e.g., treatment processes, capacity of treatment plant, annual average and peak demand flows, etc.).

The Port O'Connor Improvement District (District) receives its water from surface water diverted from the Guadalupe River which then is treated at the Guadalupe-Blanco River Authority (GBRA) Port Lavaca Water Treatment Plant operated by the GBRA. The treated water is then delivered to the District's water storage tanks and delivered through its distribution system to the residents of Port O'Connor. The District currently has one (1) well with a capacity of 200-250 gallons per minute (gpm). Water from this well is blended with the water from GBRA in the District's ground storage tank. The District's water plant also includes three booster pumps that pump out of the 500,000 gallon ground storage tank and into the distribution system. A 250,000 gallon elevated storage tank is remotely located from the plant site and "floats" on the distribution system.

2. **Project Location:** Briefly describe the project location (e.g., new undeveloped site, existing treatment plant site, undeveloped portion of an existing site, site adjacent to existing facilities, currently owned, acquisition required, etc.).

The proposed five (5) new water wells will be located on undeveloped land to the north of Adams Street (State Highway 185) and the new connecting water lines will be located in an existing utility easement along Adams Street, Trevor Street, and various private drives (see pg. A-2 and A-3). The new outfall line will be located on undeveloped land to the south of Adams Street to a discharge point in the Gulf Intracoastal Water Way (GIWW).

Latitude/Longitude: 28.431525 / -96.455370 NAD 83

Project Address (if applicable): Intersection of State Highway 185 and Denman Drive, Port O'Connor, TX, 77982

## Section 3: Project Description Preferred Action Alternative

**3. Project Need & Purpose:** What need does the project address? (e.g., improve water quality, increase capacity, inadequate system or system components, increase treatment due to more stringent effluent limits, linear work, etc.)

The Port O'Connor community is approaching the limit of permissible connections relative to water supply. A secondary source of water is needed to meet the growing demand of new residential and commercial structures within Port O'Connor and to offset potable water that is currently being purchased from the GBRA. Construction of the proposed project will increase the water supply and increase the allowable connections. The purpose of the proposed project is to increase the capacity of the District's potable water system for the residents of Port O'Connor to meet growing demand and provide an alternative water supply source to reduce reliance on surface water from GBRA.

GBRA is proposing to upgrade their existing Port Lavaca Water Treatment Plant. Maintenance of the current GBRA contract supply parameters has been determined by the District to be cost prohibitive. For that reason, the District has decided to rely less on GBRA treated water and to expand their use of locally obtained ground water. |

Is the proposed project being pursued in response to a compliance order? | no |

**4. Project Description:** Description should include project costs, design year and design population.

The District proposes to drill five (5) new water wells on undisturbed land adjacent to existing wells or infrastructure to augment the groundwater provided by the one existing well. The existing well has an open flow capacity of approximately 250 gpm. The new wells will be sized slightly larger and will have capacities of 250-300 gpm. The District also proposes the installation of new 6-inch and 8-inch connecting water lines via a temporary 24-inch open trench in an existing utility easement along approximately 7,000 linear feet (LF) of Adams Street, Trevor Street and various private drives (see pg. A-3) to transport the raw well water from the wells to the raw storage tank. The material from the 24-inch trenching activities will be placed on adjacent pavement or uplands. The trench area will be backfilled, and the affected areas will be returned to their preconstruction contours and re-vegetated as appropriate. The new water line will terminate at the existing reverse osmosis facility, where the District will construct a new larger capacity reverse osmosis facility to meet the secondary constituent levels required by the Texas Commission on Environmental Quality (TCEQ) as well as a new 135,000 gallon above ground storage tank near the existing 500,000 gallon potable water storage tank. Water from the raw water storage tank will be pumped to reverse osmosis treatment equipment for treatment to remove constituents in the raw water that exceed TCEQ limits.

The District proposes to install approximately 41 cubic yards (CY) of pervious material for construction of the access roads off of Adams Street associated with new water wells 1 and 3.

The District also proposes to install approximately 3,484 LF of outfall line in a temporary 30-inch open trench from the reverse osmosis facility to an outfall constructed along the shoreline of the GIWW (see pg. A-3). The District proposes a 90-foot horizontal bore under Adams Street for the outfall line. The material from the 30-

### Section 3: Project Description Preferred Action Alternative

inch trenching activities will be placed on adjacent pavement or uplands. The trench area will be backfilled, and the affected areas will be returned to their preconstruction contours and re-vegetated as appropriate. The District proposes to construct an access road for the outfall line off Adams Street to the south with 25 CY of pervious fill material.

As the outfall line approaches the GIWW and the discharge point, the line will be situated above ground and mounted on four (4) 8-inch x 8-inch pilings. Two (2) pilings for the aboveground outfall structure will be installed in the shallow waters of the GIWW via the "pile jetting" methodology, where a high-pressure water pump is used to create the hole for the piling and the sand packs back in around the piling once set. The crane and equipment for the jet pilings and the outfall construction will be land based and construction is expected to take less than 10 days.

To stabilize the immediate shoreline at the discharge point, the District proposes to install approximately 6 CY of crushed rock and to install 9 CY of the same crushed rock along 12 LF of the shoreline below the mean high water (MHW) to provide erosion control on the shoreline of the GIWW. No in-water construction is proposed except for the installation of two (2) pilings associated with the outfall structure, approximately 8 feet from the shoreline. The placement of crushed rock along the shoreline will be conducted land-side. ]

Is the proposed project part of a larger project?  Yes  No

If the proposed project is one phase of a larger project, describe the duration and purpose of the larger project.

Not Applicable

5. **Waste Disposal:** Does the project require sludge/soil/waste disposal?  Yes  No

If yes, identify the location(s) and method(s) of disposal:

Not Applicable

6. **Project Components:** Provide a bulleted list (e.g. install 1,000 linear feet of new 6-8 inch pipeline in existing ROW and easements from the outfall structure in Lake X to the WTP, install new 300,000 gallon ground storage tank at the WTP, demolish existing chemical storage building, etc.).

- Drill 5 new water wells
- Install approximately 7,000 LF of new 6-inch and 8-inch connecting water lines via a temporary 24-inch open trench in an existing utility easement along Adams Street, Trevor Street, and various private drives
- Install approximately 41 CY of pervious materials north of Adams Street for construction of new well access roads (wells 1 and 3)
- Install a new 135,000 gallon above ground storage tank near the existing 500,000 gallon potable water storage tank
- Install approximately 3,484 LF of outfall line in a temporary 30-inch open trench from the reverse osmosis facility to an outfall constructed along the shoreline of the GIWW with a 90-foot horizontal bore under Adams Street
- Install approximately 25 CY of pervious materials south of Adams Street for construction of a new outfall line access road
- Install 4 pilings for the aboveground outfall structure, 2 in the shallow waters of the GIWW
- Install approximately 6 CY of crushed rock to stabilize the immediate shoreline of the discharge point

### Section 3: Project Description Preferred Action Alternative

- Install approximately 9 CY of crushed rock along 12 LF of the shoreline of the GIWW below the MHW to provide erosion control

#### 7. Project Magnitude:

- i. Current population of service area: 1,053
- ii. Anticipated population of service area in 20 years: 2,073
- iii. Will the proposed project service the entire population increase?  Yes  No

#### 8. Project Schedule:

Anticipated Completion of Environmental Review: 4 /2021

Completion of Acquisition: NA

Completion of Permitting: 4 /2021

Completion of Design: 3 /2021

Start of Construction: 5 /2021

Construction Completion: 11 /2022

9. **Project Costs:** Provide an estimate of the cost of the project. \$6,000,000

10. **Other Projects:** Provide a description of any other projects in progress that may be affected by the proposed project (e.g., TxDOT plans for Road Construction, etc.).

[No additional projects are planned within this area that may affect installation of the water wells, water lines, and water plant improvements associated with the proposed project.]

## Section 4: Alternative Analysis

### No-Action Alternative

#### Environmental Impact Description

Provide a qualitative description of the environmental impacts of the no-action alternative and compare the impacts to that of the preferred alternative. (e.g., WTP would remain out of compliance with TCEQ primary drinking water standards, leaky on-site septic systems would continue to contaminate surface water, etc.)

[The No-Action Alternative would have fewer impacts to land use, waters of the U.S. (WOUS) (including wetlands), vegetation and habitat, cultural resources, air quality, and hazardous materials. The No-Action Alternative would have the same level of impact to geology, Prime and Important farmland, and environmental justice groups. The No-Action Alternative would have a greater impact to water resources and the community as a whole as it would not provide a second source of potable water to meet the growing demand of the community nor provide an alternative water supply source to reduce the District's reliance on surface water currently being purchased from GBRA. ]

## Section 4: Alternative Analysis

### No-Action Alternative

#### Environmental Impact Analysis

Please indicate whether the direct impacts of the no-action alternative on the following resources are greater than, less than or the same as the direct impacts of the preferred alternative on the same resource.

#### Land Use

Change in land use and land cover is:  Greater  Less  Same

#### Prime and Important Farmland

Impacts to prime and important farmland are:  Greater  Less  Same

#### Water Resources

Impacts to surface water quality are:  Greater  Less  Same

Impacts to groundwater quality and quantity are:  Greater  Less  Same

Impacts to floodways or floodplains are:  Greater  Less  Same

Impacts to wetlands are:  Greater  Less  Same

#### Vegetation and Habitat

Impacts to trust resources are:  Greater  Less  Same

Impacts to wildlife are:  Greater  Less  Same

Impacts to native vegetation is:  Greater  Less  Same

Impacts to endangered species habitat are:  Greater  Less  Same

#### Cultural Resources

Impacts to cultural resources or historic properties are:  Greater  Less  Same

#### Air Quality

Effects on air quality are:  Greater  Less  Same

#### Environmental Justice

Impacts to Low-income or Minority Populations are:  Greater  Less  Same

## Section 4: Alternative Analysis

### No-Action Alternative

**Secondary and Cumulative Impacts:** Considering resources that the no-action alternative will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

[The No-action Alternative is not likely to have any secondary or cumulative impacts on land use, conversion of farmland, environmental justice populations or demographic changes, noise, air quality, floodplains, jurisdictional WOUS, vegetation communities, or wildlife habitat within the project area. The No-Action Alternative may cause direct impacts to future residential and commercial development within the project area, because Port O'Connor has reached the limit of permissible connections relative to water supply].

#### Acceptance/Rejection

**Alternative:**     Accepted         Rejected

#### Rationale for Acceptance/Rejection

Discuss the rationale for acceptance/rejection of the no-action alternative, including financial, engineering and environmental considerations (e.g. cost comparison, reliability of alternative, complexity of alternative, significant environmental effects, legal or institutional constraints, etc.):

[The District desires to greatly reduce its reliance on GBRA and to increase the use of locally obtained groundwater to supply potable water to the District. The No-Action Alternative would not provide an alternative water source to increase capacity of the potable water system and allowable connections for the residents of Port O'Connor and thus not meet the project purpose and need, therefore, the No-Action Alternative was rejected as a practicable and feasible alternative.]

## Section 4: Alternatives Analysis Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

### Description

Please provide a description of this alternative:

[There are no other alternatives to the proposed action that would meet the project purpose and need and be financially feasible. The number of wells (5) to be drilled is based on the quantity of water needed to meet future demands of the Port O'Connor community with an anticipated individual well capacity of 250 gpm, maximum of 300 gpm. The location of the individual wells was predicated on property access and an effort to maximize the distance between the individual wells. The District was notified by the GBRA of their intent to rehabilitate the existing Port Lavaca water treatment plant at a cost of \$55,000,000. The cost that would have been incurred by the District (local taxpayers) to assist GBRA with upgrading their existing Port Lavaca water treatment plant would have been at least 23.87% of \$55,000,000 or \$13,128,500. By comparison, the proposed project, involving the drilling of local wells by the District and treating the water with reverse osmosis would require a capital expenditure of approximately \$6,000,000; a cost savings of \$7,128,500. Thus, the latter option was chosen as the proposed project alternative.]

Alternative still in consideration?       \*Yes       No

[Not Applicable]

*\*If yes, please note that the level of detail provided for this alternative should be commensurate with the level of detail provided for the preferred alternative presented in this document. Please work with your Environmental Reviewer to scope this document appropriately in order to prevent project delays. |*

### Environmental Impact Description

Provide a qualitative description of the environmental impacts (adverse and beneficial) of this alternative and compare the impacts to that of the preferred alternative. Specify temporary versus permanent impacts.

[As stated above, there are no reasonable alternatives other than the proposed action to be carried forward for further evaluation. |

## Section 4: Alternatives Analysis

### Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

#### Environmental Impact Analysis

Please indicate whether the direct impacts of the alternative not selected on the following resources are greater than, less than or the same as the direct impacts of the preferred alternative on the same resource.

#### **Land Use**

Change in land use and land cover is:  Greater  Less  Same

#### **Prime and Important Farmland**

Impacts to prime and important farmland are:  Greater  Less  Same

#### **Water Resources**

Impacts to surface water quality are:  Greater  Less  Same

Impacts to groundwater quality and quantity are:  Greater  Less  Same

Impacts to floodways or floodplains are:  Greater  Less  Same

Impacts to wetlands are:  Greater  Less  Same

#### **Vegetation and Habitat**

Impacts to trust resources are:  Greater  Less  Same

Impacts to wildlife are:  Greater  Less  Same

Impacts to native vegetation is:  Greater  Less  Same

Impacts to endangered species habitat are:  Greater  Less  Same

#### **Cultural Resources**

Impacts to cultural resources or historic properties are:  Greater  Less  Same

#### **Air Quality**

Effects on air quality are:  Greater  Less  Same

#### **Environmental Justice**

Impacts to Low-income or Minority Populations are:  Greater  Less  Same

## Section 4: Alternatives Analysis

### Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

**Secondary and Cumulative Impacts:** Considering resources that this alternative will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

Not Applicable

#### Acceptance/Rejection

**Alternative:**     Accepted         Rejected

#### Rationale for Acceptance/Rejection

Discuss the rationale for acceptance/rejection of this alternative, including financial, engineering and environmental considerations:

Not Applicable

## Section 4: Alternatives Analysis Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

## Section 4: Alternatives Analysis Selection of the Preferred Action Alternative

Discuss the rationale for why the proposed project was chosen as the preferred alternative:

[Based on the above results from the alternative analysis, Atkins recommends that the District proceed with the proposed project and the installation of 5 new water wells and connecting water lines to offset large quantities of potable surface water that is currently purchased from the GBRA. The proposed project includes the installation of 5 new water wells and new 6-inch and 8-inch connecting water lines via a temporary 24-inch open trench within an existing utility easement along approximately 7,000 LF of Adams Street, Trevor Street, and various private drives, as well as an approximately 3,484-linear foot outfall line via a temporary 30-inch open trench from the reverse osmosis facility to an outfall constructed along the shoreline of the GIWW. The new connecting water lines will terminate at the existing reverse osmosis facility, where the District will construct a new larger capacity reverse osmosis facility as well as a new 135,000 gallon above ground storage tank near the existing 500,000 gallon potable water storage tank . Benefits of this alternative include placement of the new connecting water lines in existing easements, as well as providing the District with facilities with sufficient capacity for a 25-year design horizon. This will be accomplished without an excessive raising of water rates or taxes on the local population that would be required to assist GBRA with upgrading their existing Port Lavaca water treatment plant.] |

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.1: Land Use

#### Existing Conditions

Will the project require land use conversion?  Yes  No

If yes, explain:

The project will require the conversion of land for construction of the new wells, private access roads associated with the new wells, an outfall line, and the 135,000 gallon above ground storage tank.

Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses.

Land use adjacent to the study area includes undeveloped land and developed tracts with a mixture of residential, commercial, and municipal development. The project is considered compatible and consistent with adjacent land use.

Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project?

Yes  No

If yes, describe additional services needed:

As part of the proposed project, private, access roads will be constructed to access the new well pads, outfall line, and the 135,000 gallon above ground storage tanks. However, existing roads within the project area, such as Hwy 185 (Adams Street) and Harrison Avenue, will not need to be upgraded to accommodate the proposed project.

Additionally, the proposed project involves the installation of new connecting water lines within an existing utility easement, an outfall line within a temporary 30-inch open trench, and a new 135,000 gallon above ground storage tank.

#### Impacts

Describe direct impacts of the project (adverse and beneficial) on land use. Specify temporary versus permanent impacts.

Direct effects to land use may include disturbance of some vegetation and previously disturbed areas within the study area. The project includes 0.50 acre of temporary impacts for installation of new connecting water lines to transport raw well water from the new wells to the raw storage tank via a temporary 24-inch open trench in an existing utility easement; and a new outfall line from the reverse osmosis facility to an outfall structure via a temporary 30-inch open trench. The trenched areas will be backfilled, and the affected areas will be returned to their pre-construction contours and re-vegetated as appropriate.

Permanent impacts to land use include the conversion of 0.64 acre of land for the installation of the new wells and well pads, construction of access roads associated with the new wells and outfall line, construction of a new 135,000 gallon above ground storage tank, and expansion of the existing reverse osmosis facility.

<b>Mitigation Measures</b>	
Mitigation Measures for Project Environmental Impacts? If yes, list all mitigation measures in Section 5.14.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.2: Geology

#### Existing Conditions

Physiographic Province:  Gulf Coast Plains  Central Texas Uplift  Grand Prairie  
 Edwards Plateau  North-Central Plains  High Plains  
 Basin and Range

Are there faults within the project's area of interest?  Yes  
 No

Is the project located in a Karst or Pseudo-Karst Zone?  Yes  
 No

Include the names and brief descriptions of the geologic formations in the project's area of interest.

The geologic formations of the study area include the Beaumont Formation of the Quaternary period. Surface geology of the study and surrounding area consists primarily of barrier island deposits (Qbb).

Discuss any relevant topographical and geological features (e.g. salt domes, sink holes, shallow limestone formations, karst conditions, cave systems, etc.).

The project area does not contain any noteworthy topographical or geological features.

#### Impacts

Describe direct impacts of geology on the proposed project. Please elaborate on all items checked "Yes" above:

The proposed project will not have any direct impacts on the geology of the area.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable  
 If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.3: Soils & Prime and Important Farmland

<b>Soils</b>	
Is soil contamination present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does soil type present any constraints to the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes to either above, explain (if redundant with information provided in the Hazardous Materials section reference that section): Not Applicable	
Will soil be moved offsite? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, how will it be disposed of? [Not Applicable]
Will soil become contaminated as a result of the proposed project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, explain: [Not Applicable]
<b>Prime and Important Farmland</b>	
Does the project area contain prime and important farmlands?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, does either of the following exemptions apply? <input type="checkbox"/> Exempt – corridor subsurface project (e.g., buried water, sewage, and/or electric lines). <input type="checkbox"/> Exempt – previously converted site (e.g., existing water and wastewater treatment plant sites).	
If the project area contains prime and important farmlands and does not qualify for the exemptions listed above, include a completed version of the NRCS' Farmland Conversion Impact Rating Form AD-1006 <input type="checkbox"/> Attach Form AD-1006 to Appendix B1	
<b>Impacts</b>	
Will prime and important farmland be directly impacted by the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Describe direct impacts of the project on prime and important farmland: Prime and important farmland is not present within the study area. The soil types present within the study area are listed below: <ul style="list-style-type: none"> <li>• Dianola, frequently flooded-Portalto complex</li> <li>• Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded</li> <li>• Mustang fine sand, 0 to 1 percent slopes, frequently flooded, frequently ponded</li> <li>• Portalto-Roemer occasionally ponded complex, 0 to 3 percent slopes</li> <li>• Veston very fine sandy loam, 0 to 1 percent slopes, low, frequently flooded</li> </ul> None of these soil types are considered prime or important farmland soils.	
<b>Mitigation Measures</b>	
Mitigation Measures for Project Environmental Impacts? If yes, list all mitigation measures in Section 5.14.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.4: Water Resources

#### Existing Conditions

What river basin(s) is the proposed project located in?

The proposed project is located within the Powderthorn Lake-Matagorda Bay watershed (Hydrologic Unit Code [HUC] 121004020500) and the San Antonio Bay-Espiritu Santo Bay watershed (HUC 121004030200).

What major/minor aquifers are located in the greater project area?

The study area lies over the Gulf Coast aquifer. The four major components of the Gulf Coast aquifer, from shallowest to deepest, include the Chicot, Evangeline, Jasper, and Catahoula aquifers.

Are any of these a sole source aquifer?

Yes  No

Water supply(ies):

Surface water(s):

Nearby surface water sources include the GIWW, Live Oak or Boggy Bayou, and Espiritu Santo Bay.

Groundwater(s):

Gulf Coast aquifer's Beaumont Clay, Lissie Formation, and the Chicot aquifer.

#### Water Well Projects

Does the project involve the installation of any water wells?

Yes  No

If yes, provide the depth to ground water, duration and quantity of water to be extracted, and potential affects to the public water supply:

The five (5) new wells will have capacities of 250 gpm for a total well raw water capacity of 1,250 gpm. The wells will pump in rotation. If two wells are pumping at the same time, the distance between the two wells will be over 2,000 feet. If three wells are pumped at the same time, the distance between active wells will still be kept to over 2,000 feet. The additional wells will not constrain the available groundwater supply or drastically lower the groundwater table.

The installation of the new wells and other structures for withdrawing groundwater or lowering of the water table, regardless of location or length of intended service, shall be constructed in accordance with the District's standards.

Will the project require test wells?

Yes  No

Will any existing water well(s) be abandoned?

Yes  No

If yes, discuss best management practices that will be used to abandon the existing well(s):

Not Applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.4: Water Resources

#### Impacts to Water Resources

Will water resources be directly impacted by the project?



Yes



No

Describe direct impacts (adverse and beneficial) to surface water quality and groundwater quality/quantity (surface water runoff, erosion, sedimentation, temporary loss of vegetation cover, etc.). Specify temporary versus permanent impacts.

The District is currently provided with potable water by the GBRA through a transmission main from the surface water treatment plant located near Port Lavaca. The quality of the water meets all primary and secondary constituent levels required by the TCEQ. The District desires to greatly reduce its reliance on GBRA and to increase the use of locally obtained groundwater to supply potable water to the District. The local groundwater does not meet the secondary constituent levels required by TCEQ, primarily Total Dissolved Solids and Chlorides. Thus, the District is proposing to construct five new water wells to augment the groundwater provided by the one existing well owned by the District. To meet secondary constituent levels the District is proposing to expand an existing Reverse Osmosis treatment facility to bring the groundwater into compliance. Therefore, the proposed action would have beneficial and no adverse impacts on groundwater quality.

The total well capacity will be six (6) wells, each capable of pumping up to approximately 300 gpm for a total maximum well capacity of 1,800 gpm. As stated above, the additional wells will not constrain the available groundwater supply or drastically lower the groundwater table.

Temporary potential direct adverse impacts to surface water quality may result from construction-related activities, including the disturbance of some vegetation and previously disturbed areas within the study area. Material from construction of a temporary 24-inch open trench for installation of new connecting water lines and temporary 30-inch open trench for installation of a new outfall line (totaling approximately 0.50 acre) will be placed on adjacent pavement and uplands and could contribute to runoff and sedimentation to surface waters of the GIWW. Impacts associated with trenching activities would be temporary as the trenched areas will be backfilled, and the affected areas will be returned to their pre-construction contours and re-vegetated as appropriate.

Installation of the new wells and well pads, construction of access roads associated with the new wells and outfall line, construction of a new 135,000 gallon above ground storage tank, and expansion of the existing reverse osmosis facility would permanently impact approximately 0.64 acre and may also contribute to increased erosion, runoff, and sedimentation to GIWW. Implementation of sediment erosion controls and construction best management practices (BMPs) during all phases of construction activities, plus development of a Stormwater Pollution Prevention Plan (SWPPP), would minimize potential impacts as required through regulatory compliance.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.4: Water Resources

Will the project include new or relocated discharge site(s)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Will the project require an amendment to an existing TCEQ discharge permit?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<p>If yes, discuss the nature of the permit changes:</p> <p>The District is proposing to construct a new outfall line from the reverse osmosis facility to a new discharge point in the GIWW and will comply with the NPDES program. The six (6) wells will pump raw water into the new 135,000 gallon above ground storage tank. Water from the raw water storage tank will then be pumped to the reverse osmosis facility for treatment to remove constituents in the raw water that exceed TCEQ limits (secondary constituent levels for chlorides (606-800 mg/L) and Total Dissolved Solids (1,400 – 1,500 mg/L). Following treatment, the permeate water will be discharged into the existing 500,000 gallon ground storage tank. The water will be disinfected with chloramines prior to entering the storage tank, distribution lines, and outfall line.</p>			
<p><b>If the project requires a new permit or a permit amendment, list all stream segment(s) found at and immediately downstream of the proposed discharge sites.</b> Source: TCEQ list of stream segments and water quality data.</p>			
Stream Segment ID	Classification	Impaired?	Reason for Impairment
2461	Bay Waters	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Not Applicable
<b>Mitigation Measures</b>			
Mitigation Measures for Project Environmental Impacts?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> Not applicable
If yes, list all mitigation measures in Section 5.14.			

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.5: Topography and Floodplains

Section 5: Environmental Settings, Impacts and Mitigation		
5.5: Topography and Floodplains		
Topography		
Minimum Elevation in Project Area (MSL):	Maximum Elevation in Project Area (MSL):	
1	3	
Briefly describe the topography in the project area (e.g., gently rolling hills, dominant drainage to the west via tributaries to the Brazos River):		
Topography within the project area is generally flat with a consistent elevation of approximately 1 to 3 feet above mean sea level (amsl) with changes in elevation ranging in 5 feet to 15 feet amsl along the riverine feature that crosses Adams Street and the placement area at the southern end near the GIWW.		
Discuss any relevant topographical features (e.g. playa lakes).		
No notable topographical features are present within the project area.		
Floodplains & Floodways		
Is the project site located in a 100-year floodplain?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
If yes, list all streams with floodplains in project area. Specify whether the project will be located within the 100-year floodplain and/or floodway(s) of these streams.		
Stream	Project in 100-year floodplain?	Project in floodway?
GIWW	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Do the communities (cities and/or counties) in which the project will be constructed participate in the National Flood Insurance Program?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
List all participating cities and counties		List all non-participating cities and counties
Port O'Connor, Calhoun County, Texas		
Impacts		
Will floodplains or floodways be directly impacted by the project?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Describe direct impacts of the project (adverse and beneficial) on floodplains and floodways. Specify temporary versus permanent impacts:		
<p>Installation of the new wells and well pads, construction of access roads associated with the new wells and outfall line, construction of a new 135,000 gallon above-ground storage tank, and expansion of the existing reverse osmosis facility would permanently impact approximately 0.64 acre of floodplains. Impacts associated with trenching activities totaling approximately 0.50 acre would be temporary as the trenched areas will be backfilled, and the affected areas will be returned to their pre-construction contours and re-vegetated as appropriate.</p> <p>The new outfall structure or discharge point will be situated above ground and mounted on four (4) 8-inch x 8-inch pilings. Two (2) pilings for the above ground outfall structure will be installed in the shallow waters of the GIWW via the "pile jetting" methodology. To stabilize the immediate shoreline in the area of this portion of the outfall line, the District proposes to install approximately 15 CY of crushed rock along 12 LF of the shoreline below the mean high water (MHW) to provide erosion control on the shoreline of the GIWW.</p>		

**Section 5: Environmental Settings, Impacts and Mitigation**  
**5.5: Topography and Floodplains**

The contractor will obtain a Development Permit from Calhoun County for new construction or expansion of an existing structure within a floodplain prior to project construction. |

**Mitigation Measures**

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

*Information included in this template represents baseline information pertinent to the majority of projects. Regulatory agencies, including the USACE, may require additional information to determine permitting or mitigation requirements.*

List all applicable U.S. Army Corps of Engineers permits for the project (general and/or individual):  
 U.S. Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Nationwide Permit (NWP) #7 (Outfall Structures and Associated Intake Structures), #12 (Utility Line Activities), and #13 (Bank Stabilization).

Will any of the applicable permits require pre-construction notification?  Yes  No

If yes, which one(s):  
 The USACE CWA Section 404 NWP #7 and #12 will require pre-construction notification.

Are streams present on the project site or in the project area (perennial, ephemeral, intermittent)?  
 Yes  No

If yes, list all streams in the project area.

Atkins completed a waters of the U.S. survey of an approximately 12.1-acre area within the study area for the proposed project (refer to Figure 2 in Appendix B-2). Four potentially jurisdictional waterbodies were observed within the 12.1-acre survey area: GIWW and three (3) roadside drainage ditches. The portion of the survey area that extends into the GIWW covers approximately 0.007 acre. The roadside drainage ditch (Ditch 1) runs along the north side of Hwy 185 (Adams Street) and is approximately 337 LF. The ditch is occupied 100 percent by wetland vegetation (0.18 acre), except in the piped underground culverts that hydrologically connect the sections under driveways. The roadside drainage ditch (Ditch 2) runs alongside the southern edge of Hwy 185/Adams Street, is approximately 459 LF, and is also occupied by 100 percent wetland vegetation (0.45 acre). The roadside drainage ditch (Ditch 3) runs along Trevor Street and is not occupied by wetland vegetation. A summary of these potential waterbodies is provided in Table 3 of the Wetland Delineation Report provided in Appendix B-2.

Are wetlands present on the project site or in the project area?  Yes  No

If yes, discuss the type and quality of wetlands (e.g., forested palustrine, emergent riverine):

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

Three wetlands, one estuarine emergent (E2EM) wetland and three palustrine emergent (PEM), were identified within the 12.1-acre survey area. A summary of each wetland is provided in Table 1 of the Wetland Delineation Report provided in Appendix B-2. In summary, the dominant vegetation observed was representative of a hydrophytic plant community and included seashore saltgrass (*Distichlis spicata*, OBL), saltmeadow cordgrass (*Spartina patens*, FACW), sand spikerush (*Eleocharis montevidensis*, FACW), erect centella (*Centella erecta*, FACW), jungle rice (*Echinochloa colona*, FACW), and marsh fimbry (*Fimbristylis castanea*, OBL).

Has a site wetlands/waters delineation or jurisdictional determination been performed using the applicable USACE Wetland Delineation Manual\*, including regional supplements\*\*?

Yes: If Yes, has it been verified by the USACE?  Yes  No  
 No

\*Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineers Waterways Experimental Station, Vicksburg, MS: Waterways Experiment Station.

\*\*USACE. 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 (ERDC).

\*\*The manual is to be used with the appropriate regional supplement. These supplements and the manual can be found on the following website:

[http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg\\_supp.aspx](http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg_supp.aspx)

If yes, summarize the findings below and attach a copy of the field survey to Appendix B2. **If no**, describe the basis for above statements regarding presence or absence of wetlands and waters of the U.S..

Atkins completed a waters of the U.S. assessment, including wetlands, within a 12.1-acre survey area within Port O'Connor in Calhoun County on March 3<sup>rd</sup> and 4<sup>th</sup> and June 27<sup>th</sup>, 2020. Four wetlands and four waterbodies were identified within the survey area (refer to the figures 7a-7e in Appendix B2). One wetland is immediately adjacent to the GIWW (Wet 01), two wetlands are entirely within two drainage features (Wet 02, Ditch 1; Wet 03, Ditch 2), and one wetland is adjacent to the unnamed stream (Wet 04). All 1.082 acres of emergent wetlands, 853.49 linear feet of the roadside ditches, and 0.007 acre of GIWW are considered potentially jurisdictional under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act. Atkins' potential jurisdictional status is based on best professional judgment; only the USACE can make the final decision on jurisdictional determination.

#### Impacts

Will wetlands be impacted?  Yes  No | Will streams be impacted?  Yes  No

Are any of the impacted wetlands/streams in the project area tidally influenced?  Yes  No

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

Describe direct impacts of the project (adverse & beneficial) on streams and wetlands (e.g., fill, dredging, dewatering, surface water runoff, other pollutants, etc.). Specify temporary versus permanent impacts.

Based on Atkins' jurisdictional determination, approximately 0.066 acre of wetland and 0.003 acre of open water will be permanently impacted by the proposed activity. Approximately 0.055 acre of wetlands and 56.91 LF of Ditch 3 would be temporarily impacted by the proposed activity. Temporary direct impacts to wetlands will be minimized through the use of silt fences and returned to their pre-construction contours and re-vegetated as appropriate.

During development of the project design, direct impacts to wetlands and other WOUS were avoided and/or minimized to the greatest extent practicable, per the requirements of Section 404 of the CWA. The proposed project impacts to jurisdictional wetlands are less than 0.5 acre, does not include the loss of no more than 300 linear feet of streambed, and may be permitted by the USACE under NWP #7 for Outfall Structures, NWP #12 for Utility Line Activities, and NWP #13 for Bank Stabilization. All utility lines placed within a jurisdictional area (i.e., waters of the U.S.) under NWP #12 are required to submit a Pre-Construction Notification (PCN). The proposed project will not result in the permanent loss of greater than 0.1 acre of wetlands; therefore, compensatory mitigation is not required.

#### Stream/Wetland Impacts (if applicable) \*add rows if needed

#### This section must be accompanied by a Stream/Wetland Impact Map:

The map must include a topographic background with footprint of the project overlain. Assign a number to each stream/wetland in the project footprint and label each on the map (e.g., S1, S2, W1, W2).

Attach the map to Appendix B2

#### Stream Impacts:

Include all streams in project footprint even if impact is zero feet

# Keyed to Map (S1, S2,...)	Temporarily impacted		Permanently impacted	
	All Streams [linear ft]	Potential Waters of U.S. (streams only) [linear ft]	All Streams [linear ft]	Potential Waters of U.S. (streams only) [linear ft]
D-1	337.33	Same as WET 02	337.33	Same as WET 02
D-2	459.25	Same as WET 03	459.25	Same as WET 03
D-3	56.91	56.91	56.91	0
<b>Total Stream Impacts (feet):</b>	<b>853.49</b>	<b>56.91</b>	<b>853.49</b>	<b>0</b>
GIWW	0.007	0	0.007	0.003
<b>Total OW Impacts (ac)</b>	<b>0.007 ac</b>	<b>0</b>	<b>0.007 ac</b>	<b>0.003 ac</b>

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

#### Wetland Impacts:

Include all wetlands in project footprint even if impact is zero acres.

# Keyed to Map (W1, W2,...)	Temporarily impacted		Permanently impacted	
	All Wetlands [ac]	Potential Waters of U.S. (wetlands only) [ac]	All Wetlands [ac]	Potential Waters of U.S. (wetlands only) [ac]
WET 01	0.002	0	0.002	0.002
WET 02	0.18	0.003	0.18	0.018
WET 03	0.45	0.048	0.45	0.020
WET 04	0.45	0.004	0.45	0.026
<b>Total Wetland Impacts (acres):</b>	<b>1.082</b>	<b>0.055</b>	<b>1.082</b>	<b>0.066</b>

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes     Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.7: Biological Elements

Ecoregion:	<input type="checkbox"/> Arizona/New Mexico Mtns. <input type="checkbox"/> Chihuahuan Deserts <input type="checkbox"/> High Plains <input type="checkbox"/> Southwestern Tablelands	<input type="checkbox"/> Central Great Plains <input type="checkbox"/> Cross Timbers <input type="checkbox"/> Edwards Plateau <input type="checkbox"/> Southern Texas Plains	<input type="checkbox"/> Texas Blackland Prairies <input type="checkbox"/> East Central Texas Plains <input checked="" type="checkbox"/> Western Gulf Coastal Plain <input type="checkbox"/> South Central Plains
<p><b>Using USFWS and TPWD County Lists of Rare, Candidate, Threatened and Endangered Species, create a table of potential impacts with the following columns:</b></p> <p>(1) Species (common and scientific names), (2) State/federal protection status, (3) Habitat, (4) Presence of Critical Habitat, (5) Project Site Suitability, and (6) Potential Impacts of Project</p> <p>Attach the Potential Impacts Table to Appendix B3</p>			
Has a biological field survey been performed?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>If yes, summarize the finding below. Attach report to Appendix B3, if applicable – exclude report from publicly available documents to protect location sensitive information.</p> <p>Atkins surveyed an 12.1-acre area within the vicinity of the proposed project on March 3<sup>rd</sup> and 4<sup>th</sup>, 2020, for the presence of threatened or endangered species and/or their habitat. A formal presence/absence survey for listed species was not conducted. No listed species were observed in the survey area at the time of the field investigation and no critical habitat occurs within or near the study area.</p> <p>The results of the survey are provided in Appendix B-3. In summary, proposed project activities, specifically, installation of two (2) of the four (4) pilings for the aboveground outfall structure in the shallow waters of the GIWW, have the potential to <i>may affect, but not likely to adversely affect</i> three (3) of the 12 federally-listed species listed in Table 1: the threatened green sea turtle (<i>Chelonia mydas</i>), the endangered Kemp’s ridley sea turtle (<i>Lepidochelys kempii</i>), and the threatened loggerhead sea turtle (<i>Caretta caretta</i>).</p> <p>Of the state-list species, the surveyed area contains marginally suitable habitat for one endangered (Kemp’s ridley), four threatened (green sea turtle, loggerhead sea turtle, reddish egret [<i>Egretta rufescens</i>], white-faced ibis [<i>Plegadis chihi</i>]) and 16 Species of Greatest Conservation Need (SGCN) species (refer to Table 2 in Appendix B-3). The measures or recommendations outlined in the report and in Sections 5.13 and 5.14 herein will be implemented by the contractor to minimize potential impacts to the federally-listed species and to the state’s fish and wildlife resources during construction and operation of the proposed project. Therefore, the proposed project is unlikely to pose any adverse effects on these species.</p>			
Are any parks, recreational areas, forest preserves, grassland preserves, wildlife refuges, wild or scenic rivers, karst faunal regions or zones, or nature preserves (federal, state or local; public or private) in or near the project area?			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, list and describe proximity to project site: Not Applicable			

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.7: Biological Elements

Briefly describe the vegetation and wildlife, including aquatic species, present in the project site and project area.

\* Do not include protected species addressed in the potential impacts table.

At the time of the field investigation, the survey area consisted of one tidally influenced, estuarine emergent wetland; two palustrine wetlands; roadside ditches that were 100 percent covered by emergent wetland vegetation with indication of regular mowing; grassy fields with indication of mowing and other human disturbance; paved roadway lined with utility poles; and multiple privately-owned agricultural areas with cattle and other signs of disturbance (e.g., driving paths). Soils observed were mainly sand. There was no surface water in the wetlands or ditches and no flow within the roadside ditches. Vegetation within the area was primarily herbaceous, with some trees in the cow pastures. Land use in the vicinity of the proposed project is industrial, commercial, and residential with predominant agricultural use.

Wildlife observed within the survey area during the field investigation included various bird species, such as the black vulture, killdeer, cardinal, crow, and brown-headed cowbirds. In addition, crayfish burrows and many gopher burrows were also observed.

#### Impacts

Discuss potential impacts (adverse and beneficial) to trust resources, wildlife and natural vegetation, including habitat. Provide information about the nature, extent, duration and location of the impacts. Specify temporary versus permanent impacts.

\* Do not include protected species already addressed in the potential impacts table.

The project includes 0.50 acre of temporary impacts to vegetation, including marginally suitable habitat (refer to the field photos in Attachment B of Appendix B-3), for installation of new connecting water lines to transport raw well water from the new wells to the raw storage tank via a temporary 24-inch open trench in an existing utility easement; and a new outfall line from the reverse osmosis facility to an outfall structure via a temporary 30-inch open trench. The trenched areas will be backfilled, and the affected areas will be returned to their pre-construction contours and re-vegetated as appropriate.

Permanent impacts to natural vegetation, including marginally suitable habitat, includes the conversion of 0.64 acre of land for the installation of the new wells and well pads, construction of access roads associated with the new wells and outfall line, construction of a new 135,000 gallon above ground storage tank, and expansion of the existing reverse osmosis facility.

No trust resources are located within or adjacent to the 12.1-acre survey area. The proposed project is unlikely to pose any adverse effects on threatened and endangered species and/or their habitat, including critical habitat. As stated above, the measures or recommendations outlined in the report will be implemented by the contractor to minimize potential impacts to listed species and to the state's fish and wildlife resources during construction and operation of the proposed project.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.7: Biological Elements

If present in or near the project area, discuss potential impacts to any parks, recreational areas, forests preserves, grasslands preserves, wildlife refuges, wild or scenic rivers, karst faunal regions or zones, or nature preserves (federal, state or local; public or private):

Not Applicable

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.8: Cultural Resources

Have you notified the State Historic Preservation Officer (SHPO) at the Texas Historical Commission that you intend to use the NEPA process to comply with Section 106 of the National Historic Preservation Act?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Identify parties that were consulted regarding cultural resources, including Tribal Historic Preservation Officers (THPO), the federal Advisory Council on Historic Preservation (ACHP), local governments, or any other interested parties. Texas Historical Commission (THC) and USACE 	
Has an archeologist and/or an architectural historian performed a desktop review of the proposed project?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Identify cultural resources/historic properties (included in or eligible for inclusion in the National Register of Historic Places) within the proposed project's area of impact. The results of the cultural resources background review identified the Port O'Connor Historic Texas Cemetery and associated Official Texas Historical Marker within 1 km of the Area of Potential Effect (APE), refer to Appendix B-4. 	
Has an archeological and/or architectural survey been conducted?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If Yes, briefly summarize the results of the report(s) and attach them to Appendix B4, if applicable – exclude report from publicly available documents to protect location sensitive information. The cultural resources investigation did not result in the identification of cultural resources/historic properties. 	
Does the project have the potential to affect significant cultural resources/historic properties?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If you have determined that historic properties will not be impacted, explain how this conclusion was reached. This conclusion was reached based upon: 1) the negative findings of the cultural resources investigation, 2) the professional experience of the Principal Investigator, and 3) anticipated concurrence of the cultural resources investigation report by the THC.	
Describe direct impacts (adverse and beneficial) of the project on cultural resources/historic properties. Specify temporary versus permanent impacts. As no cultural resources/historic properties were identified with the APE for direct effects, no direct impacts (adverse and beneficial) of the property on cultural resources/historic properties is anticipated. <i>However, should</i>	

**Section 5: Environmental Settings, Impacts and Mitigation**  
**5.8: Cultural Resources**

*cultural resources/historic properties, or human remains be identified during construction, the work should cease immediately in the vicinity of the resource, the discovery reported to the THC and action taken as directed by the THC.*

**Mitigation Measures**

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.9: Hazardous Materials

The TWDB does not fund the testing, remediation, removal, disposal, or related work for contaminated or potentially contaminated material.

Is there a Superfund Site in the project area or in an area associated with the proposed work (e.g., Superfund site upstream of project activities in a floodplain)?

No superfund sites were identified in the project area or in an area associated with the proposed work.

Was a site assessment conducted?

Yes  No

If a formal site assessment was conducted please attach the report and/or data search to Appendix B5.

Attached  
 Not Applicable

If an informal site assessment was conducted, please briefly describe methods and results. Make sure to identify any potential environmental hazards located on the site due to past site uses (e.g. soil contamination or proximity to nearby hazardous liquid or gas pipelines) :

An evaluation of a database search that describes previously recorded hazardous materials or Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs), or Historical Recognized Environmental Conditions (HRECs) within and adjacent to the project area was conducted. In addition, a preliminary site visit was performed by Atkins on March 3<sup>rd</sup> and 4<sup>th</sup> 2020.

According to the regulatory agency database report provided by GeoSearch and subsequent review of Federal and State database records for the subject property by Atkins, four identified REC sites were located within an applicable search radius for the subject property (refer to Table 1 in Appendix B-5).

The site visit revealed evidence of limited dumping and material storage along Trevor Street, which is considered *de minimis* debris. Also, storage tanks associated with Map ID 3 (Port O'Connor Terminal 1, now occupied by the Martin Midstream facility, refer to Radius Map 1 in Appendix B-5) were observed with no reported or visible leaks or spills. There were no indications in the former dredge material placement unit area of any concerns related to petroleum products or hazardous substances. The remaining portions of the project area did not reveal the presence of any RECs.

No HRECs or CRECs were identified for the subject property.

Based on the findings of Atkins' review, no RECs were identified that could impact the project area, and additional investigations are not recommended at this time.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.10: Social Implications & Environmental Justice

#### Social Implications

Will land acquisition for the project require the use of eminent domain?  Yes  No

If yes, describe:

Not Applicable

Will people or businesses be relocated as a result of this project?  Yes  No

If yes, describe the extent and nature of the relocations.

Not Applicable

Will the project cause an increase in resident's monthly service rates?  Yes  No

If yes, provide an estimate of an average monthly residential bill and the anticipated monthly residential increase required to finance the debt.

Average Monthly User Rate: \$Not Applicable

Anticipated Increase: \$Not Applicable

Will the project require an increase in taxes to finance the debt?  Yes  No

If yes, provide an estimate of the increase required:

Not Applicable

#### Environmental Justice

Area	Population	% Minority	% Below the Poverty Level/ Per Capita Income
State: Texas	28,995,881	58.8%	14.9% / \$30,143
County: Calhoun	21,290	58.2%	14.2% / \$26,596
Project Area (0.5 mile buffer)	971	12.3%	14.3% / Not provided

Does the project area have a portion of the population, greater than the city, county or state average, who are members of a racial/ethnic minority category or who have incomes less than or equal to the state's official poverty level?  Yes  No

#### Impacts

Will the project disproportionately impact low-income or minority populations?  Yes  No

Please explain: Not Applicable

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.11: Other Potential Impacts or Requirements

<b>1. Air Quality:</b> Is the project in a maintenance or non-attainment area for any priority air pollutant under the federal Clean Air Act?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, describe the impact the project will have on ambient air quality. As of August 31, 2020, Calhoun County, Texas is listed as a county that is currently in attainment for all criteria pollutants ( <a href="https://www3.epa.gov/airquality/greenbook/anayo_tx.html">https://www3.epa.gov/airquality/greenbook/anayo_tx.html</a> ). There may be short-term localized effects to air quality (e.g., increase in dust, diesel exhaust) during construction in the immediate area adjacent to the proposed project activities. However, the project is not likely to significantly impact ambient air quality within the project area during construction or operation of the new water wells, larger capacity reverse osmosis facility, new potable water ground storage tank or associated infrastructure.	
<b>2. Scenic Views:</b> Will the project impact scenic views or vistas during construction or operation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, indicate which scenic views or vistas will be impacted and discuss adverse impacts. Specify temporary versus permanent impacts. No temporary or permanent impacts to scenic views or vistas from implementation of the proposed project features are anticipated during construction or operation.	
<b>3. Traffic:</b> Will construction of this project involve rerouting or controlling traffic?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, describe traffic changes and how long traffic will be disrupted: The majority of the project is located in either upland areas or within an existing utility easement running parallel or adjacent to Adams Street, Trevor Street and various private drives. No temporary or permanent impacts to traffic are anticipated as a result of this project.	
<b>4. Other Potential Impacts:</b> If the project may cause any adverse impacts not addressed by items 1-3, identify and discuss them here (e.g., odor, prevailing winds, noise, blasting, night work, etc.):	
The proposed project may increase noise within the project area during construction. Impacts due to noise during construction should be temporary.	
<b>Mitigation Measures</b>	
Mitigation Measures for Project Environmental Impacts? If yes, list all mitigation measures in Section 5.14.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.12: Secondary and Cumulative Impacts

Considering resources that your project will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

The proposed project is consistent with local community plans and is not likely to impact future land use within the project area. No indirect impact to environmental justice populations or demographic changes to the Port O'Connor community would be expected as a result of the proposed project. Indirect economic benefit of the proposed project includes an additional source of water to increase the capacity of the District's potable water system to meet projected demand for the Port O'Connor community.

Indirect effects to water quality from future development would be minor, if any, because land developers would need to comply with local, state, and federal water quality standards for protection of water quality.

Development within floodplains is likely to occur, but would be subject to federal and local regulations.

Stormwater detention and hydraulic features would offset any fill in the floodplain or increase impermeable cover. Induced development could affect waters of the U.S., including wetlands. Similar to the proposed project, any future development would need to comply with Section 404 of the CWA for any impacts to jurisdictional waters of the U.S., including wetlands. |

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.13: Standard Mitigation, Precautionary Measures and Best Management Practices

Describe any standard mitigation, precautionary measures and best management practices to be used during project construction (e.g., storm water pollution prevention plan, re-vegetation, dust and siltation control, establish original grades in floodplains, etc.).

- Section 5.4: Water Resources - Implementation of sediment erosion controls and construction best management practices (BMPs) during all phases of construction activities, plus development of a Stormwater Pollution Prevention Plan (SWPPP), would minimize potential impacts as required through regulatory compliance.
- Section 5.5: Topography and Floodplain - The contractor will obtain a development permit from Calhoun County for new construction or expansion of an existing structure within a floodplain prior to project construction.
- Section 5.5: Wetlands, Streams, and Waters of the United States
  - Temporary direct impacts to wetlands will be minimized through the use of silt fences and returned to their pre-construction contours and re-vegetated as appropriate.
  - To comply with Section 404 of the CWA, under NWP #7 for Outfall Structures and NWP #12 for Utility Line Activities, the District will need to submit a Pre-Construction Notification (PCN) prior to construction within waters of the U.S.
- Section 5.7: Biological Elements
  - Use and placement of sediment control fence to exclude wildlife from the construction area. The exclusion fence shall be buried at least six inches and be at least 24 inches high. The exclusion fence shall be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated. Construction personnel shall examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities.
  - Use of erosion and seed/mulch stabilization materials, such as no-till drilling, hydromulching and/or hydroseeding, for disturbed areas within the proposed project area to avoid entanglement hazards to snakes and other wildlife species.
  - Regarding trenching/excavation and backfilling, any open trenches or excavation areas shall be covered overnight and/or inspected every morning to ensure no reptiles or other wildlife species have been trapped. Trenches left open for more than two daylight hours shall be inspected for the presence of trapped wildlife prior to backfilling. If trenches/excavation areas cannot be backfilled the day of initial excavation, then escape ramps (short lateral trenches or wooden planks sloping to the surface at an angle less than 45 degrees (1:1)) shall be installed at least every 90 meters.
  - If clearing occurs during nesting season, nest surveys shall be conducted prior to clearing. Nest surveys shall be conducted no more than 5 days prior to construction in order to maximize

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.13: Standard Mitigation, Precautionary Measures and Best Management Practices

detection of active nests. If nests are observed during surveys, a vegetation buffer area of no less than 150-feet in diameter shall remain around the nest until all young have fledged.

- To minimize disturbance to streams/wetlands and to minimize impacts to aquatic life, the project proponent shall only allow personnel and equipment to enter these areas when essential to the work being done. Only vegetation impeding construction shall be removed, equipment shall not be driven over vegetation when it is wet, and heavy machinery shall not be stored on vegetative cover for long periods of time.
  - Erosion and sedimentation control materials shall adhere to the guidelines presented in the General Construction Recommendations section, above, and shall be properly installed and maintained.
  - To enhance the function and aesthetics of the site, and to contribute to conservation efforts, the project proponent shall revegetate ROW and associated facilities with site-specific native vegetation and vegetation which provides habitat for pollinator species.
  - If during construction, the project area is found to contain rare species, natural plant communities, or special features, measures shall be taken to avoid impacts to them.
  - Project proponent shall report encounters of protected and rare species to the TXNDD according to the data submittal instructions found at the TPWD Texas Natural Diversity Database: Submit Data webpage.
- Section 5.8: Cultural Resources - Should cultural resources/historic properties, or human remains be identified during construction, the work should cease immediately in the vicinity of the resource, the discovery reported to the THC and action taken as directed by the THC

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.14: Mitigation Measures

Provide a list of potential adverse impacts of the proposed project and a description of how those impacts will be avoided, minimized, or mitigated. This list will be used to develop conditions for the environmental determination issued by the TWDB. Please ensure the information is consistent with what was provided to regulatory agencies and incorporates applicable agency recommendations. When responding to recommendations provided by regulatory agencies, identify which are feasible and which will not be implemented.

Impact:	Recommended/Required by What Entity? (if applicable)	Mitigation Measures Description:
<p><i>May affect, but not likely to adversely affect three (3) federally-listed sea turtle species from installation of the 2 pilings in the shallow waters of the GIWW</i></p>	<p><i>NFMS and USFWS</i></p>	<p><i>Following conservation measures will be implemented to avoid and minimize impacts to listed sea turtle species within and adjacent to the GIWW:</i></p> <ul style="list-style-type: none"> <li><i>• Biological monitors will be onsite during construction activities.</i></li> <li><i>• Personnel associated with the project will be instructed of the potential presence of sea turtles, the need to avoid collisions with these species, and are responsible for observing water-related activities for the presence of these species.</i></li> <li><i>• Personnel will also be advised of penalties related to harming, harassing, or killing these species.</i></li> <li><i>• If a sea turtle is seen within 100 yards of the active daily construction, appropriate precautions will be implemented to ensure its protection, including the cessation of operation of any moving equipment closer than 50 feet of a sea turtle and immediate cease of mechanical construction equipment within a 50-ft radius, only to be resumed when the species has left the area of its own volition.</i></li> <li><i>• Any collision with and/or injury will be reported immediately to the National Marine Fisheries Service's Protect Resources Division (727-824-5312) and the local authorized standing/rescue organizations: Sea Turtle Stranding and Salvage Network (361-949-8173 ext. 226).</i></li> </ul>

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.15: References

Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineers Waterways Experimental Station, Vicksburg, MS: Waterways Experiment Station.

GeoSearch. 2020. *Radius Report*. Port O'Connor, Calhoun County, Texas. Prepared for Atkins. February 2020.

Texas Commission on Environmental Quality (TCEQ). 2020. AREA: Current Attainment Status.

<https://www.tceq.texas.gov/airquality/sip/hgb/hgb-status>. Accessed on August 2020.

U.S. Army Corps of Engineers (USACE). 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 (ERDC).

## Section 6: Public Participation

### PUBLIC MEETING

1. Does the project or activities involve a probable or known public controversy?  Yes  No  
If yes, please contact your TWDB environmental reviewer for the public hearing guidance.
2. **Notify the Public:** Public participation is required to inform the public of potential social, economic or environmental impacts of the proposed project. The applicant must notify the public of the meeting by advertisement in a newspaper of general circulation within the project area at least thirty (30) days prior to the date of the meeting. The 30-day period may count either the day of the advertisement or the day of the meeting, but not both.
3. **Notify requisite agencies and interested parties:** A written notice of the meeting should be sent to any state, federal or local agency, government, organization or individual that has an interest in the proposed project.
4. **Floodplain/Wetland:** If the proposed action is located in a wetland and/or the 100-year floodplain (500-yr floodplain for critical actions), you are required to notify the public and involve the affected and interested public in the decision making process. Incorporate a discussion of alternatives to construction in the floodplain/wetlands, potential impacts and proposed mitigation measures into the public meeting.
5. **Public Meeting Notice Includes:**
  - Published 30 days in advance of meeting
  - Date, time and place of meeting
  - Brief description of project & floodplain/wetland notice (if applicable)
  - Cost, including estimated monthly bill and any connection fee, tax or surcharge
  - Convenient local source for EID (available at least 30 days prior to meeting)
  - Statement of Purpose: "One of the purposes of this meeting is to discuss the potential environmental impacts of the project and alternatives to it."

#### **Example Public Meeting Notice:**

A public meeting is being held on \_\_\_\_\_ (day, date) \_\_\_\_\_ at \_\_\_\_\_ (time) \_\_\_\_\_ at \_\_\_\_\_ (location, address) \_\_\_\_\_ to discuss the \_\_\_\_\_ city/district \_\_\_\_\_'s proposed project to \_\_\_\_\_ (project description) \_\_\_\_\_ at \_\_\_\_\_ (project location) \_\_\_\_\_. One of the purposes of this hearing is to discuss the potential environmental impacts of the project and alternatives to it. The total estimated cost of the project is \$\_\_\_\_\_. The estimated monthly bill for a typical resident is currently \_\_\_\_\_. A user rate increase of \_\_\_\_\_ will be required to finance this project. *In addition, a connection fee/tax/surcharge/other fee of \$\_\_\_\_\_ will be required.* An application for financial assistance for the project has been (*will be*) filed with the Texas Water Development Board, P.O. Box 13231, Austin, Texas, 78711-3231. An Environmental Information Document for the project has been prepared which will be available for public review at \_\_\_\_\_ (city hall/district offices) \_\_\_\_\_ at \_\_\_\_\_ (address) \_\_\_\_\_ between the hours of \_\_\_\_\_ (hours) \_\_\_\_\_ for 30 days following the date of this notice. Written comments on the proposed project may be sent to \_\_\_\_\_ (address) \_\_\_\_\_ or to the Texas Water Development Board.

#### **Floodplain/Wetland: Incorporate into Public Meeting Notice for projects in a floodplain or wetland**

This project involves construction (a) of a critical facility in the 500-year floodplain, (b) in the 100-year floodplain, or (c) construction located in a wetland. Alternatives to construction in a floodplain/wetland, potential impacts on floodplains/wetlands and proposed mitigation measures will be addressed during the public meeting. |

6. **Public Meeting Documentation**

- Publisher's affidavit and a copy of the notice
- Statement signed by applicant: meeting was held in conformance with the Public Meeting Notice.
- List of witnesses
- Written summary of the meeting |

7. **Were adverse comments about any aspect of the project received?**

Yes

No

If yes, describe how they were resolved: | |

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## Section 7: Agency Coordination

When coordinating with an agency, send hard copies by public carrier with delivery confirmation requested. Retain copies of those confirmations. When a response is not received from an agency, documentation of the delivery must be included with the coordination materials submitted to the TWDB. All agency coordination should be included in Appendix C and should be presented in the same order as the following table.

Mailing addresses for the following agencies are provided online at:

<http://www.twdb.texas.gov/financial/instructions/doc/addresses.pdf>

### Uniform Project Notification Requirements

Bureau of Reclamation	<input type="checkbox"/> Sent	<input checked="" type="checkbox"/> <i>Response</i> (Not required)	Page: C-
Bureau of Land Management	<input type="checkbox"/> Sent	<input checked="" type="checkbox"/> <i>Response</i> (Not required)	Page: C-
Intergovernmental Review: Depending on the nature and location of the proposed project, notification should be sent to the City Mayor, County Judge or both.	<input type="checkbox"/> Sent	<input checked="" type="checkbox"/> <i>Response</i> (Not required)	Page: C-

### Uniform Agency Coordination Requirements

Texas Historical Commission	<input checked="" type="checkbox"/> Sent	<input checked="" type="checkbox"/> Response	Page: C-   1
U.S. Army Corps of Engineers	<input checked="" type="checkbox"/> Sent	<input type="checkbox"/> Response	Page: C-
Texas Parks and Wildlife Department Wildlife Habitat Assessment Program	<input checked="" type="checkbox"/> Sent	<input type="checkbox"/> Response <input type="checkbox"/> Response to TPWD recommendations indicating which recommendations will be implemented.	Page: C-

### Circumstantial Requirements

Use the following questions to determine if coordination is required regarding potential impacts to the resource identified. If Yes, provide the page number for coordination materials.

<p>Will the project adversely affect federally listed threatened or endangered species or their critical habitat?</p> <p><input type="checkbox"/> No effect (no coordination required)</p> <p><input checked="" type="checkbox"/> Not likely to adversely affect</p> <p><input type="checkbox"/> Likely to adversely affect</p>	<p>U.S. Fish and Wildlife Service Division of Ecological Services</p> <p><u>If not likely</u>, concurrence that adverse effects have been adequately mitigated <b>recommended</b></p> <p><u>If likely</u>, formal Section 7 consultation <b>required</b></p> <p>Page: C-  </p>
<p>Will the project impact prime and important farmlands?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No    <input type="checkbox"/> Exempt (pipeline project, existing site)</p>	<p>U.S. Department of Agriculture Natural Resources Conservation Service</p> <p>If Yes, Page: C-  </p>

## Section 7: Agency Coordination

<p>Is the project located within or directly adjacent to a national forest or grasslands? Does the project share a surface water connection that may impact these resources?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>U.S. Forest Service National Forest or Grasslands If Yes, Page: C-       </p>
<p>Is the project located within or directly adjacent to National Park Service Lands? Does the project share a surface water connection that may impact these resources? Does the proposed project have the potential to impact view sheds, natural sounds, night skies, or air quality of any NPS units or National Historic Landmarks?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>National Park Service Environmental Quality Division If Yes, Page: C-       </p>
<p>Wild and Scenic Rivers: coordination is required for all projects located in one of the following counties: El Paso, Brewster, Crane, Crocket, Culberson, Edwards, Hudspeth, Jeff Davis, Loving, Pecos, Presidio, Reeves, Schleicher, Sutton, Terrell, Upton, Val Verde, Ward and Winkler.</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>National Park Service Big Bend National Park, Rio Grande Wild &amp; Scenic River If Yes, Page: C-       </p>
<p>Is the project site within the floodplain or adjacent to the channel of the Rio Grande River OR located in, or directly adjacent to, the IBWC's flood control projects in Texas?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>International Boundary and Water Commission (U.S. Section) Environmental Management Division If Yes, Page: C-       </p>
<p>Is the project located within the contributing zone (stream flow source) or recharge zone of the Edwards Aquifer?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>Environmental Protection Agency Groundwater/UIC Section (6WQ-SG) If Yes, Page: C-       </p>
<p>Is the project located in, or directly adjacent to, tidal waters or tidally influenced wetlands?</p> <p><input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No</p>	<p>National Marine Fisheries Service Habitat Conservation Division If Yes, Page: C-       </p>
<p>Is the project located in a coastal management zone?</p> <p><input checked="" type="checkbox"/> Yes    <input type="checkbox"/> No</p>	<p>General Land Office If Yes, Page: C-       </p>
<p>Will the proposed project affect any known organizations or private entities?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>Coordination with the affected party(s) is required. If Yes, Page: C-       </p>

## Section 7: Agency Coordination

<p><u>For communities that participate in the NFIP:</u></p> <p>Is the project is located in the 100-year floodplain (1% chance of flooding)?</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>Does the project involve construction of a critical facility (WTP, WWTP, etc.) in the 500-year floodplain (0.2% chance of flooding)?</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p><b>**Any construction in the 100-year floodplain and construction of critical facilities in the 500-year floodplain requires a Floodplain Development Permit. Floodplain Development Permits must be acquired prior to TWDB approval of engineering plans and specifications and release of construction funds.</b></p>	<p>National Flood Insurance Program Local Floodplain Administrator</p> <p>If Yes, Page: C-         </p>
<p><u>For communities that DO NOT participate in the NFIP:</u></p> <p>Does the project involve construction in the 100-year floodplain or construction of a critical facility in the 500-year floodplain?</p> <p><input type="checkbox"/> Yes                      <input type="checkbox"/> Exempt: strictly pipeline installation</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Undetermined: no maps available to make determination</p> <p><b>**If the project is not exempt and is (a) located in the 100 year floodplain, (b) involves construction of a critical facility in the 500-year floodplain or (c) no floodplain maps are available for the project area, a Flood Risk Assessment must be prepared.</b></p>	<p><u>Flood Risk Assessment</u></p> <p>The assessment should include an elevation study, risk of flooding determination, and recommendation (build, no build, special accommodations). The assessment must be sealed by a licensed engineer.</p> <p>If Yes, Page: C-         </p>

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## Section 7: Agency Coordination

### Sample Agency Notification Letter

DATE

CONTACT NAME

ADDRESS

See section 7 for agency contact information

RE: Project Notification: Please Review - No Response Required

Dear CONTACT:

The APPLICANT is pursuing federal funding through the Texas Water Development Board's FUNDING PROGRAM for the proposed PROJECT NAME (TWDB PROJECT NUMBER). The purpose of this notification is to identify if the proposed project will have any potential conflicts with projects being implemented by your agency.

Attached to this letter is a document containing general contact information, project description and project maps. A copy of the full Environmental Information Document (EID), which includes background environmental information and a robust analysis of potential impacts, is available upon request.

If you have any questions or need additional information, please contact me at (tel:) [REDACTED] or by e-mail at [REDACTED].

Sincerely,

APPLICANT/CONSULTANT

Enclosure: Section 1 (General Information), Section 3 (Project Description) and Appendix A (Standard Maps) from the EID.

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## Section 7: Agency Coordination

### Sample Agency Coordination Letter

**DATE**

**CONTACT NAME**

**ADDRESS**

See section 7 for agency contact information

RE: NEPA Review Requested for Federally Funded Project  
 Environmental Information Document Available  
 Consultation# \_\_\_\_\_, Date \_\_\_\_\_  
 \_\_\_\_\_ (Project Name) \_\_\_\_\_  
 \_\_\_\_\_ (Applicant) \_\_\_\_\_  
 \_\_\_\_\_ (Project Location) \_\_\_\_\_

Dear **CONTACT**:

The **APPLICANT** is pursuing federal funding through the Texas Water Development Board's **FUNDING PROGRAM** for the proposed **PROJECT NAME (TWDB PROJECT NUMBER)**. The purpose of this coordination is to identify potential environmental and permitting issues: specifically, permits or mitigative measures required to ensure compliance with environmental regulations specific to your agency's area of jurisdiction.

The attached Environmental Information Document (EID) provides a project description, project maps, background environmental information, a robust analysis of potential impacts and a list of all agencies with whom we are coordinating. Sections particularly relevant to your agency include: **(use the table of relevant sections by agency provided on the next page to complete this section)**.

**Include a brief description of mitigation measures that will be implemented to reduce impacts to resources under the agency's area of jurisdiction.**

Recommended or required actions identified through this coordination, including permits, will be considered for inclusion as conditions in the TWDB's environmental determination. Please cite the relevant authority (statue/regulation) for recommendations.

We request your concurrence with our determination that \_\_\_\_\_ . If you have any questions or need any additional information, please contact me at (tel:) \_\_\_\_\_ or by e-mail at \_\_\_\_\_ .

Sincerely,  
**APPLICANT**

Enclosure: EID **(access to the EID may also be provided by including a link where the EID can be downloaded)**.

## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<b>Uniform Project Notification Requirements</b>	
Bureau of Reclamation, Bureau of Land Management, and Local Council of Governments	Section 1: General Information Section 3: Project Description Appendix A: Standard Maps
<b>Uniform Agency Coordination Requirements</b>	
Texas Historical Commission	Section 1: General Information Section 3: Project Description Section 5.8: Cultural Resources Appendix A: Standard Maps Appendix B4: Cultural Resources Report (if applicable)
U.S. Army Corps of Engineers	Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Appendix A: Standard Maps Appendix B2: Wetlands, Streams and Waters of the U.S. (if applicable)
Texas Parks and Wildlife Department & U.S. Fish and Wildlife Service	Section 1: General Information Section 3: Project Description Section 5.1: Land Use Section 5.4: Water Resources Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources
<b>Circumstantial Requirements</b>	
U.S. Department of Agriculture Natural Resources Conservation Service	Section 1: General Information Section 3: Project Description Section 5.1: Land Use Section 5.3: Soils & Prime and Important Farmlands Appendix A: Standard Maps Appendix B1: Soils & Prime and Important Farmlands

## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<p>U.S. Forest Service National Forest or Grasslands</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>National Park Service Environmental Quality Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>National Park Service Big Bend National Park</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>International Boundary and Water Commission (U.S. Section) Environmental Management Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Appendix A: Standard Maps</p>
<p>Environmental Protection Agency Groundwater/UIC Section (6WQ-SG)</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>

## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<p>National Flood Insurance Program Local Floodplain Administrator &amp; Texas Water Development Board Flood Mitigation Planning Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Appendix A: Standard Maps</p>
<p>National Marine Fisheries Service Habitat Conservation Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>General Land Office</p>	<p>Section 1: General Information Section 3: Project Description Appendix A: Standard Maps</p>

## Section 8: Certification

### CERTIFICATION

I hereby certify that the information contained in this document is accurate and complete to the best of my knowledge, and that this document describes the complete project. There are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions.

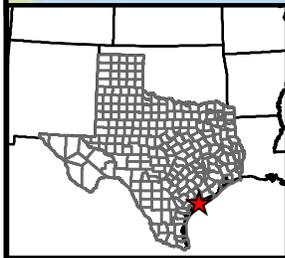
Signature     *Lvin Math*     Date     10/9/2020      
Title:     Senior Project Manager

# Section 9: Appendices

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# Appendix A Standard Maps

• Regional Location Map	A-1
• USGS Topographic Map for Preferred Alternative	A-2
• Project Footprint or Plan(s)	A-3
• Geologic Map	A-4
• Soils Map	A-5
• National Wetlands Inventory (NWI) Map	A-6
• Environmental Justice (EJ) View Map	A-7
• FEMA Floodplain Map	A-8



 Study Area

**REVISED 7/6/2020**



Regional Map  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

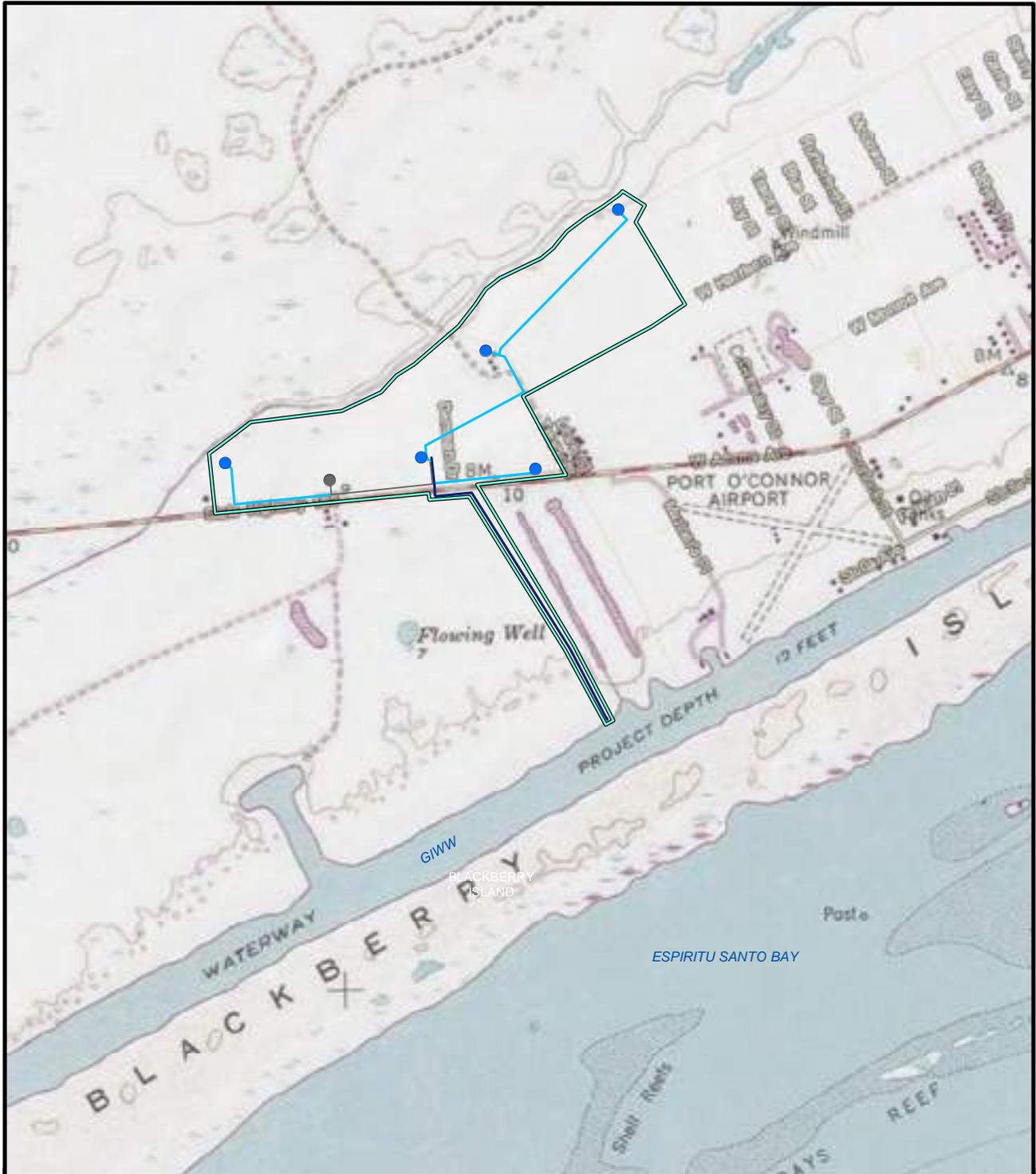
**Port O'Connor**  
 Calhoun County, Texas

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: ESRI Streets



Job No.: 100068304	Scale: 1" = 5 miles
Prepared By: ATKINS/WHIT6392	Date: Apr 16, 2020
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Esri, DeLorme, HERE, USGS, Intermap, iPC, NRCAN, METI, TomTom. World Street Map. March 2019.  
 1:316,800; generated by Atkins; using ArcMap. <http://server.arcgisonline.com/ArcGIS/rest/services/World\_Street\_Map/MapServer> (17 July 2020)



REVISED 7/6/2020

- Existing Water Well
- Existing Water Line
- Proposed Water Well
- Proposed Water Line Centerline
- Proposed Outfall Line
- Study Area

**ATKINS**

Member of the SNC Lavin Group

Preferred Alternative Topographic Map  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304

Scale: 1" = 1,600 feet

Prepared By: ATKINS/WHIT6392

Date: Apr 16, 2020

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Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Topo: ESRI USA Topo Maps



USGS, National Geographic, i-cubed, USA Topo Maps, March 2019, 1:19,200; generated by Atkins; using ArcMap.  
 <http://services.arcgis.com/ArcGIS/rest/services/USA\_Topo\_Maps/MapServer> (17 July 2020)





REVISED 7/6/2020

Study Area

Rock Unit:  
 Qal (Alluvium)  
 Qbb (Barrier island deposits)  
 Fs (Fill and spoil)  
 Wa (Water)

**ATKINS**

Member of the SMC Lawin Group

Geologic Map  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304

Scale: 1" = 2,000 feet

Prepared By: ATKINS/WHIT6392

Date: Apr 16, 2020

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Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Geology: USGS, TWSC 2014  
 Topo: ESRI USA Topo Maps



USGS, National Geographic, i-cubed, USA Topo Maps, March 2019, 1:24,000; generated by Atkins; using ArcMap.  
 <http://services.arcgisonline.com/ArcGIS/rest/services/USA\_Topo\_Maps/MapServer> (17 July 2020)



SOIL	MUSYM	MUKEY	PRIME FARMLAND	HYDRIC
Dianola frequently flooded-Portalto complex	Dp	363549	Not prime farmland	Yes
Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded	Gc	363555	Not prime farmland	Yes
Mustang fine sand, 0 to 1 percent slopes, frequently flooded, frequently ponded	Mu	363571	Not prime farmland	Yes
Portalto-Roemer occasionally ponded complex, 0 to 3 percent slopes	Pr	363574	Not prime farmland	Yes
Veston very fine sandy loam, 0 to 1 percent slopes, low, frequently flooded	Vs	363579	Not prime farmland	Yes
Water	W	363580	----	----



REVISED 7/6/2020

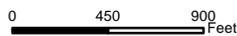
- Soils
- Study Area



Soils Map  
Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
Calhoun County, Texas

Datum: NAD 1983  
Projection: State Plane Texas  
South Central  
Units: Feet  
Soils: NRCS 2019  
Basemap: Bing Maps Aerial



Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 16, 2020

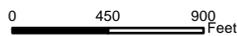
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**NWI Wetland Type** REVISED 7/6/2020

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland (PEM)
- Freshwater Forested/Shrub Wetland (PFO)
- Freshwater Pond (PUB)
- Lake
- Riverine (R2UBH)
- Study Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 NWI: USFWS 2019  
 Basemap: Bing Maps Aerial



**NWI Map**  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**  
  
**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 16, 2020

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Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2019. 1:10,800; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (17 July 2020)



- REVISED 7/6/2020
- TCEQ Outfall
  - Proposed Water Line Centerline
  - Proposed Outfall Line
  - Study Area
  - Study Area 1/2 Mile Buffer

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 TCEQ 2019  
 Basemap: ESRI Aerial



Environmental Justice View Map  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068306	Scale: 1" = 2,000 feet
Prepared By: ATKINS/WHIT6392	Date: July 6, 2020
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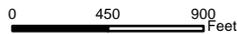
Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community. World Imagery. May 2019. 1:24,000; generated by Atkins; using ArcMap. < http://services.arcgisonline.com/ArcGIS/rest/services/World\_Imagery/MapServer> (08 October 2020)



REVISED 7/6/2020

- FEMA 1% Annual Chance
- FEMA 0.2% Annual Chance
- Study Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Floodplains: FEMA 2018  
 Basemap: ESRI USA Topo



**ATKINS**  
 Member of the SMC Law & Group

FEMA Floodplain Map  
 Environmental Information Document  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

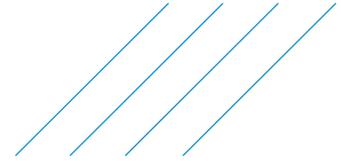
**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 16, 2020

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USGS, National Geographic, i-cubed, USA Topo Maps, March 2019. 1:10,800; generated by Atkins; using ArcMap.  
 <http://services.arcgisonline.com/ArcGIS/rest/services/USA\_Topo\_Maps/MapServer> (17 July 2020)

# Appendix B-2 Wetland Delineation Report



## Memo

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**Project:** Port O'Connor Water Line, Water Well, and Water Plant Improvements

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**Date:** July 2020

**Ref:** 100068304

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**Subject:** Wetland Delineation Assessment

On behalf of the Port O'Connor Improvement District (POCID), Atkins North America, Inc. (Atkins) completed a Waters of the U.S. (WOUS) survey of an approximately 12.1-acre area in support of the proposed Port O'Connor Water Line, Water Well, and Water Plant Improvement Project (the project). The project area is within Port O'Connor, Texas, in Calhoun County (Figure 1, Appendix A). The survey area in this western portion of the project area consists of 2.1 acres, the eastern portion of the survey area consists of 10.0 acres and extends across FM 185/Adams Street to the southeast and northeast. To the southeast, the survey area is adjacent to and slightly extends into the Gulf Intracoastal Waterway (GIWW), a traditional navigable waterway (TNW).

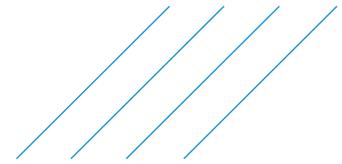
Per Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA), a delineation of potential jurisdictional wetlands and other WOUS (as defined by 33 Code of Federal Regulations [CFR] 328) was conducted within the survey area. The delineation was conducted in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987), as amended by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, Version 2.0* (USACE, 2010). At sample areas where hydrophytic vegetation, soil, and hydrology indicator criteria were met, the area was identified as a wetland.

Atkins performed the delineation of wetlands and other WOUS within the survey area on March 3, March 4, and June 27, 2020. Four wetlands and four waterbodies were identified within the survey area. All 1.082 acres of emergent wetlands, 853.49 linear feet of the roadside ditches, and 0.007 acre of GIWW are considered potentially jurisdictional under Section 404 of the CWA and/or Section 10 of the RHA. Atkins' potential jurisdictional status is based on best professional judgment; only the USACE has final decision on jurisdictional determination.

### General Description of the Survey Area

The proposed project begins on the north side of farm-to-market (FM) 185/Adams Street adjacent to the Victoria Electric Company building in Port O'Connor, Calhoun County, Texas (Figure 2, Appendix A). The proposed project is split into two sections, referred to as the western and eastern portion. The survey area in this western portion of the proposed project consists of 2.1 acres and continues along Adams Street for approximately 0.2 miles before ending. The survey area begins again approximately 0.2 miles to the east along FM 185/Adams Street adjacent to the Martin Midstream Partners building. The survey area in the eastern portion of the proposed project consists of 10.0 acres and extends across FM 185/Adams Street to the southeast and northeast. To the southeast, the survey area is adjacent to and slightly extends into the GIWW, a traditional navigable waterway (TNW). The land use in the vicinity of the project is industrial, commercial, and residential with predominant agricultural use.

The project falls within the Western Gulf Coastal Plain, Mid-Coast Barrier Islands, and Coastal Marsh (34h) Level IV Ecoregion (Griffith, et al., 2004). The topography in this region is relatively flat and contains saline, brackish, and freshwater marshes, barrier islands, with minor washover fans, and tidal flat sands and clays. Salt-tolerant, herbaceous plants dominate the saline emergent zones. The other native vegetation present is mainly grasslands (Griffith, et al., 2004). The survey area is within two



watersheds, the Powderthorn Lake-Matagorda Bay watershed (Hydrologic Unit Code [HUC] 121004020500) and the San Antonio Bay-Espiritu Santo Bay watershed (HUC 121004030200). The boundary of the watersheds is Adams Street; the survey area north of the road is within the Lake-Matagorda Bay watershed and the San Antonio Bay watershed to the south.

According to the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps, there are various features within the survey area. The mapper identified freshwater and estuarine wetlands, freshwater ponds, and riverine features (Figure 3, Appendix A). As represented on the Port O'Connor, Texas, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (2019), the survey area exhibits a generally flat contour with a consistent elevation of approximately 1 foot to 3 feet above mean sea level (amsl) with changes in elevation ranging in 5 feet to 15 feet amsl along the riverine feature that crosses Adams Street and the placement area at the southern end near the GIWW (Figure 4, Appendix A). The survey area is located within Federal Emergency Management Agency (FEMA) floodplains Zone AE, designated 100-year flood hazard with base elevation ranging from 8 feet to 11 feet, and Zone X, designated 500-year flood hazard (FEMA, 2014) (Figure 5, Appendix A).

Soils in the survey area consist of three soil units, all considered hydric in Calhoun County, Texas (USDA/NRCS, 2020b) (Figure 6, Appendix A). These units include: (1) Dianola frequently flooded-Portalto complex (Dp) soils are poorly drained soils located on strand plains, which exhibit parallel or semi-parallel sand ridges; (2) Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded (Gc) soils are moderately well drained soils found on dune ridges that run parallel to a shore; (3) Portalto-Roemer occasionally flooded, frequently ponded complex, 0 to 3 percent slopes (Pr) soils are moderately well drained soils also found on strand plains.

## Waters of the U.S. Delineation

The following describes background information used, methods implemented, and resources accessed while completing the survey. Per Section 404 of the CWA and Section 10 of the RHA, a delineation of potential jurisdictional WOUS and wetlands (as defined by 33 CFR 328) was conducted within the survey area.

## Methods

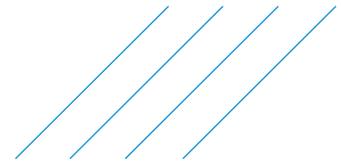
### Desktop Assessment

Prior to conducting the field investigation, an initial desktop review of current and historical aerial photography, USFWS NWI maps, USGS topographic and National Hydrography Dataset (NHD) maps, and the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) soil survey data were evaluated. The objective of the desktop assessment was to identify areas known or assumed to be wetlands or WOUS, as well as areas exhibiting indicative wetland features that would need to be investigated further in the field. The results of the desktop assessment facilitated planning and preparation for the field delineation of wetlands and other WOUS.

### Field Investigation

The delineation of WOUS and wetlands within the 12.1-acre survey area was completed by an Atkins ecologist on March 3, March 4, and June 27, 2020. A Trimble GeoXH 7000 differentially corrected global positioning system (GPS) unit with submeter accuracy was used to map each feature identified.

Wetlands were evaluated based on the presence or absence of hydrophytic vegetation, hydrology, and hydric soils at each data point (DP). The plant species in each vegetation layer (i.e., tree, sapling/shrub, herbaceous, and vine) were recorded. The 2016 National Wetland Plant List (NWPL), Version 3.3 (Lichvar et al., 2016), was used to determine the indicator status of plant species. Taxonomy of plant species follows Lichvar et al. (2016) and the USDA NRCS Plant Database (USDA/NRCS, 2020a). Field indicators of wetland hydrology were evaluated and recorded. Soils were inspected for indicators of hydric conditions (USDA/NRCS, 2010; Environmental Laboratory, 1987; USACE, 2010).



At sample areas where hydrophytic vegetation, soil, and hydrology indicator criteria were met, the area was identified as a wetland and categorized following the classification system of Cowardin et al. (1979).

## Results

### Wetlands

At the time of the field survey, one estuarine emergent (E2EM) wetland and two palustrine emergent (PEM) wetlands were identified within the survey area (Figure 7a, 7b, 7e; Appendix A). Wet 01, the E2EM wetland, is located in the eastern half of the survey, south of FM 185/Adams Street along the shoreline of the GIWW (Figure 7e, Appendix A). Wet 02 is in both halves of the survey area, within the roadside ditch (Ditch 1) along the north side of FM 185/Adams Street (Figure 7b, Appendix A). The multiple sections of Wet 02 are considered one wetland, because of their shared hydrologic connection and common dominant plants. Wet 03 is located only in the eastern half of the survey area, in a roadside ditch (Ditch 2) along the south side of FM 185/Adams Street (Figure 7b, Appendix A). Both Wet 02 and Wet 03 are PEM wetlands. A summary of each wetland is provided in Table 1. The Regional Supplement Wetland Determination Data Forms are provided in Appendix B. Representative photographs of the DPs are available in Appendix C.

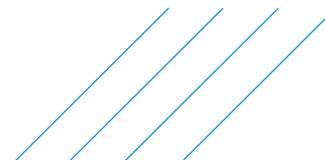
**Table 1: Identified Wetlands**

Feature ID	Wetland Type (Cowardin Class)	Size (acres)	Location (degrees latitude, degrees longitude)	Located in 100-Year Floodplain	Potentially Jurisdictional
WET 01	E2EM	0.002	28.424611, -96.449898	Yes	Yes
WET 02	PEM	0.18	28.430940, -96.461968	Yes	Yes
WET 03	PEM	0.45	28.431221, -96.454569	Yes	Yes
WET 04	PEM	0.45	28.439324, -96.449156	Yes	Yes
Total Wetlands		1.082		Yes	Yes

All wetlands are located within the floodplains Zone AE, designated 100-year flood hazard. Wet 01 has a base elevation of 8 feet and Wet 02, Wet 03, and Wet 04 have a base elevation of 11 feet. Wet 01 is located immediately adjacent to the GIWW. Wet 02 and Wet 03 are in ditches that are hydrologically connected to an unnamed stream to the west, approximately 0.2 and 0.5 mile away respectively, that flows northeast directly into Matagorda Bay. Wet 04 is in a field adjacent to the unnamed stream, approximately 35 feet to the south. Therefore, all wetlands are considered potentially jurisdictional.

### Vegetation

The indicator status of an individual plant species reflects the species' habitat preference based on its frequency and abundance in wetlands or uplands. Indicator status also designates availability of wetland habitat across the local to regional landscape (Lichvar and Minkin, 2008). The resulting indicator status categories are used in determining dominance of hydrophytic versus non-hydrophytic vegetation at each DP and are presented in Table 2. Based on the technical criteria outlined in the Regional Supplement (USACE, 2010), the dominant vegetation observed is representative of a hydrophytic plant community at all wetland DPs (WET 01 to WET 03).



**Table 2: Plant Species Wetland Indicator Status Categories**

Code	Category	Definition
OBL	Obligate Wetland	Hydrophyte—Almost always occurs in wetlands
FACW	Facultative Wetland	Hydrophyte—Usually occurs in wetlands, but may occur in non-wetlands
FAC	Facultative	Hydrophyte—Occurs in wetlands and non-wetlands
FACU	Facultative Upland	Non-hydrophyte—Usually occurs in non-wetlands, but may occur in wetlands
UPL	Obligate Upland	Non-hydrophyte—Almost never occurs in wetlands

The marsh at Wet 01 was dominated by seashore saltgrass (*Distichlis spicata*, OBL) and saltmeadow cordgrass (*Spartina patens*, FACW). Wet 02 and Wet 03 were dominated by sand spikerush (*Eleocharis montevidensis*, FACW), erect centella (*Centella erecta*, FACW), and jungle rice (*Echinochloa colona*, FACW). Wet 04 was dominated by marsh fimbry (*Fimbristylis castanea*, OBL). Other common wetland plants observed were chairmakers rush (*Schoenoplectus americanus*, OBL), bushy seaside tansy (*Borrchia frutescens*, OBL), and royal flatsedge (*Cyperus elegans*, FACW). The upland vegetation observed at Wet 01 was prickly pear cactus (*Opuntia stricta*, UPL) and woolly croton (*Croton capitatus*, no indicator). Vegetation was not recorded in the uplands of Wet 02 and Wet 03, as the DPs were taken within the paved right-of-way (ROW). Upland vegetation observed at Wet 04 was dominated by hydrophytic vegetation, saltmeadow cordgrass, royal flatsedge, and yaupon (*Ilex vomitoria*, FAC), but was not considered a wetland due to the lack of the other two indicators.

## Hydrology

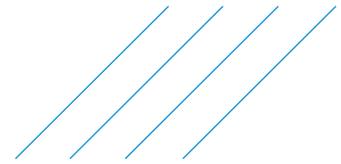
Hydrological indicators were observed within all wetlands. The primary indicators observed were saturation (A3) and hydrogen sulfide smell (C1). Secondary indicators included crawfish burrows (C8) and geomorphic position (D2). No hydrology indicators were recorded within the uplands.

## Soils

All mapped soil series within the survey area were listed as hydric on the Calhoun County hydric soil lists. Soils observed in wetland areas within the survey area typically developed under anaerobic (i.e., inundated/saturated edaphic conditions) or alternating aerobic-anaerobic conditions (i.e., wet/dry hydroperiod). The hydric soil indicator observed was sandy redox (S5). Hydric soils consisted of sand texture ranging in color from black (10YR 2/1) to very dark grey (2.5Y 3/1) with redoximorphic features ranging from dark yellowish brown (10YR 4/4) to reddish yellow (7.5YR 6/8). The majority of soil samples collected in wetlands were saturated. Soils were not sampled in Wet 01 through Wet 03 uplands, as the DPs had a restrictive layer at the surface. Wet 04 upland soils were grayish brown (10YR 5/2).

## Waterbodies

Four potential jurisdictional waterbodies were observed within the survey area. The survey area in the southeastern portion extends into the GIWW covering approximately 0.007 acre (Figure 7e, Appendix A). This feature is classified by the NWI as estuarine, subtidal, unconsolidated bottom that is excavated (E1UBLx). The roadside drainage ditch (Ditch 1 [D1]) runs along the north side of FM 185/Adams Street (approximately 337 LF). The ditch is occupied 100 percent by wetland vegetation (Wet 02; 0.18 acres), except in the piped underground culverts that hydrologically connect the sections under driveways. The roadside drainage ditch (Ditch 2 [D2]) runs alongside the southern edge of FM 185/Adams Street (approximately 459 LF) and is also occupied by 100 percent wetland vegetation (Wet 03; 0.45 acres). The roadside drainage ditch (Ditch 3 [D3]) crosses is along the east side of Trevor Street and crosses under to the west side of the road and is not occupied by wetland vegetation. None of these features were mapped on any of the resources evaluated during desktop review (see Section 4.1.1) and likely classified as a semipermanently or intermittently flooded, riverine channel bed created by excavation (R2UBFx and R2UBJx, respectively; Cowardin et al., 1979). These ditches are directly connected to an unnamed stream that flows into Matagorda Bay. Summaries of the waterbodies are provided in Table 3.



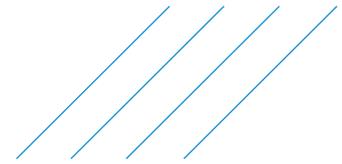
**Table 3: Identified Waters**

Feature ID	Water Type (Cowardin Class)	Average OHWM (feet)	Length within survey area (LF or acre [ac])	Location (degrees latitude, degrees longitude)	Potentially Jurisdictional
GIWW	E1UBLx	N/A	0.007 ac	28.424549, -96.449860	Yes
D1	R2UBFx	22	337.33 LF	28.430940, -96.461968	Yes
D2	R2UBFx	40	459.25 LF	28.431221, -96.454569	Yes
D3	R2UBJx	4	56.91 LF	28.435331, -96.453055	Yes
Total Waters			0.007 ac / 853.49 LF		Yes

## Summary and Recommendations

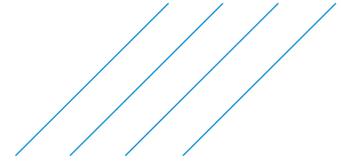
Atkins completed a delineation of WOUS and wetlands within an 12.1-acre survey area within Port O'Connor Texas, in Calhoun County on March 3, March 4, and June 27, 2020. Four wetlands and four waterbodies were identified within the survey area. One wetland is immediately adjacent to the GIWW (Wet 01), two wetlands are entirely within two drainage features (Wet 02, Ditch 1; Wet 03, Ditch 2), and one wetland is adjacent to the unnamed stream (Wet 04). All 1.082 acres of emergent wetlands, 853.49 linear feet of the roadside ditches, and 0.007 acre of GIWW are considered potentially jurisdictional under Section 404 of the CWA and/or Section 10 of the RHA. Atkins' potential jurisdictional status is based on best professional judgment; only the USACE can make the final decision on jurisdictional determination.

Based on Atkins' jurisdictional status, approximately 0.066-acre of wetland and 0.003-acre of open water will be permanently impacted by the proposed activity and 0.055-acre of wetlands and 56.91 LF of Ditch 3 temporarily impacted. During development of the project design, direct impacts to wetlands and other WOUS were avoided and/or minimized to the greatest extent practicable, per the requirements of Section 404 of the CWA and Section 10 of the RHA. The proposed projects' impacts are less than 0.5 acre of wetland, does not include the loss of more than 300 linear feet of streambed, and may be permitted by the USACE under Nationwide Permit (NWP) 7 for Outfall Structures, NWP 12 for Utility Line Activities, and NWP 13 for Bank Stabilization. All utility lines placed within a jurisdictional area (i.e., WOUS) under NWP 12 are required to submit a Pre-Construction Notification (PCN). The proposed project will not result in the permanent loss of greater than 0.1-acre of wetlands, therefore compensatory mitigation is not required. The applicant does not propose mitigation, as permanent impacts are below the NWP thresholds. The applicant will employ Best Management Practices (BMPs) to decrease potential secondary adverse impacts and return conditions within the temporarily impacted construction area to pre-construction conditions and re-vegetate as appropriate. The Corpus Christi District of USACE will make the final jurisdictional determination and permitting authorization and will be consulted prior to any construction activity.



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# Appendix A. Figures



- Existing Water Well
- Existing Water Line
- Proposed Water Well
- Proposed Water Line Centerline
- Proposed Outfall Line

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



**ATKINS**

Member of the SNC Lavin Group

**REVISED 7/6/2020** Figure 1  
 Vicinity Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

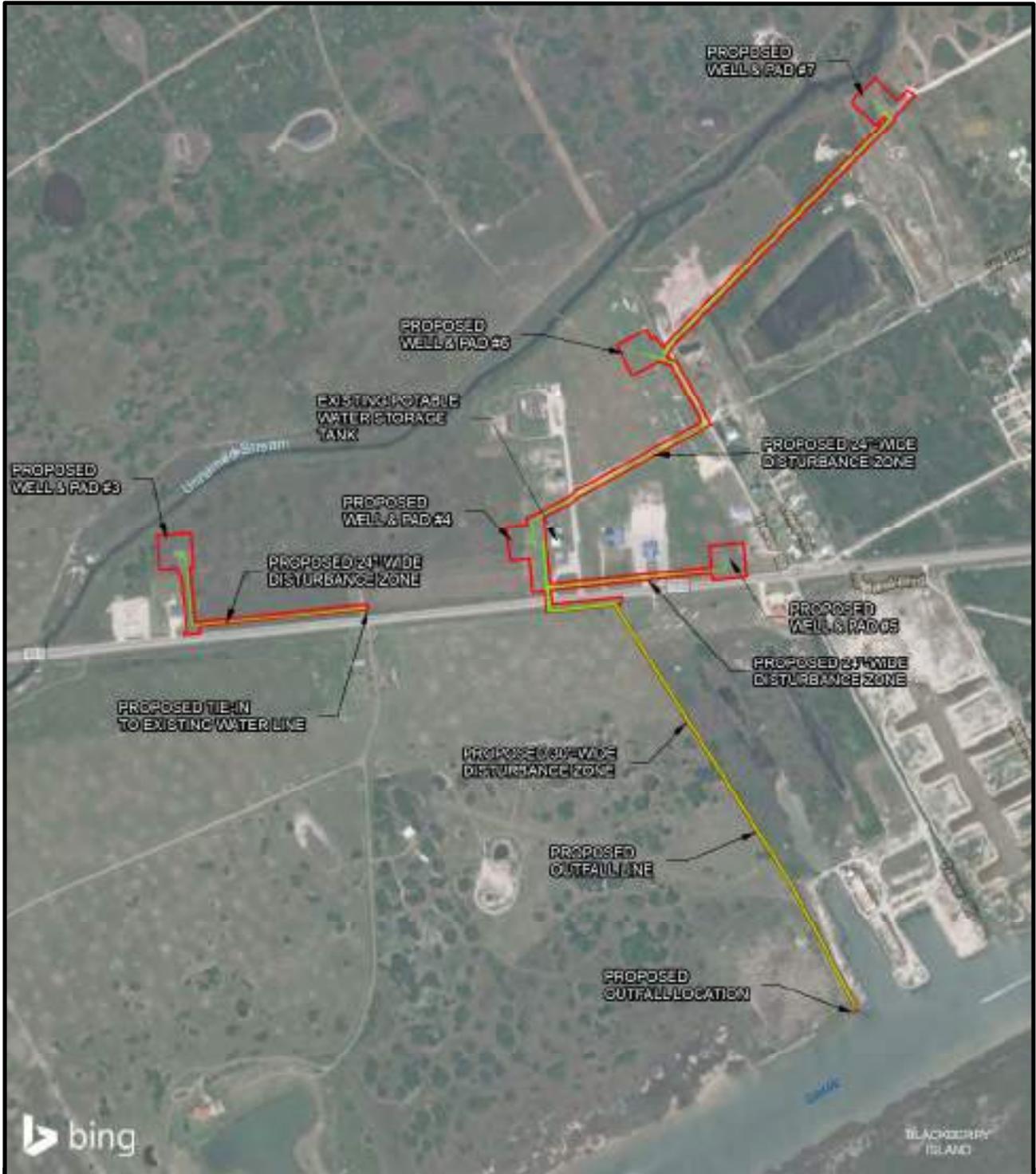
Job No.: 100068304

Scale: 1" = 1,600 feet

Prepared By: ATKINS/WHIT6392

Date: Apr 08, 2020

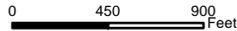
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- Survey Area
- Disturbance Zone\*

\*ENLARGED FOR VISUAL PURPOSES

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



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**REVISED 7/6/2020** Figure 2  
 Survey Area Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

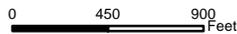
Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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- Survey Area
- NWI Wetland Type**
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland (PEM)
- Freshwater Forested/Shrub Wetland (PFO)
- Freshwater Pond (PUB)
- Riverine (R2UBH)

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 NWI: USFWS 2019  
 Basemap: Bing Maps Aerial



**ATKINS**

Member of the SNC Law & Co. Group

**REVISED 7/6/2020** Figure 3  
 NWI Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

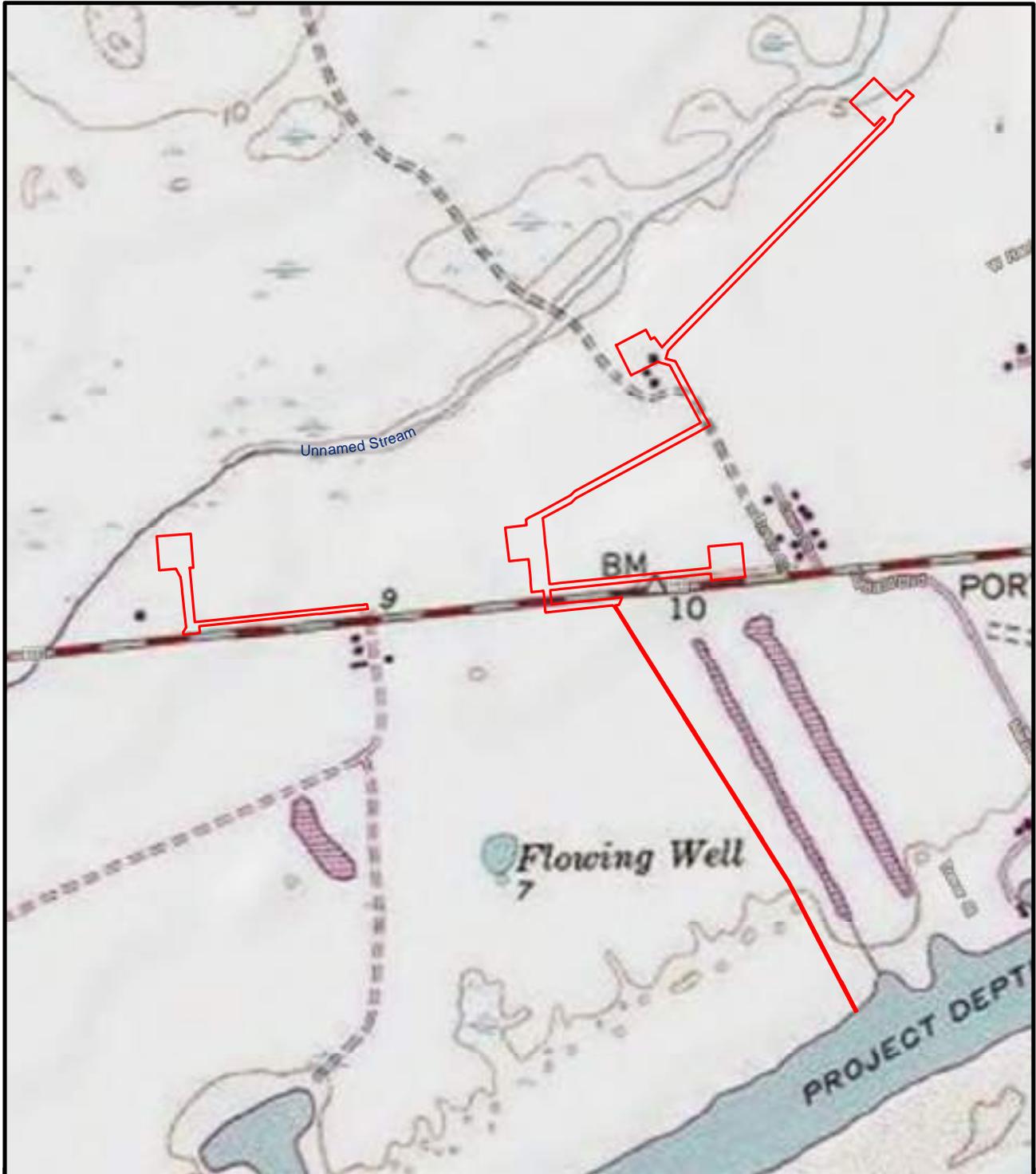
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Scale: 1" = 900 feet

Prepared By: ATKINS/WHIT6392

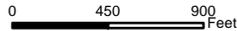
Date: Apr 08, 2020

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Survey Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: ESRI USA Topo



**ATKINS**

Member of the SMC Lawlor Group

**REVISED 7/6/2020** Figure 4  
 Survey Area Topographic Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

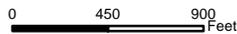
Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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- FEMA 1% Annual Chance
- FEMA 0.2% Annual Chance
- Survey Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Floodplains: FEMA 2018  
 Basemap: ESRI USA Topo



**ATKINS**

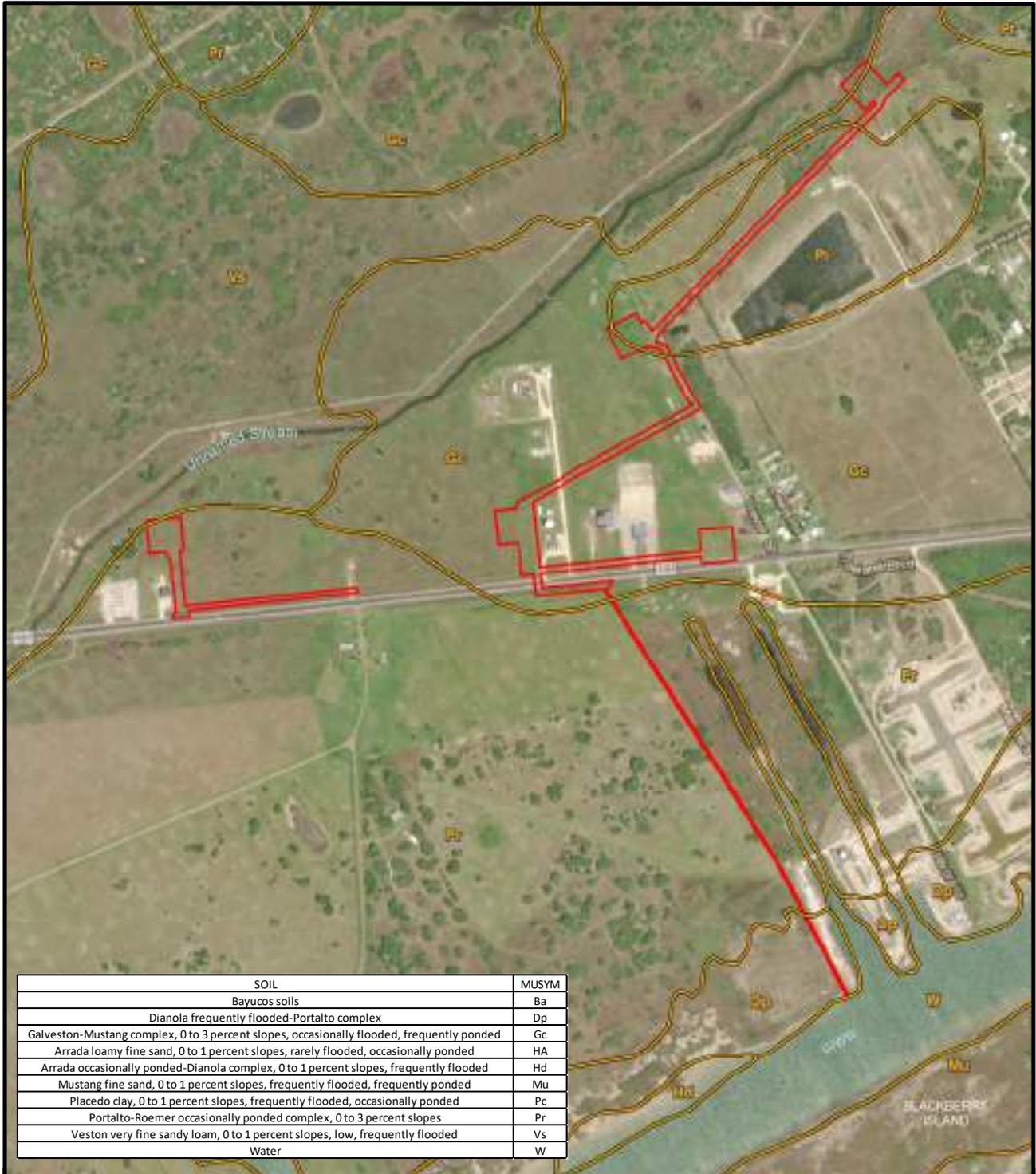
Member of the SNC Lavin Group

**REVISED 7/6/2020** Figure 5  
 Floodplain Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

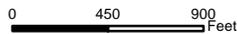
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Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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- Soils
- Survey Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Soils: NRCS 2019  
 Basemap: Bing Maps Aerial



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**REVISED 7/6/2020** Figure 6  
 Soils Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304

Scale: 1" = 900 feet

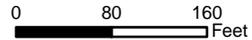
Prepared By: ATKINS/WHIT6392

Date: Apr 08, 2020

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- Wetland Data Point
- Upland Data Point
- Ditch
- PEM Wetland
- Survey Area



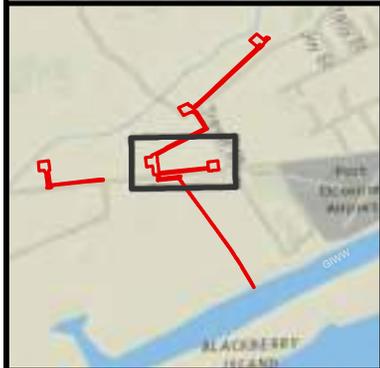
Datum: NAD 1983  
 Projection: State Plane  
 Texas South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial

**ATKINS**

Member of the SNC-Lawin Group

**REVISED 7/6/2020** Figure 7a  
 Field Data Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District Water Line,  
 Water Well, and Water Plant Improvements**  
**Port O'Connor**  
 Calhoun County, Texas

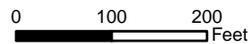
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- Wetland Data Point
- Upland Data Point
- Ditch
- PEM Wetland
- Survey Area



Datum: NAD 1983  
 Projection: State Plane  
 Texas South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



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REVISED 7/6/2020 Figure 7b  
 Field Data Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District Water Line,  
 Water Well, and Water Plant Improvements**  
 Port O'Connor  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 200 feet
Prepared By: Atkins/WHIT6392	Date: Apr 08, 2020
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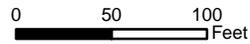
bing



- Ditch
- Survey Area



Datum: NAD 1983  
 Projection: State Plane  
 Texas South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



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**REVISED 7/6/2020** Figure 7c  
 Field Data Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District Water Line,  
 Water Well, and Water Plant Improvements**  
**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 100 feet
Prepared By: Atkins/WHIT6392	Date: Apr 08, 2020
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- Wetland Data Point
- Upland Data Point
- PEM Wetland
- Survey Area



Datum: NAD 1983  
 Projection: State Plane  
 Texas South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial

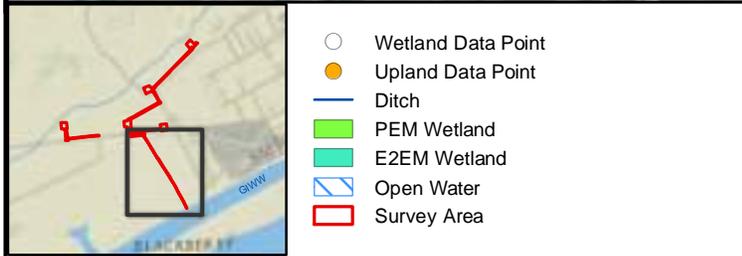
**ATKINS**

Member of the SNC-Lavalin Group

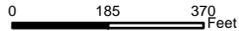
**REVISED 7/6/2020** Figure 7d  
 Field Data Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District Water Line,  
 Water Well, and Water Plant Improvements**  
**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 100 feet
Prepared By: Atkins/WHIT6392	Date: Apr 08, 2020

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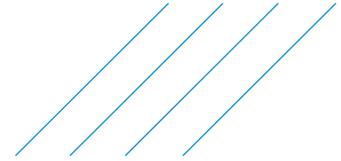
Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



**REVISED 7/6/2020** Figure 7e  
 Field Data Map  
 Wetland Delineation Report  
**Port O'Connor Improvement District Water Line,  
 Water Well, and Water Plant Improvements  
 Port O'Connor  
 Calhoun County, Texas**

Job No.: 100068304	Scale: 1" = 370 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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# Appendix B. Wetland Determination Data Forms

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: WET 01 DP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Beach Local relief (concave, convex, none): None Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR T Lat: 28.424611 Long: -96.449898 Datum: WGS84  
 Soil Map Unit Name: Dianola frequently flooded-Portalto complex NWI Classification: E2EM1N

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
--	--

Remarks:  
 Hydrophytic vegetation, wetland hydrology and hydric soil indicators were all observed. The Data Point (DP) is within a wetland.

Habitat ID: WET 01 Habitat Type: E2EM

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>16</u> Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>0</u> <small>(includes capillary fringe)</small>	<b>Wetland Hydrology Present?:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation at surface. One primary indicator and no secondary indicators of wetland hydrology were observed. The wetland hydrology parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: WET 01 DP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (B/A)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum (Plot size : 30)				
1.	<i>Distichlis spicata</i>	40	Yes OBL	
2.	<i>Spartina patens</i>	30	Yes FACW	
3.	<i>Borrchia frutescens</i>	20	Yes OBL	
4.	<i>Schoenoplectus americanus</i>	5	No OBL	
5.	<i>Centella erecta</i>	5	No FACW	
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is greater than 50%. The hydrophytic vegetation parameter is met.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: WET 01 DP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	2.5Y 6/2	60					Sand	Saturated at surface
0-1	2.5Y 5/2	40					Sand	
1-8	2.5Y 3/1	50	10YR 5/6	2	C	PL	Sand	
1-8	2.5Y 4/1	48						
8-18	2.5Y 5/1	60	10YR 4/4	2	C	M	Sand	
8-18	2.5Y 4/2	38						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Mucky Presence (A8) (LRR P, T, U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S,T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LLR T,
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type:	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Depth (inches):	

Remarks:  
Indicators of hydric soils were observed; hydric soil parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: Wet 01 UDP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 2-3%  
 Subregion (LRR or MLRA): LRR T Lat: 28.424629 Long: -96.449903 Datum: WGS84  
 Soil Map Unit Name: Dianola frequently flooded-Portalto complex NWI Classification: E2EM1N

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
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Remarks:  
 None of the three parameters, hydrophytic vegetation, wetland hydrology, and hydric soil indicators, were observed. The Data Point (DP) is not within a wetland.

Habitat ID: WET 01 Upland Habitat Type: Upland

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ <small>(includes capillary fringe)</small>	<b>Wetland Hydrology Present?:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were present. The wetland hydrology parameter is not met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: Wet 01 UDP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0%</u> (B/A)  <b>Prevalence Index worksheet:</b> Total % Cover of:                      Multiply by: OBL Species <u>0</u> x 1 = <u>0</u> FACW Species <u>0</u> x 2 = <u>0</u> FAC Species <u>0</u> x 3 = <u>0</u> FACU Species <u>0</u> x 4 = <u>0</u> UPL Species <u>10</u> x 5 = <u>50</u> Column Totals: <u>10</u> (A) <u>50</u> (B)  Prevalence Index = B/A = <u>5.00</u>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum (Plot size : 30)				
1.	10	Yes	UPL	
2.	5	Yes	NI	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	15		= Total Cover	
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
<b>Hydrophytic Vegetation Indicators:</b> No    Dominance Test is >50% No    Prevalence Index is ≤3.0 <sup>1</sup> No    Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height.  <b>Woody Vine</b> - All woody vines, regardless of height.				
<b>Hydrophytic Vegetation Present?</b>  Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is less than or equal to 50%. The hydrophytic vegetation parameter is not met. Vegetation growth prevented by large boulder and concrete slabs.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: Wet 01 UDP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Mucky Presence (A8) (LRR P, T, U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S,T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LLR T,
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Concrete slabs and boulder at surface  
Depth (inches): 0

Hydric Soils Present?     Yes     No

Remarks:

Indicators of hydric soils lacking; hydric soils parameter is not met. Restrictive layer at surface consisting of non-native boulder and concrete slabs preventing digging of soil pit.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: Wet 02 DP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-3%  
 Subregion (LRR or MLRA): LRR T Lat: 28.430940 Long: -96.461968 Datum: WGS84  
 Soil Map Unit Name: Portalto-Roemer occasionally ponded complex, 0 to 3 percent slopes NWI Classification: None

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
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Remarks:  
 Hydrophytic vegetation, wetland hydrology and hydric soil indicators were all observed. The Data Point (DP) is within a wetland. Wetland within roadside ditch, likely regularly mowed.

Habitat ID: WET 02 Habitat Type: PEM

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>16</u> Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>1-2"</u> (includes capillary fringe)	Wetland Hydrology Present?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

One primary indicator and one secondary indicator of wetland hydrology were observed. The wetland hydrology parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: Wet 02 DP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>  2  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  2  </u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u> 100% </u> (B/A)  <b>Prevalence Index worksheet:</b> Total % Cover of:                      Multiply by: OBL Species <u>  15  </u> x 1 = <u>  15  </u> FACW Species <u>  85  </u> x 2 = <u> 170  </u> FAC Species <u>  0  </u> x 3 = <u>  0  </u> FACU Species <u>  0  </u> x 4 = <u>  0  </u> UPL Species <u>  0  </u> x 5 = <u>  0  </u> Column Totals: <u> 100 </u> (A) <u> 185 </u> (B)  Prevalence Index = B/A = <u>  1.85 </u>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Sapling Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		= Total Cover		
Herb Stratum (Plot size : 30)				
1.	60	Yes	FACW	
2.	20	Yes	FACW	
3.	15	No	OBL	
4.	5	No	FACW	
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	100	= Total Cover		
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
		= Total Cover		
<b>Hydrophytic Vegetation Indicators:</b> Yes    Dominance Test is >50% Yes    Prevalence Index is ≤3.0 <sup>1</sup> No     Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height.  <b>Woody Vine</b> - All woody vines, regardless of height.				
<b>Hydrophytic Vegetation Present?</b>  Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>				
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is greater than 50%. The hydrophytic vegetation parameter is met.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: Wet 02 DP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 3/1	80	10YR 5/6	2	C	PL	Sand	Saturated within 1-2" from surface
0-8	2.5Y 4/1	18						
8-16	2.5Y 3/1	45	7.5YR 6/8	8	C	M	Sand	
8-16	2.5Y 6/1	47						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)<br><input type="checkbox"/> Histic Epipedon (A2)<br><input type="checkbox"/> Black Histic (A3)<br><input type="checkbox"/> Hydrogen Sulfide (A4)<br><input type="checkbox"/> Stratified Layers (A5)<br><input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)<br><input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)<br><input type="checkbox"/> Mucky Presence (A8) (LRR P, T, U)<br><input type="checkbox"/> 1 cm Muck (A9) (LLR P, T)<br><input type="checkbox"/> Depleted Below Dark Surface (A11)<br><input type="checkbox"/> Thick Dark Surface (A12)<br><input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)<br><input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)<br><input type="checkbox"/> Sandy Gleyed Matrix (S4)<br><input checked="" type="checkbox"/> Sandy Redox (S5)<br><input type="checkbox"/> Stripped Matrix (S6)<br><input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S,T, U)<br><input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)<br><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)<br><input type="checkbox"/> Loamy Gleyed Matrix (F2)<br><input type="checkbox"/> Depleted Matrix (F3)<br><input type="checkbox"/> Redox Dark Surface (F6)<br><input type="checkbox"/> Depleted Dark Surface (F7)<br><input type="checkbox"/> Redox Depressions (F8)<br><input type="checkbox"/> Marl (F10) (LRR U)<br><input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)<br><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)<br><input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)<br><input type="checkbox"/> Delta Ochric (F17) (MLRA 151)<br><input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)<br><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)<br><input type="checkbox"/> Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D) |
|--|--|

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 
- 1 cm Muck (A9) (LRR O)
- 
- 
- 2 cm Muck (A10) (LRR S)
- 
- 
- Reduced Vertic (F18) (outside MLRA 150A,
- 
- 
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- 
- 
- Anomalous Bright Loamy Soils (F20)
- 
- (MLRA 153B)**
- 
- Red Parent Material (TF2)
- 
- 
- Very Shallow Dark Surface (TF12) (LLR T,
- 
- 
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type:	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Depth (inches):	

Remarks:  
 Indicators of hydric soils were observed; hydric soil parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: Wet 02 UDP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR T Lat: 28.430913 Long: -96.461916 Datum: WGS84  
 Soil Map Unit Name: Portalto-Roemer occasionally ponded complex, 0 to 3 percent slopes NWI Classification: None

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
--	--

Remarks:  
 None of the three parameters, hydrophytic vegetation, wetland hydrology, and hydric soil indicators, were observed. The Data Point (DP) is not within a wetland. The DP was taken within the existing right-of-way (ROW).

Habitat ID: WET 02 Upland Habitat Type: Upland

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ <small>(includes capillary fringe)</small>	<b>Wetland Hydrology Present?:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary indicators and no secondary indicators of wetland hydrology were observed. No indicators of wetland hydrology were present. The wetland hydrology parameter is not met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: Wet 02 UDP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (B/A)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
Remarks: (if observed, list morphological adaptations below). No vegetation was present due to paved surface in ROW.				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height.  <b>Woody Vine</b> - All woody vines, regardless of height.				
<b>Hydrophytic Vegetation Present?</b>  Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: Wet 02 UDP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Mucky Presence (A8) (LRR P, T, U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S,T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LLR T,
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Paved surface  
Depth (inches): 0

Hydric Soils Present?     Yes     No

Remarks:  
Indicators of hydric soils lacking; hydric soils parameter is not met. No soil pit was dug due to paved surface in the ROW.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/202  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: Wet 03 DP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2-3%  
 Subregion (LRRRA or MLRA): LRR T Lat: 28.431221 Long: -96.454569 Datum: WGS84  
 Soil Map Unit Name: Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded NWI Classification: None

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
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Remarks:  
 Hydrophytic vegetation, wetland hydrology and hydric soil indicators were all observed. The Data Point (DP) is within a wetland. Wetland within roadside ditch, likely regularly mowed.

Habitat ID: WET 03 Habitat Type: PEM

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>14</u> Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

One primary indicator and one secondary indicator of wetland hydrology were observed. The wetland hydrology parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: Wet 03 DP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (B/A)  <b>Prevalence Index worksheet:</b> Total % Cover of:                      Multiply by: OBL Species <u>5</u> x 1 = <u>5</u> FACW Species <u>95</u> x 2 = <u>190</u> FAC Species <u>0</u> x 3 = <u>0</u> FACU Species <u>0</u> x 4 = <u>0</u> UPL Species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>195</u> (B)  Prevalence Index = B/A =              1.95
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Sapling Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Shrub Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Herb Stratum (Plot size : 30)				
1. <i>Eleocharis montevidensis</i>	45	Yes	FACW	
2. <i>Centella erecta</i>	30	Yes	FACW	
3. <i>Echinochloa colona</i>	20	Yes	FACW	
4. <i>Schoenoplectus americanus</i>	5	No	OBL	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	100	= Total Cover		
Woody Vine Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		= Total Cover		
<b>Hydrophytic Vegetation Indicators:</b> Yes    Dominance Test is >50% Yes    Prevalence Index is ≤3.0 <sup>1</sup> No     Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height.  <b>Woody Vine</b> - All woody vines, regardless of height.				
<b>Hydrophytic Vegetation Present?</b>  Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>				
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is greater than 50%. The hydrophytic vegetation parameter is met.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: Wet 03 DP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 2/1	100					Sand	a lot of roots; saturated at surface
2-16	10YR 3/2	17	7.5YR 5/8	3	C	M/PL	Sand	
2-16	10YR 5/2	80						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)<br><input type="checkbox"/> Histic Epipedon (A2)<br><input type="checkbox"/> Black Histic (A3)<br><input type="checkbox"/> Hydrogen Sulfide (A4)<br><input type="checkbox"/> Stratified Layers (A5)<br><input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)<br><input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)<br><input type="checkbox"/> Mucky Presence (A8) (LRR P, T, U)<br><input type="checkbox"/> 1 cm Muck (A9) (LLR P, T)<br><input type="checkbox"/> Depleted Below Dark Surface (A11)<br><input type="checkbox"/> Thick Dark Surface (A12)<br><input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)<br><input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)<br><input type="checkbox"/> Sandy Gleyed Matrix (S4)<br><input checked="" type="checkbox"/> Sandy Redox (S5)<br><input type="checkbox"/> Stripped Matrix (S6)<br><input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S,T, U)<br><input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)<br><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)<br><input type="checkbox"/> Loamy Gleyed Matrix (F2)<br><input type="checkbox"/> Depleted Matrix (F3)<br><input type="checkbox"/> Redox Dark Surface (F6)<br><input type="checkbox"/> Depleted Dark Surface (F7)<br><input type="checkbox"/> Redox Depressions (F8)<br><input type="checkbox"/> Marl (F10) (LRR U)<br><input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)<br><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)<br><input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)<br><input type="checkbox"/> Delta Ochric (F17) (MLRA 151)<br><input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)<br><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)<br><input type="checkbox"/> Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D) |
|--|--|

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR O)<br><input type="checkbox"/> 2 cm Muck (A10) (LRR S)<br><input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,<br><input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)<br><input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <b>(MLRA 153B)</b>  |
| <input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12) (LLR T,<br><input type="checkbox"/> Other (Explain in Remarks)  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type:	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Depth (inches):	

Remarks:  
 Indicators of hydric soils were observed; hydric soil parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 3/3/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: Wet 03 UDP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 0-1%  
 Subregion (LRR or MLRA): LRR T Lat: 28.431304 Long: -96.455355 Datum: WGS84  
 Soil Map Unit Name: Portalto-Roemer occasionally ponded complex, 0 to 3 percent slopes NWI Classification: None

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
--	--

**Remarks:**  
 None of the three parameters, hydrophytic vegetation, wetland hydrology, and hydric soil indicators, were observed. The Data Point (DP) is not within a wetland. The DP was taken within the existing right-of-way (ROW).

Habitat ID: WET 03 Upland Habitat Type: Upland

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ <small>(includes capillary fringe)</small>	<b>Wetland Hydrology Present?:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**

No primary indicators and no secondary indicators of wetland hydrology were observed. No indicators of wetland hydrology were present. The wetland hydrology parameter is not met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: Wet 03 UDP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (B/A)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
			= Total Cover	
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
Remarks: (if observed, list morphological adaptations below). No vegetation was present due to paved surface in ROW.				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height.  <b>Woody Vine</b> - All woody vines, regardless of height.				
<b>Hydrophytic Vegetation Present?</b>  Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: Wet 03 UDP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Mucky Presence (A8) (LRR P, T, U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S,T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12) (LLR T,
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: Paved surface	Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Depth (inches): 0	

Remarks:  
Indicators of hydric soils lacking; hydric soils parameter is not met. No soil pit was dug due to paved surface in the ROW.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 6/27/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: WET 04 DP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1-3%  
 Subregion (LRR or MLRA): LRR T Lat: 28.439324 Long: -96.449156 Datum: WGS84  
 Soil Map Unit Name: Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded NWI Classification: None

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
--	--

Remarks:  
 Hydrophytic vegetation, wetland hydrology and hydric soil indicators were all observed. The Data Point (DP) is within a wetland. Wetland area located in a depression area with uplands at a slightly higher elevation. Based on observations during the field survey, it is likely earth moving activities have occurred at some point in time in the area creating differences in elevation throughout the surveyed area.

Habitat ID: WET 04 Habitat Type: PEM

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation <input type="checkbox"/> Marl Deposits (B15) (LRRU) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8)

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (Inches): <u>8</u>	<b>Wetland Hydrology Present?:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Two primary indicators and one secondary indicator of wetland hydrology were observed. The wetland hydrology parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: WET 04 DP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (B/A)  <b>Prevalence Index worksheet:</b> Total % Cover of:                      Multiply by: OBL Species <u>65</u> x 1 = <u>65</u> FACW Species <u>30</u> x 2 = <u>60</u> FAC Species <u>0</u> x 3 = <u>0</u> FACU Species <u>0</u> x 4 = <u>0</u> UPL Species <u>0</u> x 5 = <u>0</u> Column Totals: <u>95</u> (A) <u>125</u> (B)  Prevalence Index = B/A = <u>1.32</u>  <b>Hydrophytic Vegetation Indicators:</b> Yes    Dominance Test is >50% Yes    Prevalence Index is ≤3.0 <sup>1</sup> No    Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Vegetation Strata:</b>  <b>Tree</b> - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).  <b>Sapling</b> - Woody Plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.  <b>Shrub</b> - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.  <b>Herb</b> - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1m) in height. <b>Woody Vine</b> - All woody vines, regardless of height.  <b>Hydrophytic Vegetation Present?</b>  Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Sapling Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Shrub Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
Herb Stratum (Plot size : 30)				
1. <i>Fimbristylis castanea</i>	60	Yes	OBL	
2. <i>Spartina patens</i>	15	No	FACW	
3. <i>Cyperus elegans</i>	10	No	FACW	
4. <i>Centella erecta</i>	5	No	FACW	
5. <i>Juncus effusus</i>	5	No	OBL	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	95	= Total Cover		
Woody Vine Stratum (Plot size : 30)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		= Total Cover		
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is greater than 50%. The hydrophytic vegetation parameter is met.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: WET 04 DP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	97	5YR 4/6	3	C	M	Sandy	
4-16	10YR 6/2	98	10YR 6/8	2	C	M/PL	Sandy	Saturation begins at 8"

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)<br><input type="checkbox"/> Histic Epipedon (A2)<br><input type="checkbox"/> Black Histic (A3)<br><input type="checkbox"/> Hydrogen Sulfide (A4)<br><input type="checkbox"/> Stratified Layers (A5)<br><input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)<br><input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)<br><input type="checkbox"/> Mucky Presence (A8) (LRR P, T, U)<br><input type="checkbox"/> 1 cm Muck (A9) (LLR P, T)<br><input type="checkbox"/> Depleted Below Dark Surface (A11)<br><input type="checkbox"/> Thick Dark Surface (A12)<br><input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)<br><input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)<br><input type="checkbox"/> Sandy Gleyed Matrix (S4)<br><input checked="" type="checkbox"/> Sandy Redox (S5)<br><input type="checkbox"/> Stripped Matrix (S6)<br><input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S,T, U)<br><input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)<br><input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)<br><input type="checkbox"/> Loamy Gleyed Matrix (F2)<br><input type="checkbox"/> Depleted Matrix (F3)<br><input type="checkbox"/> Redox Dark Surface (F6)<br><input type="checkbox"/> Depleted Dark Surface (F7)<br><input type="checkbox"/> Redox Depressions (F8)<br><input type="checkbox"/> Marl (F10) (LRR U)<br><input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)<br><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)<br><input type="checkbox"/> Umbric Surface (F13) (LRR P, T, U)<br><input type="checkbox"/> Delta Ochric (F17) (MLRA 151)<br><input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)<br><input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)<br><input type="checkbox"/> Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D) |
|--|--|

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR O)<br><input type="checkbox"/> 2 cm Muck (A10) (LRR S)<br><input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,<br><input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)<br><input type="checkbox"/> Anomalous Bright Loamy Soils (F20) |
| <b>(MLRA 153B)</b>  |
| <input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Very Shallow Dark Surface (TF12) (LLR T,<br><input type="checkbox"/> Other (Explain in Remarks)  |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type:	Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Depth (inches):	

Remarks:  
 Indicators of hydric soils were observed; hydric soil parameter is met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Project Site: Port O'Connor Water Improvements City/ County: Calhoun Sampling Date: 6/27/2020  
 Applicant/Owner: Port O'Connor Improvement District State: Texas Sampling Point: WET 04 UDP  
 Investigator(s): C. Powell and K. Saucier Section, Township, Range: N/A  
 Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 2-3%  
 Subregion (LRR or MLRA): LRR T Lat: 28.439229 Long: -96.448981 Datum: WGS84  
 Soil Map Unit Name: Galveston-Mustang complex, 0 to 3 percent slopes, occasionally flooded, frequently ponded NWI Classification: PEM

Are climatic/hydrological conditions on the site typical for this time of year?  Yes  No (If no, explain in Remarks)  
 Are Vegetation, Soil, or Hydrology significantly disturbed?  Yes  No Are "Normal Circumstances" Present?  Yes  No  
 Are Vegetation, Soil, or Hydrology naturally problematic?  Yes  No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS- Attach site map showing sample point locations, transects, important features, etc.**

Hydrophytic vegetation present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within the Wetland? Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
--	--

**Remarks:**  
 Hydrophytic vegetation was observed; however, wetland hydrology and hydric soil indicators were not. The Data Point (DP) is not within a wetland. Based on observations during the field survey, it is likely earth moving activities have occurred at some point in time in the area creating differences in elevation throughout the surveyed area. Upland areas at a slightly higher elevation than wetland. DP taken in area that appears to be a drainage way from the cleared path to the wetland, but does not hold the water and lacks the other two indicators.

Habitat ID: WET 04 Upland Habitat Type: Upland

**Hydrology**

<b>Wetland Hydrology Indicators:</b> Primary indicators (minimum of one required; check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Surface Water (A1)</td> <td style="width: 33%;"><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRRU)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits</td> <td><input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thick Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other</td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation	<input type="checkbox"/> Marl Deposits (B15) (LRRU)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thick Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other	Secondary Indicators (minimum of two required) <table style="width: 100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																													
<input type="checkbox"/> High Water Table	<input type="checkbox"/> Aquatic Fauna (B13)																													
<input type="checkbox"/> Saturation	<input type="checkbox"/> Marl Deposits (B15) (LRRU)																													
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																													
<input type="checkbox"/> Sediment Deposits	<input type="checkbox"/> Oxidized Rhizospheres in Living Roots (C3)																													
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																													
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soil (C6)																													
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thick Muck Surface (C7)																													
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other																													
<input type="checkbox"/> Surface Soil Cracks (B6)																														
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																														
<input type="checkbox"/> Drainage Patterns (B10)																														
<input type="checkbox"/> Moss Trim Lines (B16)																														
<input type="checkbox"/> Dry-Season Water Table (C2)																														
<input type="checkbox"/> Crayfish Burrows (C8)																														
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)																														
<input type="checkbox"/> Geomorphic Position (D2)																														
<input type="checkbox"/> Shallow Aquitard (D3)																														
<input type="checkbox"/> FAC-Neutral Test (D5)																														
<input type="checkbox"/> Sphagnum moss (D8)																														

<b>Field Observations:</b> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (Inches): _____ <small>(includes capillary fringe)</small>	<b>Wetland Hydrology Present?:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**

No indicators of wetland hydrology were present. The wetland hydrology parameter is not met.

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

Vegetation - Use scientific names of plants.

Sampling Point: WET 04 UDP

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree stratum (Plot size : 30)				<b>Dominance Test Worksheet:</b>  Number of Dominant Species That Are OBL, FACW, or FAC: <u>  2  </u> (A)  Total Number of Dominant Species Across All Strata: <u>  2  </u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u> 100% </u> (B/A)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Sapling Stratum (Plot size : 30)				
1.	15	Yes	FAC	<b>Prevalence Index worksheet:</b>  Total % Cover of:                      Multiply by: OBL Species <u>  10  </u> x 1 = <u>  10  </u> FACW Species <u>  35  </u> x 2 = <u>  70  </u> FAC Species <u>  45  </u> x 3 = <u> 135  </u> FACU Species <u>  10  </u> x 4 = <u>  40  </u> UPL Species <u>  0  </u> x 5 = <u>  0  </u> Column Totals: <u> 100 </u> (A) <u> 255 </u> (B)
2.				
3.				
4.				
5.				
6.				
7.				
			15 = Total Cover	
Shrub Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
			= Total Cover	
Herb Stratum (Plot size : 30)				
1.	20	Yes	FACW	<b>Hydrophytic Vegetation Indicators:</b>  Yes    Dominance Test is >50% Yes    Prevalence Index is ≤3.0 <sup>1</sup> No     Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2.	15	No	FACW	
3.	10	No	FACU	
4.	10	No	FAC	
5.	10	No	FAC	
6.	10	No	OBL	
7.	10	No	FAC	
8.				
9.				
10.				
11.				
12.				
			85 = Total Cover	
Woody Vine Stratum (Plot size : 30)				
1.				
2.				
3.				
4.				
5.				
6.				
			= Total Cover	
Remarks: (if observed, list morphological adaptations below). Percentage of dominant plants that are OBL, FACW, or FAC is greater than 50%. The hydrophytic vegetation parameter is met.				

# WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region - Version 2.0

**SOIL**

Sampling Point: WET 04 UDP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 5/2	100					Sandy	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Mucky Presence (A8) (LRR P, T, U)
- 1 cm Muck (A9) (LLR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S,T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) ( MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
  - 2 cm Muck (A10) (LRR S)
  - Reduced Vertic (F18) (outside MLRA 150A,
  - Piedmont Floodplain Soils (F19) (LRR P, S, T)
  - Anomalous Bright Loamy Soils (F20)
- (MLRA 153B)**
- Red Parent Material (TF2)
  - Very Shallow Dark Surface (TF12) (LLR T,
  - Other (Explain in Remarks)

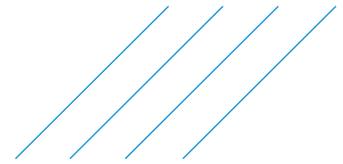
<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soils Present?     Yes     No

Remarks:  
 Indicators of hydric soils lacking; hydric soils parameter is not met.



# Appendix C. Representative Photographs



1. Typical representation of estuarine, intertidal emergent (E2EM) Wet 01 facing southeast in the southeastern portion of the survey area adjacent to the Gulf Intracoastal Waterway (GIWW).



2. Typical representation of Wet 01 upland with concrete boulder and slabs, in the southeastern portion of the survey area facing northeast.

**Representative Site Photographs**

Port O'Connor Water Improvements  
Wetland Delineation Report  
100068304

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3. Typical representation of palustrine, emergent wetland (PEM), Wet 02 within the roadside ditch (D1) adjacent to a paved roadway upland, in the western portion of the survey area facing west.



4. Typical representation of PEM, Wet 03 within roadside ditch (D2) with paved roadway upland, located in the eastern portion of the survey area facing west.

### Representative Site Photographs

Port O'Connor Water Improvements  
Wetland Delineation Report  
100068304

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5. Typical representation of PEM, Wet 04 adjacent to the unnamed stream in the northeastern portion of the survey area facing north.



6. Typical representation of Wet 04 upland in the northeastern portion of the survey area facing west.

**Representative Site Photographs**

Port O'Connor Water Improvements  
Wetland Delineation Report  
100068304

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7. Ditch 3 adjacent to Trevor Street, lacking wetland vegetation within the channel, in the northeastern portion of the survey area facing south.



8. Typical representation of upland fields with disturbance from mowing and/or driving paths throughout the project area (28.4330778, -96.454680).

**Representative Site Photographs**

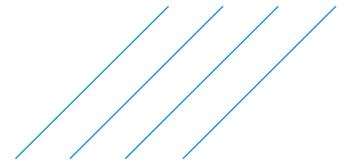
Port O'Connor Water Improvements  
Wetland Delineation Report  
100068304

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# Appendix B-3 Threatened and Endangered Species Habitat Evaluation Technical Memo

- USFWS IPaC List [Appendix C in the Memo]
- TPWD County List [Appendix D in the Memo]



## Memo

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**Project:** Port O'Connor Water Line, Water Well, and Water Plant Improvements

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**Date:** September 2020

**Ref:** 100068304

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**Subject:** Threatened and Endangered Species Habitat Evaluation Technical Memo

On behalf of the Port O'Connor Improvement District (the Client), Atkins North America, Inc. (Atkins) conducted a threatened and endangered species background study in support of the proposed Port O'Connor Water Line, Water Well, and Water Plant Improvement Project (the project). The purpose of this memorandum is to describe the findings of the evaluation for potential threatened and endangered species and habitat conducted by qualified Atkins staff within the vicinity of the proposed project.

### Project Details

The project area encompasses approximately 12 acres within Port O'Connor, Texas, in Calhoun County (Figure 1, Appendix A). The proposed project initiates along Farm-to-Market (FM) 185/Adams Street adjacent to the Victoria Electric Company building on the north side of the road for approximately 0.2 mile before breaking. The eastern half of the project area also begins on the north side of FM 185/Adams Street, approximately 0.2 mile from the western half, and extends across the street running northeast and southeast. The southeast portion of the project area continues to, and extends slightly into, the Gulf Intracoastal Waterway (GIWW) (Figures 2a & 2b, Appendix A).

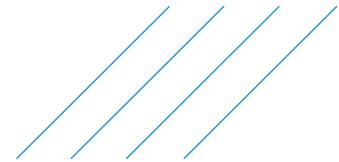
The Port O'Connor (POC) community is approaching the limit of permissible connections relative to water supply. An additional source of water is required to continue development of residential and commercial structures. Construction of the proposed project will increase the water supply and the allowable connections. The purpose of this proposed project is to increase the capacity of the POC potable water system for the residents and convert POC to a primarily groundwater supply.

The project proposes the installation of new water lines via a temporary 24-inch open trench in an existing utility easement along approximately 7,000 linear feet (LF) of FM 185/ Adams Street, Trevor Street, and various private drives, and install approximately 3,484 LF of outfall line in a temporary 30-inch open trench from the Reverse Osmosis (RO) facility to an outfall constructed along the shoreline of the GIWW. The new water line terminates at the existing RO facility, where a new larger capacity RO facility will be constructed.

Effects in the open trench are temporary and material from trenching activities will be placed on adjacent pavement or upland. The trench area will be backfilled, and the affected areas will be returned to their preconstruction contours and will be re-vegetated as appropriate. Construction of the wells may cause temporary effects in the immediately surrounding area. The affected areas will be returned to their preconstruction contours and will be re-vegetated as appropriate.

### Project Area Habitat

Atkins surveyed a 12.1-acre project area on March 3, March 4, and June 27, 2020 (Figure 2a, Appendix A). A formal presence/absence survey for listed species was not conducted. At the time of the field survey, the area consisted of one tidally influenced, estuarine emergent wetland; a small portion of the GIWW in shallow water immediately adjacent to the vegetated coast; four palustrine emergent (PEM) wetlands; two roadside ditches that were 100 percent covered by emergent wetland vegetation with indication of regular mowing and one roadside ditch without wetland vegetation or mowing; grassy fields with indication of mowing and other human disturbance; paved roadway lined with utility poles;



and multiple privately-owned agricultural areas with cattle and other signs of disturbance, such as driving paths. See Appendix B for representative photographs of the project area. Soils were mainly sand. There was no surface water in the wetlands and no flow within the roadside ditches. Vegetation within the area was primarily herbaceous, with some trees in the pastures. Land use in the vicinity is industrial, commercial, and residential with predominant agricultural use.

The western side of the project area, encompassing proposed well 3, contains a field with tall grass with portions currently mowed (Photo 1, Appendix B). Gopher burrows and crawfish chimneys are found in this area. Proposed project disturbance in this area is mainly temporary, with the only permanent impact area being the well itself (Well No. 3) and an access road leading from the well to the road.

The portion of the project area encompassing the proposed RO facility and well 4 consists mainly of disturbed land. The field in this area is currently mowed and contains gopher burrows (Photo 2, Appendix B). Proposed project disturbance in this area is mainly temporary, with the only permanent impact area being the well itself (Well No. 4) and an access road leading from the well to the road.

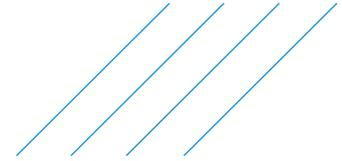
The southeastern portion of the project area consists of the proposed outfall line, running from the road to the GIWW. This area contains pasture with gopher burrows along the entire length of the proposed outfall line (Photo 3, Appendix B). Vegetation is maintained either by mowing or cattle grazing. The portion of the project area along the GIWW contains upland with prickly pear cactus and wooly croton with large pieces of concrete and other debris (Photo 4, Appendix B). The intertidal emergent wetland abutting the GIWW is littered with debris and trash (Photo 5, Appendix B). The shoreline has a steep edge, likely due to wave erosion and there was no surface water in the wetland at the time of the survey. Proposed project disturbance in this area is mainly temporary, with the only permanent impact area being the outfall support structures (2 pilings) and the placement of crushed rock along the shoreline of the GIWW to provide erosion control.

The habitat in the eastern portion of the project area encompassing wells 5 and 6 is mainly mowed grass field (Photos 6 – 7, Appendix B). Proposed project disturbance in this area is mainly temporary, with the only permanent impact areas being the wells and associated well access roads.

The habitat near proposed Well No. 7 is a mixture of emergent wetland and upland, primarily of grass and shrubs (Photos 8 – 9, Appendix B). Proposed project disturbance in this area is mainly temporary, with the only permanent impact area being the well itself and an access road leading from the well to the road.

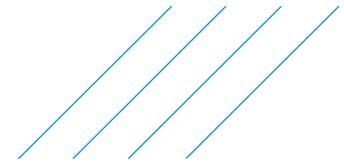
## Threatened and Endangered Species

Databases of sensitive species maintained by the United States Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) were used to determine if state and/or federally listed threatened or endangered species have the potential to occur in the project area. Potential effects were determined by reviewing the USFWS Information for Planning and Consultation (IPaC) resource list (Appendix C); TPWD Rare, Threatened, and Endangered Species of Texas county list (Appendix D); and the TPWD Texas Natural Diversity Database (TXNDD) Records (Appendix E). Table 1 summarizes the federally listed species with the potential to occur in the project area as indicated by the IPaC list. Table 2 summarizes the state rare, threatened, and endangered species as listed by the TPWD County List. No unique, critical, designated, or proposed habitat exists in or near the project area.

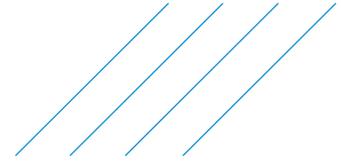


**Table 1: USFWS IPaC Resource List Federally Protected or Candidate Species with Potential to Occur within the Project Area**

Species Name <sup>1</sup>	Federal Status <sup>2</sup>	State Status <sup>3</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
Birds						
<b>Least tern</b> ( <i>Sterna antillarum</i> )	FE	SE	This species can be found on lakes, rivers and estuaries, strictly on the coast in some regions (e.g. California) but inland in others (e.g. Florida). Breeding occurs on sandy or gravelly beaches and banks.	No	Project area contains coastal habitat, but lacks necessary beach area. The coastline abutting the GIWW is marginal brackish wetland, without nesting beach habitat along the outfall area.	No effect
<b>Northern aplomado falcon</b> ( <i>Falco femoralis septentrionalis</i> )	FE	SE	Inhabits open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus.	No	Project area does not contain suitable habitat.	No effect
<b>Piping plover</b> ( <i>Charadrius melodus</i> )	FT	ST	Habitat includes beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the GIWW.	No	Project area does not contain suitable habitat.	No effect
<b>Red knot</b> ( <i>Calidris canutus rufa</i> )	FT	SGCN	Migrates northward through the United States mainly from April to June, southward from July to October. Wintering habitat is primarily seacoasts on tidal flats and beaches, herbaceous wetland, and tidal flat/shore.	No	Project area contains poor quality herbaceous wetland habitat, as it is littered with debris and trash. Additionally, the shoreline edge is sharp, without a gradual decline that would be suitable for foraging even at falling tides.	No effect
<b>Whooping crane</b> ( <i>Grus americana</i> )	FE	SE	Inhabits inland small ponds, marshes, and flooded grain fields. These areas are poorly drained with numerous areas of open water. Wintering habitat is mainly marshes and salt flats. Potential migrant throughout most of Texas; winters in coastal marshes of	No	Project area contains poor brackish marsh for roosting and foraging along the GIWW outfall area and grassy field areas near the proposed	No effect



Species Name <sup>1</sup>	Federal Status <sup>2</sup>	State Status <sup>3</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			Aransas, Calhoun, and Refugio counties.		well locations also are poor habitat for foraging and roosting, because they lack open water areas and are disturbed.	
Mammals						
<b>Gulf coast Jaguarundi</b> ( <i>Herpailurus (=Felis) yagouaroundi cacomitli</i> )	FE	ST	Occupies a broad range of habitats, from Monte desert, semi-arid thorn scrub, restinga, swamp and savanna woodland to primary rainforest.	No	Project area does not contain suitable habitat.	No effect
<b>West Indian manatee</b> ( <i>Trichechus manatus</i> )	FT	—	Generally found in marine, brackish, and freshwater systems with areas for foraging, drinking sites, resting areas, and travel corridors.	No	Project area does not contain suitable habitat and outside typical geographic range..	No effect
Reptiles						
<b>Green sea turtle</b> ( <i>Chelonia mydas</i> )	FT	ST	Generally found in shallow waters inside reefs, bays, and inlets, attracted to lagoons and shoals with marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting.	No	Project area contains marginal shallow water for foraging but lacks beach area for nesting. This area likely also lacks seagrass and algae.	May affect, but not likely to adversely affect
<b>Hawksbill sea turtle</b> ( <i>Eretmochelys imbricata</i> )	FE	SE	Found in Gulf and bay system, warm shallow waters, specifically in rocky marine environments, such as coral reefs.	No	Project area does not contain suitable habitat for foraging or nesting	No effect
<b>Kemp's Ridley sea turtle</b> ( <i>Lepidochelys kempii</i> )	FE	SE	Generally found in nearshore and inshore waters of the northern Gulf of Mexico, occupying nearshore habitat with muddy or sandy bottoms.	No	Project area contains marginal shallow water for foraging but lacks beach area for nesting. This area likely contains a sandy or muddy bottom.	May affect, but not likely to adversely affect
<b>Leatherback sea turtle</b> ( <i>Dermochelys coriacea</i> )	FE	SE	Pelagic, Gulf, and bay systems; widest ranging open-water reptile, preferring deep water. The U.S. is a	No	Project area does not contain suitable habitat for foraging or nesting.	No effect



Species Name <sup>1</sup>	Federal Status <sup>2</sup>	State Status <sup>3</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			portion of their western Atlantic nesting territories.			
<b>Loggerhead sea turtle</b> ( <i>Caretta caretta</i> )	FT	ST	Generally found in marine and estuarine environments, occupying a wide variety of habitats from bays to reefs. Migration occurs between nesting beaches and marine waters. Nesting occurs minimally in Texas; the majority is along the central Atlantic coast of Florida.	No	Project area contains marginal shallow water for foraging but lacks beach area for nesting.	May affect, but not likely to adversely affect

Sources: IUCN 2020; NOAA 2020; USFWS 2020a; USFWS 2020b; TPWD 2020a; TPWD 2020b.

<sup>1</sup>When differences exist between USFWS and TPWD lists, USFWS nomenclature was used.

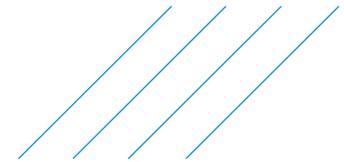
<sup>2</sup>Federal Status (USFWS): FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; -- = No Listed Federal Status

<sup>3</sup>State Status (TPWD): SE = State endangered; ST = State threatened; SGCN = Species of Greatest Conservation Need; DL = Delisted Taxon; -- = No Listed State Status

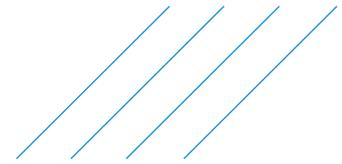
Of the 74 state-listed rare, threatened, or endangered species identified from TPWD Rare, Threatened, and Endangered Species of Texas by County list, 11 were identified in Table 1 above as federally protected or listed as candidate species with potential to occur within the project area.

**Table 2: State Listed Rare, Threatened, and Endangered Species with Potential to Occur within the Project Area**

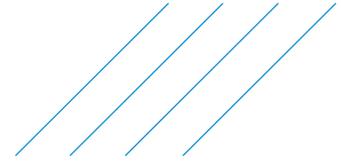
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
Amphibians						
<b>Black-spotted newt</b> ( <i>Notophthalmus meridionalis</i> )	ST	—	May be found in bodies of water with firm bottoms and little or no vegetation. Can be found in wet or sometimes wet areas.	No	Project area does not contain suitable habitat.	No effect
<b>Southern crawfish frog</b> ( <i>Lithobates areolatus areolatus</i> )	SGCN	—	Habitat is shallow water, herbaceous wetland, riparian, temporary pool, cropland/hedgerow, grassland/herbaceous, suburban/orchard, and woodland.	No	Project area contains potential grassland habitat for burrowing and herbaceous wetland habitat for burrowing and/or breeding.	May affect,
<b>Strecker's chorus frog</b> ( <i>Pseudacris streckeri</i> )	SGCN	—	Habitat is wooded floodplains and flats, prairies, cultivated fields and marshes.	No	Project area does not contain suitable habitat.	No effect
<b>Woodhouse's toad</b> ( <i>Anaxyrus woodhousii</i> )	SGCN	—	Inhabits grasslands, deserts and semi-desert shrublands, river valleys and floodplains, and agricultural areas, usually in areas with deep friable soils. Prefers sandy areas near marshes, river bottoms,	No	Project area contains marginal grassland and shrub habitat for foraging and/or breeding.	May affect



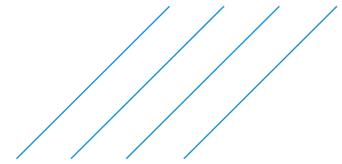
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			desert streams, irrigated fields.in addition to irrigated backyard gardens.			
Birds						
<b>Bald eagle</b> <i>(Haliaeetus leucocephalus)</i>	ST	—	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water.	No	Project area is near water, but lacks tall trees. The area contains typical utility poles near the major roadways providing poor habitat for nesting	No effect
<b>Black rail</b> <i>(Laterallus jamaicensis)</i>	SGCN	—	Habitat includes salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps. All of its habitats have stable shallow water, usually 1 to 2 inches at most. Nests occur in the higher, drier parts of the marsh, where tidal activity is least and types of grasses,, sedges, and rushes occur in mosaic-like patches.	No	Project area contains marginal marsh habitat for nesting.	May affect
<b>Franklin's gull</b> <i>(Leucophaeus pipixcan)</i>	SGCN	—	This species can be found on coasts in rocky or sandy shorelines, beaches, sand bars, mud flats and salt flats, lakes, freshwater marshes, fields, and rubbish dumps. During migration they have been detected in almost every corner and habitat of North America.	No	Project area contains marginal marsh habitat and fields for foraging.	May affect
<b>Reddish egret</b> <i>(Egretta rufescens)</i>	ST	—	Resident of Texas Coast; habitat is brackish marshes and shallow salt ponds and tidal flats. Nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear or other low vegetation such as sea oxeye or sea purslane. Foraging habitat consists of shallow coastal flats, ponds, and lagoons.	No	Project area contains marginal brackish marsh habitat with sea oxeye daisy and adjacent upland with prickly pear along the GIWW for nesting and foraging area.	May affect
<b>Swallow-tailed kite</b> <i>(Elanoides forficatus)</i>	ST	—	Habitat is lowland forested regions ranging into open woodland; inland marshes, along rivers, lakes, and	No	Project area does not contain suitable habitat.	No effect



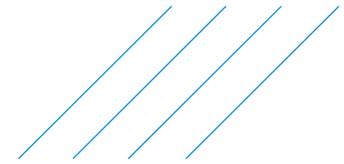
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			ponds; nests high in tall trees in clearings or on forest woodland edge.			
<b>Tropical parula</b> ( <i>Setophaga pitiayumi</i> )	ST	—	Found in semi-tropical evergreen woodland along rivers and resacas.	No	Project area does not contain suitable habitat.	No effect
<b>Western burrowing owl</b> ( <i>Athene cunicularia hypugaea</i> )	SGCN	—	Habitat is open grasslands—especially prairie, plains, and savanna—and sometimes in open areas such as vacant lots near human habitation or airports. Often inhabit areas closely associated with burrowing rodent species and may opportunistically live and nest in highly urbanized areas.	No	Project area contains potential wintering habitat - open grasslands, gopher burrows, and open areas.	May affect
<b>White-faced ibis</b> ( <i>Plegadis chihi</i> )	ST	—	Prefers freshwater marshes, sloughs, and irrigated rice fields, but can be found in brackish and saltwater habitats. Nesting is usually in dense marsh growth and foraging mostly by wading in shallow water, probing in soft mud.	No	Project area contains marginal habitat for nesting and/or foraging.	May affect
<b>White-tailed hawk</b> ( <i>Buteo albicaudatus</i> )	ST	—	Lives near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral.	No	Project area does not contain suitable habitat.	No effect
<b>Wood stork</b> ( <i>Mycteria americana</i> )	ST	—	Prefers to nest in large tracts of bald cypress or red mangrove, mainly in forested wetlands. Forages in wetlands, swamps, ponds, and marshes with shallow standing water around 4-12 inches deep, including saltwater. Breeds in Mexico and moves into Gulf States in search of mud flats and other wetlands.	No	Project area contains poor brackish marsh habitat and wetlands for foraging.	No effect
<b>Fishes</b>						
<b>Alligator gar</b> ( <i>Atractosteus spatula</i> )	SGCN	—	Found in rivers, streams, lakes, swamps, bayous, bays, and estuaries typically in pools and backwater habitats.	No	Project area does not contain suitable habitat.	No effect
<b>Oceanic whitetip shark</b> ( <i>Carcharhinus longimanus</i> )	SGCN	FT	Found in tropical and sub-tropical waters. It is a pelagic species, generally remaining offshore in the open ocean,	No	Project area does not contain suitable habitat.	No effect



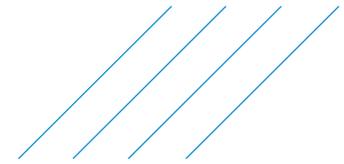
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			on the outer continental shelf, or around oceanic islands.			
<b>Opossum pipefish</b> ( <i>Microphis brachyurus</i> )	SGCN	—	Brooding adults found in fresh or low-salinity waters and young move into more saline waters after birth, associated with sea grass or algae.	No	Project area does not contain suitable habitat.	No effect
<b>Saltmarsh topminnow</b> ( <i>Fundulus jenkinsi</i> )	SGCN	—	Inhabits estuaries, coastal salt marshes, and backwater sloughs. Occurs most abundantly in shallow, tidal <i>Spartina</i> cordgrass marshes and <i>Juncus</i> rush salt marshes.	No	Project area does not contain suitable habitat.	No effect
<b>Shortfin Mako shark</b> ( <i>Isurus oxyrinchus</i> )	ST	—	Found in tropical and temperate offshore waters. They are a pelagic species that occur from the surface down to depths of 500 meters.	No	Project area contains does not contain suitable habitat.	No effect
<b>Southern flounder</b> ( <i>Paralichthys lethostigma</i> )	SGCN	—	Estuarine-dependent species that inhabits riverine, estuarine, and coastal waters, and prefers muddy or silty substrates. Prefers inland wetlands and subtidal sandy/muddy marine areas.	No	Project area does not contain suitable habitat.	No effect
Insects						
<b>American bumblebee</b> ( <i>Bombus pensylvanicus</i> )	SGCN	—	Terrestrial habitat in farmland and fields. Nests mostly on the surface of the ground among long grass, but occasionally underground. Flower-rich grassland are optimal habitat.	No	Project area contains marginal nesting habitat - fields with long grasses.	May affect
<b>Gulf dune grasshopper</b> ( <i>Trimerotropis schaefferi</i> )	SGCN	—	This species uses terrestrial habitat of coastal dunes and areas behind the dunes.	No	Project area does not contain suitable habitat.	No effect
Mammals						
<b>American badger</b> ( <i>Taxidea taxus</i> )	SGCN	—	Occupies a variety of habitat, prefers open areas with uncultivated ground and may also frequent brushlands with little ground cover. Usually in relatively dry grasslands and open forests.	No	Project area contains marginal open areas of tall grasses for foraging and burrowing but all areas are within the floodplain and may not be dry enough habitat.	May affect



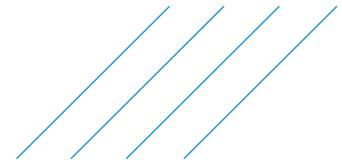
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
<b>Big free-tailed bat</b> ( <i>Nyctinomops macrotis</i> )	SGCN	—	Habitat data is sparse, but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well.	No	Project area does not contain suitable habitat.	No effect
<b>Blue whale</b> ( <i>Balaenoptera musculus</i> )	SE	FE	Inhabits waters worldwide, but are infrequently sighted in the Gulf of Mexico.	No	Project area does not contain suitable habitat.	No effect
<b>Eastern red bat</b> ( <i>Lasiurus borealis</i> )	SGCN	—	Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns, especially during migration.	No	Project area does not contain suitable habitat.	No effect
<b>Eastern spotted skunk</b> ( <i>Spilogale putorius</i> )	SGCN	—	Habitat includes open fields, tall-grass prairies, croplands, fence rows, farmyards, forest edges, and woodlands. Prefers thick vegetation and less common in short-grass plains.	No	Project area contains marginal grassland habitat for foraging and burrowing.	May affect
<b>Gulf of Mexico Bryde's whale</b> ( <i>Balaenoptera edemi</i> )	SE	FE	Found in tropical and subtropical waters around the world.	No	Project area does not contain suitable habitat.	No effect
<b>Hoary bat</b> ( <i>Lasiurus cinereus</i> )	SGCN	—	Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.	No	Project area does not contain suitable habitat.	No effect
<b>Humpback whale</b> ( <i>Megaptera novaeangliae</i> )	SE	FE	Found in open ocean and coastal waters, sometimes including inshore areas such as bays. In winter, most are in tropical/subtropical waters near islands or coasts.	No	Project area does not contain suitable habitat.	No effect
<b>Long-tailed weasel</b> ( <i>Mustela frenata</i> )	SGCN	—	Includes brushlands, fencerows, upland woods and bottomland hardwoods, forest edges, and rocky desert scrub.	No	Project area does not contain suitable habitat.	No effect
<b>Mexican free-tailed bat</b> ( <i>Tadarida brasiliensis</i> )	SGCN	—	Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.	No	Project area does not contain suitable habitat.	No effect
<b>Mink</b> ( <i>Neovison vison</i> )	SGCN	—	Intimately associated with water; coastal swamps and marshes, wooded riparian zones, edges of lakes. Prefers floodplains, stream, pond, and lake habitat. Dens	No	Project area does not contain suitable habitat.	No effect



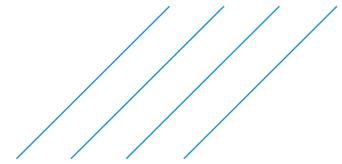
Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
			in shoreline banks and swamps.			
<b>Mountain lion</b> ( <i>Puma concolor</i> )	SGCN	—	Found in rugged mountains and riparian zones.	No	Project area does not contain suitable habitat.	No effect
<b>North Atlantic right whale</b> ( <i>Eubalaena glacialis</i> )	SE	FE	Found in subtropical and temperate waters in the Northern Atlantic, found rarely in the Gulf of Mexico.	No	Project area does not contain suitable habitat.	No effect
<b>Padre Island kangaroo rat</b> ( <i>Dipodomys compactus compactus</i> )	SGCN	—	Prefer to inhabit sparsely vegetated areas with sandy soils, usually associated with dunes on islands.	No	Project area does not contain suitable habitat.	No effect
<b>Sei whale</b> ( <i>Balaenoptera borealis</i> )	SE	FE	Found in subtropical, temperate, and subpolar waters around the world. They prefer temperate waters in the mid-latitudes.	No	Project area does not contain suitable habitat.	No effect
<b>Southern short-tailed shrew</b> ( <i>Blarina carolinensis</i> )	SGCN	—	Habitat includes forest, inland wetlands, terrestrial pasturelands, and urban areas, with importance placed on shrublands.	No	Project area contains marginal wetland and upland habitat.	May affect
<b>Sperm whale</b> ( <i>Physeter macrocephalus</i> )	SE	FE	Found in tropical, subtropical, and temperate waters worldwide, avoiding icy waters.	No	Project area does not contain suitable habitat.	No effect
<b>Swamp rabbit</b> ( <i>Sylvilagus aquaticus</i> )	SGCN	—	Occurs in inland swampy, lowland, or river bottom areas, always near water.	No	Project area does not contain suitable habitat.	No effect
<b>Thirteen-lined ground squirrel</b> ( <i>Ictidomys tridecemlineatus</i> )	SGCN	—	Restricted to dry and sandy (and "tighter") soils of open areas, such as grasslands, cultivated fields, meadows, roadsides, airfields, shrublands, and suburban lawns. Beaches and dry pine barrens also are used.	No	Project area contains sandy soils, with marginal grassland and upland shrub habitat.	May affect
<b>Tricolored bat</b> ( <i>Perimyotis subflavus</i> )	SGCN	—	Forest, woodland and riparian areas are important. Caves are very important to this species.	No	Project area does not contain suitable habitat.	No effect
<b>Western hog-nosed skunk</b> ( <i>Conepatus leuconotus</i> )	SGCN	—	Habitats include woodlands, semi-open grasslands, swamp, and deserts, to 7,200 feet, most common in rugged, rock canyon country.	No	Project area contains marginal grassland habitat for foraging and burrowing.	May affect



Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
<b>White-nosed coati</b> ( <i>Nasua narica</i> )	ST	—	Found in woodlands, riparian corridors, and canyons.	No	Project area does not contain suitable habitat.	No effect
Mollusks						
<b>Live oak glass</b> ( <i>Nesovitreia suzannae</i> )	SGCN	—	Terrestrial habitat of live oak groves of the Texas coastal prairie.	No	Project area does not contain suitable habitat.	No effect
Plants						
<b>Awnless bluestem</b> ( <i>Bothriochloa exaristata</i> )	SGCN	—	Coastal prairies on black clay. Flowering and fruiting April-December.	No	Project area does not contain suitable habitat.	No effect
<b>Coastal gay-feather</b> ( <i>Liatis bracteata</i> )	SGCN	—	Coastal prairie grasslands of various types, from salty prairie on low-lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams. Flowering in the fall.	No	Project area does not contain suitable habitat.	No effect
<b>Indianola beakrush</b> ( <i>Rhynchospora indianolensis</i> )	SGCN	—	Locally abundant in cattle pastures in some areas (at least during wet years). Flowering and fruiting April – November.	No	Project area contains poor cow pasture habitat.	No effect
<b>Marsh-elder dodder</b> ( <i>Cuscuta attenuata</i> )	SGCN	—	Parasitizes a particular sump weed ( <i>Iva annua</i> ) almost exclusively. Host plant found in open, disturbed habitats like fallow fields and creek bottomlands. Flowering late summer through October.	No	Project area does not contain suitable habitat.	No effect
<b>Sand Brazos mint</b> ( <i>Brazoria arenaria</i> )	SGCN	—	Found in sandy areas of South Texas associated with tallgrass grasslands dominated by seacoast bluestem and gulfdune paspalum. Flowering and fruiting March- April.	No	Project area contains marginal sandy grassland habitat.	May affect
<b>Texas peachbush</b> ( <i>Prunus texana</i> )	SGCN	—	Occurs at scattered sites in various well drained sandy situations; deep sand, plains and sand hills, grasslands, oak woods. Flowering February-March and fruiting April – June.	No	Project area contains marginal sandy grassland habitat, but lacks listed dominate species and area likely not well drained due to being in the floodplain.	May affect



Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
<b>Texas willkommia</b> ( <i>Willkommia texana</i> var. <i>texana</i> )	SGCN	—	Found mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain.	No	Project area does not contain suitable habitat.	No effect
<b>Tharp's dropseed</b> ( <i>Sporobolus tharpii</i> )	SGCN	—	Occurs on barrier islands, shores of lagoons and bays protected by the barrier islands, and on shores of a few near-coastal ponds.	No	Project area does not contain suitable habitat.	No effect
<b>Threeflower broomweed</b> ( <i>Thurovia triflora</i> )	SGCN	—	Occurs near the coast in sparse, low vegetation on a veneer of light-colored silt or fine sand over saline clay along drier upper margins of ecotone between salty prairies and tidal flats. Flowering September – November.	No	Project area does not contain suitable habitat.	No effect
<b>Velvet spurge</b> ( <i>Euphorbia innocua</i> )	SGCN	—	Found in open or brushy areas on coastal sands and the South Texas Sand Sheet. Flowering September – April and fruiting November – July.	No	Project area does not contain suitable habitat.	No effect
<b>Reptiles</b>						
<b>Eastern box turtle</b> ( <i>Terrapene Carolina</i> )	SGCN	—	This species inhabits forests, brushy fields, forest-brush, and forest-field ecotone.	No	Project area contains marginal brush upland habitat.	May affect
<b>Keeled earless lizard</b> ( <i>Holbrookia propinqua</i> )	SGCN	—	Inhabits coastal dunes, barrier islands, and other sandy areas.	No	Project area does not contain suitable habitat.	No effect
<b>Massasauga</b> ( <i>Sistrurus tergeminus</i> )	SGCN	—	Quite common in gently rolling prairie occasionally broken by creek valley or rocky hillside.	No	Project area does not contain suitable habitat.	No effect
<b>Slender glass lizard</b> ( <i>Ophisaurus attenuates</i> )	SGCN	—	Prefers relatively dry microhabitats, usually with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and near streams and ponds.	No	Project area contains marginal grassland habitat.	May affect



Species Name <sup>1</sup>	State Status <sup>2</sup>	Federal Status <sup>3*</sup>	Description of Suitable Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Effects of Project
<b>Texas diamondback terrapin</b> ( <i>Malaclemys terrapin littoralis</i> )	SGCN	—	Found in coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water.	No	Project area contains poor brackish marsh habitat and shallow nearshore GIWW habitat for foraging. Additionally, the shoreline edge is sharp, without a gradual decline that would prevent access.	No effect
<b>Texas horned lizard</b> ( <i>Phrynosoma cornutum</i> )	ST	—	Occurs to 6,000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Found in open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby tree.	No	Project area does not contain suitable habitat.	No effect
<b>Texas scarlet snake</b> ( <i>Cemophora coccinea lineri</i> )	ST	—	Inhabits mixed hardwood scrub on sandy soils.	No	Project area does not contain suitable habitat.	No effect
<b>Western box turtle</b> ( <i>Terrapene ornate</i> )	SGCN	—	Inhabits prairie grasslands, pastures, fields, sandhills, and open woodland.	No	Project area contains marginal grassland habitat.	May affect

Sources: IUCN 2020; NOAA 2020; USFWS 2020a; USFWS 2020b; TPWD 2020a; TPWD 2020b.

<sup>1</sup>When differences exist between USFWS and TPWD lists, USFWS nomenclature was used.

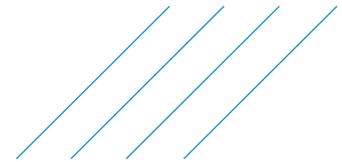
<sup>2</sup>State Status (TPWD): SE = State endangered; ST = State threatened; SGCN = Species of Greatest Conservation Need; DL = Delisted Taxon; -- = No Listed State Status

<sup>3</sup>Federal Status (USFWS): FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; -- = No Listed Federal Status

\*Species with federal status included in the table based on the TPWD county list (2020), and not listed on the IPaC report for the specified project area (USFWS 2020).

According to the TPWD TXNDD record search conducted in August 2020, no documented elements of occurrence (EO)—which can be a species, a native plant community, or an animal aggregation—are located within the project area (Figure 3, Appendix A). Five species (green sea turtle, Kemp’s Ridley sea turtle, whooping crane, southern crawfish frog, and plains spotted skunk), one aggregation type (migratory songbird fallout site), and two plant communities (coastal live oak-pecan series and seacoast bluestem-gulfdune paspalum series, neither with listed species) were identified within one to three miles of the project area. No source features (SF)—which is an interpreted area that an observed element is located—are within the project area. Two source features (western box turtle and black rail) are located over one mile and two miles respectively from the project area. See Appendix E for the TXNDD EO report and SF list.

At the time of the field investigation, listed species were not observed in the project area. Species observed included the black vulture (*Coragyps atratus*), killdeer plover (*Charadrius vociferus*), cardinal



(*Cardinalis cardinalis*), crow and other typical cow birds, crayfish burrows, and many gopher burrows (likely Texas pocket gopher (*Geomys personatus*)).

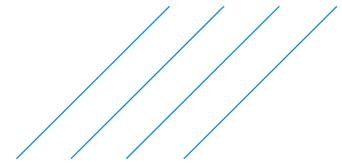
Proposed project activities, specifically, installation of two (2) of the four (4) pilings for the aboveground outfall structure in the shallow waters of the GIWW, have the potential to *may affect, but not likely to adversely affect* three (3) of the 12 federally-listed species listed in Table 1: the threatened green sea turtle (*Chelonia mydas*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), and the threatened loggerhead sea turtle (*Caretta caretta*). Potential suitable foraging habitat for the green, Kemp's ridley, and loggerhead sea turtles occurs in the shallow, estuarine waters of the GIWW within the project area. No beach area occurs within the project area so nesting is not probable. It is possible that green sea turtles, Kemp's ridley sea turtles, and loggerhead sea turtles may be found in or near the proposed construction work area during installation of the pilings.

The pilings for the outfall structure will be installed using the "pile jetting" methodology, where a high-pressure water pump is used to create the hole for the piling and the sand packs back in around the piling once set. Pile jetting is a common construction method for smaller in-water foundations of structures, such as docks. Pile jetting equipment consists of a crane with leads to place the piles, a jet pipe (or pipes) with connecting hoses, and a jet pump. The crane and equipment for the jet pilings and the outfall construction will be land based and construction is expected to take less than 10 days. There is practically no information on the effects of the jetting methodology on marine mammals or sea turtles. No studies have been done to assess the effects on these species or the threshold that may elicit behavioral or physiological responses. It is expected that sea turtles, as highly mobile species, are likely to spend only a small proportion of time within the effective range of operations. Additionally, there is no information on the effects of turbidity and total suspended solids on sea turtles.

No critical habitat occurs within the project area. The following conservation measures will be implemented to avoid and minimize impacts to the listed sea turtle species:

- Biological monitors will be onsite during construction activities.
- Personnel associated with the project will be instructed of the potential presence of sea turtles, the need to avoid collisions with these species, and are responsible for observing water-related activities for the presence of these species.
- Personnel will also be advised of penalties related to harming, harassing, or killing these species.
- If a sea turtle is seen within 100 yards of the active daily construction, appropriate precautions will be implemented to ensure its protection, including the cessation of operation of any moving equipment closer than 50 feet of a sea turtle and immediate cease of mechanical construction equipment within a 50-ft radius, only to be resumed when the species has left the area of its own volition.
- Any collision with and/or injury will be reported immediately to the National Marine Fisheries Service's Protect Resources Division (727-824-5312) and the local authorized standing/rescue organizations: Sea Turtle Stranding and Salvage Network (361-949-8173 ext. 226).

Potential suitable habitat, such as brackish marsh habitat, the GIWW shoreline, ditches, freshwater marsh habitat, fields and open grassy areas, and gopher burrows, for some of the stated listed species occurs within the project area. Of the state-list species, one endangered (Kemp's ridley), four threatened (green sea turtle, loggerhead sea turtle, reddish egret, white-faced ibis) and 16 SGCN (refer to Table 2 above) have the potential to occur within the project area. Overall, the proposed project is unlikely to pose any adverse effects on these species. The majority of the proposed activities are temporary; affected areas will be returned to their preconstruction contours and re-vegetated as appropriate; and the following measures will be implemented during construction of the proposed project.



## General Construction Recommendations:

- Use and placement of sediment control fence to exclude wildlife from the construction area. The exclusion fence shall be buried at least six inches and be at least 24 inches high. The exclusion fence shall be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated. Construction personnel shall examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities.
- Use of erosion and seed/mulch stabilization materials, such as no-till drilling, hydromulching and/or hydroseeding, for disturbed areas within the proposed project area to avoid entanglement hazards to snakes and other wildlife species.
- Regarding trenching/excavation and backfilling, any open trenches or excavation areas shall be covered overnight and/or inspected every morning to ensure no reptiles or other wildlife species have been trapped. Trenches left open for more than two daylight hours shall be inspected for the presence of trapped wildlife prior to backfilling. If trenches/excavation areas cannot be backfilled the day of initial excavation, then escape ramps (short lateral trenches or wooden planks sloping to the surface at an angle less than 45 degrees (1:1)) shall be installed at least every 90 meters.

## Federal Migratory Bird Treaty Act / State Parks and Wildlife Code – Chapter 64, Birds:

- If clearing occurs during nesting season, nest surveys shall be conducted prior to clearing. Nest surveys shall be conducted no more than 5 days prior to construction in order to maximize detection of active nests. If nests are observed during surveys, a vegetation buffer area of no less than 150-feet in diameter shall remain around the nest until all young have fledged.

## State Parks and Wildlife Code – Section 1.011, Aquatic Resources:

- To minimize disturbance to streams/wetlands and to minimize impacts to aquatic life, the project proponent shall only allow personnel and equipment to enter these areas when essential to the work being done. Only vegetation impeding construction shall be removed, equipment shall not be driven over vegetation when it is wet, and heavy machinery shall not be stored on vegetative cover for long periods of time.
- Erosion and sedimentation control materials shall adhere to the guidelines presented in the General Construction Recommendations section, above, and shall be properly installed and maintained.

## Vegetation:

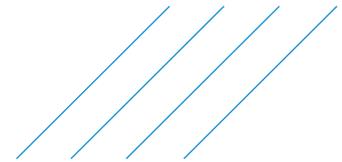
- To enhance the function and aesthetics of the site, and to contribute to conservation efforts, the project proponent shall revegetate ROW and associated facilities with site-specific native vegetation and vegetation which provides habitat for pollinator species.

## Species of Concern / Special Features:

- If during construction, the project area is found to contain rare species, natural plant communities, or special features, measures shall be taken to avoid impacts to them.

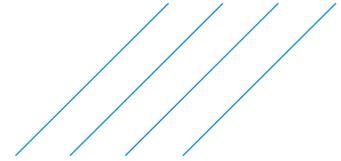
## Data Reporting and the Texas Natural Diversity Database:

- Project proponent shall report encounters of protected and rare species to the TXNDD according to the data submittal instructions found at the TPWD Texas Natural Diversity Database: Submit Data webpage.



## References

- International Union for Conservation of Nature (IUCN). 2020. The IUCN Red List of Threatened Species. Available at: [www.iucnredlist.org](http://www.iucnredlist.org). Accessed September 2020.
- NatureServe. 2020. Explorer Species Reports. Available at: [explorer.natureserve.org/](http://explorer.natureserve.org/). Accessed September 2020.
- National Oceanic and Atmospheric Administration (NOAA). 2020. ESA Threatened and Endangered Species Directory. Available at: [www.fisheries.noaa.gov/species-directory/threatened-endangered](http://www.fisheries.noaa.gov/species-directory/threatened-endangered). Accessed September 2020.
- Texas Parks and Wildlife Department (TPWD). 2020a. Rare, Threatened, and Endangered Species of Texas by County. Available at [tpwd.texas.gov/gis/rtest/](http://tpwd.texas.gov/gis/rtest/). Accessed August 2020.
- TPWD. 2020b. Natural Diversity Database information for the project area. Accessed August 2020.
- U.S. Fish and Wildlife Service (USFWS). 2020a. Environmental Conservation Online System (ECOS) Species Profiles. Available at: [ecos.fws.gov](http://ecos.fws.gov). Accessed September 2020.
- USFWS. 2020b. IPaC Information for Planning and Consultation. Available at: [ecos.fws.gov/ipac](http://ecos.fws.gov/ipac). Accessed September 2020.



# Appendix A. Figures



- Existing Water Well
- Existing Water Line
- Proposed Water Well
- Proposed Water Line Centerline
- Proposed Outfall Line

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



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**REVISED 7/6/2020** Figure 1  
 Vicinity Map  
 Threatened and Endangered Species Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 1,600 feet
Prepared By: ATKINS/WHIT6392	Date: Mar 31, 2020

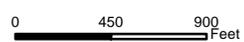
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- Survey Area
- Project Area
- Proposed Disturbance Zone\*

\*ENLARGED FOR VISUAL PURPOSES

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Bing Maps Aerial



**REVISED 7/6/2020** Figure 2a  
 Area Map  
 Threatened and Endangered Species Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 900 feet
Prepared By: ATKINS/WHIT6392	Date: Mar 31, 2020

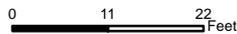
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- Proposed Outfall Piling Location
- ▭ Survey Area
- ▭ Project Area
- ▭ Proposed Disturbance Zone\*

\*ENLARGED FOR VISUAL PURPOSES

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Basemap: Google Earth 2017



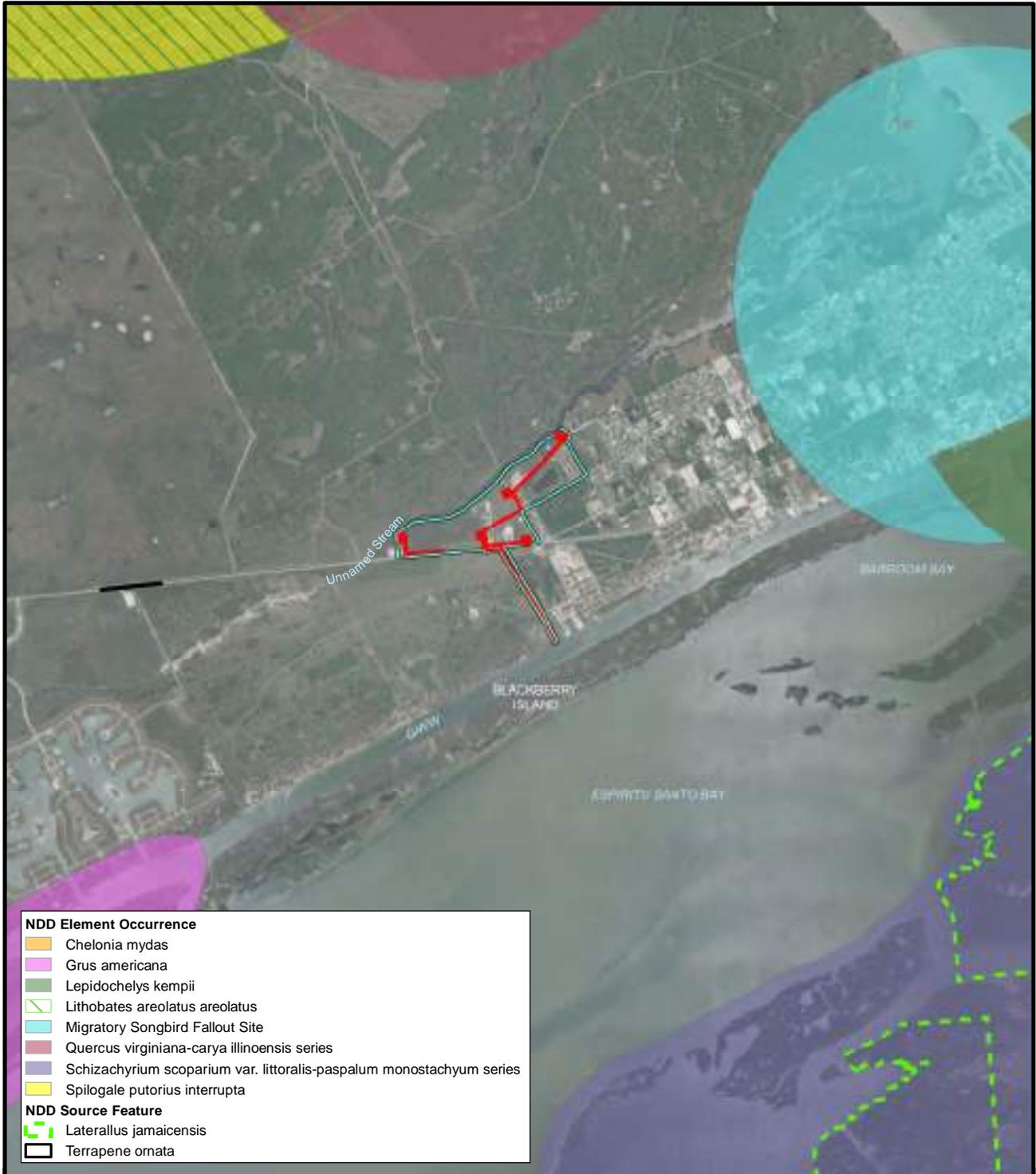
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 Member of the STAC Law & Consulting Group

**REVISED 7/6/2020** Figure 2b  
 Area Map  
 Threatened and Endangered Species Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 22 feet
Prepared By: ATKINS/WHIT6392	Date: Mar 31, 2020

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- NDD Element Occurrence**
- Chelonia mydas*
  - Grus americana*
  - Lepidochelys kempii*
  - Lithobates areolatus areolatus*
  - Migratory Songbird Fallout Site
  - Quercus virginiana-carya illinoensis* series
  - Schizachyrium scoparium* var. *littoralis-paspalum monostachyum* series
  - Spilogale putorius interrupta*
- NDD Source Feature**
- Laterallus jamaicensis*
  - Terrapene ornata*



- Survey Area
- Project Area

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 NDD: TPWD 2020  
 Basemap: Bing Maps Aerial



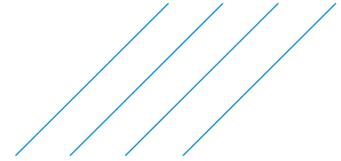
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 Member of the SNC Lavin Group

**REVISED 7/6/2020** Figure 3  
 TXNDD Map  
 Threatened and Endangered Species Report  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 4,000 feet
Prepared By: ATKINS/WHIT6392	Date: Mar 31, 2020

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## Appendix B. Representative Photographs



1. Typical representation of tallgrass grassland with partial mowing and gopher burrows near proposed Well No. 3 in the western half of the project area, facing north (28.431986, -96.461914).



2. Typical representation of mowed field with gopher burrows in the project area adjacent to proposed Well No. 4 and the RO facility with the outfall line, facing south (28.4322667, -96.455530).

### Representative Site Photographs

Port O'Connor Water Improvements  
T&E Habitat Evaluation Tech Memo  
100068304

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Member of the SNC-Lavalin Group



3. Typical representation of disturbed cow pasture with gopher burrows within the southeastern half of the project area, with the outfall line only inside the fence line, facing north (28.426733, - 96.451092).



4. Typical representation of upland habitat with concrete boulder and slabs and other debris adjacent to the GIWW, associated with the outfall line in the southeastern portion of the project area, facing northeast (28.424629, -96.449903).

**Representative Site Photographs**

Port O'Connor Water Improvements  
T&E Habitat Evaluation Tech Memo  
100068304





5. Intertidal emergent wetland area facing west in the southeastern portion of the project area adjacent to the GIWW at the end of the outfall line (28.424611, -96.449898).



6. Typical representation of mowed field in the eastern portion of the project area associated with proposed Well No. 5 (28.4317194, -96.452150).

**Representative Site Photographs**

Port O'Connor Water Improvements  
T&E Habitat Evaluation Tech Memo  
100068304

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7. Typical representation of mowed grass field near proposed Well No. 6, in the northeastern half of the project area, facing west (28.435456, -96.453175).



8. Palustrine emergent wetland area adjacent to unnamed stream in the northeastern portion of the project area near proposed Well No. 7, facing north (28.439324, -96.449156).

**Representative Site Photographs**

Port O'Connor Water Improvements  
T&E Habitat Evaluation Tech Memo  
100068304

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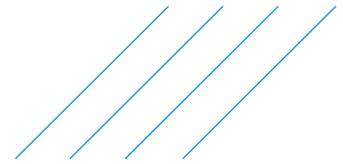


9. Typical representation of upland with grass and scrub vegetation in the northeastern portion of the project area at well 7, facing west (28.439229, -96.448981).

**Representative Site Photographs**

Port O'Connor Water Improvements  
T&E Habitat Evaluation Tech Memo  
100068304

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## Appendix C. USFWS IPaC List



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Texas Coastal Ecological Services Field Office

4444 Corona Drive, Suite 215

Corpus Christi, TX 78411

Phone: (281) 286-8282 Fax: (281) 488-5882

<http://www.fws.gov/southwest/es/TexasCoastal/>

[http://www.fws.gov/southwest/es/ES\\_Lists\\_Main2.html](http://www.fws.gov/southwest/es/ES_Lists_Main2.html)

In Reply Refer To:

September 22, 2020

Consultation Code: 02ETTX00-2020-SLI-2735

Event Code: 02ETTX00-2020-E-07248

Project Name: POC update

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: <http://www.fws.gov/southwest/es/TexasCoastal/Map.html>. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website <http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

### **Section 7**

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

**Is not likely to adversely affect** - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

**Is likely to adversely affect** - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

**No effect** - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

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project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: [http://www.fws.gov/endangered/esa-library/pdf/esa\\_section7\\_handbook.pdf](http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf)

### **Section 10**

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: [http://www.fws.gov/endangered/esa-library/pdf/HCP\\_Handbook.pdf](http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf)

### **Service Response**

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

### **Proposed Species and/or Proposed Critical Habitat**

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek concurrence from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

### **Candidate Species**

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

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assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem health in the local area and avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that you implement the best management practices found at: <http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html>.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at <http://www.fws.gov/endangered/what-we-do/cca.html>.

### **Migratory Birds**

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at <http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html>.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidelines, we recommend you review information provided at <http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf>.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at <http://www.aplic.org/>.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: <http://www.fws.gov/habitatconservation/communicationtowers.html>, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: <http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html>.

### **Wetlands and Wildlife Habitat**

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

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Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

### **Beneficial Landscaping**

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

### **State Listed Species**

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: [http://www.tpwd.state.tx.us/huntwild/wild/wildlife\\_diversity/texas\\_rare\\_species/listed\\_species/](http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/).

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Texas Coastal Ecological Services Field Office**

4444 Corona Drive, Suite 215

Corpus Christi, TX 78411

(281) 286-8282

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## Project Summary

Consultation Code: 02ETTX00-2020-SLI-2735

Event Code: 02ETTX00-2020-E-07248

Project Name: POC update

Project Type: WATER SUPPLY / DELIVERY

Project Description: updated

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/28.43211353429639N96.45570889129405W>



Counties: Calhoun, TX

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## Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Gulf Coast Jaguarundi <i>Herpailurus (=Felis) yagouaroundi cacomitli</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/3945">https://ecos.fws.gov/ecp/species/3945</a>	Endangered
West Indian Manatee <i>Trichechus manatus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. <b><i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i></b> Species profile: <a href="https://ecos.fws.gov/ecp/species/4469">https://ecos.fws.gov/ecp/species/4469</a>	Threatened

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## Birds

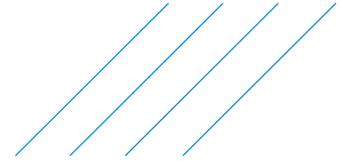
NAME	STATUS
<p><b>Least Tern</b> <i>Sterna antillarum</i>            Population: interior pop.            No critical habitat has been designated for this species.            This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Related Projects Within Migratory Route</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a>	Endangered
<p><b>Northern Aplomado Falcon</b> <i>Falco femoralis septentrionalis</i>            Population: Wherever found, except where listed as an experimental population            No critical habitat has been designated for this species.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a></p>	Endangered
<p><b>Piping Plover</b> <i>Charadrius melodus</i>            Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p><b>Red Knot</b> <i>Calidris canutus rufa</i>            No critical habitat has been designated for this species.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p><b>Whooping Crane</b> <i>Grus americana</i>            Population: Wherever found, except where listed as an experimental population            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a></p>	Endangered

## Reptiles

NAME	STATUS
<p>Green Sea Turtle <i>Chelonia mydas</i>            Population: North Atlantic DPS            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/6199">https://ecos.fws.gov/ecp/species/6199</a></p>	Threatened
<p>Hawksbill Sea Turtle <i>Eretmochelys imbricata</i>            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/3656">https://ecos.fws.gov/ecp/species/3656</a></p>	Endangered
<p>Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i>            There is <b>proposed</b> critical habitat for this species. The location of the critical habitat is not available.            Species profile: <a href="https://ecos.fws.gov/ecp/species/5523">https://ecos.fws.gov/ecp/species/5523</a></p>	Endangered
<p>Leatherback Sea Turtle <i>Dermochelys coriacea</i>            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1493">https://ecos.fws.gov/ecp/species/1493</a></p>	Endangered
<p>Loggerhead Sea Turtle <i>Caretta caretta</i>            Population: Northwest Atlantic Ocean DPS            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1110">https://ecos.fws.gov/ecp/species/1110</a></p>	Threatened

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



## Appendix D. TPWD County List

Last Update: 6/26/2020

## CALHOUN COUNTY

### AMPHIBIANS

#### black-spotted newt

*Notophthalmus meridionalis*

Terrestrial and aquatic: Terrestrial habitats used by adults are typically poorly drained clay soils that allow for the formation of ephemeral wetlands. A wide variety of vegetation associations are known to be used, such as thorn scrub and pasture. Aquatic habitats used for reproduction are a variety of ephemeral and permanent water bodies.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S3

#### southern crawfish frog

*Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestrial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4T4 State Rank: S3

#### Strecker's chorus frog

*Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

#### Woodhouse's toad

*Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### BIRDS

#### bald eagle

*Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B,S3N

#### Black Rail

*Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT State Status: T SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S2

#### DISCLAIMER

*The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.*

## CALHOUN COUNTY

### BIRDS

**Franklin's gull** *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2N

**northern aplomado falcon** *Falco femoralis septentrionalis*

Open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Federal Status: LE State Status: E SGCN: Y  
Endemic: N Global Rank: G4T2T3 State Rank: S1

**piping plover** *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2N

**reddish egret** *Egretta rufescens*

Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S3B

**Rufa Red Knot** *Calidris canutus rufa*

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (*Donax* spp.) on beaches and dwarf surf clam (*Mulinia lateralis*) in bays, at least in the Laguna Madre. Wintering Range includes-Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G4T2 State Rank: SNRN

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## CALHOUN COUNTY

### BIRDS

**swallow-tailed kite** *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2B

**tropical kingbird** *Tyrannus melancholicus*

This look-alike to the Couch's Kingbird can be found across the Lower Rio Grande Valley, namely in or adjacent to urban settings, but it also appears to be slowly expanding in urban areas up along the coast. This species frequents telephone poles and wires in urban settings plus fields or agricultural lands, especially along the edges of these habitat types where commanding perches occur.

Federal Status: State Status: SGCN: N  
Endemic: N Global Rank: G5 State Rank: S1B,S2N

**tropical parula** *Setophaga pitiayumi*

Semi-tropical evergreen woodland along rivers and resacas. Texas ebony, anacua and other trees with epiphytic plants hanging from them. Dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas; breeding April to July.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4T4 State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S4B

**white-tailed hawk** *Buteo albicaudatus*

Near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4G5 State Rank: S4B

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## CALHOUN COUNTY

### BIRDS

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

**wood stork** *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

### FISH

**alligator gar** *Atractosteus spatula*

From the Red River to the Rio Grande (Hubbs et al. 2008); occurs in the Trinity River upstream of Lake Livingston. Found in rivers, streams, lakes, swamps, bayous, bays and estuaries typically in pools and backwater habitats. Floodplains inundated with flood waters provide spawning and nursery habitats.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

**Oceanic Whitetip Shark** *Carcharhinus longimanus*

Habitat description is not available at this time.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

**opossum pipefish** *Microphis brachyurus*

Adults are only found in low salinity waters of estuaries or freshwater tributaries within 30 miles of the coast (Gilmore 1992), where they also give birth. Young move or are carried into more saline waters off the coast after birth. Newly released larvae must have conditions near 18 ppt salinity for at least two weeks after birth to survive, indicating a physiology adapted for downstream transport to estuarine and marine environments (Frias-Torres 2002). Juvenile migration toward the ocean depends on water flow regimes, salinity, and vegetation for cover and capturing prey (Frias-Torres 2002). Seawalls, docks, and riprap construction destroy habitat and poor water quality and alteration of flow regimes may prevent migration (NMFS 2009).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3N

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## CALHOUN COUNTY

### FISH

**saltmarsh topminnow** *Fundulus jenkinsi*

Occupies estuaries and the edges of saltmarsh habitats along the Gulf coast in salinities of 4-20 ppt in *Spartina* dominated tidal creeks and wetlands (Peterson & Ross 1991; Peterson & Turner 1994; Lopez et al. 2010; and Griffith 1974). Requires access to small interconnected tidal creeks for feeding and reproduction. Spawning occurs from March to August during high tide events (Robertson Thesis, 2016). Non-migratory.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1

**Shortfin Mako Shark** *Isurus oxyrinchus*

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

**southern flounder** *Paralichthys lethostigma*

This is an estuarine-dependent species that inhabits riverine, estuarine and coastal waters, and prefers muddy, sandy, or silty substrates (Reagan and Wingo 1985). Individuals can tolerate wide temperature (~5-35°C) and salinity ranges (0-60 ppt). Southern Flounder spawn in offshore waters of the Gulf of Mexico from October to February (Reagan and Wingo 1985). The oceanic larval stage is pelagic and lasts 30–60 days. Metamorphosing individuals enter estuaries and migrate towards low-salinity headwaters, where settlement occurs (Burke et al. 1991, Walsh et al. 1999). The young fish enter the bays during late winter and early spring, occupying seagrass; some may move further into coastal rivers and bayous. Juveniles remain in estuaries until the onset of sexual maturation (approximately two years), at which time they migrate out of estuaries to join adults on the inner continental shelf. Adult southern flounder leave the bays during the fall for spawning in the Gulf of Mexico. They spawn for the first time when two years old at depths of 50 to 100 feet. Although most of the adults leave the bays and enter the Gulf for spawning during the winter, some remain behind and spend winter in the bays. Those in the Gulf will reenter the bays in the spring. The spring influx is gradual and does not occur with large concentrations that characterize the fall emigration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

### INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

**Gulf Dune Grasshopper** *Trimerotropis schaefferi*

Coastal dunes and areas behind the dunes.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2?

### MAMMALS

**American badger** *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

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## CALHOUN COUNTY

### MAMMALS

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**big free-tailed bat** *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G5 State Rank: S3

**blue whale** *Balaenoptera musculus*

Inhabits tropical, subtropical, temperate, and subpolar waters worldwide, but are infrequently sighted in the Gulf of Mexico. They migrate seasonally between summer feeding grounds and winter breeding grounds, but specifics vary. Commonly observed at the surface in open ocean.

Federal Status: LE State Status: E SGCN: N  
Endemic: N Global Rank: G3G4 State Rank: SH

**eastern red bat** *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status: State Status: SGCN: N  
Endemic: N Global Rank: G3G4 State Rank: S4

**eastern spotted skunk** *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S1S3

**Gulf of Mexico Bryde's Whale** *Balaenoptera edeni*

Habitat description is not available at this time.

Federal Status: LE State Status: E SGCN: N  
Endemic: N Global Rank: G4 State Rank: SNR

**hoary bat** *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: State Status: SGCN: N  
Endemic: N Global Rank: G3G4 State Rank: S4

**humpback whale** *Megaptera novaeangliae*

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## CALHOUN COUNTY

### MAMMALS

Inhabits tropical, subtropical, temperate, and subpolar waters world wide. Migrate up to 5,000 miles between colder water (feeding grounds) and warmer water (calving grounds) each year. They will use both open ocean and coastal waters, sometimes including inshore areas such as bays, and are often found near the surface; however, this species is rare in the Gulf of Mexico. The northwest Atlantic/Gulf of Mexico distinct population segment is not considered at risk of extinction and is not listed as Endangered on the Endangered Species Act.

Federal Status: LE                      State Status:                      SGCN: N  
Endemic: N                              Global Rank: G4                      State Rank: SNR

**long-tailed weasel**                      *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                              Global Rank: G5                      State Rank: S5

**Mexican free-tailed bat**                      *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                              Global Rank: G5                      State Rank: S5

**mink**                                      *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                              Global Rank: G5                      State Rank: S4

**mountain lion**                              *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                              Global Rank: G5                      State Rank: S2S3

**North Atlantic right whale**                      *Eubalaena glacialis*

Inhabits subtropical and temperate waters in the northern Atlantic. Commonly found in coastal waters or close to the continental shelf near the surface. They migrate from feeding grounds in cooler waters (Canada and New England) to warmer waters of the southeast US (South Carolina, Georgia, and Florida) to give birth in the fall/winter - both areas are identified as critical habitat by NOAA-NMFS. Nursery areas are in shallow, coastal waters. This species is very rare in the Gulf of Mexico and the few reported sightings are likely vagrants (Ward-Geiger et al 2011).

Federal Status: LE                      State Status: E                      SGCN: N  
Endemic: N                              Global Rank: G1                      State Rank: S1

**Padre Island kangaroo rat**                      *Dipodomys compactus compactus*

Dunes and open sandy areas near the coast.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G4T3                      State Rank: S3

**plains spotted skunk**                      *Spilogale putorius interrupta*

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## CALHOUN COUNTY

### MAMMALS

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

**Sei Whale** *Balaenoptera borealis*

Habitat description is not available at this time.

Federal Status: LE	State Status: E	SGCN: N
Endemic: N	Global Rank: G3	State Rank: SNR

**southern short-tailed shrew** *Blarina carolinensis*

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

**sperm whale** *Physeter macrocephalus*

Inhabits tropical, subtropical, and temperate waters world wide, avoiding icy waters. Distribution is highly dependent on their food source (squids, sharks, skates, and fish), breeding, and composition of the pod. In general, this species migrates from north to south in the winter and south to north in the summer; however, individuals in tropical and temperate waters don't seem to migrate at all. Routinely dive to catch their prey (2,000-10,000 feet) and generally occupies water at least 3,300 feet deep near ocean trenches.

Federal Status: LE	State Status: E	SGCN: N
Endemic: N	Global Rank: G3G4	State Rank: S1

**swamp rabbit** *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**thirteen-lined ground squirrel** *Ictidomys tridecemlineatus*

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**tricolored bat** *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

**West Indian manatee** *Trichechus manatus*

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## CALHOUN COUNTY

### MAMMALS

Large rivers, brackish water bays, coastal waters. Warm waters of the tropics, in rivers and brackish bays but may also survive in salt water habitats. Very sensitive to cold water temperatures. Rarely occurring as far north as Texas. Gulf and bay system; opportunistic, aquatic herbivore.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S1

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

**white-nosed coati** *Nasua narica*

Woodlands, riparian corridors and canyons. Most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

### MOLLUSKS

**No accepted common name** *Nesovitrea suzannae*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1	State Rank: S1

### REPTILES

**Atlantic hawksbill sea turtle** *Eretmochelys imbricata*

Inhabit tropical and subtropical waters worldwide, in the Gulf of Mexico, especially Texas. Hatchling and juveniles are found in open, pelagic ocean and closely associated with floating lgae/seagrass mats. Juveniles then migrate to shallower, coastal areas, mainly coral reefs and rocky areas, but also in bays and estuaries near mangroves when reefs are absent; seldom in water more than 65 feet deep. They feed on sponges, jellyfish, sea urchins, molluscs, and crustaceans. Nesting occurs from April to November high up on the beach where there is vegetation for cover and little or no sand. Some migrate, but others stay close to foraging areas - females are philopatric.

Federal Status: LE	State Status: E	SGCN: Y
Endemic:	Global Rank: G3	State Rank: S2

**common garter snake** *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

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## CALHOUN COUNTY

### REPTILES

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**green sea turtle** *Chelonia mydas*

Inhabits tropical, subtropical, and temperate waters worldwide, including the Gulf of Mexico. Adults and juveniles occupy inshore and nearshore areas, including bays and lagoons with reefs and seagrass. They migrate from feeding grounds (open ocean) to nesting grounds (beaches/barrier islands) and some nesting does occur in Texas (April to September). Adults are herbivorous feeding on sea grass and seaweed; juveniles are omnivorous feeding initially on marine invertebrates, then increasingly on sea grasses and seaweeds.

Federal Status: LT	State Status: T	SGCN: Y
Endemic:	Global Rank: G3	State Rank: S4

**keeled earless lizard** *Holbrookia propinqua*

Terrestrial: Habitats include coastal dunes, barrier islands, and other sandy areas (Axtell 1983). Although it occurs well inland, this species is most abundant on coastal dunes, where it seeks shelter in the burrows of small mammals or crabs (Bartlett and Bartlett 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**Kemp's Ridley sea turtle** *Lepidochelys kempii*

Inhabits tropical, subtropical, and temperate waters of the northwestern Atlantic Ocean and Gulf of Mexico. Adults are found in coastal waters with muddy or sandy bottoms. Some males migrate between feeding grounds and breeding grounds, but some don't. Females migrate between feeding and nesting areas, often returning to the same destinations. Nesting in Texas occurs on a smaller scale compared to other areas (i.e. Mexico). Hatchlings are quickly swept out to open water and are rarely found nearshore. Similarly, juveniles often congregate near floating algae/seagrass mats offshore, and move into nearshore, coastal, neritic areas after 1-2 years and remain until they reach maturity. They feed primarily on crabs, but also snails, clams, other crustaceans and plants, juveniles feed on sargassum and its associated fauna; nests April through August.

Federal Status: LE	State Status: E	SGCN: Y
Endemic:	Global Rank: G1	State Rank: S3

**loggerhead sea turtle** *Caretta caretta*

Inhabits tropical, subtropical, and temperate waters worldwide, including the Gulf of Mexico. They migrate from feeding grounds to nesting beaches/barrier islands and some nesting does occur in Texas (April to September). Beaches that are narrow, steeply sloped, with coarse-grain sand are preferred for nesting. Newly hatched individuals depend on floating algae/seaweed for protection and foraging, which eventually transport them offshore and into open ocean. Juveniles and young adults spend their lives in open ocean, offshore before migrating to coastal areas to breed and nest. Foraging areas for adults include shallow continental shelf waters.

Federal Status: LT	State Status: T	SGCN: Y
Endemic:	Global Rank: G3	State Rank: S4

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## CALHOUN COUNTY

### REPTILES

**massasauga**

*Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3G4

State Rank: S3S4

**slender glass lizard**

*Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

**Texas diamondback terrapin**

*Malaclemys terrapin littoralis*

Coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive. Bay islands are important habitats. Nests on oyster shell beaches.

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G4T3Q

State Rank: S2

**Texas horned lizard**

*Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:

State Status: T

SGCN: Y

Endemic: N

Global Rank: G4G5

State Rank: S3

**Texas scarlet snake**

*Cemophora coccinea lineri*

Terrestrial: Prefers well drained soils with a variety of forest, grassland, and scrub habitats.

Federal Status:

State Status: T

SGCN: Y

Endemic: Y

Global Rank: G2

State Rank: S1S2

**western box turtle**

*Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

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## CALHOUN COUNTY

### PLANTS

<b>awnless bluestem</b>	<i>Bothriochloa exaristata</i>		
Coastal prairies on black clay; Perennial; Flowering April-Dec; Fruiting April- Dec			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G4	State Rank:	S3
<b>coastal gay-feather</b>	<i>Liatris bracteata</i>		
Coastal prairie grasslands of various types, from salty prairie on low- lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G2G3	State Rank:	S2S3
<b>Indianola beakrush</b>	<i>Rhynchospora indianolensis</i>		
Locally abundant in cattle pastures in some areas (at least during wet years), possibly becoming a management problem in such sites; Perennial; Flowering/Fruiting April-Nov			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3Q	State Rank:	S3
<b>marsh-elder dodder</b>	<i>Cuscuta attenuata</i>		
Parasitizes a particular sumpweed ( <i>Iva annua</i> ) almost exclusively as well as ragweed and heath aster. Host plants typically found in open, disturbed habitats like fallow fields and creek bottomlands; Annual; Flowering late summer through October			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G1G3	State Rank:	S2
<b>sand Brazos mint</b>	<i>Brazoria arenaria</i>		
Sandy areas in South Texas; Annual; Flowering/Fruiting March-April			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3	State Rank:	S3
<b>Texas peachbush</b>	<i>Prunus texana</i>		
Occurs at scattered sites in various well drained sandy situations; deep sand, plains and sand hills, grasslands, oak woods, 0-200 m elevation; Perennial; Flowering Feb-Mar; Fruiting Apr-Jun			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3G4	State Rank:	S3S4
<b>Texas willkommia</b>	<i>Willkommia texana</i> var. <i>texana</i>		
Mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain (Carr 2015).			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3G4T3	State Rank:	S3
<b>Tharp's dropseed</b>	<i>Sporobolus tharpii</i>		

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

## CALHOUN COUNTY

### PLANTS

Occurs on barrier islands, shores of lagoons and bays protected by the barrier islands, and on shores of a few near-coastal ponds. Plants occur at the bases of dunes, in interdune swales and sandflats, and on upper beaches. The substrate is of Holocene age.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

**threeflower broomweed**                      *Thurovia triflora*

Near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between salty prairies and tidal flats; further inland associated with vegetated slick spots on prairie mima mounds; flowering September-November

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2S3

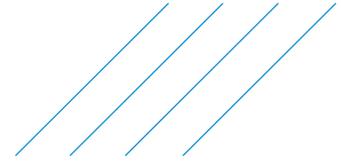
**velvet spurge**                                      *Euphorbia innocua*

Open or brushy areas on coastal sands and the South Texas Sand Sheet; Perennial; Flowering Sept-April; Fruiting Nov-July

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

**DISCLAIMER**

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# Appendix E. TPWD TXNDD

# Element Occurrence Record

**Scientific Name:** Chelonia mydas      **Occurrence #:** 2      **Eo Id:** 5436  
**Common Name:** green sea turtle      **Track Status:** Track all extant and selected historical EOs  
**Identification Confirmed:** Y - Yes      **TX Protection Status:** T  
**Global Rank:** G3      **State Rank:** S4      **Federal Status:** LT

---

## Location Information:

### Directions

This EO consists of a cluster of observations around Port OConner and Pass Cavallo, where Matagorda Peninsula ends and Matagorda Island begins. The directions were created by database staff. The directions are generalized as this record consists of multiple populations/observations.

---

## Survey Information:

**First Observation:** 2002-08-24      **Survey Date:** 2006-04-11      **Last Observation:** 2006-04-11  
**Eo Type:**      **Eo Rank:** E      **Eo Rank Date:** 2006-04-11

### Observed Area:

---

## Comments:

**General Description:** 24 Aug 2002: The turtle was at the end of the jetty on the gulf side around a floating patch of sargassum.

### Comments:

### Protection

### Comments:

### Management

### Comments:

---

## Data:

**EO Data:** 24 Aug 2002: One turtle was observed feeding/loafing from 2:10-2:30 pm on/near the surface. 17 Sep 2002: One individual was observed with a curved carapace length of 319 millimeters. 11 Oct 2005: Two individuals were observed with curved carapace lengths of 447 millimeters and 416 millimeters. 11 April 2006: One individual was observed with a curved carapace length of 400 millimeters.

---

## Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

## Reference:

## Element Occurrence Record

### Citation:

MILLER, L. CHRIS. 2002. E-MAIL TO DORINDA SCOTT CONCERNING GREEN SEA TURTLE (CHELONIA MYDAS) OBSERVATION. SEPTEMBER 12, 2002.

MILLER, L. CHRISTOPHER. NO DATE. PROJECT MANAGER, ECOLOGY PROGRAM, PBS& J, 206 WILD BASIN ROAD, SUITE 300, AUSTIN, TEXAS 78746. 512/327-6840, LCMILLER@PDSJ.COM.

Texas Parks and Wildlife Department. 2008. Texas Parks and Wildlife Department - Coastal Fisheries Division summary of stranding and catch information for tracked sea turtles and terrapin.

---

### Specimen:

---

## Element Occurrence Record

**Scientific Name:** Grus americana      **Occurrence #:** 2      **Eo Id:** 4226  
**Common Name:** whooping crane      **Track Status:** Track all extant and selected historical EOs  
**Identification Confirmed:** Y - Yes      **TX Protection Status:** E  
**Global Rank:** G1      **State Rank:** SIN      **Federal Status:** LE

---

### Location Information:

#### Directions

ARANSAS NATIONAL WILDLIFE REFUGE, MATAGORDA ISLAND AND NEARBY WETLANDS

---

### Survey Information:

**First Observation:** 1930'S      **Survey Date:**      **Last Observation:** 2005-01-05  
**Eo Type:**      **Eo Rank:** A      **Eo Rank Date:** 1986-01-01  
**Observed Area:** 54,423.00

---

### Comments:

**General Description:** A LARGE SALT MARSH AND TIDAL FLAT; ON HIGHER GROUND, GRAIN CROPS ARE GROWN TO FEED WILDLIFE; BARRIER ISLAND AND ASSOC. MUD FLAT AND MARSH

**Comments:** A POPULATION IN VERY TENUOUS CONDITION, LOW NUMBERS; SITE IS ESSENTIAL TO THEIR SURVIVAL AND PART IS WELL PROTECTED; THE 1995-96 GROWTH OF THE WHOOPER POPULATION BY 22 BIRDS FROM LAST YEAR'S TOTAL OF 133 CRANES IS THE SECOND LARGEST ONE YEAR INCREASE EVER; THE ONLY LARGER INCREASE OCCURRED IN THE WINTER OF 1987-88 WHEN THE POPULATION GREW BY 24 BIRDS, WITH 25 CHICKS MAKING IT TO ARANSAS WITH THE LOSS OF ONLY ONE ADULT; ONLY ABOUT HALF OF THE WHOOPERS NOW (1997) SPEND THEIR WINTER AT THE REFUGE, WITH THE REST ON STATE AND PRIVATE LANDS ON SAN JOSE ISLAND, WELDER FLATS, LAMAR PENINSULA, AND MATAGORDA ISLAND

**Protection Comments:** ADEQUATELY PROTECTED

**Management Comments:** ADEQUATELY MANAGED

---

### Data:

## Element Occurrence Record

### EO Data:

MAJOR WINTERING SITE FOR THE SOLE WILD POPULATION OF THIS RARE CRANE; ARRIVES OCT-DEC; DEPARTS MARCH-APRIL; AERIAL SURVEY OF NWR AND SURROUNDING AREA MADE 12-12-95 REVEALED 127 ADULT AND 28 YOUNG WHOOPING CRANES FOR A TOTAL POPULATION OF 155 (47A+10Y-REFUGE, 2A+1Y-LAMAR, 29A+3Y-SAN JOSE, 37A+10Y-MATAGORDA, 12A+4Y-WELDER FLATS); 155 WAS A RECORD NUMBER OF CRANES FOUND, VIEWING CONDITIONS WERE EXCELLENT, ALSO A 28TH FAMILY GROUP WAS CONFIRMED PRESENT; THE UNBANDED 28TH FAMILY GROUP WAS FOUND ON A PRESCRIBED BURN LOCATED 11 MILES FROM THE NEAREST CRANES ON WELDER FLATS AND 13 MILES FROM THE NEAREST CRANES ON MATAGORDA AND IS ONLY THE FOURTH RECORDED SIGHTING OF CRANES NORTH OF THE FORMER AIR FORCE BASE; WINTER 1996-97 HAD 161 BIRDS, IN EARLY 1997 IT WAS THE LARGEST RECORDED FLOCK SINCE THE 1930'S TO SPEND OCTOBER THROUGH APRIL AT A FEDERAL REFUGE, A STATE PARK, AND ON PRIVATE LAND ON THE TEXAS COAST NORTH OF ROCKPORT; 16 OF THE 1996-97 FLOCK WERE JUVENILES; 1995-96 WINTER HAD 158 BIRDS AND 1994-95 WINTER HAD 133 BIRDS; DECEMBER 1997, ARANSAS NWR RECORDED 100 ADULTS, 52 SUBADULTS, AND 29 JUVENILES (INCLUDING A PAIR OF TWINS) IN RESIDENCE FOR A TOTAL OF 181; JANUARY 1998 CONFIRMED ONE JUVENILE PRESENT NEAR SAN BERNARD NWR ABOUT 90 MILES NORTH, THIS 30TH JUVENILE APPARENTLY BECAME SEPARATED FROM ITS PARENTS AND FOLLOWED SANDHILLS TO THE UPPER COAST, BRINGING THE TOTAL POPULATION TO 182 BIRDS, HOWEVER ONE ADULT FEMALE DISAPPEARED THIS WINTER AND IS LISTED AS MORTALITY, MAKING THE 1997-98 WINTER POPULATION 181; 1998-99 WINTER 183 BIRDS, ESTIMATED PRESENT ARE 100 ADULTS, 65 SUBADULTS, AND 18 JUVENILES (ONE CRANE SIGHTED JANUARY 4 AND 8 NEAR SABINAL WEST OF SAN ANTONIO IS THE RECORD 183rd BIRD IN THE WINTERING POPULATION), THE ADULT FEMALE WITH BROKEN LEG (EXCLUDED FROM THESE NUMBERS) APPARENTLY DEPARTED QUIVIRA NWR IN KANSAS DECEMBER 29 AND HAS NOT BEEN SEEN SINCE, HER MATE HAS REPAIRED AT ARANSAS; 2000-01 WINTER PEAK POPULATION 180 (171 ADULTS + 9 JUVENILES), 6 DIED AT ARANSAS THIS WINTER LEAVING ESTIMATED FLOCK 174 (167 ADULTS + 7 JUVENILES), BIGGEST INCREASE WAS ON MATAGORDA ISLAND WITH 2 LOCATED ON LONG ISLAND NORTHEAST OF PRINGLE LAKE ON MATAGORDA WHICH IS FURTHEST NORTH IN SEVERAL YEARS, ALSO ON DEWBERRY ISLAND AND PRINGLE LAKE, SOME WERE FOUND ON PRESCRIBED BURNS, SOME ON OPEN BAY HABITAT, A FEW ON UNBURNED UPLANDS AND AT SALT CREEK; WINTER 2002-03, CRANES OBSERVED ON AERIAL CENSUS - REFUGE = 48 ADULTS + 6 YOUNG, LAMAR = 6 ADULTS, SAN JOSE = 41 ADULTS + 2 YOUNG, MATAGORDA = 54 ADULTS + 7 YOUNG, WELDER FLATS = 20 ADULTS + 1 YOUNG, TOTALS ARE 169 ADULTS + 16 YOUNG = 185, CONSISTS OF 134 ADULTS, 35 SUBADULTS, AND 16 CHICKS; ON 11 DEC 2002 SURPRISING LOCATIONS WERE A PAIR SOUTH OF HOLIDAY BEACH AND A SUBADULT DUO NORTH OF HOLIDAY BEACH; DECEMBER 17, 2003 AERIAL CENSUS OF ARANSAS NWR AND SURROUNDING AREAS TALLIED 194 CRANES (135 ADULTS, 34 SUBADULTS, AND 25 CHICKS), PRESUMABLY THE HIGHEST TOTAL AT ARANSAS IN THE LAST 100 YEARS, BREAKDOWN BY LOCATION FOR ADULTS/SUBADULTS AND YOUNG TALLIES 49A+9Y ON REFUGE, 5A+1Y ON LAMAR, 39A+7Y ON SAN JOSE, 60A+6Y ON MATAGORDA, AND 16A+2Y ON WELDER FLATS; 1 DECEMBER 2004 AERIAL CENSUS ESTIMATED 216 CRANES (131 ADULTS, 52 SUBADULTS, 33 CHICKS), A RECORD TOTAL AND HISTORIC MILESTONE FOR THE ARANSAS-WOOD BUFFALO WHOOPING CRANE POPULATION, 183A+33Y=216 TOTAL CRANES, WITH THE 33 CHICKS THE MOST TO EVER ARRIVE AT ARANSAS; THEN A RECORD 34TH CHICK WAS DISCOVERED WINTERING WITH SANDHILL CRANES NORTH OF THE REFUGE NEAR BAY CITY IN MATAGORDA COUNTY, RESULTING IN A PEAK POPULATION OF 217 (142 ADULTS, 41 SUBADULTS, 34 CHICKS); HOWEVER, 11 ADULT/SUBADULT CRANES FAILED TO ARRIVE AT ARANSAS AND WERE LISTED AS MORTALITY BETWEEN SPRING AND FALL 2004, THEN ONE ADULT AND ONE JUVENILE DIED DURING THE WINTER AT ARANSAS, LEAVING THE ESTIMATED FLOCK SIZE AT 215.

### Community Information:

Scientific Name:

Stratum:

Dominant:

Lifeform:

Composition Note:

### Reference:

## Element Occurrence Record

### Citation:

USFWS. NO DATE. REFUGE MANAGER OR WHOOPING CRANE COORDINATOR. USFWS, ARANSAS NATIONAL WILDLIFE REFUGE, P.O. BOX 100, AUSTWELL, ARANSAS COUNTY, TEXAS 77950. 361/286-3559.

STEHN, TOM. 1999. WHOOPING CRANE RECOVERY PROGRAM, OCTOBER, 1998-FEBRUARY, 1999. WHOOPING CRANE COORDINATOR, USFWS, ARANSAS NATIONAL WILDLIFE REFUGE.

U.S. FISH AND WILDLIFE SERVICE. 1986. UNPUBLISHED BRIEFING ON MATAGORDA ISLAND, TEXAS IN ?? (SEE REALTY DIVISION, USFWS REG. 2, ALBUQUERQUE, N.M.)

NATIONAL AUDUBON SOCIETY. NO DATE. TEXBIRDS LISTSERVE.

---

### Specimen:

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# Element Occurrence Record

**Scientific Name:** Lepidochelys kempii      **Occurrence #:** 1      **Eo Id:** 857  
**Common Name:** Kemp's Ridley sea turtle      **Track Status:** Track all extant and selected historical EOs  
**Identification Confirmed:** Y - Yes      **TX Protection Status:** E  
**Global Rank:** G1      **State Rank:** S3      **Federal Status:** LE

---

## Location Information:

### Directions

The SW corner of Matagorda Bay by Port OConner and Pass Cavallo. The directions were created by database staff.

---

## Survey Information:

**First Observation:** 1991-06-08      **Survey Date:** 2001-08-06      **Last Observation:** 2001-08-06  
**Eo Type:**      **Eo Rank:** E      **Eo Rank Date:** 2001-08-06

### Observed Area:

---

## Comments:

### General

#### Description:

#### Comments:

### Protection

#### Comments:

### Management

#### Comments:

---

## Data:

**EO Data:** 08 June 1991: First recapture of endangered Kemp's Ridley sea turtle after a release of hatchery reared turtles. 06 Oct 1993: One individual was observed with a curved carapace length of 335 millimeters. 30 May 1996: One individual was observed with a curved carapace length of 314 millimeters. 15 April 1998: One individual was observed with a curved carapace length of 300 millimeters. 06 Aug 2001: One individual was observed with a curved carapace length of 629 millimeters.

---

## Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

## Reference:

### Citation:

WAGNER, TOM. NO DATE. PERSONAL COMMUNICATION.

Texas Parks and Wildlife Department. 2008. Texas Parks and Wildlife Department - Coastal Fisheries Division summary of stranding and catch information for tracked sea turtles and terrapin.

---

Element Occurrence Record

Specimen:

---

# Element Occurrence Record

**Scientific Name:** Lithobates areolatus areolatus

**Occurrence #:** 61

**Eo Id:** 12331

**Common Name:** southern crawfish frog

**Track Status:** Track all extant and selected historical EOs

**Identification Confirmed:** Y - Yes

**TX Protection Status:**

**Global Rank:** G4T4

**State Rank:** S3

**Federal Status:**

---

## Location Information:

### Directions

Indianola, Texas.

---

## Survey Information:

**First Observation:** No Date

**Survey Date:** No Date

**Last Observation:** No Date

**Eo Type:**

**Eo Rank:** H?

**Eo Rank Date:** No Date

**Observed Area:**

---

## Comments:

### General

**Description:**

**Comments:**

### Protection

**Comments:**

### Management

**Comments:**

---

## Data:

**EO Data:** No Date: A specimen was collected.

---

## Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

## Reference:

### Citation:

Hibbitts, Toby, and Daniel Saenz. 2013. Report for TPWD; Status and breeding biology of the crawfish frog (Lithobates areolatus). Received 1 November 2013. 13 pp.

---

## Specimen:

Smithsonian National Museum of Natural History, Suitland, MA; Unknown Collector (#unknown), Catalog # 3304, No Date, USNM.

# Element Occurrence Record

**Scientific Name:** Migratory Songbird Fallout Site

**Occurrence #:** 32

**Eo Id:** 7915

**Common Name:**

**Track Status:** Track all extant and selected historical EOs

**Identification Confirmed:** Y - Yes

**TX Protection Status:**

**Global Rank:** G3

**State Rank:** SNR

**Federal Status:**

---

## Location Information:

### Directions

AT PORT O'CONNOR

---

## Survey Information:

**First Observation:**

**Survey Date:**

**Last Observation:** 1981

**Eo Type:**

**Eo Rank:**

**Eo Rank Date:**

**Observed Area:** 24.00

---

## Comments:

**General Description:** A GROVE OR MOTTE OF PROSOPIS GLANDULOSA USED BY MIGRANT SONGBIRDS IN SPRING AND FALL; ESPECIALLY IMPORTANT AS SHELTER DURING STORMS

**Comments:** IMPORTANT TRANSIENT POINTS FOR MANY SPECIES, MOST COMMON; SHOULD BE PROTECTED

### Protection

**Comments:**

### Management

**Comments:**

---

## Data:

**EO Data:** FOUR SPECIES OF BIRDS SIGHTED; COULD BECOME VALUABLE MIGRATORY BIRD HABITAT IF ALLOWED TO GROW; NOTE: SEE SPECIES LIST IN SOURCE FOR BIRDS USE

---

## Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

## Reference:

### Citation:

Mueller, Allan J. 1981. An inventory and habitat analysis of upper Texas coast woodlots. Prepared for U.S. Fish & Wildlife Service, 601 Rosenberg, Galveston Field Office. December 1981. 23 pp plus appendices.

---

## Specimen:

# Element Occurrence Record

**Scientific Name:** Quercus virginiana-carya illinoensis series

**Occurrence #:** 2

**Eo Id:** 5954

**Common Name:** Coastal Live Oak-pecan Series

**Track Status:** Track all extant and selected historical EOs

**Identification Confirmed:** Y - Yes

**TX Protection Status:**

**Global Rank:** G3

**State Rank:** S3

**Federal Status:**

---

## Location Information:

### Directions

1.5 MILES SOUTHEAST OF CONFLUENCE OF POWDER CREEK WITH MATAGORDA BAY

---

## Survey Information:

**First Observation:**

**Survey Date:**

**Last Observation:**

**Eo Type:**

**Eo Rank:**

**Eo Rank Date:**

**Observed Area:**

---

## Comments:

**General Description:** LIVE OAK WOODLAND, WITH GRASSY OPENINGS

**Comments:**

### Protection

**Comments:**

### Management

**Comments:**

---

## Data:

**EO Data:**

---

## Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

## Reference:

### Citation:

ESPEY, HUSTON AND ASSOCIATES, 1979. TERRESTRIAL ECOLOGICAL SURVEY OF THE CA SALLE TERMINAL PROPERTY AND ADJACENT MATAGORDA BAY, TEXAS. ESPEY, HUSTON AND ASSOCIATES, AUSTIN, TEXAS.

---

## Specimen:

---

## Element Occurrence Record

**Scientific Name:** Schizachyrium scoparium var. littoralis-paspalum monostachyum series  
**Common Name:** Seacoast Bluestem-gulfdune Paspalum Series  
**Identification Confirmed:** Y - Yes  
**Global Rank:** G3? **State Rank:** S3

**Occurrence #:** 2 **Eo Id:** 4755  
**Track Status:** Track all extant and selected historical EOs  
**TX Protection Status:**  
**Federal Status:**

---

### Location Information:

#### Directions

SOUTHEAST OF PORT O'CONNOR - ACCESS BY BOAT OR AIR [MATAGORDA ISLAND]

---

### Survey Information:

**First Observation:** 1986 **Survey Date:** **Last Observation:** 1986  
**Eo Type:** **Eo Rank:** BC **Eo Rank Date:**  
**Observed Area:** 50,500.00

---

### Comments:

**General Description:** VERY DIVERSE WITH MARSH, TIDAL FLATS, DUNES, FRESH WETLANDS, AND SEACOAST BLUESTEM - GULF PASPALUM UPLAND GRASSLANDS

**Comments:** DESPITE HEAVY GRAZING, PAST BOMBING, ETC. THIS IS A HIGHLY VALUABLE AREA

#### Protection

#### Comments:

**Management Comments:** MOST GRAZED OR MANAGED FOR TARGET WILDLIFE SPECIES

---

### Data:

**EO Data:** WESTERN END USED AS WINTERING GROUNDS BY WHOOPING CRANES

---

### Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

---

### Reference:

#### Citation:

DIAMOND, D.D., I. BUTLER, N.J. CRAIG, AND T. FOTI. 1986. A SURVEY OF THE POTENTIAL NATIONAL NATURAL LANDMARKS OF THE WEST GULF COASTAL PLAIN: BIOTIC THEMES. USDOJ, NPS, WASHINGTON, D.C.

---

### Specimen:

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## Element Occurrence Record

**Scientific Name:** Spilogale putorius interrupta

**Occurrence #:** 25

**Eo Id:** 12628

**Common Name:** plains spotted skunk

**Track Status:** Track all extant and selected historical EOs

**Identification Confirmed:** Y - Yes

**TX Protection Status:**

**Global Rank:** G4T4

**State Rank:** SIS3

**Federal Status:**

### Location Information:

#### Directions

The specimen labels state that they were located in Indianola, Matagorda Bay. Database staff mapped the specimen at the centerpoint of Indianola proper.

### Survey Information:

**First Observation:** 1851

**Survey Date:** 1851

**Last Observation:** 1851

**Eo Type:**

**Eo Rank:** H

**Eo Rank Date:** 1851

**Observed Area:**

### Comments:

#### General

**Description:**

**Comments:**

#### Protection

**Comments:**

#### Management

**Comments:**

### Data:

**EO Data:** No date: One skull of a preserved specimen of unknown sex; 1851: One skull of an adult (probably) female preserved specimen.

### Community Information:

<u>Scientific Name:</u>	<u>Stratum:</u>	<u>Dominant:</u>	<u>Lifeform:</u>	<u>Composition Note:</u>

### Reference:

## Element Occurrence Record

### Citation:

Kafka, Helen. 1995. Letter and Mammals Master List of 27 April to Peggy Horner, Texas Parks and Wildlife Department, Conservation Scientist, regarding *Vulpes velox*, *Spilogale putorius interrupta*, and *Vulpes macrotis* from Smithsonian Institution National Museum of Natural History, Washington DC.

Ferguson, Adam. 2014. Texas Skunk Record Database regarding five species of skunk in Texas.

Schmidly, David J. 1983. Texas mammals east of the Balcones Fault Zone. Number six: The W. L. Moody, Jr. natural history series. Texas A&M University Press, College Station, TX. 400 pp.

Van Gelder, Richard G. 1959. A taxonomic revision of the spotted skunks (Genus *Spilogale*). Bulletin of the American Museum of Natural History 117(5):229-392.

---

### Specimen:

Smithsonian National Museum of Natural History, Washington, D.C.; J. H. Clark (#unknown), Catalog #A01621, 1851, USNM.

Smithsonian National Museum of Natural History, Washington, D.C.; J. H. Clark (#unknown), Catalog #A01622, no date, USNM.

---

8/04/2020

**Source Feature ID:** 38282

**Digitizing Comments**

The description noted that the turtle was observed on the road, and the road was greater than 9 m wide, so the road was delimited from the provided coordinates to the provided estimated error up and down the road.

**Mapping Comments**

This feature was mapped based on the coordinates provided in iNaturalist ID 9524823.

<b>Source Feature ID</b>	<b>Observer</b>	<b>Date</b>	<b>Observation</b>
38282	iNaturalist Herps of Texas project	2006-11-13	This visit is based on iNaturalist observation ID 9524823. Additional information for this observation included the following: Description: 2 individuals were observed on the road.

**Source Feature ID:** 38377

**Digitizing Comments**

This feature was delimited to the refuge boundary.

**Mapping Comments**

The report noted that birds were observed in Aransas National Wildlife Refuge.

<b><u>Source Feature ID</u></b>	<b><u>Observer</u></b>	<b><u>Date</u></b>	<b><u>Observation</u></b>
38377	Stinson	5/18/2007	4 calling birds were recorded.
38377	unknown	1985	At least 1 bird was observed.
38377	unknown	2008	At least 1 bird was observed.

# Appendix B-4 Cultural Resources Report

# Port O'Connor Improvement District Water Line, Water Well, and Water Plant Improvements

Cultural Resources Investigations for the Port  
O'Connor Improvement District Water Line, Water  
Well, and Water Plant Improvements Project,  
Calhoun County, Texas

Principal Investigator: Katherine Turner-Pearson, MA, RPA

Authors: Katherine Turner-Pearson, R. Benjamin Lee,  
and Krista McClanahan

Permit: Texas Antiquities Permit # 9538

# Cultural Resources Investigations for the Port O'Connor Improvement District Water Line, Water Well, and Water Plant Improvements Project, Calhoun County, Texas

Permit: Texas Antiquities Permit # 9538

Principal Investigator: Katherine Turner-Pearson, MA, RPA

Report Authors: Katherine Turner-Pearson, R. Benjamin Lee, and Krista McClanahan

Prepared for:

John D. Mercer & Associates, Inc.  
118 East Main Street  
Edna, Texas 77957

Prepared by:

Atkins North America, Inc.  
11801 Domain Boulevard, Suite 500  
Austin, Texas 78758

Atkins Job No. 100068304

October 2020

# Management Summary

**Project Name:** Cultural Resources Investigations for the Port O'Connor Improvement District Water Line, Water Well, and Water Plant Improvements Project, Calhoun County, Texas

**Atkins Project No.:** 100068304

**Agency Permit:** Texas Antiquities Permit # 9538

**Sponsor:** Port O'Connor Improvement District

**Project Location:** Port O'Connor, Calhoun County, Texas

**Type of Investigation:** Intensive Archaeological Survey

**Regulatory Trigger:** Antiquities Code of Texas and Section 106 of the National Historic Preservation Act

**Principal Investigator:** Katherine Turner-Pearson, MA, RPA

**Crew Members:** Katherine Turner-Pearson, MA, RPA, and R. Benjamin Lee, B.S.

**Date(s) of Work:** August 31, 2020-September 2, 2020

**Person-Days:** 6

**Area Surveyed (acres):** 0.036 hectares (0.089 acres)

**Newly Recorded Sites:** 0

**Revisited Sites:** 0

**Curation:** Texas Archeological Research Laboratory, University of Texas at Austin

**Recommendations:** No further work

# Abstract

John D. Mercer and Associates on behalf of the Port O'Connor Improvement District (POCID) requested assistance from Atkins North America, Inc. for environmental and permitting services in support of the Texas Water Development Board's (TWDB) National Environmental Protection Act (NEPA) guidelines for the completion of an Environmental Data Form. The proposed project also required pre-construction notification under Nationwide Permit (NWP) 12 Utility Line Activities, NWP 7 Outfall Structures, NWP 13 Bank Stabilization, and a possible Navigation 408 application to the U.S. Army Corps of Engineers (USACE), Galveston District. Additionally, portions of the proposed project would be constructed on property owned by the POCID or Calhoun County and once completed, was anticipated to be operated by the POCID. The POCID, utilizing funds from the TWDB, proposed the installation of five new water wells and connecting water lines, along with a new ground storage tank and a new reverse osmosis treatment facility. An outfall line for the reverse osmosis rejected water would be constructed from the reverse osmosis facility to a discharge point in the Gulf Intracoastal Water Way (GIWW).

Atkins archaeologists conducted Cultural Resources Investigations for the Port O'Connor Improvement District Water Line, Water Well and Water Plant Improvements Project, located in Calhoun County, Texas between August 31, 2020 and September 2, 2020 under Texas Antiquities Permit (TAP) Number 9538. During the archaeological survey, a total of 34 shovel tests were placed along the 3,389 linear meters (11,119 linear feet) survey area as well as the 0.036 hectares (0.089 acres) of well pad sites. Archaeological survey work was completed by a two-person crew, including the Principal Investigator, over three days. Due to the sandy coastal soils, almost all of the shovel tests went to the research designed planned depth of 80 centimeters below surface (cmbs). While none of the shovel tests encountered archaeological sites, artifacts, or any other sign of cultural occupancy, two shovel tests showed soil horizons that could represent buried A Horizons (paleosols). However, the possible buried paleosols did not show any signs of archaeological remains nor cultural features, so one can only speculate as to any possible occupancy in the past. A large portion of the area of potential effects (APE) proved to be previously disturbed by utility lines, highways, driveways, or building construction, and any archaeological sites located in those areas would already be highly disturbed or destroyed. Additionally, no historic structures were observed within 150 ft of the APE. Because much of the APE proved to be disturbed, and since no known archaeological sites and no historic properties were located within or adjacent to the project APE, and no new archaeological sites or cultural remains were discovered during the survey, Atkins archaeologists recommended that the project be allowed to proceed as proposed.

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# Introduction

John D. Mercer and Associates on behalf of the Port O'Connor Improvement District (POCID - the applicant) requested environmental and permitting services in support of the Texas Water Development Board's (TWDB) National Environmental Protection Act (NEPA) guidelines for completion of an Environmental Data Form (form). In addition to the form, the proposed project required pre-construction notification under Nationwide Permit (NWP) 12 Utility Line Activities, NWP 7 Outfall Structures, NWP 13 Bank Stabilization, and a possible Navigation 408 application to the U.S. Army Corps of Engineers (USACE), Galveston District. Additionally, portions of the proposed project will be constructed on property owned by the POCID or Calhoun County and once completed, is anticipated to be operated by the POCID.

## Project Description

The Port O'Connor (POC) community, in Calhoun County, Texas, is approaching the limit of permissible connections relative to water supply. A secondary source of water is required if development continues with construction of residential and commercial structures. Construction of the proposed project will increase the water supply and increase the allowable connections. The purpose of the proposed project is to increase the capacity of the POC potable water system for the residents in POC, to meet the demand and to convert POC to a primarily ground water supply, and reduce the dependency on and provide an alternative to purchased surface water from Guadalupe Blanco River Authority (GBRA) as the communities' primary water supply source. The project anticipated start date is November 2020 with completion of construction in January 2022.

The applicant, utilizing funds from the TWDB, proposed to install five new water wells and connecting water lines to offset large quantities of potable surface water that is currently purchased from the GBRA. The well water will be discharged into a new ground storage tank and then treated by a new reverse osmosis treatment facility to blend the permeate water within acceptable Texas Commission of Environmental Quality (TCEQ) limits. The reverse osmosis treated water will be discharged into the existing ground storage tank where it will be blended with water from GBRA before being pumped into the distribution system. An outfall line for the reverse osmosis rejected water will be constructed from the reverse osmosis facility to a discharge point in the Gulf Intracoastal Water Way (GIWW) and will comply with the National Pollutant Discharge Elimination System program.

The applicant proposed to drill five new water wells in upland areas. The applicant also proposed the installation of the new connecting water lines via a temporary 24-inch open trench in an existing utility easement along approximately 6,754 linear feet (LF) of State Highway (SH) 185 (also known as Adams Street), Trevor Street and various private drives. The approximate 6,754 LF of new waterline installation will not impact wetlands or other waters of the US on the project site. The material from the 24-inch trenching activities will be placed on adjacent pavement or uplands. The trench area will be backfilled, and the affected areas returned to their preconstruction contours and will be re-vegetated as appropriate. The new water line terminates at the existing reverse osmosis facility, where the applicant will construct a new larger capacity reverse osmosis facility as well as a new potable water ground storage tank within upland areas.

The proposed access roads from HWY 185 associated with new water wells #3 and #5, will permanently impact 0.010-acres and 0.008-acres of wetlands respectively, a total of 0.018-acres. The applicant will install approximately 41 cubic yards (CY) of pervious material for the access road construction. The applicant will construct the access roads to minimize adverse impact to waters of the U.S. The installation of well #7 and the access road will permanently impact 0.026-acres of wetlands and will include fill.

The applicant also proposes to install approximately 3,484 LF of outfall line in a temporary 30-inch open trench from the reverse osmosis facility to an outfall constructed along the shoreline of the GIWW (see project plan sheets). For the outfall line to cross Highway 185 from the reverse osmosis facilities, the applicant proposes a 90-foot horizontal bore under the highway. The outfall line open trench will temporarily impact 0.051-acres of wetlands. The material from the 30-inch trenching activities will be placed on adjacent pavement or uplands. The trench area will be backfilled, and the affected areas will be returned to their preconstruction contours and will be re-vegetated as appropriate. The applicant proposes an access road for the outfall line off SH 185 to the south, and as a result will permanently impact 0.020-acres of wetlands with 25 CY of pervious fill material. As the outfall line approaches the GIWW and the discharge point, it will be situated above ground and mounted on four 8-inch x 8-inch pilings. To stabilize the immediate shoreline in the area of this portion of the outfall line, the applicant proposes to install approximately 6 CY of crushed rock in 0.002-acres of wetlands and 9 CY of the same crushed rock along 12 LF of the shoreline below the mean high water (MHW) to provide erosion control on the shoreline of the GIWW.

The area of potential effects (APE) for direct effects are any areas of ground disturbing activities including the well locations and connecting water lines. The area of indirect effects is the area within 150 feet of the area of direct effects (**Figure 1**).



Figure 1. Project Area Map.

# Environmental Setting

## Geology and Soils

The geologic formation at the project area is the Beaumont Formation, which is Quaternary in age and consists of barrier island deposits. According to the Bureau of Economic Geology, the soils in the area are mapped as Pleistocene-age Beaumont Formation soils (United States Geologic Society 2020). These soils are mainly clay, silt and gravel, deposited by stream channels, point bars, natural levees, and back-swamp deposits, with some recent development by modern man-made lakes. Many of the soils within the area have developed high levels of calcium carbonates. Soils within the proposed project APE are Portalto-Roemer (0-3 percent slope, occasionally ponded), Galveston-Mustang complex (0-3 percent slope, occasionally flooded, frequently ponded), and Dianola (frequently flooded Portalto complex) (USDA, NRCS 2020), and are generally thought to have a medium to high probability of containing previously unrecorded cultural resources.

Portalto-Roemer (0-3 percent slope, occasionally ponded) are eolian sands of Holocene age that overlay Quaternary age alluvium deposits. These well drained sandy loam soils are usually located on the rise in strand plains and reach depths of more than 2.032 meters (m) (80 inches) (USDA, NRCS 2020).

Galveston-Mustang complex (0-3 percent slope, occasionally flooded) soils were formed by sandy eolian deposits derived from igneous, metamorphic and sedimentary rocks. These moderately well drained soils are usually found on the rise of foredunes and extend to below 2.032 m (80 inches) in depth (USDA, NRCS 2020).

Dianola (frequently flooded Portalto complex) soils, are basically Portalto soils that are currently flooded most of the time, either by natural causes or by man-made geomorphological changes. They are usually found on the downslope or dips in strand plains. Like Portalto soils, these soils reach over 2.032 m (80 inches) in depth (USDA, NRCS 2020).

## Topography and Watershed

The Gulf Coast Prairies and Marshes ecoregion is an almost level and slowly draining plain, with less than 45.72 m (150 ft) in elevation. It is dissected by streams and rivers that flow to the Gulf of Mexico. The average annual rainfall varies from 76.2 to 127 centimetres (cm) (30 to 50 inches) per year. The growing season is usually more than 300 days, with extremely high humidity and very warm temperatures (Texas Parks and Wildlife 2020). The project APE drains to Espiritú Santo Bay, then into the Gulf of Mexico.

## Flora and Fauna

The project APE is part of Texas Parks and Wildlife's Gulf Coast Prairies and Marshes Ecoregion (Ecoregion 2) which consists of a narrow band of land about 96.6 kilometers (km) (60 miles) wide along the Texas coast from the Louisiana border to Brownsville. The region is exemplified by continual confrontations with the sea, wind, and rain that shaped the region into a mosaic of shallow bays, estuaries, salt marshes, dunes and tidal flats. Because of its proximity to the Gulf of Mexico, the plants of this region must be highly salt tolerant or halophytic. These coastal marshes shelter thousands of wintering geese and ducks and provide necessary landfall every spring for neotropical

migratory birds. Several important wildlife sanctuaries and refuges are in this region, including refuges for the endangered Attwater's prairie-chicken (*Tympanuchus cupido attwateri*) and the whooping crane (*Grus Americana*). The nearby 22,500-acre Aransas National Wildlife Refuge supports the majority of the nation's wintering whooping cranes. Additionally, coastal dunes may serve as sentry roosts for north bound peregrine falcons (*Falco peregrinus*) in the fall. Coastal waters are often graced by willets (*Tringa semipalmata*), sanderlings (*Calidris alba*), gulls (*Chordata*), terns (*Sternidae*) and black skimmers (*Rynchops niger*) (Texas Parks and Wildlife 2020).

Trees in the Coastal Plains region include sugarberry/hackberry (*Celtis laevigata*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), Shumard red oak (*Quercus shumardii*), southern live oak (*Quercus virginiana*), American elm (*Ulmus Americana*), yaupon (*Ilex vomitoria*), red mulberry (*Morus rubra*), wax myrtle (*Myrica*), flame leaf sumac (*Rhus copallinum*), red buckeye (*Aesculus pavia*), eastern red cedar (*Juniperus virginiana*), short-leaf pine (*Pinus echinate*), and loblolly pine (*Pinus taeda*). Shrubs in the project area include American beautyberry (*Callicarpa Americana*), buttonbush (*Cephalanthus occidentalis*), lantana (*Lantana camara*) and dwarf palmetto (*Sabal minor*), while succulents include prickly-pear cactus (*Opuntia*) and Spanish dagger (*Yucca gloriosa*). Vines in the area included pipevine (*Aristolochia*), cross-vine (*Bignonia capreolata*), trumpet creeper (*Campsis radicans*), Carolina jessamine (*Gelsemium sempervirens*), coral honeysuckle (*Lonicera sempervirens*), May-pop/passion flower vine (*Passiflora incarnata*), and muscadine grape (*Vitis rotundifolia*) (Texas Parks and Wildlife 2020).

Grasses in the project area include big blue stem (*Andropogon gerardii*), bushy bluestem (*Schizachyrium scoparium*), inland sea-oats (*Chasmanthium latifolium*), sugarcane plumegrass (*Saccharum giganteum*), Gulf cordgrass (*Spartina spartinae*), and eastern gammagrass (*Tripsacum dactyloides*), while wildflowers include lance-leaf coreopsis (*Coreopsis lanceolate*), coral bean (*Erythrina herbacea*), spider lily (*Lycoris radiata*), cardinal flower (*Lobelia cardinalis*), Turk's cap (*Malvaviscus arboreus*), Gulf Coast penstemon (*Brazos Beardtongue*), scarlet sage (*Salvia splendens*), Indian paintbrush (*Castilleja*), beach evening primrose (*Camissoniopsis cheiranthifolia*), showy evening primrose (*Oenothera speciose*), and meadow pink (*Sabatia campestris*).

Rare and endangered species include brown pelican (*Pelecanus occidentalis*), reddish egret (*Egretta rufescens*), white-faced Ibis (*Plegadis chihi*), wood stork (*Mycteria Americana*), bald eagle (*Haliaeetus leucocephalus*), white-tailed hawk (*Geranoaetus albicaudatus*), peregrine Falcon (*Falco peregrinus*), and whooping crane (*Grus Americana*), Texas diamondback terrapin (*Malaclemys terrapin littoralis*), Texas prairie sawn (*Hymenoxys texana*), South Texas ambrosia (Ragweed) (*Ambrosia cheiranthifolia*), black lace cactus (*Echinocereus reichenbachii*), slender rush pea (*Hoffmannseggia tenella*), Attwater's prairie chicken (*Tymp anuchus cupido*), piping plover (*Charadrius melodus*), whooping crane (*Grus Americana*), Eskimo curlew (*Numerius borealis*), white-tailed hawk (*Geranoaetus albicaudatus*), white-faced ibis (*Plegadis chihi*), Texas scarlet snake (*Cemophora coccinea lineri*), and smooth green snake (*Opheodrys vernalis*) (Texas Parks and Wildlife 2020).

The animals that live in the Coastal Plains include white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra Americana*), desert bighorn sheep (*Ovis canadensis nelson*), collared peccary (Javilena) (*Pecari tajacu*), Eastern astern fox squirrel (*Ardilla zorra*), badger (*Meles meles*), beaver (*Castor*), nutria (*Myocastor coypus*), muskrat (*Ondatra zibethicus*), mink (*Neovison vison*), otter (*Lutrinae*), long-tailed weasel (*Mustela frenata*), ringtail (*Bassariscus astutus*), and spotted skunk (*Spilogale putorius*). Other wildlife found in this

region includes alligators (*Alligatoridae mississippiensis*), fiddler crabs (*Uca pugnax*), spoonbills (*Platalea*), and sea turtles (*Cheloniodea*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), red fox (*Vulpes Vulpes*), gray fox (*Urocyon cinereoargenteus*), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), nine-banded armadillo (*Dasybus novemcinctus*), swamp rabbits (*Sylvilagus aquaticus*), cottontail rabbits (*Sylvilagus*), black-tailed jackrabbits (*Lepus californicus*), black-tailed prairie dog (*Cynomys ludovicianus*), and ground squirrels (*Cynomys ludovicianus*) (Texas Parks and Wildlife 2020).

# Cultural Context

The project location is in the Southern Coastal Corridor (SCC) Archaeological Region of the Central and Southern Planning Region of Texas as delineated by the Texas Historical Commission (THC) (Mercado-Allinger et al. 1996). This Archaeological Region encompasses the Coastal Bend from the Colorado River in Matagorda County south to the Rio Grande Valley (Bailey 1987; Ricklis 1990). The SCC Archaeological Region contains five subareas, each of which possesses unique geographic and cultural features. This project is in the Aransas/Guadalupe subarea with a primary resource zone that includes the coastal estuaries and terrestrial floodplains with adjacent prairies (Mercado-Allinger et al. 1996).

Archaeological evidence supports the continued presence of indigenous groups in the SCC Archaeological Region from at least 12,000 BP through the time of European contact and colonization (Mercado-Allinger et al. 1996). The generally accepted cultural history of the area is divided into four major periods: the Paleoamerican, Archaic, Late Prehistoric, and Historic.

## Prehistoric Context

### Paleoamerican Period (ca. 12,000-8,000 BP)

The Paleoamerican period in the SCC Archaeological Region is the earliest recognized cultural period dating from at least 12,000 years before present (BP) to circa 8,000 BP. The Paleoamerican period is poorly defined for the coastal portions of this archaeological region, largely because global sea level was lower, and the shoreline was situated as much as 50 km (31 miles) seaward from the contemporary shoreline. Geomorphic evidence suggests that as sea level rapidly rose, rivers and streams along the coastal margins may have down cut up to 40 m (131 ft) into the underlying Beaumont Formation. Thus, any archaeological evidence of early people not submerged on the continental shelf would be deeply buried within the Pleistocene alluvium of the present-day coastal zone (Corbin 1974; Hester 1980; Morton and Price 1987; Ricklis 2004). To date, no intact deposits containing evidence of Paleoamerican occupations have been found along the present-day coastal margins; however, the isolated occurrences of diagnostic artifacts, such as Clovis and Folsom dart points, attest to the presence of Paleo people in the area.

Little is known about the initial Paleoamerican adaptation of the region, but researchers have suggested that this period was marked by very low population density, small band sizes, and extremely large territorial ranges (Black 1989). Material indications of the Paleoamerican presence in the region include primarily surface finds of projectile point types. For example, a Clovis point was recovered from the mouth of the Nueces River in San Patricio county (Hester 1976), and a Folsom point was found on the banks of Oso Creek in Nueces County (Hester 1980). Given the lack of stratified deposits, no cultural chronology for the Paleoamerican period has been defined for the coastal zone.

Coastal sites with possible Paleoamerican components include the Petronila Creek site (41NU246) and the La Paloma site in Kenedy County (Mercado-Allinger et al. 1996). The River Spur site (41VT112) has also yielded

Paleoindian artifacts from the surface and subsurface deposits (Cloud et al. 1994). In Nueces County, the presence of early materials along Oso and Petronila creeks demonstrates that assemblages dating to Paleoamerican times occur in this region (Shafer and Bond 1985).

Further inland on the Gulf Coastal Plains, stratified sites with Paleoamerican components have been found; however, as Ricklis (2004) points out, these early sites represent inland terrestrial/riverine adaptations rather than coastal adaptations. Examples of deep terrace sites located along inland tributaries are Berger Bluff in Goliad County (Brown 1986, 2006) and the Buckner Ranch sites (Sellards 1940; Hester 1976; Nash 2001) in Bee County. At Berger Bluff (41GD30), now inundated by Coleto Creek Reservoir, radiocarbon assays from the middle portions of the bench deposits fall mostly within the Folsom and Late Paleoamerican time span. Although no dates exist from above or below this zone, the presence of faunal and cultural remains throughout the deposits suggests a time span of 8,000 to 6,000 BP. The site is interesting in that the faunal assemblage from the bench deposits include primarily small mammals, a variety of small rodents, and the remains of a wide variety of microvertebrates (i.e., salamanders, eastern mole, fish, snakes, frogs or toads, birds, pocket mice, wood rats, lizards, and voles), suggesting a slow adaptation to near-coast resources and little evidence of a dependence on big game hunting (Brown 2006).

Buckner Ranch (41BE2) is in a stream valley between two parallel creeks, Blanco and Medio. Diagnostic artifacts recovered from the site's deep terrace deposits include the base of a Clovis point, a bifacial Clear Fork tool, the tip of a Midland point, an Angostura point, and two side-notched points, all of which indicate a time range from about 13,000 to 9,000 years ago. Many of these artifacts were found in situ and in close association with Late Pleistocene fauna (Sellards 1940; Nash 2001).

### Archaic Period (ca. 8,000 – 950 BP)

The archaeological evidence for the Archaic period (circa 8,000–950 BP) is more robust. Throughout the Archaic, continued climatic fluctuations brought additional vacillations in sea level, with a rapid rise beginning around 6,400 BP. By 5,000 BP, the modern coastline emerged and by 4,520 to 2,000 BP, the barrier islands had formed. These changes in sea level brought several changes, including a decline in the large game populations and a shift toward the exploitation of a wider range of plant and animal species. Based on climatic, archaeological, and chronological data recovered from numerous sites (Prewitt et al. 1987; Ricklis 1988, 1993; Ricklis and Cox 1991), the Archaic period in the SSC Archaeological Region has been divided into three subperiods: Early (8,000–4,500 BP), Middle (4,500–3,000 BP), and Late (3,000 BP–950 BP).

The Early Archaic (8,000–4,500 BP) represents a period of transition beyond the Paleoamerican period. Population density remains low, and large territorial ranges are still utilized (Black 1989). During this time period, sea level was still south of the modern coastline. Although populations and site densities remained relatively low, evidence from sites, such as the McKinzie site (41NU221) in Nueces County (Ricklis 1988, 1993), point to marine adaptations geared toward the exploitation of marine/estuarine shellfish populations. The earliest sites are relatively ephemeral, consisting of thin, but often dense, lenses of oyster shell situated on upland margins of eroded Beaumont surfaces. Based on calibrated oyster and scallop shell dates, sites 41SP136 and 41SP153, located on the uplands north shore of Nueces Bay, both yielded age ranges that fall within this period (Ricklis 2004). Site 41NU281, an oyster shell midden located on upland overlooking the Nueces River delta, also dated to this early time period (Ricklis 2004).

During the latter part of the Early Archaic, occupation intensity increased and despite preservation issues, sites such as 41NU267 have yielded evidence of hunting (Ricklis 1995). Artifacts from early archaic sites include shell tools, triangular dart points, and stemmed point varieties such as Gower, Bell, and the Early Stemmed (Ricklis and Cox 1991; Ricklis 1988, 2004). Other sites in the SCC Archaeological Region with identified Early Archaic deposits include the Means site (41NU184) at White's Point on Nueces Bay (Ricklis 1993), 41SP120 on Ingleside Cove (Ricklis 1993), and the Swan Lake site (41AS16) (Prewitt et al. 1987). The final phase of this subperiod roughly coincides with island formation, and it is during this time period that the earliest occupation of the barrier islands may have occurred.

During the Middle Archaic (4,500–3,000 BP) a dramatic shift in the subsistence regimes appears to have occurred that is reflected in the low density of recorded sites along the coastal margins. Occupational strata from at least 23 well-dated sites show a virtual lack of dense shell deposits during this time period (Ricklis 2004). The Middle Archaic also represents an era of rapidly rising sea levels that, when coupled with the archaeological evidence, lead Ricklis (2004) to infer that the interval of “reduced shoreline occupation reflects a corresponding reduction in the exploitable biomass in central coast estuaries.”

Although occupation of sites along the coastal margins decline, no corresponding decline appears to have occurred in the occupation of sites on the inland coastal plains. Sites such as the Morhiss Mound site (Campbell 1976; Dockall 1997) and the Choke Canyon Reservoir sites (Hall et al. 1986; Highley 1986) are open campsites located along low stream terraces and natural levees, and their assemblages suggest a reliance on seasonal terrestrial resources. Artifacts commonly found in Middle Archaic deposits include Bulverde, Catan, Kent, Morhiss, and Palmillas dart points, as well as tubular stone pipes, incised bone, conch columella gouges, and adzes (Corbin 1974, 1976; Black 1989; Headrick 1993). Sometime toward the end of the Middle Archaic, shoreline occupations resume, as does the dependence on marine resources.

The beginning of the Late Archaic (3,000 BP–950 BP) generally corresponds to the same time that sea level stabilized at its modern level (Ricklis 2004). Population increases and expanded exploitive areas are reflected in the increase in site size and intensity of use, the presence of thick shell midden accumulations, and a greater range and variety of artifacts. Campbell (1952) recognized this increased exploitation of marine resources and the accompanying diverse cultural assemblages, naming it the Aransas focus. Assemblages are typified by dart points such as Bulverde, Catan, Kent, Matamoros, and Palmillas, as well as tubular stone pipes, incised bone, conch columella gouges, and adzes (Corbin 1974; Black 1989), all of which point to relationships with adjacent south and central Texas. However, the abundant use of marine shells suggests a very specific ecological adaptation (Campbell 1958; Ricklis 2004).

The most productive Late Archaic sites, such as the Kent-Crane site (Campbell 1952) on Copano Bay and the Ingleside Cove sites in San Patricio County (Story 1968; Ricklis and Cox 1991) as well as the Mustang Lake Site in Calhoun County (Mercado-Allinger et al. 1996), are located near the seaward end of bays. In addition to dense shell middens containing a variety of moderate-to-high-salinity mollusks, the relative abundance of fish otoliths in the midden deposits suggests that a significant increase in fishing occurred during the Late Archaic (Ricklis, 2004). The Late Archaic tool assemblage includes evidence of a diverse bone and shell tool industry, as well as Ensor and Kent dart points and small, thick, unstemmed dart points of the Catan and Matamoros types. Also, evidence exists for the

use of baskets in that basketry-impressed clay and asphaltum nodules have been recovered from several sites near Corpus Christi (Campbell 1947, 1952; Cox and Smith 1988; Ricklis 1990, 2004). Sometime during the Middle to Late Archaic, coastal cemeteries began to appear, suggesting the emergence of well-defined group territories (Story 1985, 1990; Ricklis 2004).

## Late Prehistoric (ca.950 – 450 BP)

Several significant changes mark the beginning of the Late Prehistoric period (950 – 450 BP). During the initial Late Prehistoric, lithic assemblages located on both the coastal margins (Huebner 1988; Headrick 1993; Ricklis 1993) and the inland Coastal Plains (Brown 1986; Hall et al. 1986) indicate a shift from the use of heavy, thick dart points to light, thin arrow points (i.e., Scallorn, Fresno, Clifton and Perdiz). Ceramics appear in the archaeological record and ceramic technology evolves rapidly, with noticeable interregional distinctions (Ricklis 2004). Evidence exists of increased ethnicity among the coastal groups as settlement patterns shifted in response to the integration of new subsistence regimes, and the archaeological evidence points to shifting seasonal emphases, with groups moving from the occupation of shoreline fishing camps during the fall through winter-early spring to late spring-summer residences at hunting camps commonly located along the upland margins of stream valleys (Ricklis 1995, 2004). Excavations at stratified lithic and shell midden sites point to the exploitation of seasonally specific food resources (Thomas and Weed 1980a).

Somewhere around 729 BP, a relatively distinct artifact assemblage emerged on the Central Coast between Matagorda Bay and Baffin Bay. It was defined as the Rockport complex due to the presence of distinctive pottery and a range of diagnostic lithic artifacts (Campbell, 1958; Corbin, 1976; Shafer and Bond, 1985; Weinstein, 1992; Ricklis, 2004, 2006). Common to this phase are Perdiz arrow points, small unifacial end scrapers, thin alternately bevelled bifacial knives, small elongated drills, and a prismatic blade core technology. Ceramic technology grew to include a variety of vessel forms and distinctive decorative motifs often coated and/or decorated with asphaltum. Based on the distribution of the various Rockport pottery types, the geographic extent of the Rockport phase can be fairly well defined (Ricklis 2004). Major Rockport phase components have been identified at the Kirchmeyer site (41NU11) on Oso Bay (Headrick 1993) and the Packery Channel site (41NU219) at the north end of Padre Island (Warren 1984).

Resource exploitation and cultural assemblages occurring during this time period tentatively establish a link between Rockport complex sites and the two historically documented coastal groups known as the Karankawa and Coahuiltecan (Thomas and Weed 1980a). Most of the late prehistoric Rockport sites thus far investigated are interpreted as reflecting a littoral adaptation, with a secondary dependence on inland prairie resources (Prewitt 1984). Archival resources describe the Karankawa as residing in large shoreline camps during the fall and winter months but dispersing into smaller bands to camp along freshwater streams during the spring and summer months (Ricklis 1990, 2004). Artifacts associated with Rockport sites include shell containers, jewelry, shell working-tools, asphaltum, burned clay nodules, sandstone shaft straighteners, and decorated ceramics, including polychrome (Calhoun 1964), asphaltum painted black-on-gray wares (Fitzpatrick et al. 1964) and scallop-shell scored (Calhoun 1964).

Late Prehistoric cemeteries and burials are relatively common along the Texas coast and are often found in clay dunes (Headrick 1993). At least four late prehistoric cemeteries are documented within Nueces County. According

to Hester (1980) the Texas coast encompasses the largest number of prehistoric cemeteries in the region. One of these cemetery sites, 41NU2 (Calle del Oso), is one of the largest known cemeteries. At one time it may have contained as many as 600 burials. Unfortunately, this site has been largely destroyed by development and adequate studies were never conducted at the site. It is believed that site 41NU2 may have also been in use during the Late Archaic period. Another cemetery located in Nueces County is the Berryman site (41NU173) (Hall 1987).

## Historic Context (450 BP-present)

The European post-contact historic period for the Texas coast and south Texas effectively begins with the explorations of the Gulf of Mexico by Spanish explorers seeking to locate new land and economic resources for the Spanish royal crown in Madrid. Piñeda explored and mapped the Gulf coast from Apalachicola to the Yucatan and became the first European to sail through Aransas Pass into a shallow body of water he named Corpus Christi Bay.

The earliest and best account of the indigenous groups living along the Texas Coast comes from the chronicles of Álvar Núñez Cabeza de Vaca, a survivor of a Spanish shipwreck in 1528 (Pupo-Walker 1993). For seven years Cabeza de Vaca lived and travelled along the Texas coast from Galveston Bay to Corpus Christi Bay and onto the Coastal Plains, interacting with many of the distinct cultural groups living in the region. In his chronicles, he describes the people living on the barrier islands and inland Gulf Prairies and Marshes area as the “Fish and Blackberry People.” These early coastal people were part of numerous politically, culturally, and/or linguistically distinct groups that shared a certain resource-based territory. Sometime during the seventeenth century, these groups came to be collectively known as the Karankawa (Newcomb 1983).

Living and interacting with the Karankawa were a few small hunting and gathering groups living on the inland Coastal Plains and along the southern Coastal Margins. Based on their linguistically related languages, these groups eventually became collectively known as the Coahuiltecan (Campbell 1988). The Coahuiltecan settled primarily on the mainland and only after contact with the Spaniards did, they venture out onto Padre Island (Thomas and Weed 1980a, 1980b). Some of the Coahuiltecan bands consisted of the Orejon, west of Corpus Christi Bay; the Malaquite, along the coast from Corpus Christi Bay to Baffin Bay; and the Borrado, in the area from Baffin Bay to the Rio Grande (Scurlock et al. 1974). The Karankawa, conversely, occupied the coastline and barrier islands from Trinity to Aransas bays (Thomas and Weed 1980a, 1980b). Five major Karankawan groups historically documented include the Capoques and Hans to the north; the Kohanis around the mouth of the Colorado; the Karenkake, Clamcoets, and Carancaquacas on Matagorda Bay and Matagorda Island; and the Kopanos along Copano Bay and St. Joseph Island (Scurlock et al. 1974).

Over the next three centuries, French, Spanish, and Anglo explorers, missionaries, soldiers, and settlers encountered these Native American groups with devastating effects. These nomadic hunters and gatherers were decimated by European diseases, the encroachment of the Spaniards from the south, the Apache and Comanche from the north, as well as the Anglo-Americans from the east. By the 1850s, a combination of European-introduced diseases and tribal wars had driven most of the indigenous population to near extinction. The Spanish, however, largely ignored the region until the late 1600s, when Spanish authorities dispatched an expedition to the area in 1689 under Alonso De León (“El Mozo”). However, the Corpus Christi Bay area remained unknown and unexplored until 1747, when Joaquín de Orobio y Basterra led an expedition down the Nueces River. After Orobio's return, the governor and

captain of Nuevo Santander, José de Escandón, proposed founding a settlement at the mouth of the Nueces, but the settlement was never realized (Long 2013a).

European settlement of the central coast began after the establishment of Spanish missions such as Mission Nuestra Señora del Espíritu Santo de Zúñiga in 1721, Mission Nuestra Señora del Rosario in 1755, and Mission Nuestra Señora del Refugio in 1795 (Mounger 1959; Headrick 1993). A few ranches in the Corpus Christi area date to the period between 1757 and 1766, but the area remained virtually uninhabited until the early 1800s when Enrique Villarreal received a Mexican grant of 42,840 acres (10 leagues) of land encompassing what is now the present city of Corpus Christi and Oso Bay (Taylor 1976; Headrick 1993). Villarreal had been in possession of the tract as early as 1810 but had abandoned operations due to hostile Indian attacks. He named his holdings el Rincón Del Oso and established his headquarters at Rancho del Oso. By about 1830, cattle operations on the ranch had resumed, although Villarreal himself lived in Matamoros (Ricklis 1987; Headrick 1993).

# Methods of Investigation

## Background Review

As part of the proposed project, Atkins conducted a cultural resources background review of the area within one kilometer (km) of the proposed project components (i.e. new water wells, etc.). Research of available records was conducted using the Texas Historical Commission’s (THC) on-line *Restricted Archaeological Sites Atlas* (2020) files with the purpose of determining the location of previously recorded archaeological sites (sites issued a trinomial/recorded at the Texas Archeological Research Laboratory [TARL]), as well as identify *National Register of Historic Places* (NRHP) listed and eligible properties and sites, NRHP-listed districts, cemeteries (including Historic Texas Cemeteries [HTC]), Official Texas Historical Markers (OTHM) (including Recorded Texas Historic Landmarks), State Archaeological Landmarks (SALs), and any other potential cultural resources such as National Historic Landmarks (NHLs), National Monuments, National Memorials, National Historic Sites, and National Historical Parks to ensure the completeness of the study. As a secondary source of NRHP properties and NHLs, the National Park Service’s (NPS) NRHP database and GIS Spatial Data as well as the NHL Program were consulted. The NPS Geographic Resources Program *National Historic Trails Map Viewer* was used to identify National Historic Trails (NHT). Additionally, Texas Department of Transportation’s (TxDOT) *NRHP Listed and Eligible Bridges of Texas* map and *Historic Districts & Properties of Texas* map were reviewed. Finally, the Office of Coast Survey’s *Automated Wreck and Obstruction Information System* (AWOIS) was consulted.

Reports of previous archaeological investigations and previously recorded cultural resources in the project area or vicinity were also reviewed along with sources like the Bureau of Economic Geology’s *Geologic Atlas of Texas*, the United States Department of Agriculture’s Natural Resources Conservation Service’s Soil Surveys and Texas Department of Transportation’s (TxDOT) Yoakum District *Hybrid Potential Archaeological Liability Map* (HPALM) to assess the project area’s potential for containing previously unrecorded archaeological sites.

## Archaeological Resources

The results of the cultural resources background review identified one previously recorded cemetery and associated OTHM within 1 km of the proposed project (**Table 1**).

**Table 1. Cultural Resources identified within 1 km of the Proposed Project**

Resource	Resource Type	Designation	Determination of Eligibility per THC Atlas
Port O’Connor Cemetery (CL-C007)	Cemetery	HTC	---
Port O’Connor Cemetery (#17476)	OTHM	---	---

While other cultural resource investigations occurred within one km of the proposed project, the entirety of the proposed project does not appear previously surveyed. In 1975, Frank Weir undertook a survey of State Highway (SH) 185 from Seadrift to Port O’Connor for the State Department of Highways and Public Transportation (SDHPT). The survey did not result in the identification of cultural resources (SDHPT 1975). Much later in 2001, Prewitt and Associates conducted historic archival research and a cultural resources survey of the GIWW from Port O’Connor to

Corpus Christi Bay for the USACE, Galveston District. For the portion of the project along Blackberry Island, the entire area was surveyed by helicopter and 8 km (4.97 miles) of bank were inspected by boat. No previously recorded prehistoric sites and no unrecorded sites were identified (Gadus and Freeman 2005). Most recently, Archaeology Consultants, Inc. conducted a survey of an approximately 18-hectare (43-acre) parcel adjacent to the Port O'Connor airport for Belaire Environmental, Inc. The survey does not appear to have resulted in the identification of any cultural resources. An associate abstract or report of findings was not available in the THC on-line *Restricted Archaeological Sites Atlas* files.

The TxDOT Yoakum District HPALM (2020) generally recommends that for the portion of the project along SH 185, there is low shallow potential, moderate deep potential at depth >1 meter (integrity value 2) for the project area to contain preserved previously unrecorded archaeological resources. For portions of the project north of SH 185, there is a moderate potential (integrity value 5) to contain preserved previously unrecorded archaeological resources. For portions of the project south of SH 185, the project area mostly has high potential (integrity value 9) or a high shallow potential, moderate potential at depth (integrity value 8) with a small portion containing moderate shallow potential, high potential at depth (integrity value 6) or moderate potential (reasonable integrity value 5) for containing preserved previously unrecorded archaeological sites.

## Historic Resources

There are no previously recorded historic resources within 1 km of the project components and a review of current and historic aerial imagery indicates there are no historic-age resources adjacent to the APE (Figure 5; Attachment 1). A review of historic topographic maps dating from 1954, 1973 and 1976 depict historic-age buildings within the APE (National Environmental Title Research Online [NETRO] 2020). Recent topographic maps dating to 2013 and 2016 as well as aerial imagery from 1995, 2004, 2008, 2010, 2014, and 2016 indicate that the buildings are no longer extant (NETRO 2020). However, archaeological evidence of the former buildings may be present within the project area pending level of existing impacts and disturbances.

## Field Investigations

### Archaeological Intensive Survey

Prior to conducting fieldwork, Atkins obtained a Texas Antiquities Permit (TAP 9538) from the THC. All field work was supervised by a Registered Professional Archaeologist that meets or exceeds the U.S. Secretary of the Interior's *Professional Qualifications and Standards for Historic Preservation* for Archaeology (48FR22716 or 36CFR Part 61) (SOI) and the THC's standards for Principal Investigators as defined in Title 13, Part II of the Texas Administrative Code, Chapter 26. The survey met or exceeded the archaeological and historic-age resources survey standards as set forth by the THC and/or the Council of Texas Archaeologists (CTA) guidelines and complied with applicable standards as defined or referenced in 13 TAC 26.20 and THC policy.

Atkins archaeologists employed shovel testing to probe for subsurface cultural materials and visually inspected the ground surface and any available cut bank exposures within the APE. Shovel tests were at least 30-centimeters (cm) in diameter and excavated in 10-cm maximum levels to an 80 cm depth or restrictive features, whichever came first.

The soil matrix was screened through ¼-inch mesh, unless it was dominated by clay. Clay soils were hand trowelled and visually inspected for the presence of cultural materials. Atkins archaeologists plotted each shovel test location using a sub-meter GPS receiver and recorded each test on appropriate project field forms. Texas minimum survey standards required 16 shovel tests per mile, or approximately 37 shovel tests for the linear part of the project (water line, outflow line and driveways), and two shovel tests per acre for the areal part of the project (water well and water plant), or approximately five shovel tests. However, shovel testing frequency varied depending on the nature of the disturbances, soils, topography, or proximity of previously recorded cultural resources. Any areas determined in the field to be sufficiently deflated, disturbed, and/or contaminated as to not require shovel testing were well documented, and the reason for not conducting shovel tests in that area explained in the results section of the report.

During the survey, no archaeological sites or cultural remains were located within the APE, so no additional delineation shovel tests were necessary. Additionally, since no archaeological sites or cultural remains were encountered, no artifacts were collected

### Historic-Age Standing Structures Survey

No historic age structures were encountered (those built in or prior to 1977), within 150 ft of the proposed project components using the SOI Standards and Guidelines for Identification and Evaluating Historic Properties.

### Curation

Atkins conducted a non-collection survey for all of the work performed for the project. Records generated as a part of the survey work performed will be curated at the Texas Archeological Research Laboratory (TARL) at the University of Texas at Austin.

# Results

## Field Investigations

Atkins archaeologists surveyed a linear area approximately 3,389 m (11,119 ft) in length with the width ranging from 24 inches (60.9 cm) to 30 inches (76.2 cm), as well as the proposed location of five well pads with a combined acreage cover of 0.036 hectares (0.089 acres). The field investigation was conducted from August 31 through September 2, 2020 by archaeologists R. Benjamin Lee, B.S. - Project Archaeologist and Katherine Turner-Pearson, MA, RPA - Principal Investigator.

All locations within the linear APE were shovel tested at approximately 100 m (328 ft) along existing roadways, and across agricultural fields and cattle pastures. Where shovel tests could not be excavated because of disturbances, archaeologists photographed the areas and noted the disturbances on their shovel test logs. The average shovel test depth was 76 cm (29.9 inches).

In the field, the crew divided the project area into four smaller project areas in order to stay within a safe walking distance from Atkins vehicles (**Figure 2**, **Figure 7**, **Figure 12**, and **Figure 16**).

A total of six shovel tests were excavated within project area 1 (**Figure 2**). The area consisted of approximately 450 m (1,476.4 ft) of new waterline, 146 m of new roadway (479 ft), and water well pad #3. The terrain within the area was relatively flat with a slight upward slope to the north. Vegetation in the area consisted of a few copses of trees and high grasses (**Figure 3**). The portion of the APE that ran along Adams Street (Highway 185) had been heavily impacted by a maintained drainage ditch and buried utilities. No shovel tests were excavated in that area and photographs were taken for documentation (**Figure 4** and **Figure 5**). Two other shovel tests were excavated in the area; one within the proposed roadway (KTP07), and one within the area of Well Pad #3 (BL09). During the excavation of BL09 a distinctive soil color change (10YR 7/2 to 10YR 4/2) was noted at 50 centimeters below surface (**Figure 6**). The Principle Investigator determined that the distinct soil color change may be evidence of a buried A Horizon.

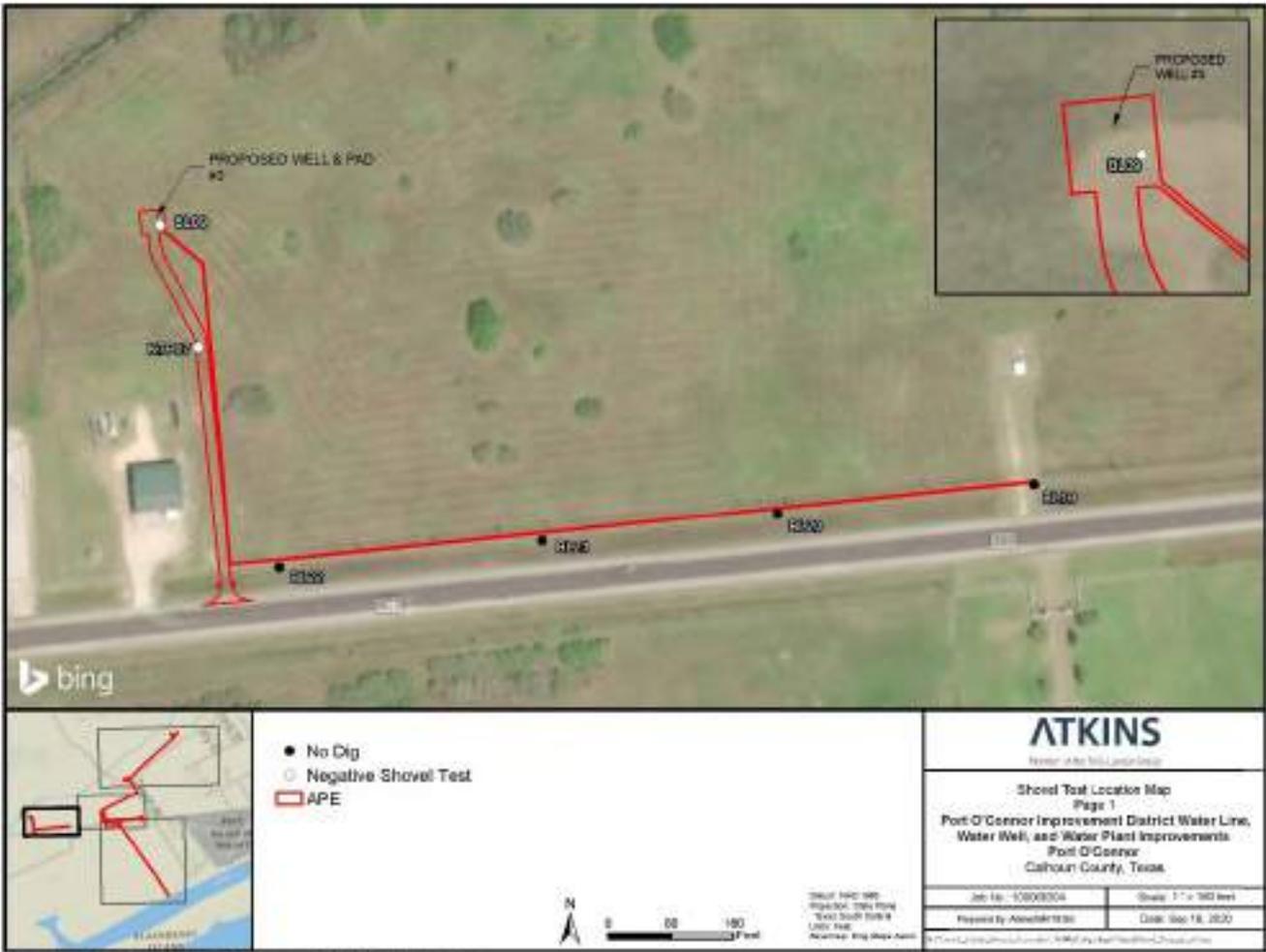


Figure 2. Project Area 1.



**Figure 3. Shovel test: BL09, Well Pad 3, facing west.**



Figure 4. Shovel test: BL19, No dig, disturbed, facing southeast.



**Figure 5. Shovel test: BL21, No dig, disturbed, facing northwest.**



**Figure 6. Shovel test: BL09, soil color change.**

Project area 2 (**Figure 7**) was comprised of approximately 955 m (3,133.2 ft) of new waterline, 125 m (410.1 ft) of new roadway and well pads #4 and #5. In total, 12 shovel tests were excavated in the project area. The terrain within the project area was within a relatively flat coastal plain, with vegetation mostly being short grasses. The entire area showed signs of frequent mowing (**Figure 8**). Atkins archaeologists determined in the field that the proposed APE along the south side of Adams Street was heavily disturbed as it lay within a maintained drainage ditch (**Figure 9**), so no shovel tests were placed in that area. Moreover, the location for shovel test BL10 showed signs of mechanical disturbance and lay at the base of a man-made push pile (**Figure 10**). Lastly, the location of BL16 was within the landscaped and well-maintained front lawn of the municipal building and highly disturbed (**Figure 11**). All other shovel tests in the project area were unremarkable. No cultural resources or artifacts were observed.

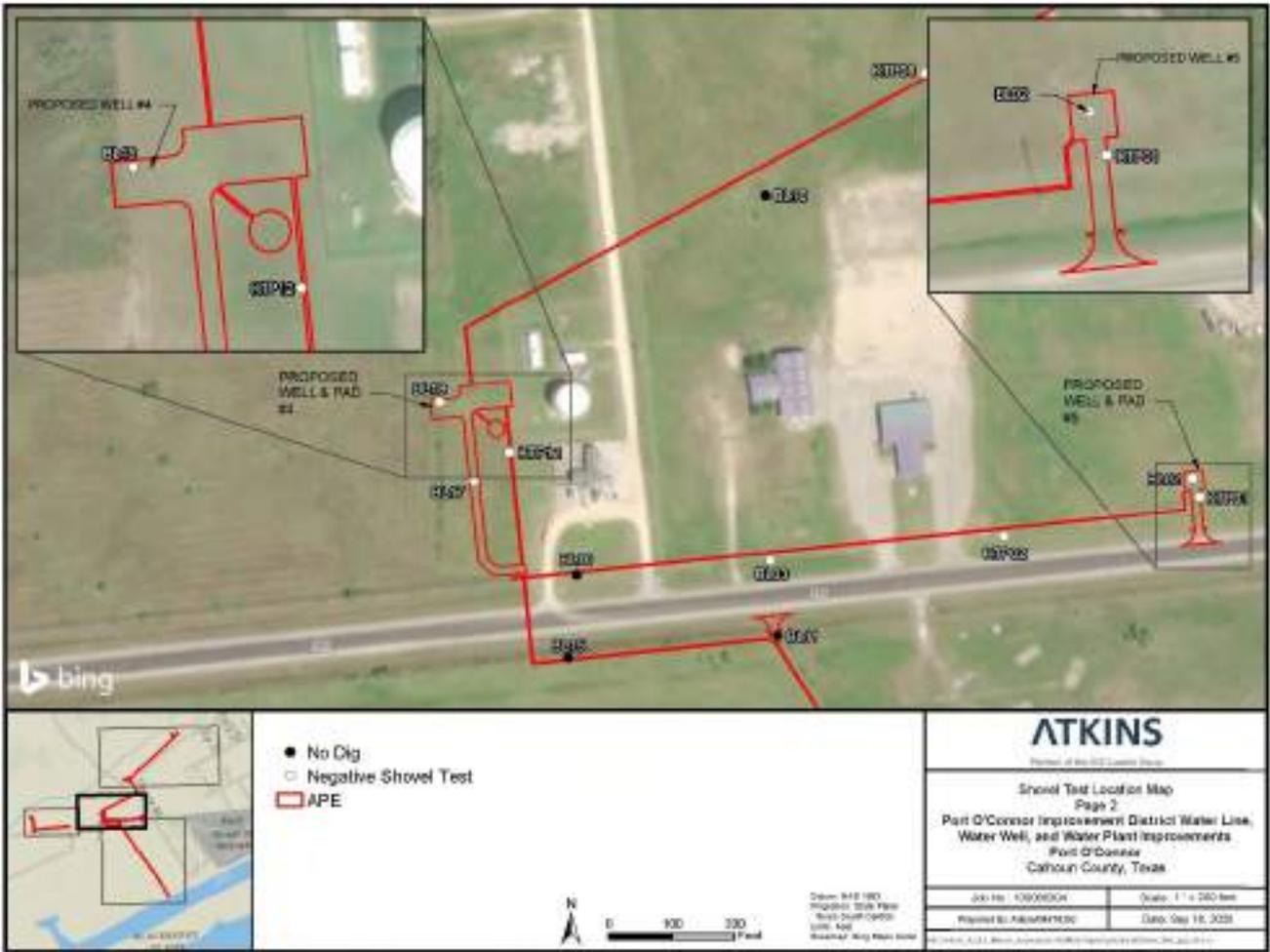


Figure 7. Project Area 2.



**Figure 8.** Katherine Turner-Pearson starting a shovel test, facing northwest.



**Figure 9. Shovel test: BL11, No dig, disturbed, facing west.**

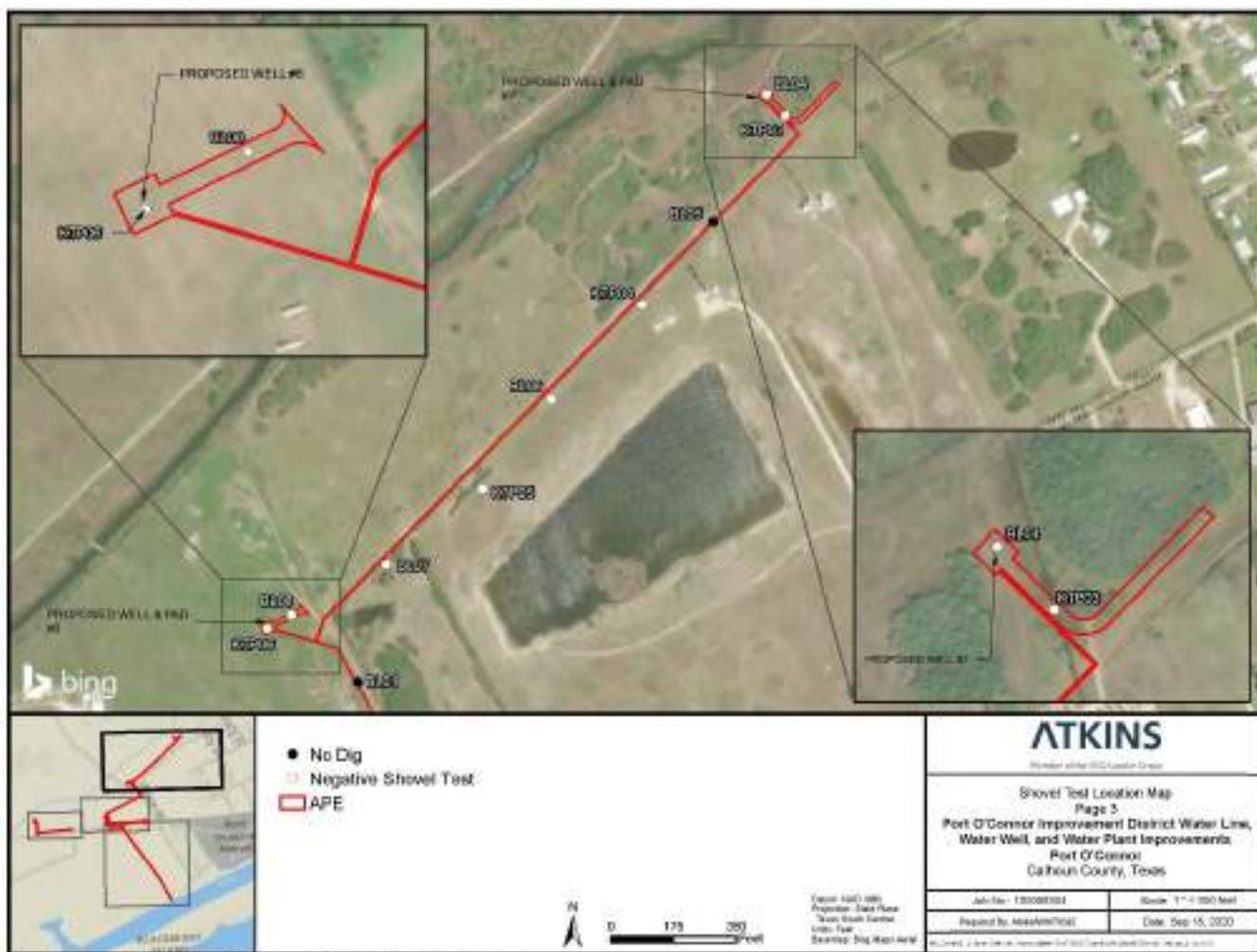


**Figure 10. Shovel test: BL10, No dig, disturbed, facing southeast.**



Figure 11. Disturbed, no dig area along Hwy 185. ST: BL16, facing east.

Ten shovel tests were placed within project area 3 (**Figure 12**). The project area comprised approximately 770.45 m (2,527.7 ft) of new waterline, 106.52 m (349.5 ft) of new roadway, and well pads #6 and #7. The project area was primarily land used for agriculture and cattle pastures. The terrain was flat and composed of both short and high grasses along with dense stands of trees (**Figure 13**). The portion of the proposed APE that ran northwest along Trevors Road area had been heavily impacted by the construction of a dirt road so no shovel testing was conducted in that area (**Figure 14**). To the northeast at the BL05 location, the APE crossed a property fence line and was impacted by the construction of a dirt road as well as utility lines (**Figure 15**). Therefore, no shovel tests were placed in that location. All completed shovel tests within the project area were negative and no cultural resources or artifacts were noted.



**Figure 12. Project Area 3.**



**Figure 13. Shovel test: BL04, Well Pad 7, facing southwest.**



**Figure 14. No dig at Shovel test: BL01. Disturbed, facing south.**



**Figure 15. Shovel test: BL05, No dig. Disturbed, facing southwest.**

Project area 4 (**Figure 16**) is the outflow line that runs southeast of Adams Road for 836.1 m (2,743.1 ft) before discharging into Espirtú Santo Bay. Atkins archaeologists excavated six shovel tests in project area 4, located in a cattle pasture that began to slope upwards 450 m southeast of Adams Road (**Figure 17**). The vegetation in the area consisted of short and high grasses, bushes, stands of trees, and in one area, a dense section of eight-foot tall sunflowers (**Figure 18**). Atkins staff encountered a very high and sturdy barbed wire fence 591.3 m (1,940.2 ft) southeast of Adams Street along the APE corridor. The crew was unable to find a safe place to cross over the fence, nor could the crew pass through or under the fence. The crew attempted to find another way to access the property but were unable to locate a gate, road or other access point. Therefore, Atkins archaeologists were unable to survey the 244.7 m (802.8 ft) of the proposed APE within that parcel of land. Of the sections that were surveyed, five of the shovel tests excavated in the APE were unremarkable. However, the sixth, KTP09, was unique in that dense clay was encountered immediately upon the beginning of excavation. This shovel test location was at the top of the rise within the APE. Archaeologists were only able to dig 42 cm, before terminating the shovel test due to the highly compacted clays. No cultural resources or artifacts were encountered in project area 4.

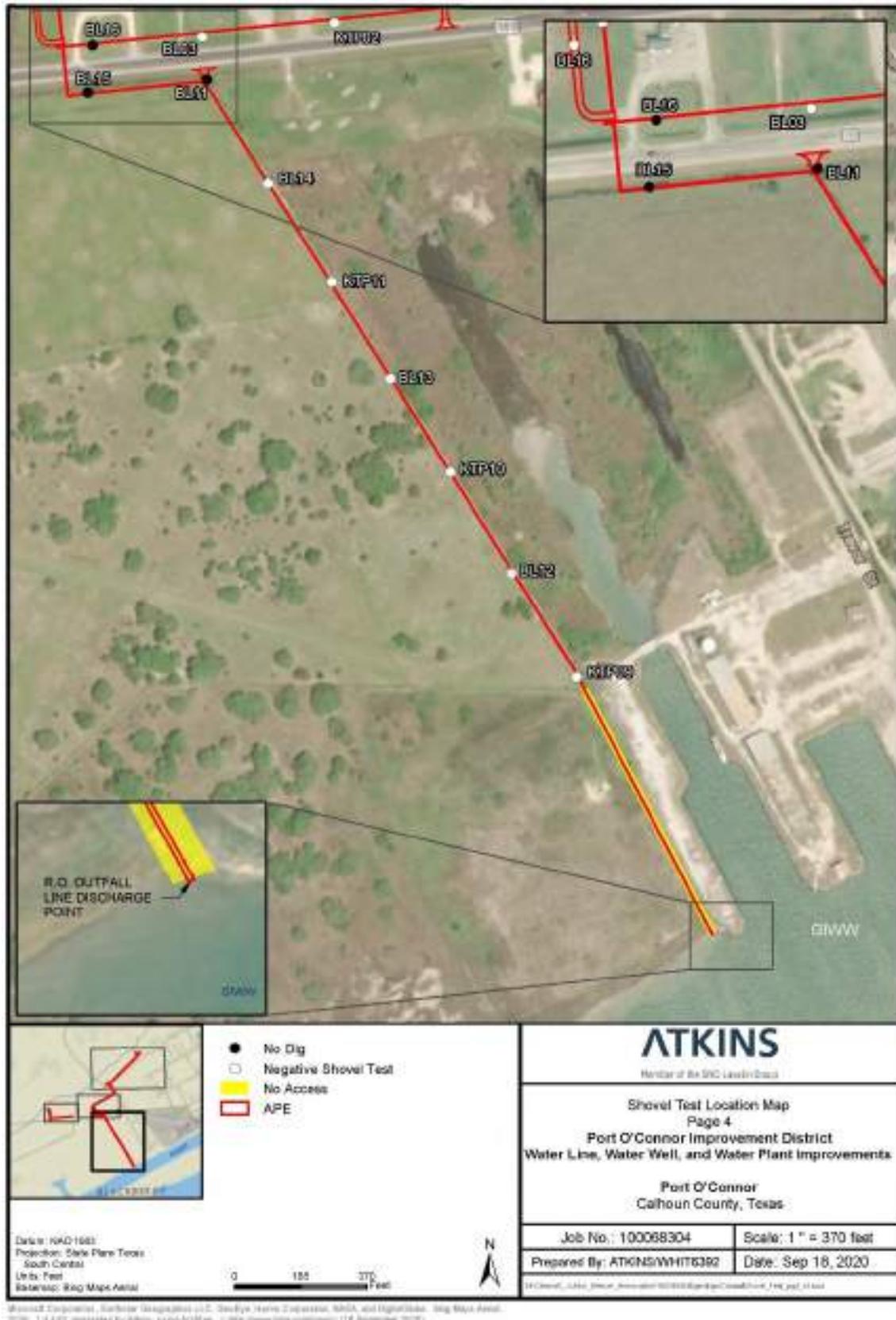


Figure 16. Project Area 4.



**Figure 17. Shovel test: BL13, facing southeast.**



**Figure 18. Sunflowers in path of APE. R. Benjamin Lee is in photo, facing southwest.**

# Summary and Recommendations

A total of 34 shovel tests were placed along the 3,389 linear meters (11,119 linear ft) survey area as well as the 0.036 hectares (0.089 acres) of well pad sites for the Port O'Connor Improvement District Project. Almost all of the shovel tests went to the research designed planned depth of 80 cmbs (31.5 inches). While none of the shovel tests encountered archaeological sites, artifacts, or any other sign of cultural occupancy, two shovel tests showed soil horizons that could represent buried A Horizons (paleosoils). A large portion of the APE proved to be previously disturbed by utility lines, highways, driveways, or building construction, and any archaeological sites located in those areas would already be highly disturbed or destroyed. Additionally, no historic structures were observed within 150 ft of the APE. The soils encountered during the survey were consistent with ever-changing coastal environments where severe weather can move and deposit sands by water or wind, changing landforms quickly. Analyzing these types of coastal environments in order to determine possible occupational areas of ancient people is difficult, if not impossible. So archaeological surveys attempt to systematically test the sandy horizons for signs of ancient occupations. The archaeological survey crew acted with due diligence to survey the APE as completely as possible in an effort to find any unknown archaeological sites. However, there is always the possibility of an unknown site remaining within the APE between the systematic shovel tests. While two of the shovel tests showed possible evidence of buried A Horizons, they did not show any signs of archaeological remains nor cultural features. Suggesting prehistoric occupation horizons in those areas without further evidence would be purely conjecture.

Since no known archaeological sites and no historic properties are located within or adjacent to the project APE, and no new archaeological sites or cultural remains were discovered during the survey, it is recommended that the project be allowed to proceed as proposed. *However, in the event that human or cultural remains be encountered during construction, all work must stop in the area, and the THC notified immediately.*

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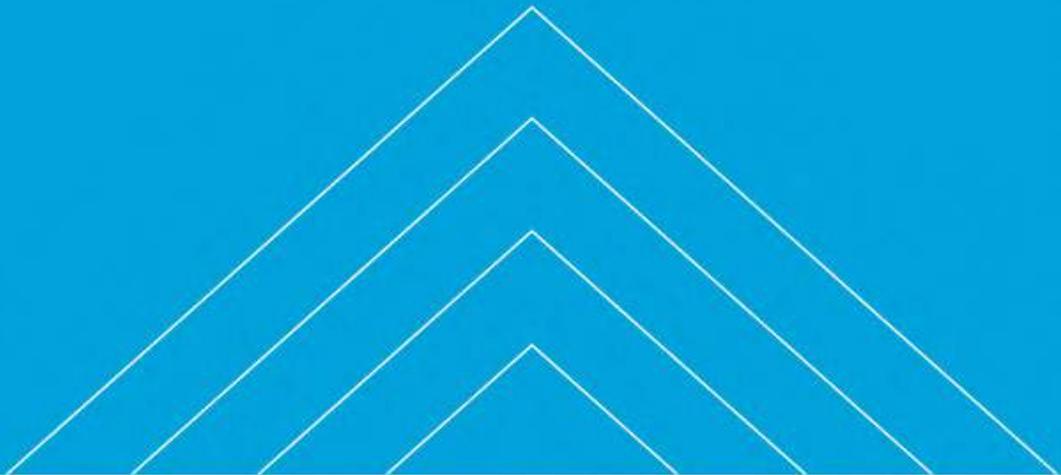
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# Appendices



# Appendix A. Project Results Maps

NOT FOR PUBLIC DISCLOSURE.

# Appendix B. Background Review

NOT FOR PUBLIC DISCLOSURE

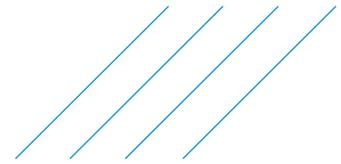
## Appendix C. Project Shovel Test Data

Shovel Test No.	Level (10 cm)	Depth (cmbs)	P/N	Munsell Soil Color	Soil Texture	Description/ Comments	Reason/Depth of Termination
BL01						No dig, disturbed. On Trevors Rd. Photos taken	
BL02	1	0-10	N	10YR 7/1	Sandy Loam	At Well Pad 5. Mowed field. Some grass rootlets	
BL02	2-8	10-80	N	10YR 7/1	Sand	Rapid change to sand.	Depth
BL03	1	0-10	N	10YR 6/2	Loamy Sand	Along Adams Street (Highway 185) Area has been mowed. Some grass rootlets in first 10 centimeters.	
BL03	2-5	10-50	N	10YR 6/2	Loamy Sand	More loamy than previous level.	
BL03	5-8	50-80	N	10YR 5/2	Loamy Sand	Soil is damp. Soil darker.	Depth
BL04	0-1	0-10	N	0-5 10YR 5/2 5-10 10YR 6/1	Loamy Sand	At Well Pad 7. High grasses. Soil change at 5 centimeters below surface.	
BL04	1-5	10-50	N	10YR 6/1	Loamy Sand	Soil has become moist. Small brownish yellow inclusions noted (10YR 6/6).	
BL04	5-8	50-80	N	10YR 5/1	Sand	Soil is very damp. Increase in inclusions, same color.	Depth
BL05						No dig, disturbed area at fence line. Photos taken	
BL06	0-2	0-20	N	10YR 6/3	Sandy Loam	On edge of pasture. High grasses. About 5 meters southeast of fence line. Dense roots.	
BL06	2-8	20-80	N	10YR 5/2	Sand	Transition to sand. Soil has darkened as moisture increases.	Depth
BL07	0-4	0-40	N	10YR 7/2	Sand	Near fence line, opposite dirt road. New parcel, short grasses.	
BL07	4-8	40-80	N	10YR 6/2	Fine Sand	Sand has become more fine, powdery. Dampens at about 40 centimeters and on.	Depth
BL08	0-2	0-20	N	10YR 6/2	Sandy Loam	Shovel test is about 20 meters west of Well Pad 6 in the proposed new roadway. 0-20 centimeters, small gravels and modern trash.	
BL08	2-4	20-40	N	10YR 6/2	Sandy Loam	20-40 centimeters, no trash, less gravels.	
BL08	4-6	40-60	N	10YR 5/2	Very Sandy Loam	At 40 centimeters large sandstone concretions observed. Past concretions are mid-sized gravels. Soil is more brown in color.	
BL08	6	60-66	N	10YR 5/2	Very Sandy Loam	Gravels end around 60 centimeters below surface. Soils have become cemented.	Cemented Soils
BL09	0-5	0-50	N	10YR 7/2	Very Sandy Loam	At Well Pad 3. High grasses. 0-50 centimeters below surface grayish brown (10YR 5/2) inclusions noted.	
BL09	5-8	50-80	N	10YR 4/2	Loamy Sand	Definite soil texture and color change at 50 centimeters below surface. Damp. Possible buried A Horizon. See photos	Depth
BL10						No dig, disturbed. Area appears to be plowed/turned up. Photos taken.	
BL11						At the proposed driveway to the outfall line. No dig, disturbed. Shovel test location is in drainage ditch along Highway 185. Photos taken.	
BL12	0-3	0-30	N	10YR 8/1	Sand	At fence line. High grasses. Roots and rootlets in first 10 centimeters.	
BL12	3-4	30-40	N	10YR 8/1	Sand	Yellowish brown mottling (10YR 5/4) observed in north wall. Photos taken.	
BL12	4-8	40-80	N	10YR 8/1	Sand	Mottling has ceased. Roots and rootlets still observed.	Depth
BL13	0-2	0-20	N	10YR 5/3	Sandy Loam	Soil is more brown than usual. Many roots. 2 meters from fence line.	
BL13	2-7	20-70	N	10YR 5/6	Sand	Soil has become sandy. Soil is more pale and more yellow. As shovel test has continued, clay mottling observed	
BL13	7	75	N	10YR 5/8	Clay	Dense clay encountered. Stop at 75 centimeters.	Compacted Clay
BL14	0-3	0-38	N	10YR 7/2	Very Sandy Loam	Shovel test near fence line, next to oak tree. Very dense roots. At 38 centimeters below surface, roots are too dense and thick to continue.	Dense Roots
BL15						No dig, disturbed. Shovel test area is in a drainage ditch along Highway 185. Camera not working. Katherine Turner-Pearson took photographs.	
BL16						No dig, disturbed. Shovel test area is on the mowed lawn of the Port O'Conner Municipal Utility building. Shovel test is next to a sign. Camera not working. Katherine Turner-Pearson took photographs.	

Shovel Test No.	Level (10 cm)	Depth (cmbs)	P/N	Munsell Soil Color	Soil Texture	Description/ Comments	Reason/Depth of Termination
BL17	0-4	0-40	N	10YR 6/2	Sand	On proposed roadway to Well Pad 3. Area looks disturbed. Patches of sand can be seen around shovel test area.	
BL17	4-8	40-80	N	10YR 5/2	Sand	At 40 centimeters soil becomes increasingly damp. Soil darkens a bit.	Depth
BL18	0-3	0-30	N	10YR 6/2	Sandy Loam	Shovel test area is similar to BL17. At Well Pad 4.	
BL18	3-8	30-80	N	10YR 5/2	Sand	At 30 centimeters below surface, soil becomes increasingly damp, and darkens.	Depth
BL19						No dig, disturbed. Water line runs along area flagged for underground utilities and utility lines. Photos taken.	
BL20						No dig, disturbed. Water line runs along area flagged for underground utilities and utility lines. Photos taken.	
BL21						No dig, disturbed. Water line runs along area flagged for underground utilities and also utility lines. Photos taken.	
BL22						No dig, disturbed. Water line runs along area flagged for underground utilities and also utility lines. Photos taken.	
KTP01	1-4	0-40	N	10YR 6/2	Sand	Grass along highway	
KTP01	4-8	40-80	N	10YR 6/2	Sandy Loam	Grass along highway	Depth
KTP02	1-2	0-19	N	10YR 4/1	Sandy Loam	Grass along highway	
KTP02	2-5	19-50	N	10YR 5/2	Sandy Loam	Grass along highway	
KTP02	5-8	50-80	N	10YR 7/4	Sand	Grass along highway	Depth
KTP03	1-2	0-16	N	10YR 3/2	Sandy Loam	Tall grass, Camas and Catbriar	
KTP03	2-3	16-33	N	10YR 4/2	Very Sandy Loam	Tall grass, Camas and Catbriar	
KTP03	3-8	33-80	N	10YR 5/3	Very Sandy Loam	Tall grass, Camas and Catbriar	Depth
KTP04	1-8	0-80	N	10YR 6/3	Sand	Grass and solid post oak Mowed	Depth
KTP05	1-8	0-80	N	10YR 6/3	Sand	Grass and solid post oak Mowed	Depth
KTP06	1-2	0-20	N	10YR 6/2	Very Sandy Loam	Grass and debris from old farm	
KTP06	2-8	20-80	N	10YR 8/2	Sand	Grass and debris from old farm	Depth
KTP07	1-2	0-16	N	10YR 5/3	Very Sandy Loam	Tall grass (thick)	
KTP07	2-3	16-30	N	10YR 4/3	With 10YR 5/8 10YR 6/1	Clay mottles	
KTP07	3-8	30-80	N	10YR 4/3	Sandy Loam	Tall thick grass	Depth
KTP08	1	0-7	N	10YR 4/2	Sandy Loam with gravels	Mowed grass	
KTP08	1-3	7-34	N	10YR 5/2	Very Sandy Loam	Mowed grass	
KTP08	3-8	34-80	N	10YR 7/2	Sand	Mowed grass	Depth
KTP09	1-2	0-14	N	10YR 5/2	Sandy clay loam Hard	Seven foot sunflowers	
KTP09	2-3	14-33	N	10YR 5/3	Extremely hard Clay Loam	Seven-foot sunflowers	
KTP09	3-4	33-42	N	10YR 5/6	Very hard Clay	Seven-foot sunflowers With orange streaks	Compact clay
KTP10	1-2	0-20	N	10YR 5/1	Sandy Loam	Sparse grass	
KTP10	2-3	20-30	N	10YR 5/2	Sandy Loam	Sparse grass	
KTP10	3-8	30-80	N	10YR 8/2	Sand	Sparse grass	Depth
KTP11	1-2	0-20	N	10YR 5/2	Very Sandy Loam	Sparse grass	
KTP11	2-4	20-80	N	10YR 7/2	Sand	Sparse grass	Depth
KTP12	1-2	0-20	N	10YR 5/2	Sandy Loam	Thick grass	
KTP12	2-4	20-40	N	10YR 5/3	Sandy Loam	Thick grass	
KTP12	4-8	40-80	N	10YR 7/2	Sand	Thick grass	Depth

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# Appendix B-5 Hazardous Materials Technical Memo



## Memo

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**Project:** Port O'Connor Water Line, Water Well, and Water Plant Improvements

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**Date:** April 2020

**Ref:** 100068304

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**Subject:** Hazardous Materials Technical Memo

On behalf of the Port O'Connor Improvement District (POCID), Atkins North America, Inc. (Atkins) completed a hazardous materials investigation in support of the proposed Port O'Connor Water Line, Water Well, and Water Plant Improvement Project (the project). Atkins personnel conducted a site reconnaissance of the subject property and vicinity on March 3-4, 2020.

### Purpose

The purpose of this memorandum is to discuss the results of a database search produced by GeoSearch, and a field review intended to identify Recognized Environmental Conditions (RECs), Controlled Recognized Environmental Conditions (CRECs), and Historical Recognized Environmental Conditions (HRECs) associated with the subject property located in Port O'Connor, Calhoun County, Texas (project). It is intended to evaluate environmental risks and other potential concerns that may adversely affect the future uses of the subject property. The complete database report from GeoSearch, as received on February 25, 2020, is provided in Appendix A.

Per the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (Standard Practice), published by the ASTM under the designation E1527-13, and the United States Environmental Protection Agency (EPA), a REC is defined as:

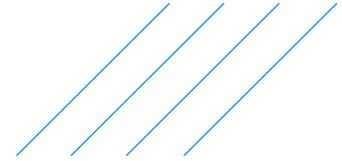
*The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment (ASTM E1527-13 2013).*

*The term includes hazardous substances or petroleum products even under conditions in compliance with laws, but is not intended to include a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies (ASTM E1527-13 2013).*

In addition, CRECs and HRECs are also to be considered under the standard.

*A CREC is defined as: A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (ASTM 2013).*

*An HREC is defined as: A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority, meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (ASTM 2013).*



## Assumptions and Limitations

Atkins has prepared this report using reasonable efforts to identify RECs related to hazardous substances or petroleum products that may impact the subject property. Findings presented herein are based on information collected during the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

This report is not definitive and should not be assumed to be a complete or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions implied by surface observations or historical sources and can be most reliably evaluated through intrusive techniques that were beyond the scope of this report. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other construction purposes.

## Project Area and Description

### *Location, Project Area, and Vicinity Characteristics*

The applicant, POCID, utilizing funds from the Texas Water Development Board, proposes to install approximately 7,000 linear feet (LF) of new water line in an existing utility easement connecting five new potable water wells in uplands with an existing Reverse Osmosis (R.O.) facility as well as 3,484 LF of new outfall line connecting the existing RO facility to the Gulf.

The purpose of this proposed project is to increase the capacity of the Port O'Connor potable water system for the residents in Port O'Connor, to convert the city to a primarily ground water supply, and to reduce the dependency on the Guadalupe-Blanco River Authority as the communities' primary water supply source.

### *Description and Site Improvements*

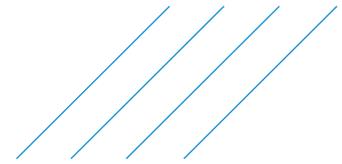
The project area is comprised of existing Rights of Way (ROW) adjacent to primarily undeveloped land, with minimal municipal and commercial properties. Land use was determined to be comprised of four distinct areas. The northern project area (north of SH 185) consists of primarily undeveloped ranch and/or farmland that is flat. The westernmost portion of this area is adjacent to an electric cooperative with little-to-no traffic and disturbance that does not extend beyond its parcel. The easternmost portion of this area nears limited residential development, but it is not immediately adjacent. The middle of this area consists of some municipal properties with very little development, as shown in Figures 1a & 1b in Appendix B. The southern project area (south of Adams Street) is adjacent to an existing cattle ranch. The southern terminus of the sewer line proposed in this area is adjacent to Martin Midstream-Port O'Connor.

During the project, the following new wells are proposed at five locations north of State Highway (SH) 185:

- Well 3 is to be located northeast of the existing Victoria Electric Cooperative building;
- Well 4 is to be located directly west of the existing R.O. facility;
- Well 5 is to be located northwest of the existing First National Bank;
- Well 6 is to be located near the northern terminus of Trevor Street; and
- Well 7 is to be located north of West Harrison Avenue, just north of the existing radio tower.

All proposed wells also include accompanying pads and access driveways.

New water lines are proposed to connect Well 3 to an existing water line directly north of the La Salle Ranch; to connect Well 4 to an existing water line south of the existing R.O. facility; and to connect Wells 5, 6, and 7 to the existing waterline west of the existing R.O. facility and to a proposed building.



A new outfall line is proposed along the east side of the La Salle Ranch to connect the existing R.O. facility to the Gulf. The project area primarily occurs within existing ROW easements owned and maintained by Port O'Connor.

## Known Current and Past Uses of the Project Area and Adjoining Properties

Information on current and past uses was obtained from a review of aerial photography and topographic maps. Historical aerial photographs from 1953, 1958, 1964, 1973, 1979, 1981, 1990, 1995, 2004, 2005, 2006, 2010, 2012, 2014, and 2016 were reviewed. Topographic map data from 1952, 1973, and 2013 were also reviewed. Land use adjacent to the project area includes undeveloped land and developed tracts with a mixture of commercial, residential, and municipal development. The aerial photographs and topographic maps from GeoSearch are provided in Appendix A.

In 1953, the area appeared to be very rural. SH 185 and Trevor Street were present, and there appeared to be an airstrip east of the proposed project area.

In 1964, dredging of two slips was observed to the east of the project area where present-day Martin Midstream is located. To the west of the project area, additional dredging was observed near what would become the home associated with the La Salle Ranch.

By 1973, a neighborhood was built along Lewis Street, a tower structure built at the northern terminus of Trevor Street, and an electrical substation was built near the western project terminus along SH 185.

In 1981, residential areas increased in size northeast of the proposed project area. The southern terminus of the proposed sewer line had been contained within what appears to be a dredge material placement unit (DMPU). The Martin Midstream area seemed to be operational with ships and containers present.

In the 1990s, additional development occurred northeast of the proposed project area.

By 2004, a large pond was constructed north of SH 185 near proposed Well 4, and additional municipal facilities were constructed north and east of current R.O. facility.

By 2005, an area south-adjacent to SH 185 was cleared, and by 2006, concrete structures were in the newly-cleared area. The southern terminus of the proposed sewer line (previous DMPU) was vegetated and visibly reincorporated into the La Salle Ranch area.

By 2012, additional dredging occurred east of the Martin Midstream facility, and the north portion of Martin Midstream property is overgrown and unused.

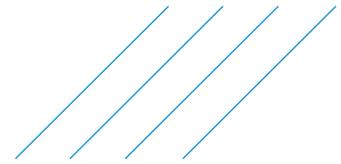
## Findings and Recommendations

### Findings

According to the regulatory agency database report provided by GeoSearch, Federal and State database records were reviewed and evaluated for the subject property and within an applicable search radius. Results are shown in the Table 1 below.

The report shows four mapped sites within a standard search boundary of the project area, Figures 2a & 2b in Appendix B. Due to the nature of the REC and/or distance from the project area, none of the four identified sites are expected to have environmental concerns that could impact the project area. A copy of the database report is included in Appendix A.

GeoSearch Site ID 3 (Port O'Connor Terminal 1) is now occupied by the Martin Midstream facility. Above-ground petroleum storage tanks were observed on the Martin Midstream site, which is adjacent



to the east side of the southern section of the project. While the facility address is on West Adams Street, the tanks are located to the south, as part of a marine servicing facility. However, the tanks do not have reported leaks or releases, and they are not registered in any TCEQ cleanup program. Therefore, they are not considered a REC.

**Table 1: Records Search**

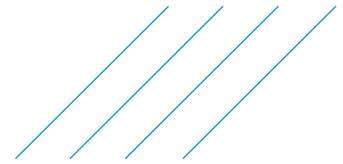
<b>Regulated Facility/Address</b>	<b>Distance (mile) from Subject Property</b>	<b>Database(s) (acronym)/ ASTM</b>	<b>REC (yes/no)</b>	<b>GeoSearch Site ID</b>	<b>GeoSearch Page</b>
Denman Drive Well RO System <i>39 Denman Drive</i>	0.0014 SSE	ECHOR06	No	1	17
Port O'Connor Water Distribution Improvements <i>Begins west of Harrison Avenue and proceeds east</i>	0.016 SSE	ECHOR06	No	2	18
Port O'Connor Terminal MI Dock Port O'Connor Terminal 1 Tesoro Marine Services Port O'Connor 2 <i>3653 West Adams Street</i>	0.063 E	PST PST PST	No No No	3	19-25
Camp Hulen <i>Palacios, TX</i>	0.677 NE	FUDS	No	4	26

Site visits were performed on March 3-4, 2020, and June 27, 2020. The site visits revealed evidence of limited dumping and material storage along Trevor Street, which is considered de minimis debris. Also, storage tanks associated with Map ID 3 were observed with no reported or visible leaks or spills. There were no indications in the former DMPU area of any concerns related to petroleum products or hazardous substances. The remaining portions of the project area did not reveal the presence of any RECs.

No HRECs or CRECs were identified for the subject property.

## Recommendations

Based on the findings of this review, no RECs were identified that could impact the project area, and additional investigations are not recommended at this time.



# Appendix A. GeoSearch Radius Report

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## **Radius Report**

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[GeoLens by GeoSearch](#)

*Target Property:*

**Port O'Connor**

**Port O'Connor, Calhoun County, Texas 77982**

*Prepared For:*

**Atkins Global-Houston**

**Order #: 142474**

**Job #: 340546**

**Project #: 100068304**

**Date: 02/25/2020**

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## Disclaimer

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*This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquiries Rule (40 CFR § 312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal, state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFR § 312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.*

*The information provided in this report was obtained from a variety of public sources. GeoSearch cannot ensure and makes no warranty or representation as to the accuracy, reliability, quality, errors occurring from data conversion or the customer's interpretation of this report. This report was made by GeoSearch for exclusive use by its clients only. Therefore, this report may not contain sufficient information for other purposes or parties. GeoSearch and its partners, employees, officers And independent contractors cannot be held liable For actual, incidental, consequential, special or exemplary damages suffered by a customer resulting directly or indirectly from any information provided by GeoSearch.*

## Target Property Summary

### **Target Property Information**

Port O'Connor

Port O'Connor, Texas 77982

#### **Coordinates**

Area centroid (-96.455122, 28.4319940)

8 feet above sea level

#### **USGS Quadrangle**

Port Oconnor, TX

### **Geographic Coverage Information**

**County/Parish:** Calhoun (TX)

**ZipCode(s):**

Port O Connor TX: 77982

# Database Summary

## **FEDERAL LISTING**

### **Standard Environmental Records**

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
EMERGENCY RESPONSE NOTIFICATION SYSTEM	<a href="#">ERNSTX</a>	0	0	TP/AP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	<a href="#">EC</a>	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	<a href="#">LUCIS</a>	0	0	TP/AP
RCRA SITES WITH CONTROLS	<a href="#">RCRASC</a>	0	0	TP/AP
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR	<a href="#">RCRAGR06</a>	0	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR	<a href="#">RCRANGR06</a>	0	0	0.1250
BROWNFIELDS MANAGEMENT SYSTEM	<a href="#">BF</a>	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	<a href="#">DNPL</a>	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	<a href="#">NLRRCRAT</a>	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - NON-CORRACTS TREATMENT, STORAGE & DISPOSAL FACILITIES	<a href="#">RCRAT</a>	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM	<a href="#">SEMS</a>	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM ARCHIVED SITE INVENTORY	<a href="#">SEMSARCH</a>	0	0	0.5000
NATIONAL PRIORITIES LIST	<a href="#">NPL</a>	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	<a href="#">NLRRCRAC</a>	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	<a href="#">PNPL</a>	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	<a href="#">RCRAC</a>	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - SUBJECT TO CORRECTIVE ACTION FACILITIES	<a href="#">RCRASUBC</a>	0	0	1.0000
<b>SUB-TOTAL</b>		<b>0</b>	<b>0</b>	

### **Additional Environmental Records**

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	<a href="#">AIRSAFS</a>	0	0	TP/AP
BIENNIAL REPORTING SYSTEM	<a href="#">BRS</a>	0	0	TP/AP
CERCLIS LIENS	<a href="#">SFLIENS</a>	0	0	TP/AP
CLANDESTINE DRUG LABORATORY LOCATIONS	<a href="#">CDL</a>	0	0	TP/AP
EPA DOCKET DATA	<a href="#">DOCKETS</a>	0	0	TP/AP
ENFORCEMENT AND COMPLIANCE HISTORY INFORMATION	<a href="#">ECHOR06</a>	2	0	TP/AP
FACILITY REGISTRY SYSTEM	<a href="#">FRSTX</a>	0	0	TP/AP

## Database Summary

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	<a href="#">HMIRSR06</a>	0	0	TP/AP
HAZARDOUS WASTE COMPLIANCE DOCKET FACILITIES	<a href="#">HWCD</a>	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	<a href="#">ICIS</a>	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	<a href="#">ICISNPDES</a>	0	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	<a href="#">MLTS</a>	0	0	TP/AP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	<a href="#">NPDESR06</a>	0	0	TP/AP
PCB ACTIVITY DATABASE SYSTEM	<a href="#">PADS</a>	0	0	TP/AP
PERMIT COMPLIANCE SYSTEM	<a href="#">PCSR06</a>	0	0	TP/AP
SEMS LIEN ON PROPERTY	<a href="#">SEMCLIENS</a>	0	0	TP/AP
SECTION SEVEN TRACKING SYSTEM	<a href="#">SSTS</a>	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	<a href="#">TSCA</a>	0	0	TP/AP
TOXICS RELEASE INVENTORY	<a href="#">TRI</a>	0	0	TP/AP
ALTERNATIVE FUELING STATIONS	<a href="#">ALTFUELS</a>	0	0	0.2500
FEMA OWNED STORAGE TANKS	<a href="#">FEMAUST</a>	0	0	0.2500
HISTORICAL GAS STATIONS	<a href="#">HISTPST</a>	0	0	0.2500
INTEGRATED COMPLIANCE INFORMATION SYSTEM DRYCLEANERS	<a href="#">ICISCLEANERS</a>	0	0	0.2500
MINE SAFETY AND HEALTH ADMINISTRATION MASTER INDEX FILE	<a href="#">MSHA</a>	0	0	0.2500
MINERAL RESOURCE DATA SYSTEM	<a href="#">MRDS</a>	0	0	0.2500
OPEN DUMP INVENTORY	<a href="#">ODI</a>	0	0	0.5000
SURFACE MINING CONTROL AND RECLAMATION ACT SITES	<a href="#">SMCRA</a>	0	0	0.5000
URANIUM MILL TAILINGS RADIATION CONTROL ACT SITES	<a href="#">USUMTRCA</a>	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	<a href="#">DOD</a>	0	0	1.0000
FORMER MILITARY NIKE MISSILE SITES	<a href="#">NMS</a>	0	0	1.0000
FORMERLY USED DEFENSE SITES	<a href="#">FUDS</a>	1	0	1.0000
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM	<a href="#">FUSRAP</a>	0	0	1.0000
RECORD OF DECISION SYSTEM	<a href="#">RODS</a>	0	0	1.0000
<b>SUB-TOTAL</b>		<b>3</b>	<b>0</b>	

## Database Summary

### STATE (TX) LISTING

#### Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
STATE INSTITUTIONAL/ENGINEERING CONTROL SITES	<a href="#">SIEC01</a>	0	0	TP/AP
PETROLEUM STORAGE TANKS	<a href="#">PST</a>	3	0	0.2500
BROWNFIELDS SITE ASSESSMENTS	<a href="#">BSA</a>	0	0	0.5000
CLOSED & ABANDONED LANDFILL INVENTORY	<a href="#">CALF</a>	0	0	0.5000
COMMERCIAL MANAGEMENT FACILITIES FOR HAZARDOUS WASTE AND INDUSTRIAL SOLID WASTES	<a href="#">WSTMGMT</a>	0	0	0.5000
LEAKING PETROLEUM STORAGE TANKS	<a href="#">LPST</a>	0	0	0.5000
MUNICIPAL SOLID WASTE LANDFILL SITES	<a href="#">MSWLF</a>	0	0	0.5000
RAILROAD COMMISSION VCP AND BROWNFIELD SITES	<a href="#">RRCVCP</a>	0	0	0.5000
VOLUNTARY CLEANUP PROGRAM SITES	<a href="#">VCP</a>	0	0	0.5000
STATE SUPERFUND SITES	<a href="#">SF</a>	0	0	1.0000
<b>SUB-TOTAL</b>		<b>3</b>	<b>0</b>	

#### Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
GROUNDWATER CONTAMINATION CASES	<a href="#">GWCC</a>	0	0	TP/AP
HISTORIC GROUNDWATER CONTAMINATION CASES	<a href="#">HISTGWCC</a>	0	0	TP/AP
LAND APPLICATION PERMITS	<a href="#">LANDAPP</a>	0	0	TP/AP
MUNICIPAL SETTING DESIGNATIONS	<a href="#">MSD</a>	0	0	TP/AP
NOTICE OF VIOLATIONS	<a href="#">NOV</a>	0	0	TP/AP
SPILLS LISTING	<a href="#">SPILLS</a>	0	0	TP/AP
TCEQ LIENS	<a href="#">LIENS</a>	0	0	TP/AP
TIER II CHEMICAL REPORTING PROGRAM FACILITIES	<a href="#">TIERII</a>	0	0	TP/AP
DRY CLEANER REGISTRATION DATABASE	<a href="#">DCR</a>	0	0	0.2500
INDUSTRIAL AND HAZARDOUS WASTE SITES	<a href="#">IHW</a>	0	0	0.2500
PERMITTED INDUSTRIAL HAZARDOUS WASTE SITES	<a href="#">PIHW</a>	0	0	0.2500
AFFECTED PROPERTY ASSESSMENT REPORTS	<a href="#">APAR</a>	0	0	0.5000
DRY CLEANER REMEDIATION PROGRAM SITES	<a href="#">DCRPS</a>	0	0	0.5000
INNOCENT OWNER / OPERATOR DATABASE	<a href="#">IOP</a>	0	0	0.5000
RADIOACTIVE WASTE SITES	<a href="#">RWS</a>	0	0	0.5000
RECYCLING FACILITIES	<a href="#">WMRF</a>	0	0	0.5000
SALT CAVERNS FOR PETROLEUM STORAGE	<a href="#">STCV</a>	0	0	0.5000

## Database Summary

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
INDUSTRIAL AND HAZARDOUS WASTE CORRECTIVE ACTION SITES	<a href="#">IHWCA</a>	0	0	1.0000
SUB-TOTAL		0	0	

## Database Summary

### **TRIBAL LISTING**

#### **Standard Environmental Records**

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	<a href="#">USTR06</a>	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	<a href="#">LUSTR06</a>	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	<a href="#">ODINDIAN</a>	0	0	0.5000
<b>SUB-TOTAL</b>		<b>0</b>	<b>0</b>	

#### **Additional Environmental Records**

<b>Database</b>	<b>Acronym</b>	<b>Locatable</b>	<b>Unlocatable</b>	<b>Search Radius (miles)</b>
INDIAN RESERVATIONS	<a href="#">INDIANRES</a>	0	0	1.0000
<b>SUB-TOTAL</b>		<b>0</b>	<b>0</b>	
<b>TOTAL</b>		<b>6</b>	<b>0</b>	

## Database Radius Summary

### **FEDERAL LISTING**

Standard environmental records are displayed in **bold**.

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRSAFS	0.0200	0	NS	NS	NS	NS	NS	0
BRS	0.0200	0	NS	NS	NS	NS	NS	0
CDL	0.0200	0	NS	NS	NS	NS	NS	0
DOCKETS	0.0200	0	NS	NS	NS	NS	NS	0
<b>EC</b>	<b>0.0200</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
ECHOR06	0.0200	2	NS	NS	NS	NS	NS	2
<b>ERNSTX</b>	<b>0.0200</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
FRSTX	0.0200	0	NS	NS	NS	NS	NS	0
HMIRSR06	0.0200	0	NS	NS	NS	NS	NS	0
HWCD	0.0200	0	NS	NS	NS	NS	NS	0
ICIS	0.0200	0	NS	NS	NS	NS	NS	0
ICISNPDES	0.0200	0	NS	NS	NS	NS	NS	0
<b>LUCIS</b>	<b>0.0200</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
MLTS	0.0200	0	NS	NS	NS	NS	NS	0
NPDES06	0.0200	0	NS	NS	NS	NS	NS	0
PADS	0.0200	0	NS	NS	NS	NS	NS	0
PCSR06	0.0200	0	NS	NS	NS	NS	NS	0
<b>RCRASC</b>	<b>0.0200</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
SEMCLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SFLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SSTS	0.0200	0	NS	NS	NS	NS	NS	0
TRI	0.0200	0	NS	NS	NS	NS	NS	0
TSCA	0.0200	0	NS	NS	NS	NS	NS	0
<b>RCRAGR06</b>	<b>0.1250</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>RCRANGR06</b>	<b>0.1250</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
ALTFUELS	0.2500	0	0	0	NS	NS	NS	0
FEMAUST	0.2500	0	0	0	NS	NS	NS	0
HISTPST	0.2500	0	0	0	NS	NS	NS	0
ICISCLEANERS	0.2500	0	0	0	NS	NS	NS	0
MRDS	0.2500	0	0	0	NS	NS	NS	0
MSHA	0.2500	0	0	0	NS	NS	NS	0
<b>BF</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>DNPL</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>NLRRCRAT</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
ODI	0.5000	0	0	0	0	NS	NS	0

## Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
<b>RCRAT</b>	0.5000	0	0	0	0	NS	NS	0
<b>SEMS</b>	0.5000	0	0	0	0	NS	NS	0
<b>SEMSARCH</b>	0.5000	0	0	0	0	NS	NS	0
SMCRA	0.5000	0	0	0	0	NS	NS	0
USUMTRCA	0.5000	0	0	0	0	NS	NS	0
DOD	1.0000	0	0	0	0	0	NS	0
FUDS	1.0000	0	0	0	0	1	NS	1
FUSRAP	1.0000	0	0	0	0	0	NS	0
<b>NLRRCRAC</b>	1.0000	0	0	0	0	0	NS	0
NMS	1.0000	0	0	0	0	0	NS	0
<b>NPL</b>	1.0000	0	0	0	0	0	NS	0
<b>PNPL</b>	1.0000	0	0	0	0	0	NS	0
<b>RCRAC</b>	1.0000	0	0	0	0	0	NS	0
<b>RCRASUBC</b>	1.0000	0	0	0	0	0	NS	0
RODS	1.0000	0	0	0	0	0	NS	0
<b>SUB-TOTAL</b>		2	0	0	0	1	0	3

## Database Radius Summary

### STATE (TX) LISTING

Standard environmental records are displayed in **bold**.

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
GWCC	0.0200	0	NS	NS	NS	NS	NS	0
HISTGWCC	0.0200	0	NS	NS	NS	NS	NS	0
LANDAPP	0.0200	0	NS	NS	NS	NS	NS	0
LIENS	0.0200	0	NS	NS	NS	NS	NS	0
MSD	0.0200	0	NS	NS	NS	NS	NS	0
NOV	0.0200	0	NS	NS	NS	NS	NS	0
<b>SIEC01</b>	<b>0.0200</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
SPILLS	0.0200	0	NS	NS	NS	NS	NS	0
TIERII	0.0200	0	NS	NS	NS	NS	NS	0
DCR	0.2500	0	0	0	NS	NS	NS	0
IHW	0.2500	0	0	0	NS	NS	NS	0
PIHW	0.2500	0	0	0	NS	NS	NS	0
<b>PST</b>	<b>0.2500</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>3</b>
APAR	0.5000	0	0	0	0	NS	NS	0
<b>BSA</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>CALF</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
DCRPS	0.5000	0	0	0	0	NS	NS	0
IOP	0.5000	0	0	0	0	NS	NS	0
<b>LPST</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>MSWLF</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>RRCVCP</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
RWS	0.5000	0	0	0	0	NS	NS	0
STCV	0.5000	0	0	0	0	NS	NS	0
<b>VCP</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
WMRF	0.5000	0	0	0	0	NS	NS	0
<b>WSTMGMT</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
IHWCA	1.0000	0	0	0	0	0	NS	0
<b>SF</b>	<b>1.0000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>
<b>SUB-TOTAL</b>		<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>

## Database Radius Summary

### **TRIBAL LISTING**

Standard environmental records are displayed in **bold**.

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
<b>USTR06</b>	<b>0.2500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>LUSTR06</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>ODINDIAN</b>	<b>0.5000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>NS</b>	<b>0</b>
<b>INDIANRES</b>	<b>1.0000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NS</b>	<b>0</b>

<b>SUB-TOTAL</b>		<b>0</b>						
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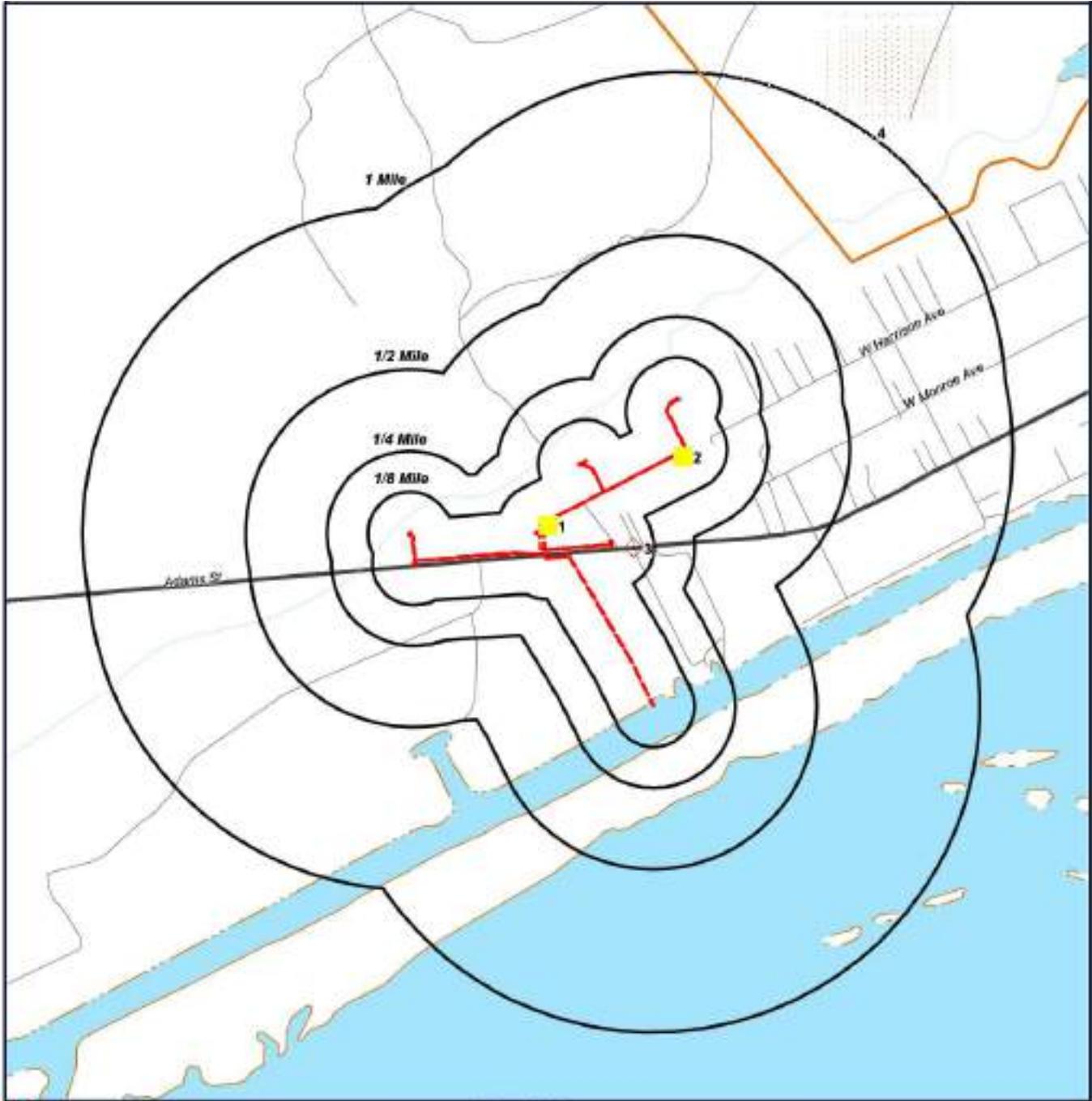
<b>TOTAL</b>		<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>
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**NOTES:**

**NS = NOT SEARCHED**

**TP/AP = TARGET PROPERTY/ADJACENT PROPERTY**

# Radius Map 1

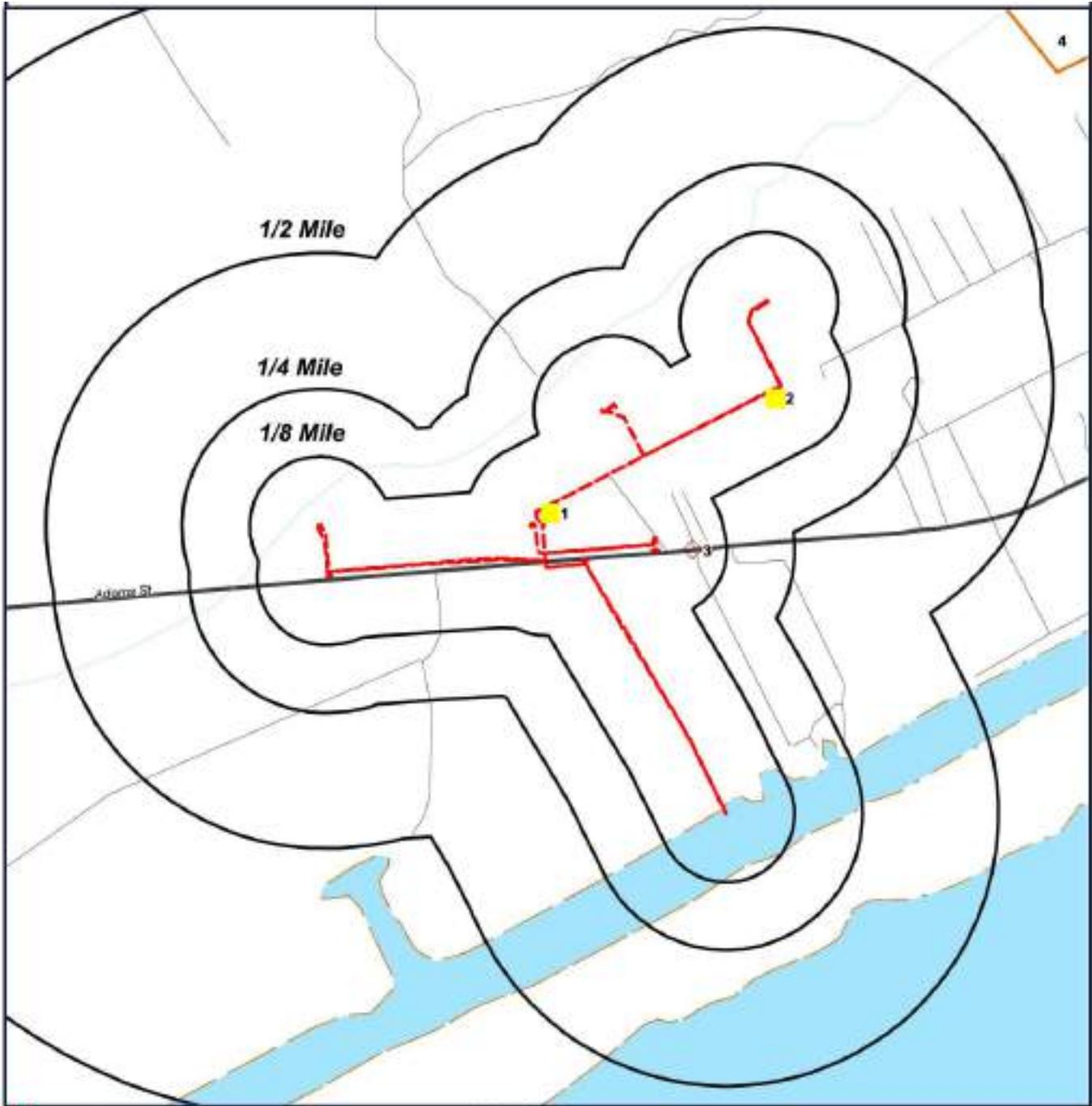


- Target Property (TP)
- ECHOR06
- PST
- FUDS

Port O'Connor  
Port O'Connor, Texas  
77982



# Radius Map 2

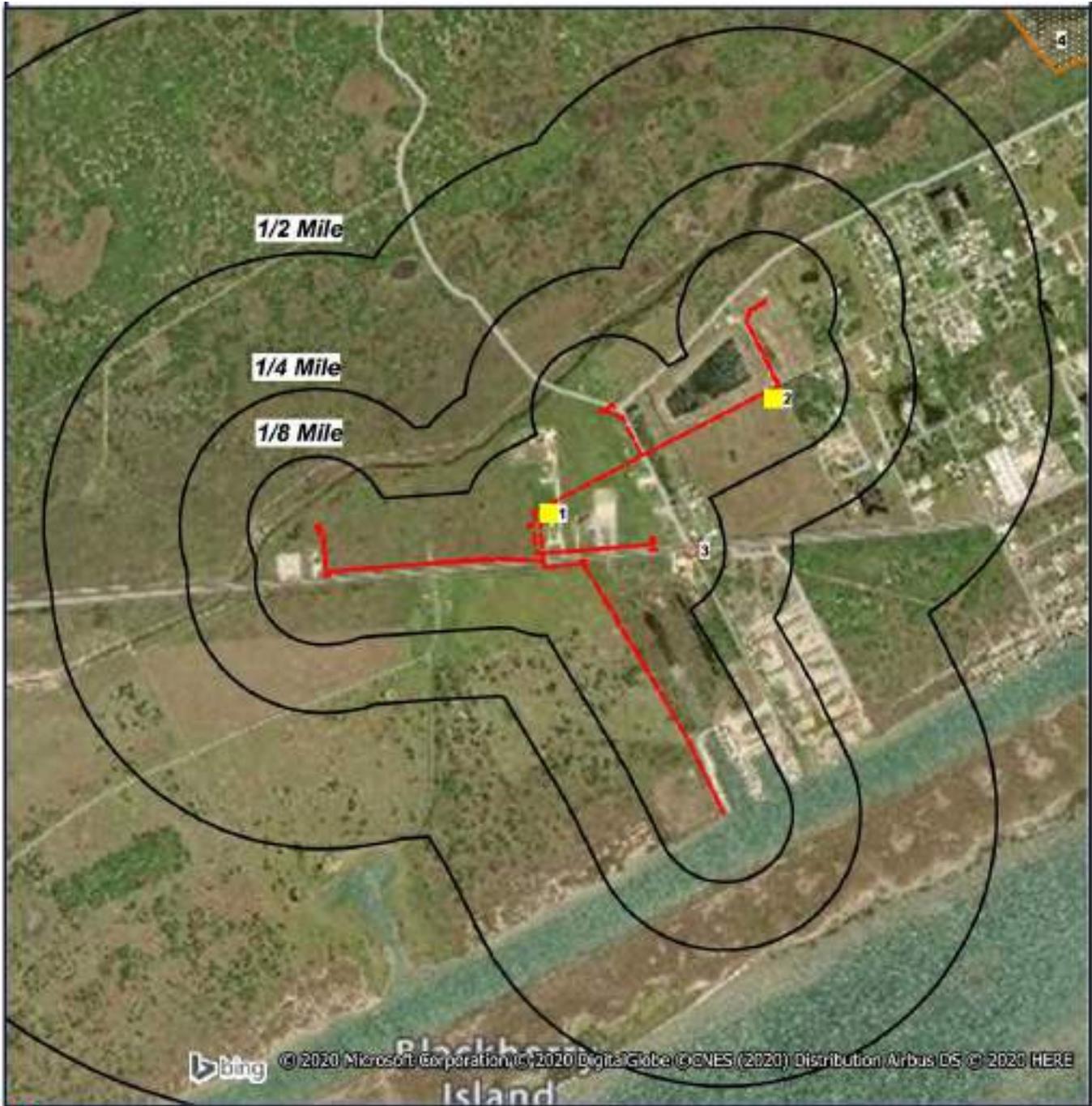


- Target Property (TP)
- ECHOR06
- PST
- FUDS

Port O'Connor  
Port O'Connor, Texas  
77982

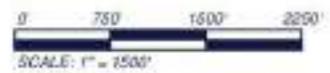


# Ortho Map

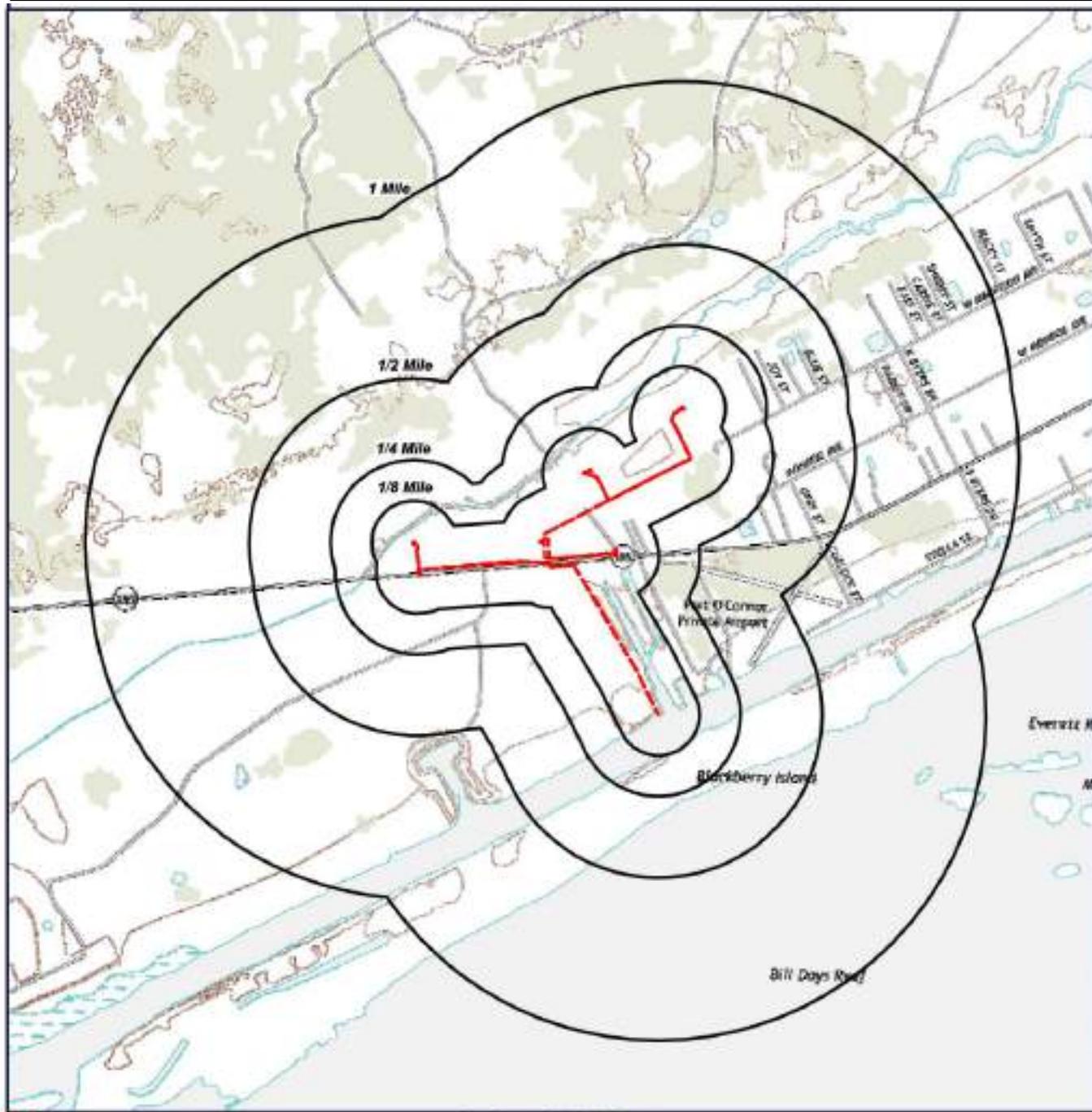


- Target Property (TP)
- ECHOR06
- PST
- FUDS

Quadrangle(s): Port  
Oconnor  
Port O'Connor  
Port O'Connor, Texas  
77982



# Topographic Map



 Target Property (TP)

Quadrangle(s): Port  
O'Connor  
Source: USGS,  
02/22/2013  
Port O'Connor  
Port O'Connor, Texas  
77982



## Located Sites Summary

NOTE: Standard environmental records are displayed in **bold**.

Map ID#	Database Name	Site ID#	Relative Elevation	Distance From Site	Site Name	Address	PAGE #
<a href="#">1</a>	ECHOR06	110064650596	Equal (8 ft.)	0.014 mi. SSE (74 ft.)	DENMAN DRIVE WELL RO SYSTEM	39 DENMAN DR, PORT O'CONNOR, TX 77982	<a href="#">17</a>
<a href="#">2</a>	ECHOR06	110070360885	Higher (9 ft.)	0.016 mi. SSE (84 ft.)	PORT OCONNOR WATER DISTRIBUTION IMPROVEMENTS	BEGINS WEST OF HARRISON AVE. AND PROCEEDS EAST ON, PORT OCONNOR, TX 77982	<a href="#">18</a>
<a href="#">3</a>	<b>PST</b>	<b>63730</b>	<b>Higher (10 ft.)</b>	<b>0.063 mi. E (333 ft.)</b>	<b>PORT O CONNOR TERMINAL MI DOCK</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">19</a>
<a href="#">3</a>	<b>PST</b>	<b>66310</b>	<b>Higher (10 ft.)</b>	<b>0.063 mi. E (333 ft.)</b>	<b>PORT OCONNOR TERMINAL 1</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">21</a>
<a href="#">3</a>	<b>PST</b>	<b>73166</b>	<b>Higher (10 ft.)</b>	<b>0.063 mi. E (333 ft.)</b>	<b>TESORO MARINE SERVICES PORT OCONNOR 2</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">24</a>
<a href="#">4</a>	FUDS	K06TX0016	Lower (1 ft.)	0.677 mi. NE (3575 ft.)	CAMP HULEN (PALACIOS IND. CO.)	PALACIOS, TX	<a href="#">26</a>

# Elevation Summary

Elevations are collected from the USGS 3D Elevation Program 1/3 arc-second (approximately 10 meters) layer hosted at the NGTOC. .

## Target Property Elevation: 8 ft.

NOTE: Standard environmental records are displayed in **bold**.

### EQUAL/HIGHER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
<a href="#">1</a>	ECHOR06	8 ft.	DENMAN DRIVE WELL RO SYSTEM	39 DENMAN DR, PORT O'CONNOR, TX 77982	<a href="#">17</a>
<a href="#">2</a>	ECHOR06	9 ft.	PORT OCONNOR WATER DISTRIBUTION IMPROVEMENTS	BEGINS WEST OF HARRISON AVE. AND PROCEEDS EAST ON, PORT OCONNOR, TX 77982	<a href="#">18</a>
<a href="#">3</a>	<b>PST</b>	<b>10 ft.</b>	<b>PORT O CONNOR TERMINAL MI DOCK</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">19</a>
<a href="#">3</a>	<b>PST</b>	<b>10 ft.</b>	<b>PORT OCONNOR TERMINAL 1</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">21</a>
<a href="#">3</a>	<b>PST</b>	<b>10 ft.</b>	<b>TESORO MARINE SERVICES PORT OCONNOR 2</b>	<b>3653 W ADAMS ST, PORT O CONNOR, TX 77982</b>	<a href="#">24</a>

### LOWER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
<a href="#">4</a>	FUDS	1 ft.	CAMP HULEN (PALACIOS IND. CO.)	PALACIOS, TX	<a href="#">26</a>

## Enforcement and Compliance History Information (ECHOR06)

[MAP ID# 1](#)

Distance from Property: 0.014 mi. (74 ft.) SSE  
Elevation: 8 ft. (Equal to TP)

### FACILITY INFORMATION

UNIQUE ID: 110064650596

REGISTRY ID: 110064650596

NAME: DENMAN DRIVE WELL RO SYSTEM

ADDRESS: 39 DENMAN DR  
PORT O'CONNOR, TX 77982

COUNTY: CALHOUN

FACILITY LINK: [Facility Detail Report](#)

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## ***Enforcement and Compliance History Information (ECHOR06)***

**MAP ID# 2**

Distance from Property: 0.016 mi. (84 ft.) SSE  
Elevation: 9 ft. (Higher than TP)

### **FACILITY INFORMATION**

UNIQUE ID: 110070360885

REGISTRY ID: 110070360885

NAME: PORT OCONNOR WATER DISTRIBUTION IMPROVEMENTS

ADDRESS: BEGINS WEST OF HARRISON AVE. AND PROCEEDS EAST ON  
PORT OCONNOR, TX 77982

COUNTY: CALHOUN COUNTY

FACILITY LINK: [Facility Detail Report](#)

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# Petroleum Storage Tanks (PST)

MAP ID# 3

Distance from Property: 0.063 mi. (333 ft.) E  
Elevation: 10 ft. (Higher than TP)

## FACILITY INFORMATION

ID#: 63730  
NAME: PORT O CONNOR TERMINAL MI DOCK  
ADDRESS: 3653 W ADAMS ST  
PORT O CONNOR, TX 77982  
COUNTY: CALHOUN  
REGION: 14  
TYPE: RETAIL  
BEGIN DATE: 10/26/1992  
STATUS: INACTIVE  
EXEMPT STATUS: NO  
RECORDS OFF-SITE: NO  
NUMBER OF ACTIVE UNDERGROUND TANKS: 0  
NUMBER OF ACTIVE ABOVEGROUND TANKS: 0

## APPLICATION INFORMATION:

RECEIVED DATE ON EARLIEST REGISTRATION FORM: 10/15/1992  
SIGNATURE DATE ON EARLIEST REGISTRATION FORM: 10/08/1992  
SIGNATURE NAME & TITLE: JERRY L KOTZUR, MANAGER  
ENFORCEMENT ACTION DATE: NOT REPORTED

## OWNER

OWNER NUMBER: CN600594097  
NAME: TESORO PETROLEUM DISTRIBUTING COMPANY  
CONTACT ADDRESS: OWNER ADDRESS NOT REPORTED  
CITY NOT REPORTED

TYPE: CORPORATION/COMPANY  
BEGIN DATE: 10/26/1992  
CONTACT ROLE: NOT REPORTED  
CONTACT NAME: NOT REPORTED  
CONTACT TITLE: NOT REPORTED  
ORGANIZATION: NOT REPORTED  
PHONE: NOT REPORTED  
FAX: NOT REPORTED  
EMAIL: NOT REPORTED

## OPERATOR

NO OPERATOR INFORMATION REPORTED

## SELF-CERTIFICATION

-NO SELF-CERTIFICATION INFORMATION REPORTED-

## CONSTRUCTION NOTIFICATION

NO CONSTRUCTION NOTIFICATION DATA REPORTED FOR THIS FACILITY

## UNDERGROUND STORAGE TANK

NO UNDERGROUND STORAGE TANK DATA REPORTED FOR THIS FACILITY

## ABOVEGROUND STORAGE TANK INFORMATION

## CONTACT INFORMATION

NAME: KEN WATLEY  
TITLE: NOT REPORTED  
ORGANIZATION: PORT O CONNOR TERMINAL MI DOCK  
MAIL ADDRESS: MAILING ADDRESS NOT REPORTED  
CITY NOT REPORTED  
PHONE: (512) 9832789 0

## Petroleum Storage Tanks (PST)

AST ID #: **166482**      MULTIPLE COMPARTMENT FLAG: **NO**  
TANK ID: **3801**      REGISTRATION DATE: **10/15/1992**  
INSTALLATION DATE: **01/01/1988**      STATUS BEGIN DATE: **08/31/2004**  
TANK CAPACITY (GAL): **42000**      REGULATORY STATUS: **FULLY REGULATED**  
STATUS: **OUT OF USE**      SUBSTANCES: **DIESEL**

### MATERIAL OF CONSTRUCTION

STEEL: **YES**      CORRUGATED METAL: **NO**  
FIBERGLASS: **NO**      CONCRETE: **NO**  
ALUMINIUM: **NO**

### CONTAINMENT

EARTHEN DIKE: **NO**      CONCRETE: **YES**  
CONTAINMENT LINER: **NO**      NONE: **NO**  
STAGE I VAPOR RECOVERY: **NOT REPORTED**  
STAGE I INSTALLATION DATE: **NOT REPORTED**

AST ID #: **166483**      MULTIPLE COMPARTMENT FLAG: **NO**  
TANK ID: **3805**      REGISTRATION DATE: **10/15/1992**  
INSTALLATION DATE: **01/01/1988**      STATUS BEGIN DATE: **08/31/2004**  
TANK CAPACITY (GAL): **42000**      REGULATORY STATUS: **FULLY REGULATED**  
STATUS: **OUT OF USE**      SUBSTANCES: **DIESEL**

### MATERIAL OF CONSTRUCTION

STEEL: **YES**      CORRUGATED METAL: **NO**  
FIBERGLASS: **NO**      CONCRETE: **NO**  
ALUMINIUM: **NO**

### CONTAINMENT

EARTHEN DIKE: **NO**      CONCRETE: **YES**  
CONTAINMENT LINER: **NO**      NONE: **NO**  
STAGE I VAPOR RECOVERY: **NOT REPORTED**  
STAGE I INSTALLATION DATE: **NOT REPORTED**

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# Petroleum Storage Tanks (PST)

**MAP ID# 3**

Distance from Property: 0.063 mi. (333 ft.) E  
Elevation: 10 ft. (Higher than TP)

## FACILITY INFORMATION

ID#: 66310  
NAME: PORT OCONNOR TERMINAL 1  
ADDRESS: 3653 W ADAMS ST  
PORT O CONNOR, TX 77982  
COUNTY: CALHOUN  
REGION: 14  
TYPE: RETAIL  
BEGIN DATE: 08/31/1987  
STATUS: INACTIVE  
EXEMPT STATUS: NO  
RECORDS OFF-SITE: YES  
NUMBER OF ACTIVE UNDERGROUND TANKS: 0  
NUMBER OF ACTIVE ABOVEGROUND TANKS: 0

## APPLICATION INFORMATION:

RECEIVED DATE ON EARLIEST REGISTRATION FORM: 11/28/1994  
SIGNATURE DATE ON EARLIEST REGISTRATION FORM: 10/24/1994  
SIGNATURE NAME & TITLE: RICK BOZEMAN, ENVIRON SPECIALIST  
ENFORCEMENT ACTION DATE: NOT REPORTED

## OWNER

OWNER NUMBER: CN601535925  
NAME: MARTIN OPERATING PARTNERSHIP LP  
CONTACT ADDRESS: PO BOX 6567  
BEAUMONT TX 77725  
TYPE: PARTNERSHIP  
BEGIN DATE: 12/23/2003  
CONTACT ROLE: OWNCON  
CONTACT NAME: TIFFANI ESTRELLO  
CONTACT TITLE: ENVIRO MGR  
ORGANIZATION: MARTIN OPERATING PARTNERSHIP LP  
PHONE: (409) 8356172 0  
FAX: NOT REPORTED  
EMAIL: NOT REPORTED

## OPERATOR

OPERATOR NUMBER: CN601535925  
NAME: MARTIN OPERATING PARTNERSHIP LP  
CONTACT ADDRESS: 5900 MEMORIAL DR  
HOUSTON TX 77007  
TYPE: PARTNERSHIP  
BEGIN DATE: 12/23/2003  
CONTACT ROLE: OWNOPRCON  
CONTACT NAME: TIFFANI ESTRELLO  
CONTACT TITLE: NOT REPORTED

## CONTACT INFORMATION

NAME: JOHN SHERIDON  
TITLE: NOT REPORTED  
ORGANIZATION: PORT OCONNOR TERMINAL 1  
MAIL ADDRESS: MAILING ADDRESS NOT REPORTED  
CITY NOT REPORTED  
PHONE: (361) 9832631 0

## Petroleum Storage Tanks (PST)

ORGANIZATION: **MARTIN OPERATING PARTNERSHIP LP**  
PHONE: **(713) 3506800 0**  
FAX: **(713) 3506801**  
EMAIL: **NOT REPORTED**  
OPERATOR NUMBER: **CN602594459**  
NAME: **MARTIN ENERGY SERVICES LLC**  
CONTACT ADDRESS: **OPERATOR ADDRESS NOT REPORTED**  
**CITY NOT REPORTED**

TYPE: **CORPORATION/COMPANY**  
BEGIN DATE: **12/23/2003**  
CONTACT ROLE: **NOT REPORTED**  
CONTACT NAME: **NOT REPORTED**  
CONTACT TITLE: **NOT REPORTED**  
ORGANIZATION: **NOT REPORTED**  
PHONE: **NOT REPORTED**  
FAX: **NOT REPORTED**  
EMAIL: **NOT REPORTED**

### **SELF-CERTIFICATION**

**-NO SELF-CERTIFICATION INFORMATION REPORTED-**

### **CONSTRUCTION NOTIFICATION**

**NO CONSTRUCTION NOTIFICATION DATA REPORTED FOR THIS FACILITY**

### **UNDERGROUND STORAGE TANK**

**NO UNDERGROUND STORAGE TANK DATA REPORTED FOR THIS FACILITY**

### **ABOVEGROUND STORAGE TANK INFORMATION**

AST ID #: **173140**      MULTIPLE COMPARTMENT FLAG: **NO**  
TANK ID: **1**      REGISTRATION DATE: **11/28/1994**  
INSTALLATION DATE: **01/01/1981**      STATUS BEGIN DATE: **09/01/2009**  
TANK CAPACITY (GAL): **230000**      REGULATORY STATUS: **FULLY REGULATED**  
STATUS: **OUT OF USE**      SUBSTANCES: **DIESEL**

### **MATERIAL OF CONSTRUCTION**

STEEL: **YES**      CORRUGATED METAL: **NO**  
FIBERGLASS: **NO**      CONCRETE: **NO**  
ALUMINIUM: **NO**

### **CONTAINMENT**

EARTHEN DIKE: **NO**      CONCRETE: **YES**  
CONTAINMENT LINER: **NO**      NONE: **NO**  
STAGE I VAPOR RECOVERY: **NOT REPORTED**  
STAGE I INSTALLATION DATE: **NOT REPORTED**

AST ID #: **202804**      MULTIPLE COMPARTMENT FLAG: **NO**  
TANK ID: **2**      REGISTRATION DATE: **02/27/2004**  
INSTALLATION DATE: **12/23/2003**      STATUS BEGIN DATE: **09/01/2009**  
TANK CAPACITY (GAL): **3000**      REGULATORY STATUS: **FULLY REGULATED**  
STATUS: **OUT OF USE**      SUBSTANCES: **DIESEL**

### **MATERIAL OF CONSTRUCTION**

STEEL: **YES**      CORRUGATED METAL: **NO**  
FIBERGLASS: **NO**      CONCRETE: **NO**

## ***Petroleum Storage Tanks (PST)***

ALUMINIUM: **NO**

**CONTAINMENT**

EARTHEN DIKE: **NO**      CONCRETE: **NO**

CONTAINMENT LINER: **NO**      NONE: **NO**

STAGE I VAPOR RECOVERY: **NOT REPORTED**

STAGE I INSTALLATION DATE: **NOT REPORTED**

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# Petroleum Storage Tanks (PST)

**MAP ID# 3**

Distance from Property: 0.063 mi. (333 ft.) E  
Elevation: 10 ft. (Higher than TP)

## FACILITY INFORMATION

ID#: 73166  
NAME: TESORO MARINE SERVICES PORT OCONNOR 2  
ADDRESS: 3653 W ADAMS ST  
PORT O CONNOR, TX 77982  
COUNTY: CALHOUN  
REGION: 14  
TYPE: WHOLESALE  
BEGIN DATE: 05/08/2000  
STATUS: INACTIVE  
EXEMPT STATUS: NO  
RECORDS OFF-SITE: NO  
NUMBER OF ACTIVE UNDERGROUND TANKS: 0  
NUMBER OF ACTIVE ABOVEGROUND TANKS: 0

## APPLICATION INFORMATION:

RECEIVED DATE ON EARLIEST REGISTRATION FORM: 05/10/2000  
SIGNATURE DATE ON EARLIEST REGISTRATION FORM: 05/08/2000  
SIGNATURE NAME & TITLE: RON GRANTHAM, ENV CONSULTANT  
ENFORCEMENT ACTION DATE: NOT REPORTED

## OWNER

OWNER NUMBER: CN600862221  
NAME: TESORO MARINE SERVICES INC  
CONTACT ADDRESS: OWNER ADDRESS NOT REPORTED  
CITY NOT REPORTED  
TYPE: CORPORATION/COMPANY  
BEGIN DATE: 05/08/2000  
CONTACT ROLE: NOT REPORTED  
CONTACT NAME: NOT REPORTED  
CONTACT TITLE: NOT REPORTED  
ORGANIZATION: NOT REPORTED  
PHONE: NOT REPORTED  
FAX: NOT REPORTED  
EMAIL: NOT REPORTED

## OPERATOR

OPERATOR NUMBER: CN600862221  
NAME: TESORO MARINE SERVICES INC  
CONTACT ADDRESS: 9426 TELEPHONE RD  
HOUSTON TX 77075  
TYPE: CORPORATION/COMPANY  
BEGIN DATE: 05/08/2000  
CONTACT ROLE: OWNOPRCON  
CONTACT NAME: KELLY NIDINI  
CONTACT TITLE: NOT REPORTED

## CONTACT INFORMATION

NAME: JEFF BAKER  
TITLE: NOT REPORTED  
ORGANIZATION: TESORO MARINE SERVICES PORT OCONNOR 2  
MAIL ADDRESS: MAILING ADDRESS NOT REPORTED  
CITY NOT REPORTED  
PHONE: (713) 9910990 0

## Petroleum Storage Tanks (PST)

ORGANIZATION: TESORO MARINE SERVICES INC

PHONE: (713) 9918339 0

FAX: (713) 9918304

EMAIL: KNIDLNI@TESOROPETROLEUM.COM

### **SELF-CERTIFICATION**

-NO SELF-CERTIFICATION INFORMATION REPORTED-

### **CONSTRUCTION NOTIFICATION**

NO CONSTRUCTION NOTIFICATION DATA REPORTED FOR THIS FACILITY

### **UNDERGROUND STORAGE TANK**

NO UNDERGROUND STORAGE TANK DATA REPORTED FOR THIS FACILITY

### **ABOVEGROUND STORAGE TANK INFORMATION**

AST ID #: 194205      MULTIPLE COMPARTMENT FLAG: NO

TANK ID: 1      REGISTRATION DATE: 05/10/2000

INSTALLATION DATE: 05/08/2000      STATUS BEGIN DATE: 01/07/2002

TANK CAPACITY (GAL): NOT REPORTED      REGULATORY STATUS: FULLY REGULATED

STATUS: OUT OF USE      SUBSTANCES: DIESEL

### **MATERIAL OF CONSTRUCTION**

STEEL: YES      CORRUGATED METAL: NO

FIBERGLASS: NO      CONCRETE: NO

ALUMINIUM: NO

### **CONTAINMENT**

EARTHEN DIKE: NO      CONCRETE: YES

CONTAINMENT LINER: NO      NONE: NO

STAGE I VAPOR RECOVERY: NOT REPORTED

STAGE I INSTALLATION DATE: NOT REPORTED

AST ID #: 194206      MULTIPLE COMPARTMENT FLAG: NO

TANK ID: 2      REGISTRATION DATE: 05/10/2000

INSTALLATION DATE: 05/08/2000      STATUS BEGIN DATE: 01/07/2002

TANK CAPACITY (GAL): NOT REPORTED      REGULATORY STATUS: FULLY REGULATED

STATUS: OUT OF USE      SUBSTANCES: DIESEL

### **MATERIAL OF CONSTRUCTION**

STEEL: YES      CORRUGATED METAL: NO

FIBERGLASS: NO      CONCRETE: NO

ALUMINIUM: NO

### **CONTAINMENT**

EARTHEN DIKE: NO      CONCRETE: YES

CONTAINMENT LINER: NO      NONE: NO

STAGE I VAPOR RECOVERY: NOT REPORTED

STAGE I INSTALLATION DATE: NOT REPORTED

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## Formerly Used Defense Sites (FUDS)

**MAP ID# 4**

Distance from Property: 0.677 mi. (3,575 ft.) NE  
Elevation: 1 ft. (Lower than TP)

FUDS #: **K06TX0016**

FFID: **TX9799F6448**

NAME: **CAMP HULEN (PALACIOS IND. CO.)**

CITY: **PALACIOS**

STATE: **TX**

ZIPCODE: **NOT REPORTED**

DISTRICT RESPONSIBLE FOR THE FUDS PROPERTY: **FORT WORTH DISTRICT (SWF)**

IS THE PROPERTY HAS ANY CLEANUP UNDER THE MILITARY MUNITIONS RESPONSE PROGRAM (MMRP): **Y**

DESCRIPTION: **CAMP HULEN, PALACIOS, TEXAS, COMPRISED 1,199.05 ACRES. SITE IMPROVEMENTS INCLUDED ADMINISTRATION BUILDINGS, MESS HALLS, STOREHOUSES, GASOLINE DISPENSING FACILITIES, AND OTHER STRUCTURES USUAL TO A MILITARY CAMP. THE SITE WAS USED FOR ANTI-AIRCRAFT AND ANTITANK WEAPON TRAINING. CURRENT USE INCLUDES RESIDENTIAL, COMMERCIAL, AND RECREATIONAL FACILITIES.**

HISTORY: **THE SITE WAS ACQUIRED BETWEEN 1941 AND 1943 FROM PRIVATE OWNERSHIP. THE LAND HAS BEEN RETURNED TO PRIVATE OWNERSHIP WITHOUT ANY LAND RESTRICTIONS. MANY OF THE CANTONMENT STRUCTURES WERE REMOVED BEFORE THE PROPERTY WAS RELEASED IN 1947. UNDERGROUND STORAGE TANKS WERE IDENTIFIED AND REMOVED IN 1992. THIS PROPERTY IS KNOWN OR SUSPECTED TO CONTAIN MILITARY MUNITIONS AND EXPLOSIVES OF CONCERN (E.G., UNEXPLODED ORDNANCE) AND THEREFORE MAY PRESENT AN EXPLOSIVE HAZARD.**

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## **Unlocated Sites Summary**

*This list contains sites that could not be mapped due to limited or incomplete address information.*

*No Records Found*

## ***Environmental Records Definitions - FEDERAL***

**AIRSAFS** Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 10/20/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

**BRS** Biennial Reporting System

VERSION DATE: 12/31/15

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

**CDL** Clandestine Drug Laboratory Locations

VERSION DATE: 11/26/19

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

**DOCKETS** EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

**EC** Federal Engineering Institutional Control Sites

VERSION DATE: 12/19/19

This database includes site locations where Engineering and/or Institutional Controls have been identified as part

## ***Environmental Records Definitions - FEDERAL***

of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. The data displays remedy component information for Superfund decision documents issued in fiscal years 1982-2017, and it includes final and deleted NPL sites as well as sites with a Superfund Alternative Approach (SAA) agreement in place. The only sites included that are not on the NPL, proposed for NPL, or removed from proposed NPL, are those with an SAA Agreement in place. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

### **ECHOR06** Enforcement and Compliance History Information

VERSION DATE: 10/27/19

The U.S. Environmental Protection Agency's Enforcement and Compliance History Online (ECHO) database, provides compliance and enforcement information for facilities nationwide. This database includes facilities regulated as Clean Air Act stationary sources, Clean Water Act direct dischargers, Resource Conservation and Recovery Act hazardous waste handlers, Safe Drinking Water Act public water systems along with other data, such as Toxics Release Inventory releases.

### **ERNSTX** Emergency Response Notification System

VERSION DATE: 10/06/19

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

### **FRSTX** Facility Registry System

VERSION DATE: 10/09/19

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

### **HMIRSR06** Hazardous Materials Incident Reporting System

VERSION DATE: 11/20/19

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

## ***Environmental Records Definitions - FEDERAL***

**HWCD** Hazardous Waste Compliance Docket Facilities

VERSION DATE: 04/29/19

This list of the Federal Agency Hazardous Waste Compliance Docket Facilities is maintained by the United States Environmental Protection Agency (EPA). According to the EPA, Section 120(c) of CERCLA requires EPA to establish a listing, known as the Federal Facility Hazardous Waste Compliance Docket (Docket), of Federal facilities which are managing or have managed hazardous waste; or have had a release of hazardous waste. Thus, the Docket identifies all Federal facilities that must be evaluated to determine whether they pose a risk to human health and the environment and it makes this information available to the public. In order for the Docket to remain current and accurate it requires periodic updating.

**ICIS** Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 09/21/19

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

**ICISNPDES** Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 07/09/17

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. This database is provided by the U.S. Environmental Protection Agency.

**LUCIS** Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

**MLTS** Material Licensing Tracking System

VERSION DATE: 06/29/17

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements. Disclaimer: Due to agency regulations and policies, this database contains applicant/licensee location information which may or may not be related to the physical location per MLTS site.

## ***Environmental Records Definitions - FEDERAL***

**NPDES06** National Pollutant Discharge Elimination System

VERSION DATE: 04/01/07

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES database was collected from the U.S. Environmental Protection Agency (EPA) from December 2002 through April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data. This database includes permitted facilities located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**PADS** PCB Activity Database System

VERSION DATE: 09/14/18

PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of Polychlorinated Biphenyls (PCB) who are required to notify the U.S. Environmental Protection Agency of such activities.

**PCSR06** Permit Compliance System

VERSION DATE: 08/01/12

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. PCS has been modernized, and no longer exists. National Pollutant Discharge Elimination System (ICIS-NPDES) data can now be found in Integrated Compliance Information System (ICIS).

**RCRASC** RCRA Sites with Controls

VERSION DATE: 11/22/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with institutional controls in place.

**SEMCLIENS** SEMS Lien on Property

VERSION DATE: 08/13/18

The U.S. Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise

## ***Environmental Records Definitions - FEDERAL***

Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs. This is a listing of SEMS sites with a lien on the property.

**SFLIENS** CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete. Please refer to the SEMSLIENS database as source of current data.

**SSTS** Section Seven Tracking System

VERSION DATE: 02/01/17

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

**TRI** Toxics Release Inventory

VERSION DATE: 12/31/17

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal and tribal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

**TSCA** Toxic Substance Control Act Inventory

VERSION DATE: 12/31/12

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

## ***Environmental Records Definitions - FEDERAL***

**RCRAGR06** Resource Conservation & Recovery Act - Generator

VERSION DATE: 12/30/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities currently generating hazardous waste. EPA region 6 includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**RCRANGR06** Resource Conservation & Recovery Act - Non-Generator

VERSION DATE: 12/30/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities classified as non-generators. Non-Generators do not presently generate hazardous waste. EPA Region 6 includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**ALTFUELS** Alternative Fueling Stations

VERSION DATE: 09/24/19

Nationwide list of alternative fueling stations made available by the U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Bio-diesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE).

**FEMAUST** FEMA Owned Storage Tanks

VERSION DATE: 12/01/16

This is a listing of FEMA owned underground and aboveground storage tank sites. For security reasons, address information is not released to the public according to the U.S. Department of Homeland Security.

**HISTPST** Historical Gas Stations

VERSION DATE: NR

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

## ***Environmental Records Definitions - FEDERAL***

### **ICISCLEANERS**

Integrated Compliance Information System Drycleaners

VERSION DATE: 09/21/19

This is a listing of drycleaner facilities from the Integrated Compliance Information System (ICIS). The U.S. Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments. The following Primary SIC Codes are included in this data: 7211, 7212, 7213, 7215, 7216, 7217, 7218, and/or 7219; the following Primary NAICS Codes are included in this data: 812320, 812331, and/or 812332.

### **MRDS**

Mineral Resource Data System

VERSION DATE: 03/15/16

MRDS (Mineral Resource Data System) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS.

### **MSHA**

Mine Safety and Health Administration Master Index File

VERSION DATE: 09/20/19

The Mine dataset lists all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970. It includes such information as the current status of each mine (Active, Abandoned, NonProducing, etc.), the current owner and operating company, commodity codes and physical attributes of the mine. Mine ID is the unique key for this data. This information is provided by the United States Department of Labor - Mine Safety and Health Administration (MSHA).

### **BF**

Brownfields Management System

VERSION DATE: 10/15/19

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment. This database included tribal brownfield sites.

### **DNPL**

Delisted National Priorities List

VERSION DATE: 01/27/20

This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate,

## ***Environmental Records Definitions - FEDERAL***

and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

**NLRRCRAT** No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 12/30/19

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

**ODI** Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An "open dump" is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

**RCRAT** Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities

VERSION DATE: 12/30/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities recognized as hazardous waste treatment, storage, and disposal sites (TSD).

**SEMS** Superfund Enterprise Management System

VERSION DATE: 01/27/20

The U.S. Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs.

**SEMSARCH** Superfund Enterprise Management System Archived Site Inventory

VERSION DATE: 01/27/20

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System Archived Site

## ***Environmental Records Definitions - FEDERAL***

Inventory (List 8R Archived) replaced the CERCLIS NFRAP reporting system in 2015. This listing reflects sites at which the EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program.

**SMCRA** Surface Mining Control and Reclamation Act Sites

VERSION DATE: 11/26/19

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

**USUMTRCA** Uranium Mill Tailings Radiation Control Act Sites

VERSION DATE: 03/04/17

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

**DOD** Department of Defense Sites

VERSION DATE: 12/01/14

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

**FUDS** Formerly Used Defense Sites

VERSION DATE: 06/01/15

The Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. **DISCLAIMER:** This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

## ***Environmental Records Definitions - FEDERAL***

**FUSRAP** Formerly Utilized Sites Remedial Action Program

VERSION DATE: 03/04/17

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

**NLRRCRAC** No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 12/30/19

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

**NMS** Former Military Nike Missile Sites

VERSION DATE: 12/01/84

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

**NPL** National Priorities List

VERSION DATE: 01/27/20

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

**PNPL** Proposed National Priorities List

VERSION DATE: 01/27/20

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal

## ***Environmental Records Definitions - FEDERAL***

Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

**RCRAC** Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 12/30/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with corrective action activity.

**RCRASUBC** Resource Conservation & Recovery Act - Subject to Corrective Action Facilities

VERSION DATE: 12/30/19

The Resource Conservation and Recovery Act (RCRA) gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities subject to corrective actions.

**RODS** Record of Decision System

VERSION DATE: 01/27/20

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

## ***Environmental Records Definitions - STATE (TX)***

**GWCC** Groundwater Contamination Cases

VERSION DATE: 12/31/18

This is a Joint Groundwater Monitoring and Contamination Report provided by the Texas Commission on Environmental Quality (TCEQ). The annual report describes the status of groundwater monitoring activities conducted or required by each agency at regulated facilities or associated with regulated activities. The report provides a general overview of groundwater monitoring by participating members on a program by program basis. Groundwater contamination is broadly defined in the report as any detrimental alteration of the naturally occurring quality of groundwater.

**HISTGWCC** Historic Groundwater Contamination Cases

VERSION DATE: 12/31/17

This is a Joint Groundwater Monitoring and Contamination Report provided by the Texas Commission on Environmental Quality (TCEQ) that includes historic groundwater contamination cases reported since 1994. These cases have been closed by a program area or agency, such as the TCEQ, the Railroad Commission of Texas, and/or the Texas Alliance of Groundwater Districts. According to the TCEQ report, although enforcement actions may be closed on these cases, the Activity Status Code descriptions allow that groundwater contamination may still be present at the site and may therefore be of interest to regulatory agencies and the general public.

**LANDAPP** Land Application Permits

VERSION DATE: 12/10/19

Texas Land Application Permits are a requirement from the Texas Commission on Environmental Quality for any domestic facility that disposes of treated effluent by land application such as surface irrigation, evaporation, drainfields or subsurface land application.

**LIENS** TCEQ Liens

VERSION DATE: 06/06/18

Liens filed upon State and/or Federal Superfund Sites by the Texas Commission on Environmental Quality.

**MSD** Municipal Setting Designations

VERSION DATE: 01/16/19

The Texas Commission on Environmental Quality (TCEQ) defines an MSD as an official state designation given to property within a municipality or its extraterritorial jurisdiction that certifies that designated groundwater at the property is not used as potable water, and is prohibited from future use as potable water because that groundwater is contaminated in excess of the applicable potable-water protective concentration level. The prohibition must be in the form of a city ordinance, or a restrictive covenant that is enforceable by the city and filed in the property records. The MSD property can be a single property, multi-property, or a portion of property.

## **Environmental Records Definitions - STATE (TX)**

TCEQ Disclaimer: This data is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.

**NOV** Notice of Violations

VERSION DATE: 02/24/16

This database containing Notice of Violations (NOV) is maintained by the Texas Commission on Environmental Quality. An NOV is a written notification that documents and communicates violations observed during an inspection to the business or individual inspected.

**SIEC01** State Institutional/Engineering Control Sites

VERSION DATE: 11/20/19

The Texas Risk Reduction Program (TRRP) requires the placement of institutional controls (e.g., deed notices or restrictive covenants) on affected property in different circumstances as part of completing a response action. In its simplest form, an institutional control (IC) is a legal document that is recorded in the county deed records. In certain circumstances, local zoning or ordinances can serve as an IC. This listing may also include locations where Engineering Controls are in effect, such as a cap, barrier, or other engineering device to prevent access, exposure, or continued migration of contamination. The sites included on this list are regulated by various programs of the Texas Commission on Environmental Quality (TCEQ).

**SPILLS** Spills Listing

VERSION DATE: 09/19/19

This Texas Commission on Environmental Quality database includes releases of hazardous or potentially hazardous materials into the environment.

**TIERII** Tier II Chemical Reporting Program Facilities

VERSION DATE: 12/31/12

The Texas Tier II Chemical Reporting Program in the Department of State Health Services (DSHS) is the state repository for EPCRA-required Emergency Planning Letters (EPLs), which are one-time notifications to the state from facilities that have certain extremely hazardous chemicals in specified amounts. The Program is also the state repository for EPCRA/state-required hazardous chemical inventory reports called Texas Tier Two Reports. This data contains those facility reports for the 2005 through the 2012 calendar years. Please contact the Texas Commission on Environmental Quality Tier II Chemical Reporting Division as the current source for this data, due to confidentiality and safety reasons details such as the location and capacity of on-site hazardous chemicals is only available to local emergency planning agencies, fire departments, and/or owners.

**DCR** Dry Cleaner Registration Database

VERSION DATE: 11/05/19

## ***Environmental Records Definitions - STATE (TX)***

The database includes dry cleaning drop stations and facilities registered with the Texas Commission on Environmental Quality.

**IHW** Industrial and Hazardous Waste Sites

VERSION DATE: 05/02/19

Owner and facility information is included in this database of permitted and non-permitted industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry, manufacturing, mining, or agriculture. Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in federal waste regulations. The IHW database is maintained by the Texas Commission on Environmental Quality.

**PIHW** Permitted Industrial Hazardous Waste Sites

VERSION DATE: 05/02/19

Owner and facility information is included in this database of all permitted industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry, manufacturing, mining, or agriculture. Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in federal waste regulations. Permitted IHW facilities are regulated under 30 Texas Administrative Code Chapter 335 in addition to federal regulations. The IHW database is maintained by the Texas Commission on Environmental Quality.

**PST** Petroleum Storage Tanks

VERSION DATE: 01/06/20

The Petroleum Storage Tank database is administered by the Texas Commission on Environmental Quality (TCEQ). Both Underground storage tanks (USTs) and Aboveground storage tanks (ASTs) are included in this report. Petroleum Storage Tank registration has been a requirement with the TCEQ since 1986.

**APAR** Affected Property Assessment Reports

VERSION DATE: 10/17/19

As regulated by the Texas Commission on Environmental Quality, an Affected Property Assessment Report is required when a person is addressing a release of chemical of concern (COC) under 30 TAC Chapter 350, the Texas Risk Reduction Program (TRRP). The purpose of the APAR is to document all relevant affected property information to identify all release sources and COCs, determine the extent of all COCs, identify all transport/exposure pathways, and to determine if any response actions are necessary. The Texas Administrative Code Title 30 §350.4(a)(1) defines affected property as the entire area (i.e. on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for residential land use and groundwater classification.

## ***Environmental Records Definitions - STATE (TX)***

**BSA** Brownfields Site Assessments

VERSION DATE: 01/03/20

The Brownfields Site Assessments database is maintained by the Texas Commission on Environmental Quality (TCEQ). The TCEQ, in close partnership with the U.S. Environmental Protection Agency (EPA) and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of brownfields through the development of regulatory, tax, and technical assistance tools.

**CALF** Closed & Abandoned Landfill Inventory

VERSION DATE: 11/01/05

The Texas Commission on Environmental Quality, under a contract with Texas State University, and in cooperation with the 24 regional Council of Governments (COGs) in the State, has located over 4,000 closed and abandoned municipal solid waste landfills throughout Texas. This listing contains "unauthorized sites". Unauthorized sites have no permit and are considered abandoned. The information available for each site varies in detail and this historical information is not updated. Please refer to the specific regional COG for the most current information.

**DCRPS** Dry Cleaner Remediation Program Sites

VERSION DATE: 09/01/19

This list of DCRP sites is provided by the Texas Commission on Environmental Quality (TCEQ). According to the TCEQ, the Dry Cleaner Remediation Program (DCRP) establishes a prioritization list of dry cleaner sites and administers the Dry Cleaning Remediation fund to assist with remediation of contamination caused by dry cleaning solvents.

**IOP** Innocent Owner / Operator Database

VERSION DATE: 11/20/19

Texas Innocent Owner / Operator (IOP), created by House Bill 2776 of the 75th Legislature, provides a certificate to an innocent owner or operator if their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination. The IOP database is maintained by the Texas Commission on Environmental Quality.

**LPST** Leaking Petroleum Storage Tanks

VERSION DATE: 12/13/19

The Leaking Petroleum Storage Tank listing is derived from the Petroleum Storage Tank (PST) database and is maintained by the Texas Commission on Environmental Quality. This listing includes aboveground and underground storage tank facilities with reported leaks.

## **Environmental Records Definitions - STATE (TX)**

**MSWLF** Municipal Solid Waste Landfill Sites

VERSION DATE: 12/06/19

The municipal solid waste landfill database is provided by the Texas Commission on Environmental Quality. This database includes active landfills and inactive landfills, where solid waste is treated or stored.

**RRCVCP** Railroad Commission VCP and Brownfield Sites

VERSION DATE: 11/14/19

According to the Railroad Commission of Texas, their Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.

**RWS** Radioactive Waste Sites

VERSION DATE: 07/11/06

This Texas Commission on Environmental Quality database contains all sites in the State of Texas that have been designated as Radioactive Waste sites.

**STCV** Salt Caverns for Petroleum Storage

VERSION DATE: 09/01/06

The salt caverns for petroleum storage database is provided by the Railroad Commission of Texas.

**VCP** Voluntary Cleanup Program Sites

VERSION DATE: 11/20/19

The Texas Voluntary Cleanup Program (VCP) provides administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in Texas. Since all non-responsible parties, including future lenders and landowners, receive protection from liability to the state of Texas for cleanup of sites under the VCP, most of the constraints for completing real estate transactions at those sites are eliminated. As a result, many unused or underused properties may be restored to economically productive or community beneficial uses. The VCP database is maintained by the Texas Commission on Environmental Quality.

**WMRF** Recycling Facilities

VERSION DATE: 11/01/12

This listing of recycling facilities is provided by the Texas Commission on Environmental Quality's Recycle Texas Online service. The company information provided in this database is self-reported. Since recyclers post their own information, a facility or company appearing on the list does not imply that it is in compliance with TCEQ

## ***Environmental Records Definitions - STATE (TX)***

regulations or other applicable laws. This database is no longer maintained and includes the last compilation of the program participants before the Recycle Texas Online program was closed.

### **WSTMGMT**

Commercial Management Facilities for Hazardous Waste and Industrial Solid Wastes

VERSION DATE: 10/01/19

This publication lists facilities that have permits or authorizations from the Texas Commission on Environmental Quality (TCEQ) to receive, on a commercial basis, and manage hazardous waste, industrial nonhazardous waste, or both.

### **IHWCA**

Industrial and Hazardous Waste Corrective Action Sites

VERSION DATE: 01/21/20

This database is provided by the Texas Commission on Environmental Quality (TCEQ). According to the TCEQ, the mission of the industrial and hazardous waste corrective action program is to oversee the cleanup of sites contaminated from industrial and municipal hazardous and industrial nonhazardous wastes. The goals of this program are to: Ensure that sites are assessed and remediated to levels that protect human health and the environment; Verify that waste management units or facilities are taken out of service and closed properly; and to Facilitate revitalization of contaminated properties.

### **SF**

State Superfund Sites

VERSION DATE: 01/16/19

The state Superfund program mission is to remediate abandoned or inactive sites within the state that pose an unacceptable risk to public health and safety or the environment, but which do not qualify for action under the federal Superfund program (NPL - National Priority Listing). As required by the Texas Solid Waste Disposal Act, Texas Health and Safety Code, Chapter 361, the Texas Commission on Environmental Quality identifies and evaluates these facilities for inclusion on the state Superfund registry. This listing includes any recent developments and the anticipated action for these sites as documented in the annual state Superfund registry publication of the Texas Register as well as the Superfund Webpage on the TCEQ website.

## ***Environmental Records Definitions - TRIBAL***

**USTR06**                      Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/01/19

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**LUSTR06**                      Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/01/19

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**ODINDIAN**                      Open Dump Inventory on Tribal Lands

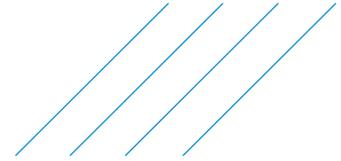
VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

**INDIANRES**                      Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.



## Appendix B. Figures



**NWI Wetland Type**

	Estuarine and Marine Deepwater
	Estuarine and Marine Wetland
	Freshwater Emergent Wetland (PEM)
	Freshwater Forested/Shrub Wetland (PFO)
	Freshwater Pond (PUB)
	Riverine (R2UBH)



Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 NWI: USFWS 2019  
 Basemap: Bing Maps Aerial

- TWDB Water Well
- Existing Water Line
- Proposed Water Line Centerline
- Proposed Outfall Line
- 1 Mile Buffer
- 1/2 Mile Buffer
- 1/4 Mile Buffer
- 1/8 Mile Buffer



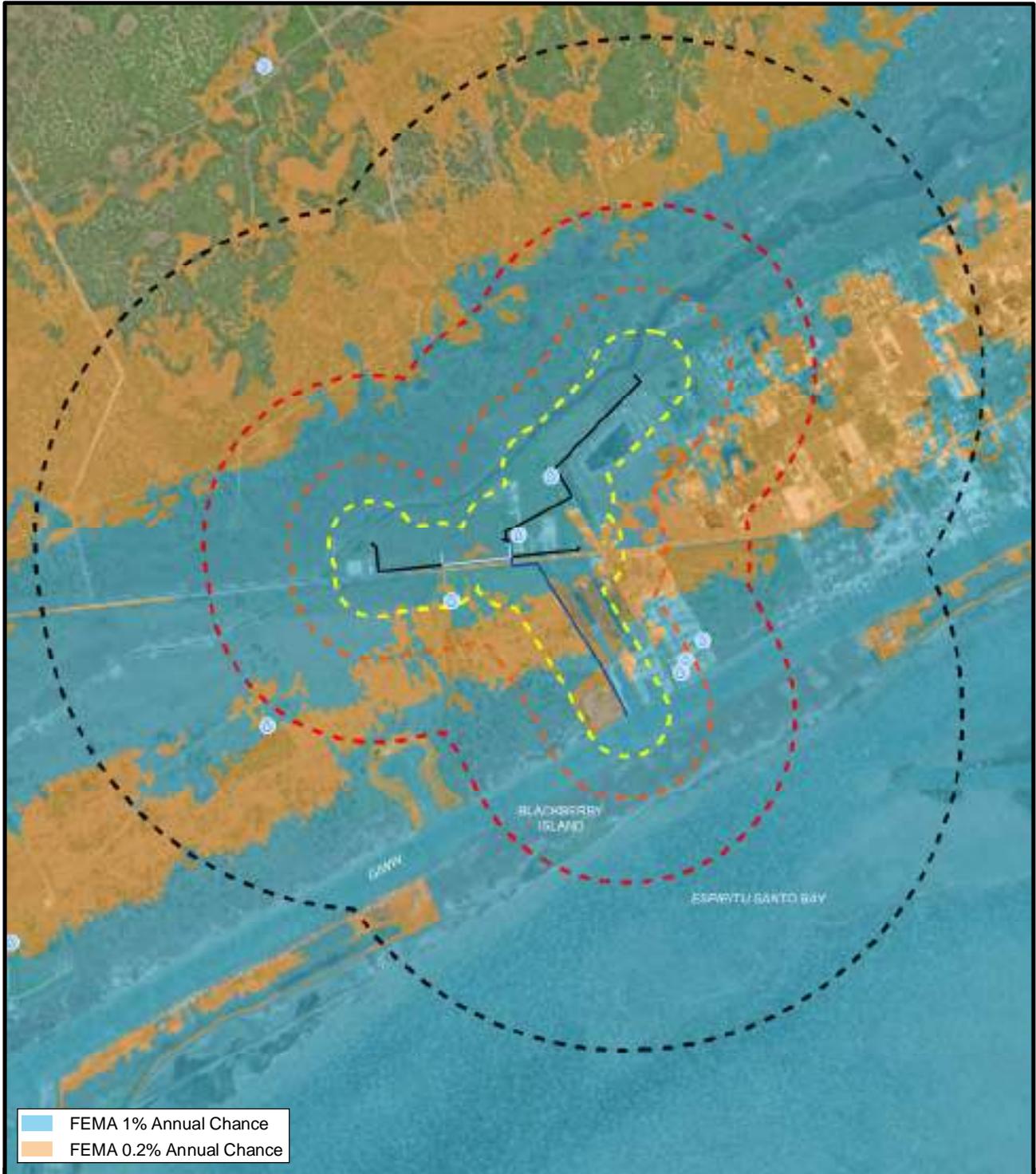
**REVISED 7/6/2020** Figure 1a  
 Site Location Map  
 Hazmat Study  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 2,400 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2019. 1:28,800; generated by Atkins; using ArcMap. < http://www.bing.com/maps > (06 July 2020)

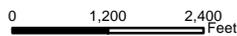


FEMA 1% Annual Chance  
 FEMA 0.2% Annual Chance



- TWDB Water Well
- Existing Water Line
- Proposed Water Line Centerline
- Proposed Outfall Line
- 1 Mile Buffer
- 1/2 Mile Buffer
- 1/4 Mile Buffer
- 1/8 Mile Buffer

Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Floodplain: FEMA 2018  
 Basemap: Bing Maps Aerial



# ATKINS

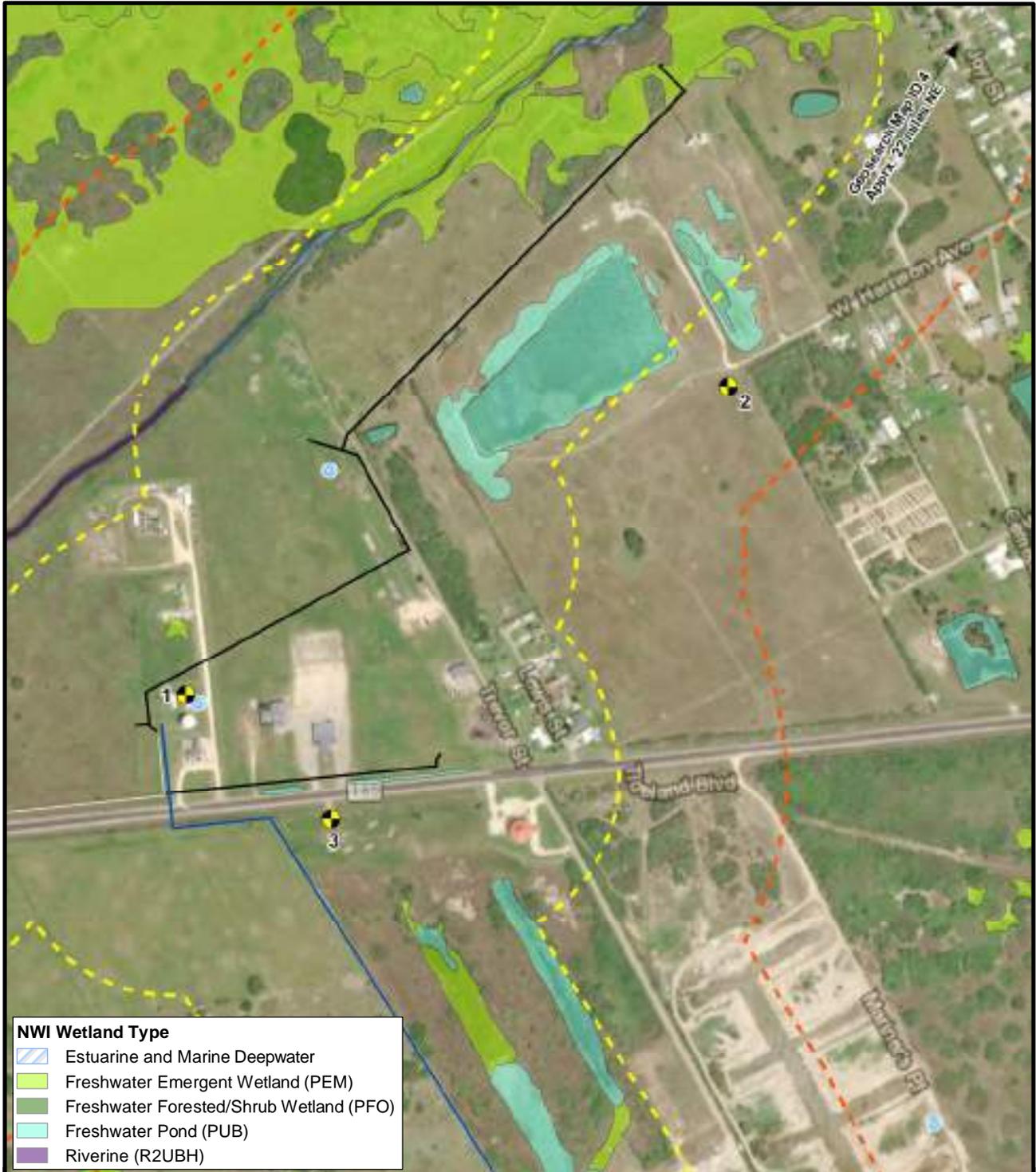
Member of the SNC Law & Risk Group

**REVISED 7/6/2020** Figure 1b  
 Site Location Map with Floodplains  
 Hazmat Study  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 2,400 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 02, 2020

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**NWI Wetland Type**

	Estuarine and Marine Deepwater
	Freshwater Emergent Wetland (PEM)
	Freshwater Forested/Shrub Wetland (PFO)
	Freshwater Pond (PUB)
	Riverine (R2UBH)



Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 NWI: USFWS 2019  
 Basemap: Bing Maps Aerial

- Geosearch Map ID
- TWDB Water Well
- Existing Water Line
- Proposed Water Line Centerline
- Proposed Outfall Line
- 1 Mile Buffer
- 1/2 Mile Buffer
- 1/4 Mile Buffer
- 1/8 Mile Buffer



**ATKINS**

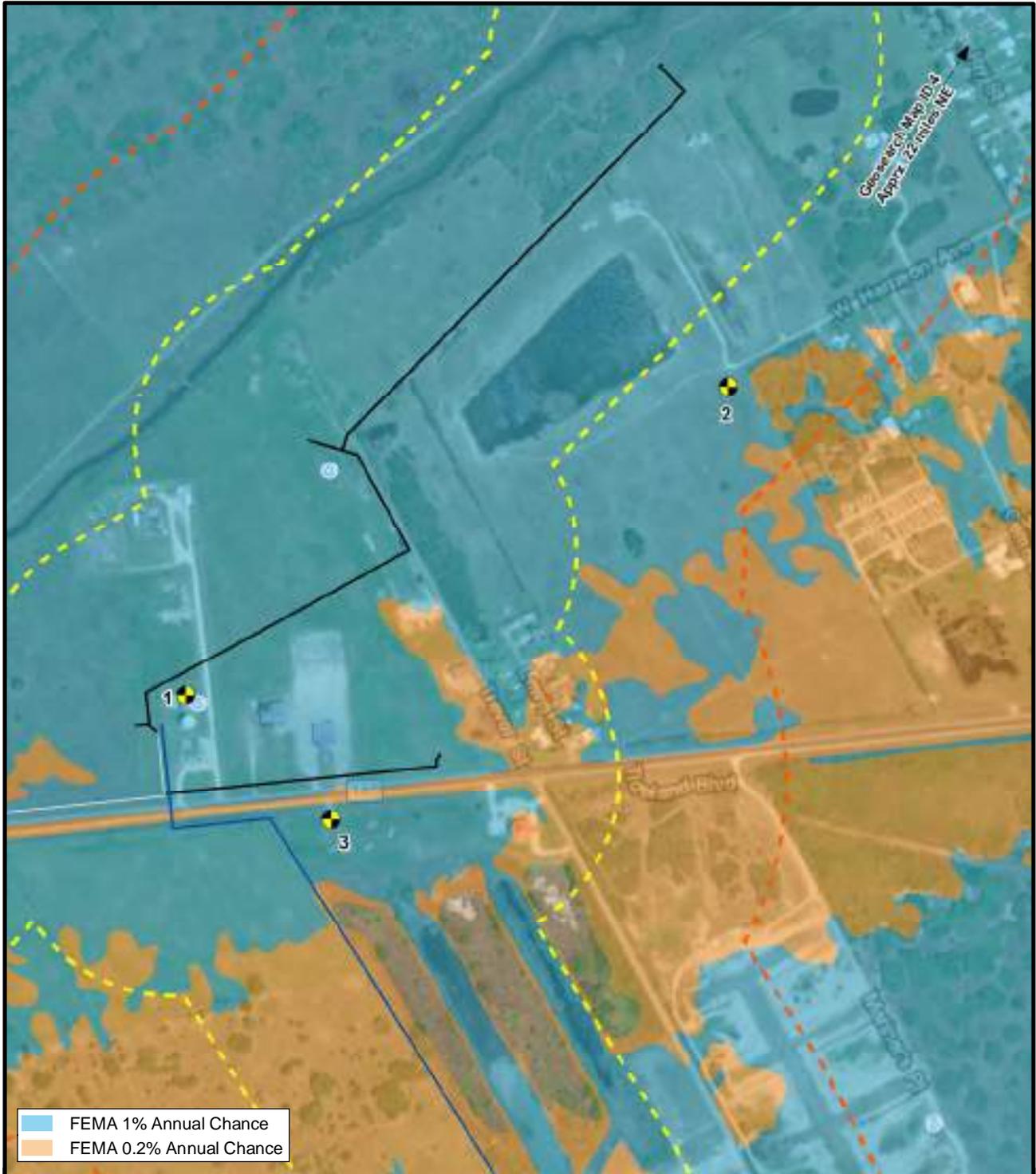
Member of the SNC Lavin Group

**REVISED 7/6/2020** Figure 2a  
 Geosearch Reported Sites Map  
 Hazmat Study  
**Port O'Connor Improvement District**  
**Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304	Scale: 1" = 600 feet
Prepared By: ATKINS/WHIT6392	Date: Apr 08, 2020

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FEMA 1% Annual Chance  
 FEMA 0.2% Annual Chance



Datum: NAD 1983  
 Projection: State Plane Texas  
 South Central  
 Units: Feet  
 Floodplain: FEMA 2018  
 Basemap: Bing Maps Aerial

- Geosearch Map ID
- TWDB Water Well
- Existing Water Line
- Proposed Water Line Centerline
- Proposed Outfall Line
- 1 Mile Buffer
- 1/2 Mile Buffer
- 1/4 Mile Buffer
- 1/8 Mile Buffer

0 300 600 Feet



# ATKINS

Member of the STC LawIn Group

**REVISED 7/6/2020** Figure 2b  
 Geosearch Reported Sites Map with Floodplains  
 Hazmat Study  
**Port O'Connor Improvement District  
 Water Line, Water Well, and Water Plant Improvements**

**Port O'Connor**  
 Calhoun County, Texas

Job No.: 100068304

Scale: 1" = 600 feet

Prepared By: ATKINS/WHIT6392

Date: Apr 08, 2020

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# Appendix B-6 Environmental Justice Maps & Reports

# Port O'Connor CDP, Texas

Place in Texas



Port O'Connor CDP, Texas is a city, town, place equivalent (CDP), or township located in Texas. Port O'Connor CDP, Texas has a total area of 4 square miles.



POPULATION  
971



MEDIAN HOUSEHOLD INCOME  
\$53,173



POVERTY RATE  
14.3%



BACHELOR'S DEGREE OR HIGHER  
17.9%

## People and Population

### Age and Sex

34.1 +/- 10.3

Median age in Port O'Connor CDP, Texas

37.9 +/- 0.1

Median age in the United States

Table: DP05

Table Survey/Program: 2018 American Community Survey 5-Year Estimates

### Population by Age Range in Port O'Connor CDP, Texas

Under 5 years - 11.4%



18 years and older - 75.9%



65 years and older - 22.9%



**Veterans**

17.4% +/- 0.1%

Veterans in Port O'Connor CDP, Texas

7.5% +/- 0.1%

Veterans in the United States

Table: S2101  
Table Survey/Program: 2018 American  
Community Survey 5-Year Estimates

**Veterans by Sex in Port O'Connor CDP, Texas**

Male - 74.2%



Female - 25.8%



**Language Spoken at Home**

0.5% +/- 1.1%

Language other than English spoken at home in Port O'Connor CDP, Texas

21.5% +/- 0.1%

Language other than English spoken at home in the United States

Table: DP02  
Table Survey/Program: 2018 American  
Community Survey 5-Year Estimates

**Types of Language Spoken at Home in Port O'Connor CDP, Texas**

English only - 99.5%



Spanish - 0.3%



Other Indo-European languages - 0.0%

Asian and Pacific Islander languages - 0.0%

Other languages - 0.1%



## Race and Ethnicity

### Race

971 +/- 397

Total population in Port O'Connor CDP, Texas

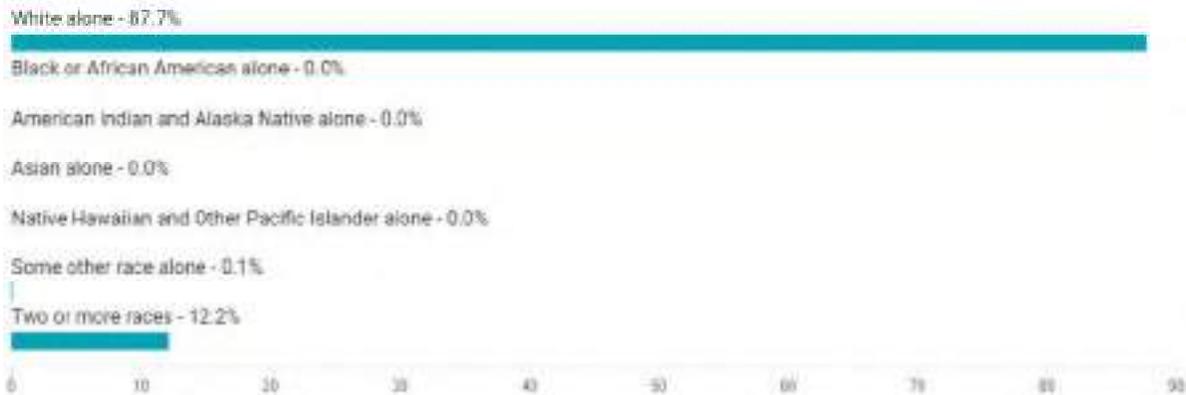
322,903,030 +/- -555,555,555

Total population in the United States

Table: DP05

Table Survey/Program: 2018 American Community Survey 5-Year Estimates

#### Population by Race in Port O'Connor CDP, Texas



## Health

### Disability

29.9% +/- 17.4%

Disabled population in Port O'Connor CDP, Texas

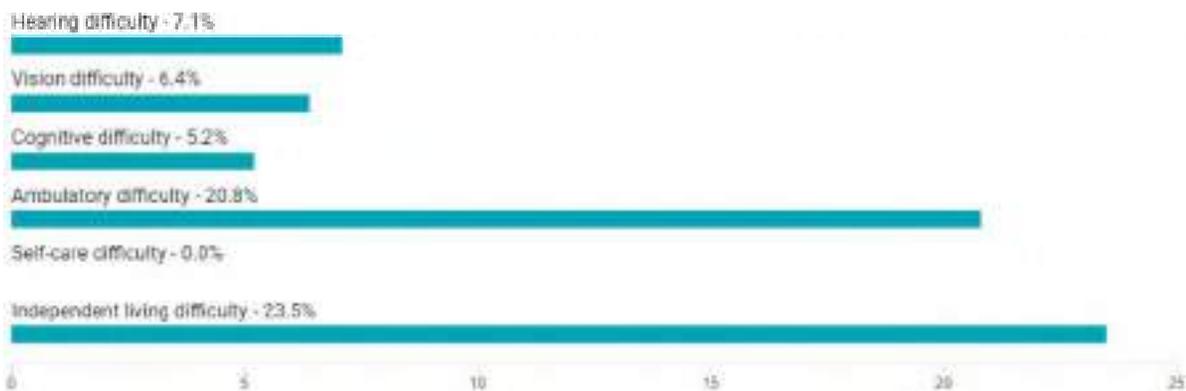
12.6% +/- 0.1%

Disabled population in the United States

Table: DP02

Table Survey/Program: 2018 American Community Survey 5-Year Estimates

#### Types of Disabilities in Port O'Connor CDP, Texas



## Education

**Educational Attainment**

**88.4%** +/- 10.8%  
 High school graduate or higher in Port O'Connor CDP, Texas

**87.7%** +/- 0.1%  
 High school graduate or higher in the United States

Table: DP02  
 Table Survey/Program: 2018 American Community Survey 5-Year Estimates

**Education Attainment in Port O'Connor CDP, Texas**



**Business and Economy**

**Employment**

**Commuting**

**23.8** +/- 13.2  
 Average commute to work (in minutes) in Port O'Connor CDP, Texas

**26.6** +/- 0.1  
 Average commute to work (in minutes) in the United States

Table: DP03  
 Table Survey/Program: 2018 American Community Survey 5-Year Estimates

**Means of Transportation to Work in Port O'Connor CDP, Texas**



**Income and Poverty**

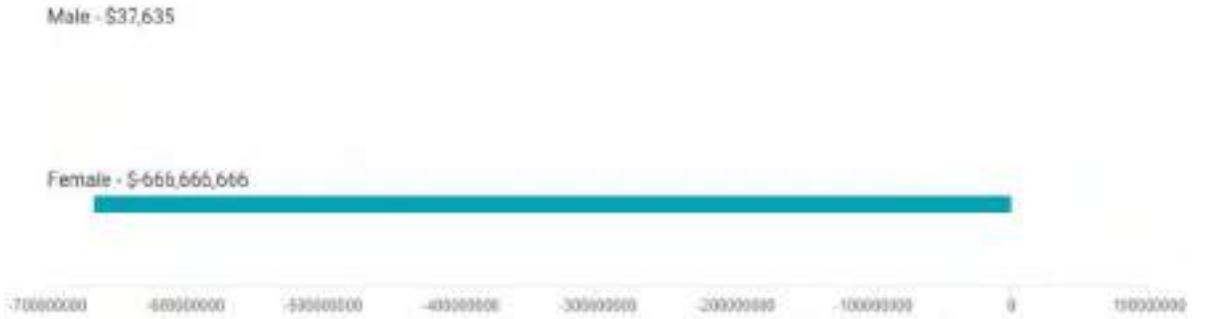
**Earnings**

**\$-666,666,666** +/- \$NaN  
Female median year-round, full-time earnings in Port O'Connor CDP, Texas

**\$41,690** +/- \$70  
Female median year-round, full-time earnings in the United States

Table: S2001  
Table Survey/Program: 2018 American Community Survey 5-Year Estimates

### Median Earnings for Fulltime, Year-Round Workers by Sex in Port O'Connor CDP, Texas



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Measuring America's People, Places and Economy

**QuickFacts**  
**Calhoun County, Texas**

QuickFacts provides statistics for all states and counties, and for cities and towns with a *population of 5,000 or more*.

**Table**

All Topics 	Calhoun County, Texas
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>21,290</b>
 <b>PEOPLE</b>	
<b>Population</b>	
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>21,290</b>
Population estimates base, April 1, 2010, (V2019)	21,382
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	-0.4%
Population, Census, April 1, 2010	21,381
<b>Age and Sex</b>	
Persons under 5 years, percent	 6.5%
Persons under 18 years, percent	 23.9%
Persons 65 years and over, percent	 18.7%
Female persons, percent	 48.7%
<b>Race and Hispanic Origin</b>	
White alone, percent	 89.3%
Black or African American alone, percent (a)	 3.1%
American Indian and Alaska Native alone, percent (a)	 0.9%
Asian alone, percent (a)	 5.3%
Native Hawaiian and Other Pacific Islander alone, percent (a)	 0.1%
Two or More Races, percent	 1.3%
Hispanic or Latino, percent (b)	 49.4%
White alone, not Hispanic or Latino, percent	 41.8%
<b>Population Characteristics</b>	
Veterans, 2014-2018	1,172
Foreign born persons, percent, 2014-2018	11.7%
<b>Housing</b>	
Housing units, July 1, 2019, (V2019)	12,151
Owner-occupied housing unit rate, 2014-2018	70.8%
Median value of owner-occupied housing units, 2014-2018	\$115,000
Median selected monthly owner costs -with a mortgage, 2014-2018	\$1,271

Median selected monthly owner costs -without a mortgage, 2014-2018	\$389
Median gross rent, 2014-2018	\$745
Building permits, 2019	96
<b>Families &amp; Living Arrangements</b>	
Households, 2014-2018	7,604
Persons per household, 2014-2018	2.83
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	87.4%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	30.2%
<b>Computer and Internet Use</b>	
Households with a computer, percent, 2014-2018	87.4%
Households with a broadband Internet subscription, percent, 2014-2018	76.0%
<b>Education</b>	
High school graduate or higher, percent of persons age 25 years+, 2014-2018	80.7%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	15.0%
<b>Health</b>	
With a disability, under age 65 years, percent, 2014-2018	12.3%
Persons without health insurance, under age 65 years, percent	▲ 19.2%
<b>Economy</b>	
In civilian labor force, total, percent of population age 16 years+, 2014-2018	60.8%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	55.1%
Total accommodation and food services sales, 2012 (\$1,000) (c)	32,946
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	44,751
Total manufacturers shipments, 2012 (\$1,000) (c)	11,074,535
Total merchant wholesaler sales, 2012 (\$1,000) (c)	D
Total retail sales, 2012 (\$1,000) (c)	435,296
Total retail sales per capita, 2012 (c)	\$20,144
<b>Transportation</b>	
Mean travel time to work (minutes), workers age 16 years+, 2014-2018	19.6
<b>Income &amp; Poverty</b>	
Median household income (in 2018 dollars), 2014-2018	\$55,469
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$26,596
Persons in poverty, percent	▲ 14.2%
<b> BUSINESSES</b>	
<b>Businesses</b>	
Total employer establishments, 2018	444
Total employment, 2018	8,265
Total annual payroll, 2018 (\$1,000)	543,359
Total employment, percent change, 2017-2018	-1.1%
Total nonemployer establishments, 2018	1,556

All firms, 2012	1,697
Men-owned firms, 2012	943
Women-owned firms, 2012	457
Minority-owned firms, 2012	693
Nonminority-owned firms, 2012	825
Veteran-owned firms, 2012	94
Nonveteran-owned firms, 2012	1,415

 **GEOGRAPHY**

---

**Geography**

Population per square mile, 2010	42.2
Land area in square miles, 2010	506.84
FIPS Code	48057

About datasets used in this table

### Value Notes

 Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info  icon to the left of each row in TABLE view to learn about sampling error.

The vintage year (e.g., V2019) refers to the final year of the series (2010 thru 2019). *Different vintage years of estimates are not comparable.*

### Fact Notes

- (a) Includes persons reporting only one race
- (b) Hispanics may be of any race, so also are included in applicable race categories
- (c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

### Value Flags

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper interval of an open ended distribution.
- D** Suppressed to avoid disclosure of confidential information
- F** Fewer than 25 firms
- FN** Footnote on this item in place of data
- N** Data for this geographic area cannot be displayed because the number of sample cases is too small.
- NA** Not available
- S** Suppressed; does not meet publication standards
- X** Not applicable
- Z** Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

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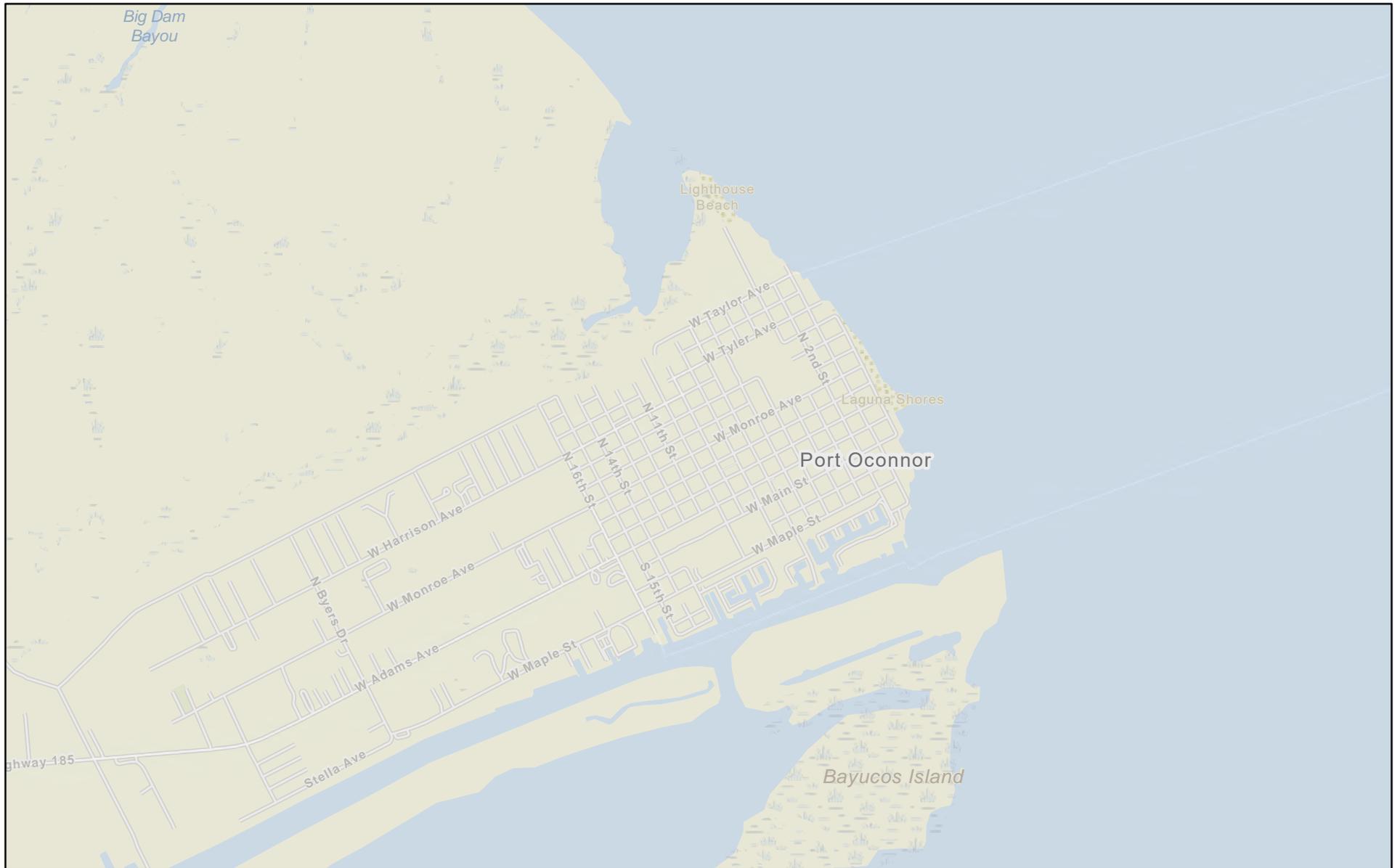
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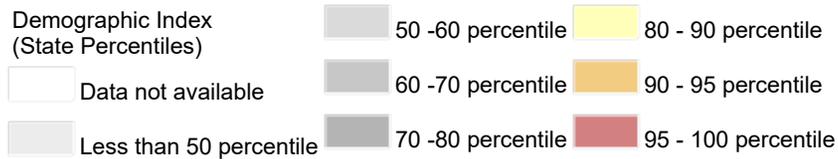


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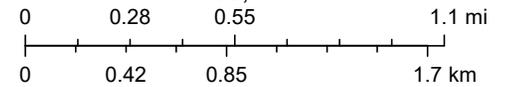


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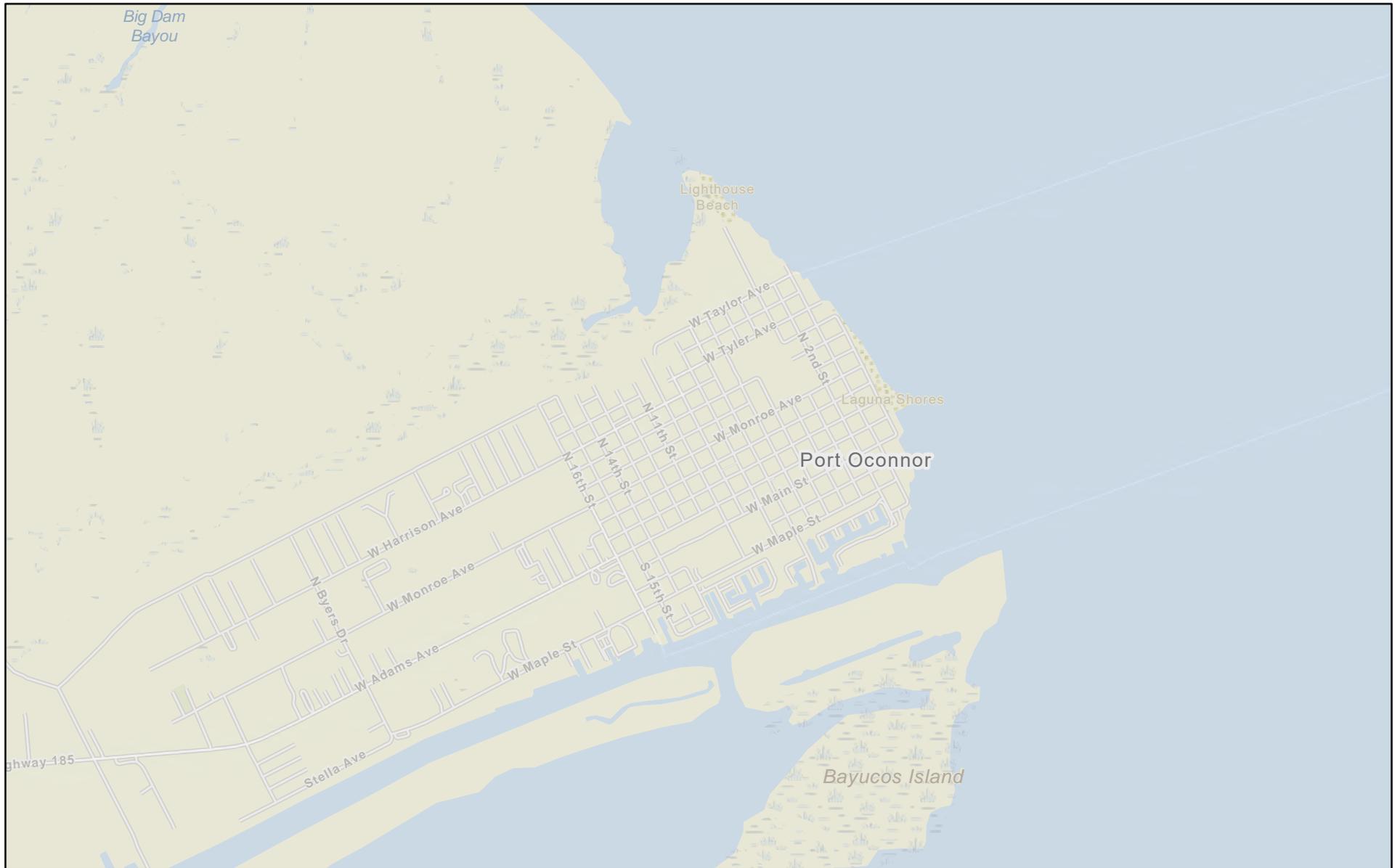
Demographic Index  
(State Percentiles)



1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



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Ozone  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

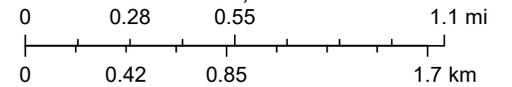
□ 70 -80 percentile

□ 80 - 90 percentile

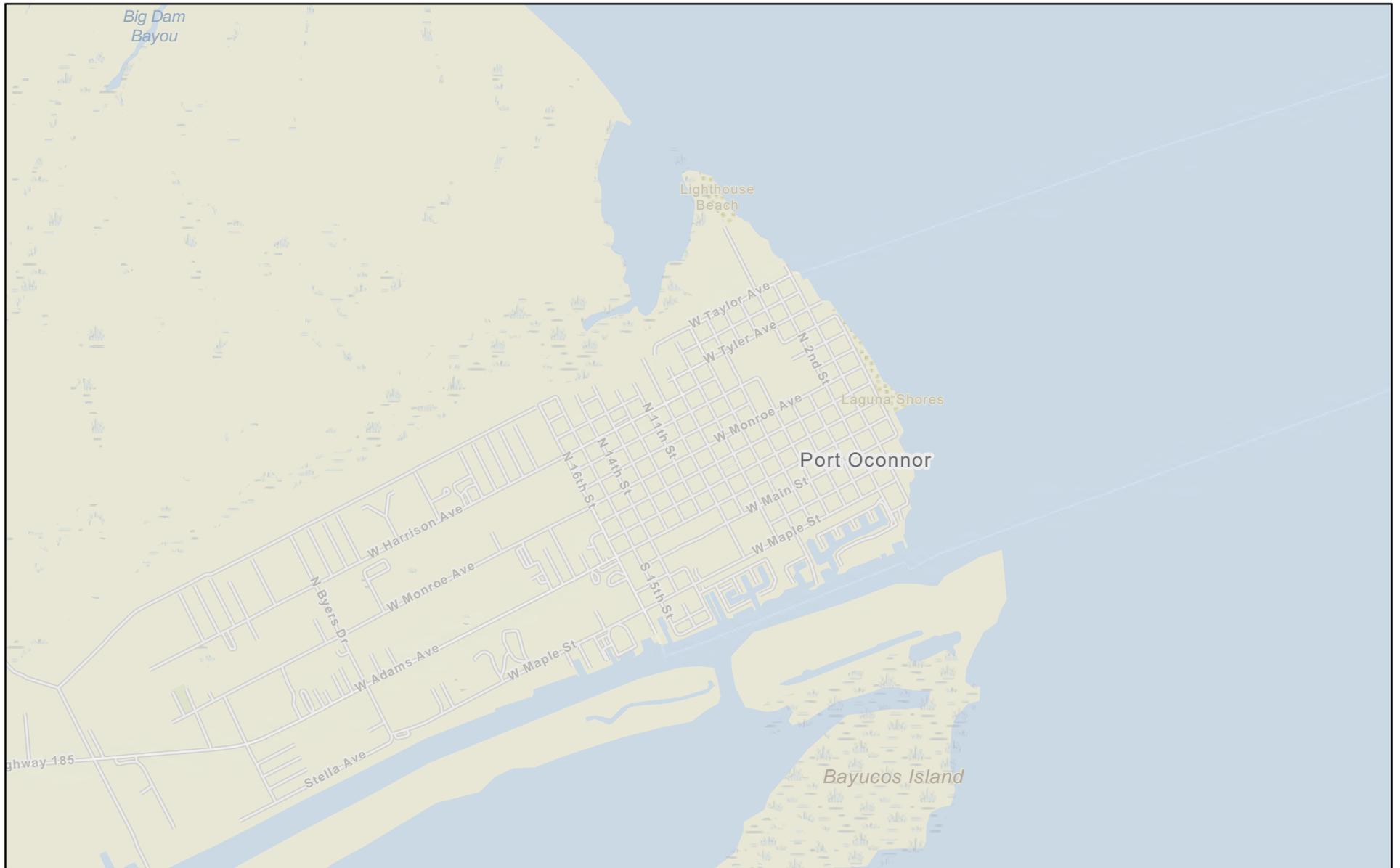
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



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PM 2.5  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

□ 70 -80 percentile

□ 80 - 90 percentile

□ 90 - 95 percentile

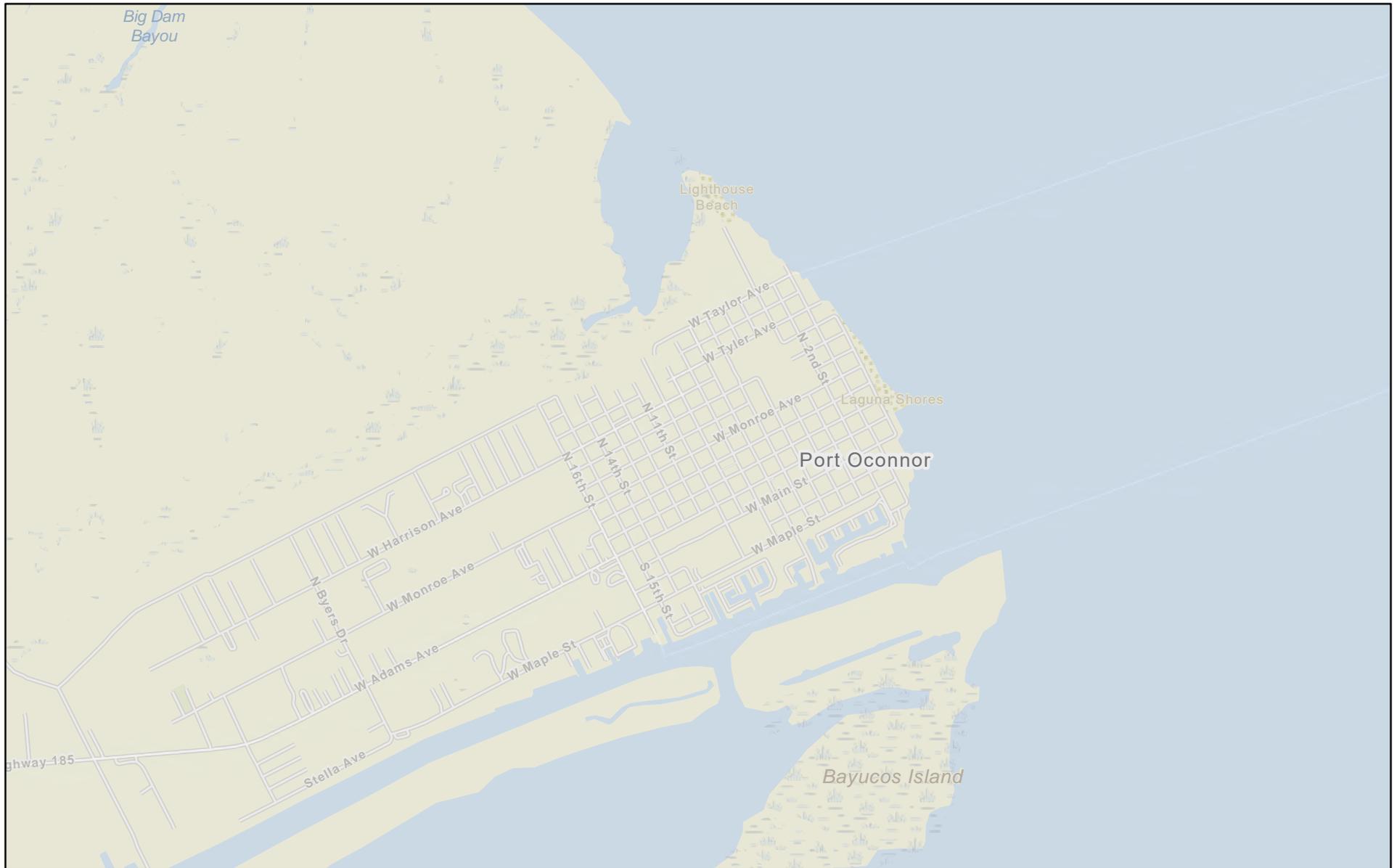
□ 95 - 100 percentile

1:36,112

0 0.28 0.55 1.1 mi

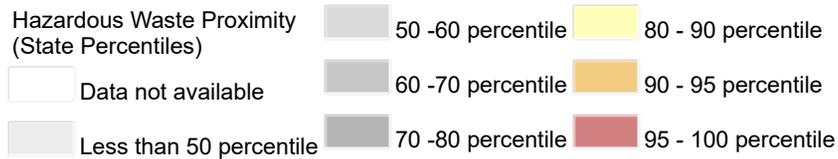
0 0.42 0.85 1.7 km

Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

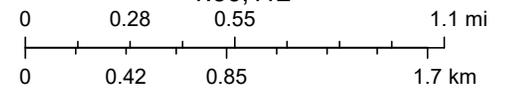


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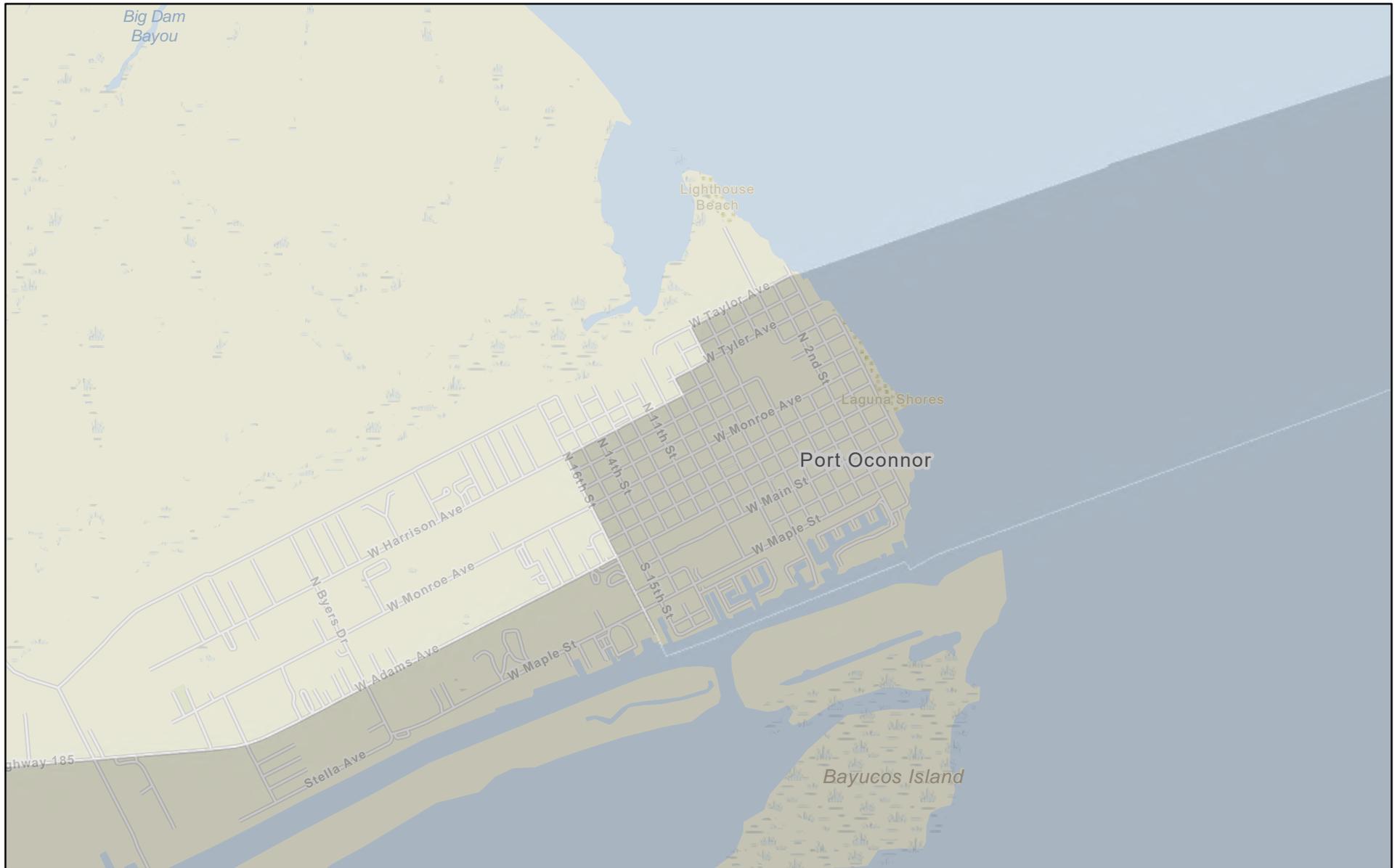
Hazardous Waste Proximity  
(State Percentiles)



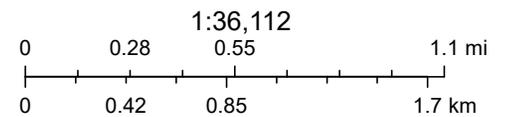
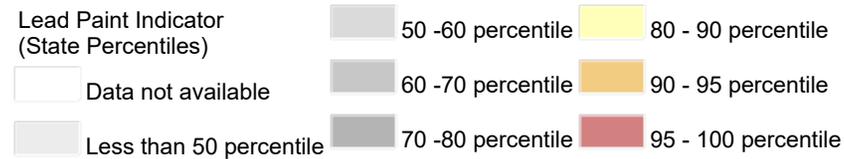
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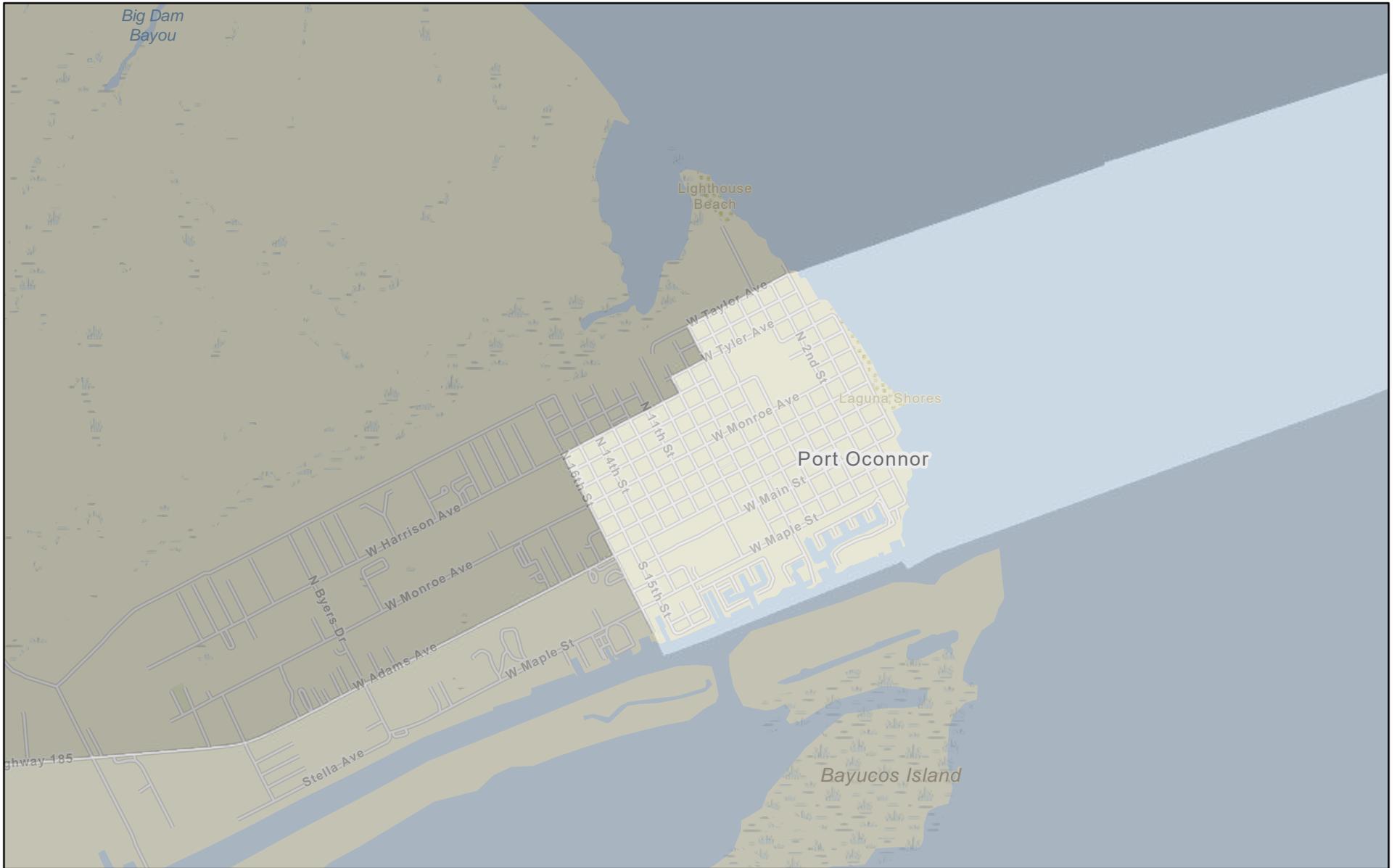
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Less Than HS Education  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 - 60 percentile

□ 60 - 70 percentile

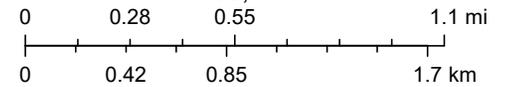
□ 70 - 80 percentile

□ 80 - 90 percentile

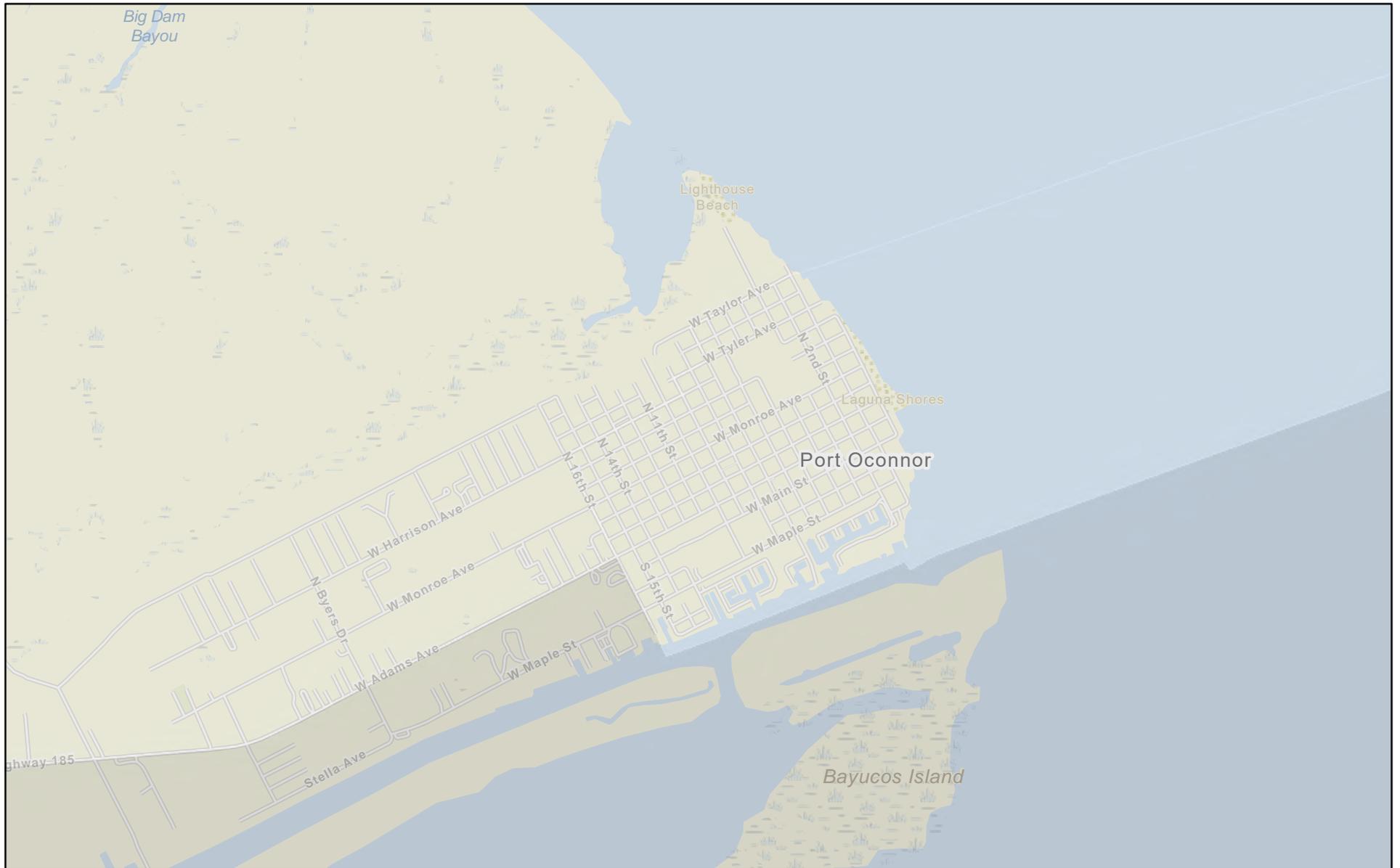
□ 90 - 95 percentile

□ 95 - 100 percentile

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Linguistically Isolated  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

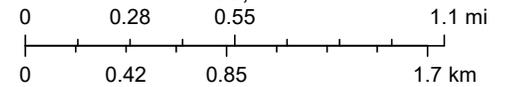
□ 70 -80 percentile

□ 80 - 90 percentile

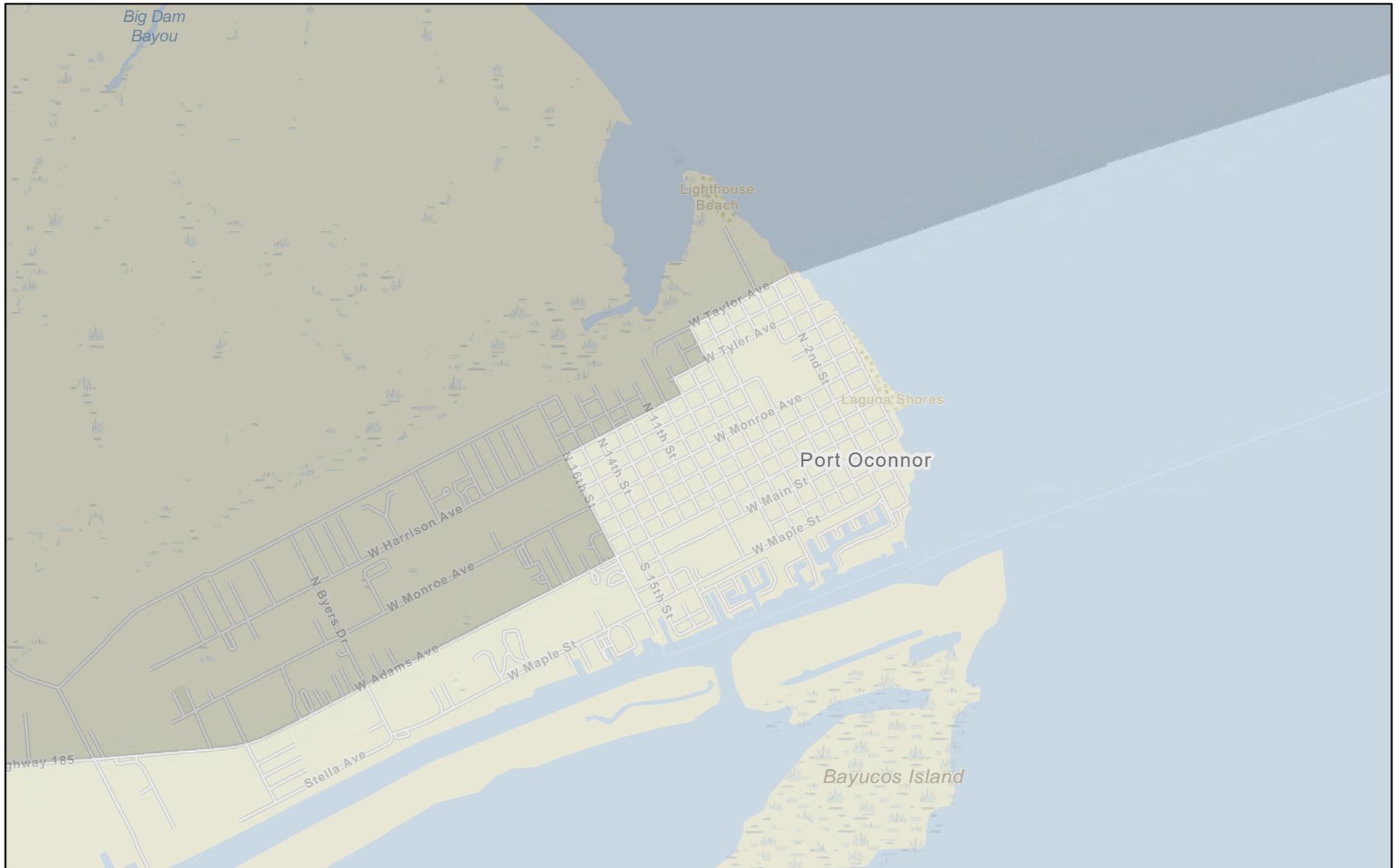
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



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Low Income Population  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

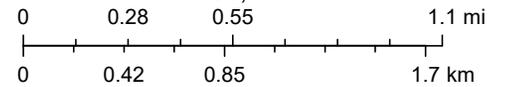
□ 70 -80 percentile

□ 80 - 90 percentile

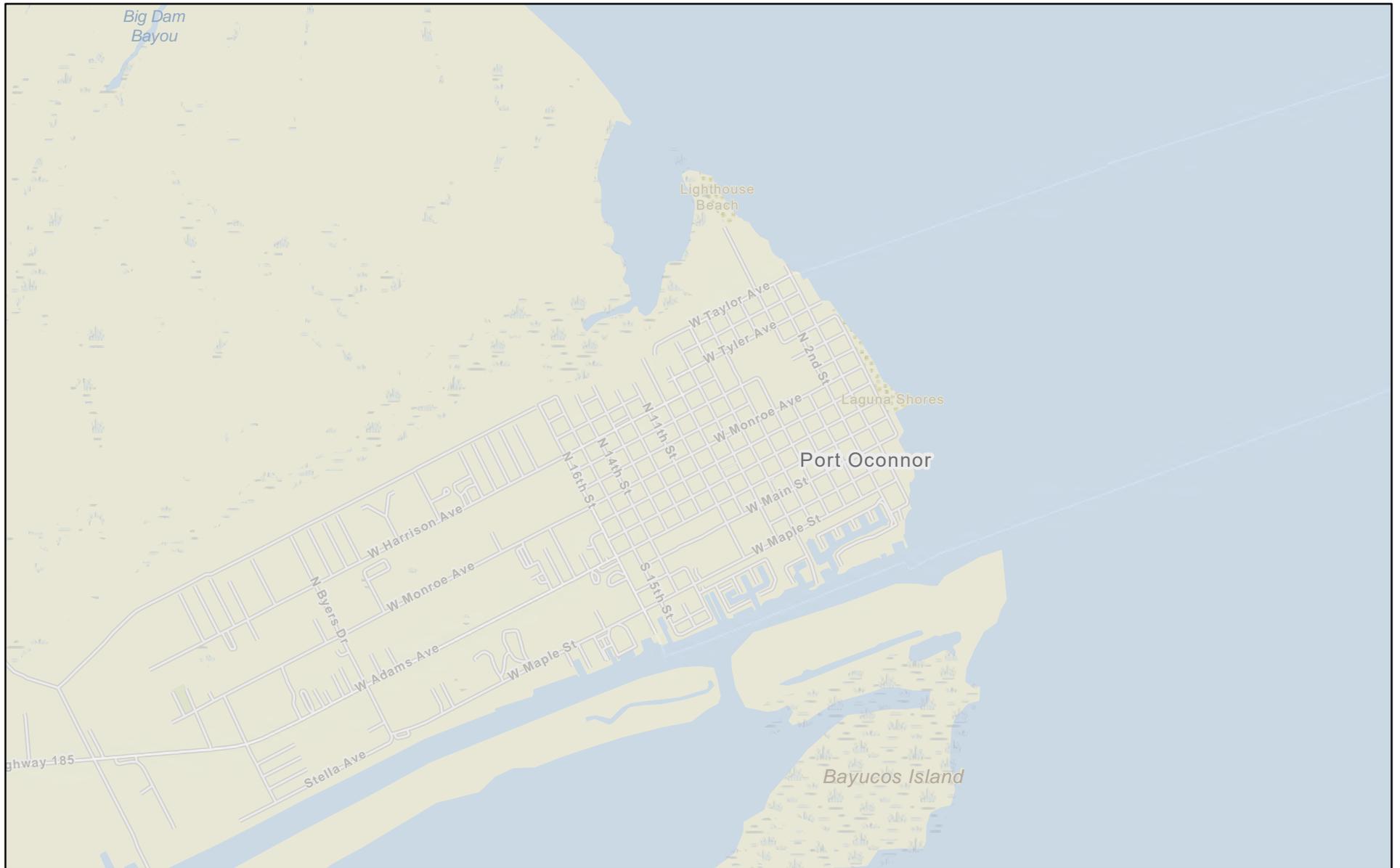
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



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Minority Population  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

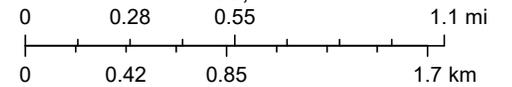
□ 70 -80 percentile

□ 80 - 90 percentile

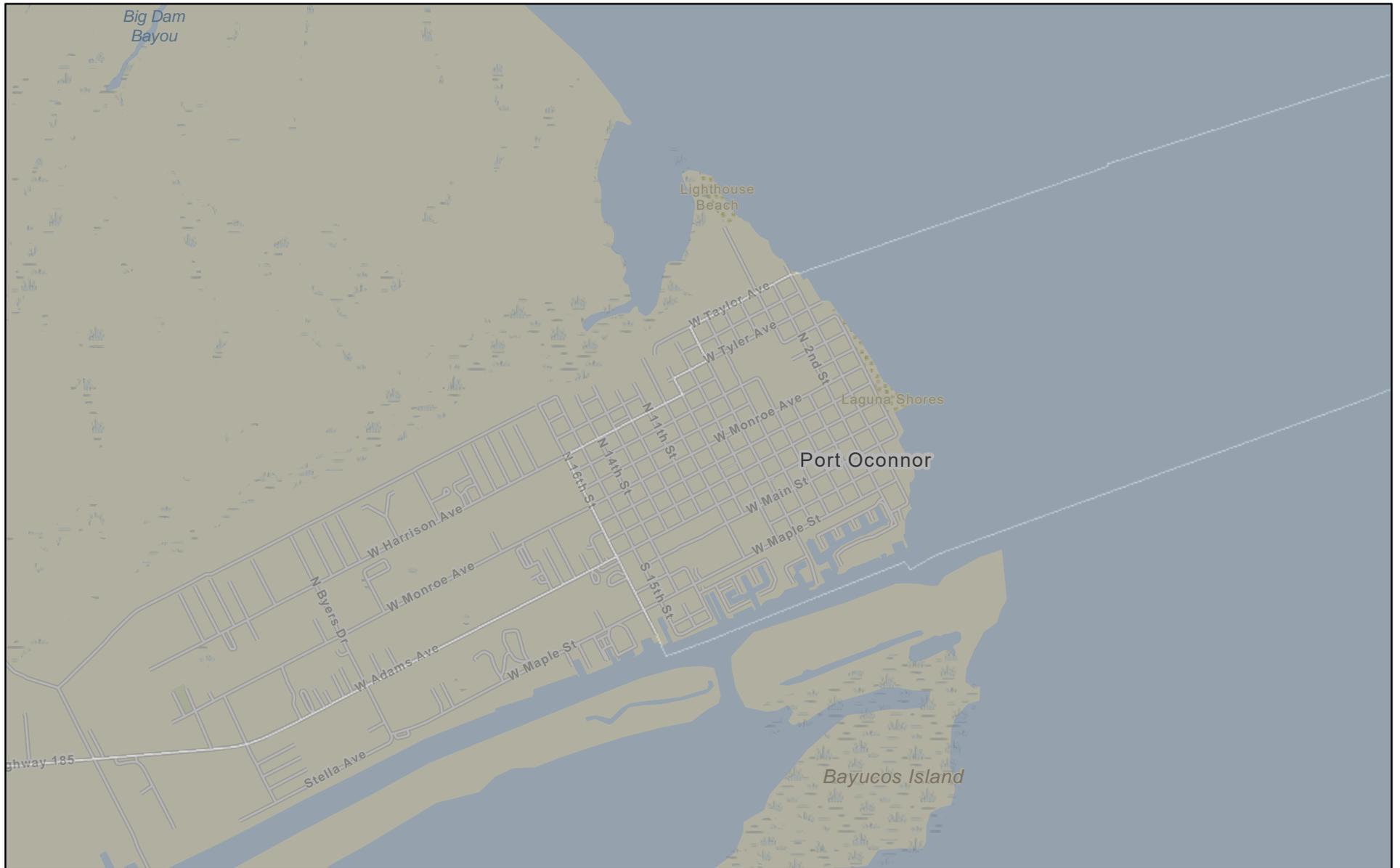
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



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NATA Cancer Risk  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

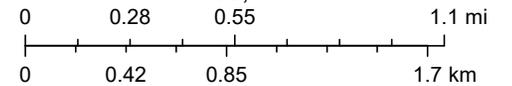
□ 70 -80 percentile

□ 80 - 90 percentile

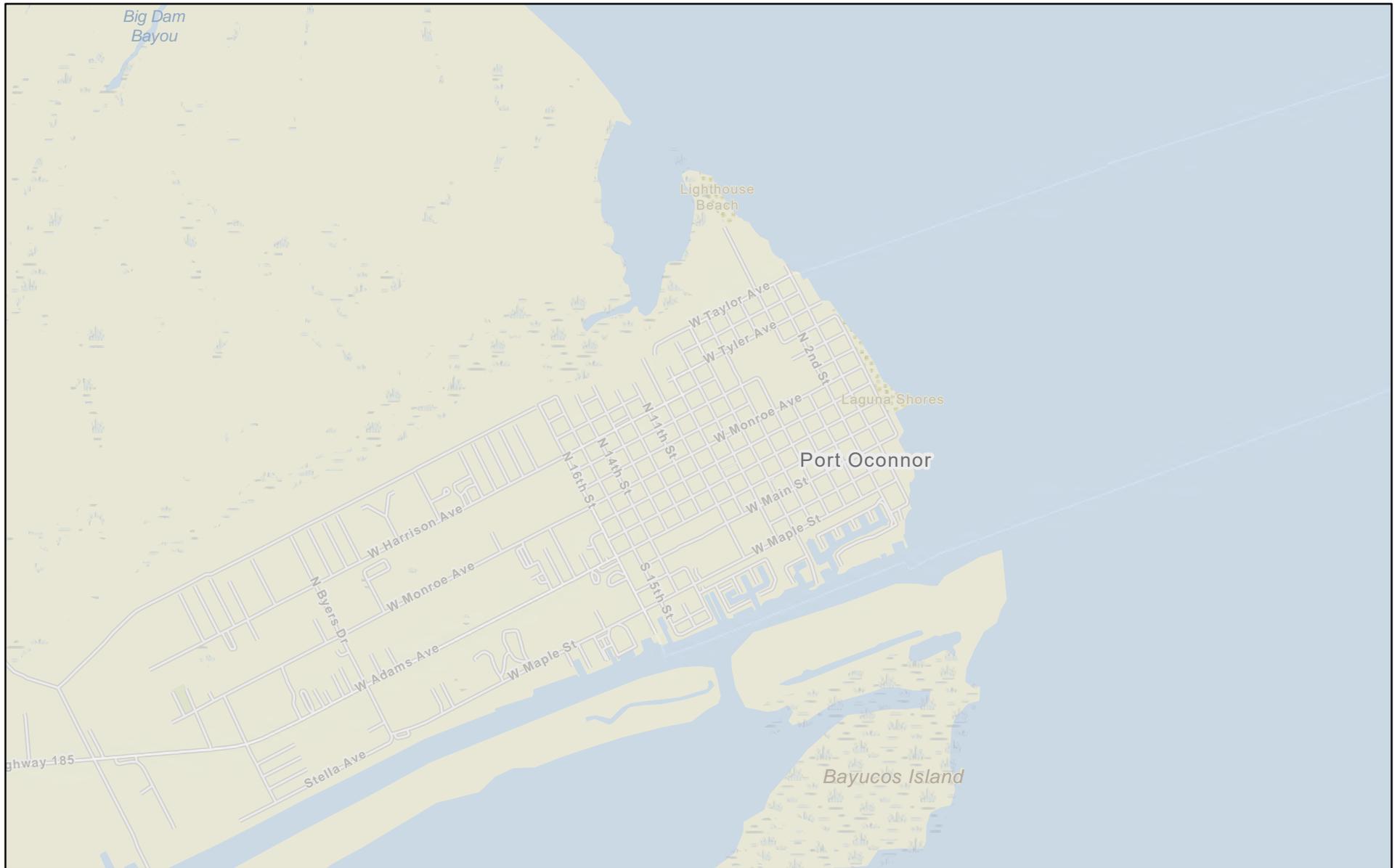
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



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NATA Diesel PM  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

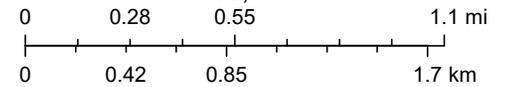
□ 70 -80 percentile

□ 80 - 90 percentile

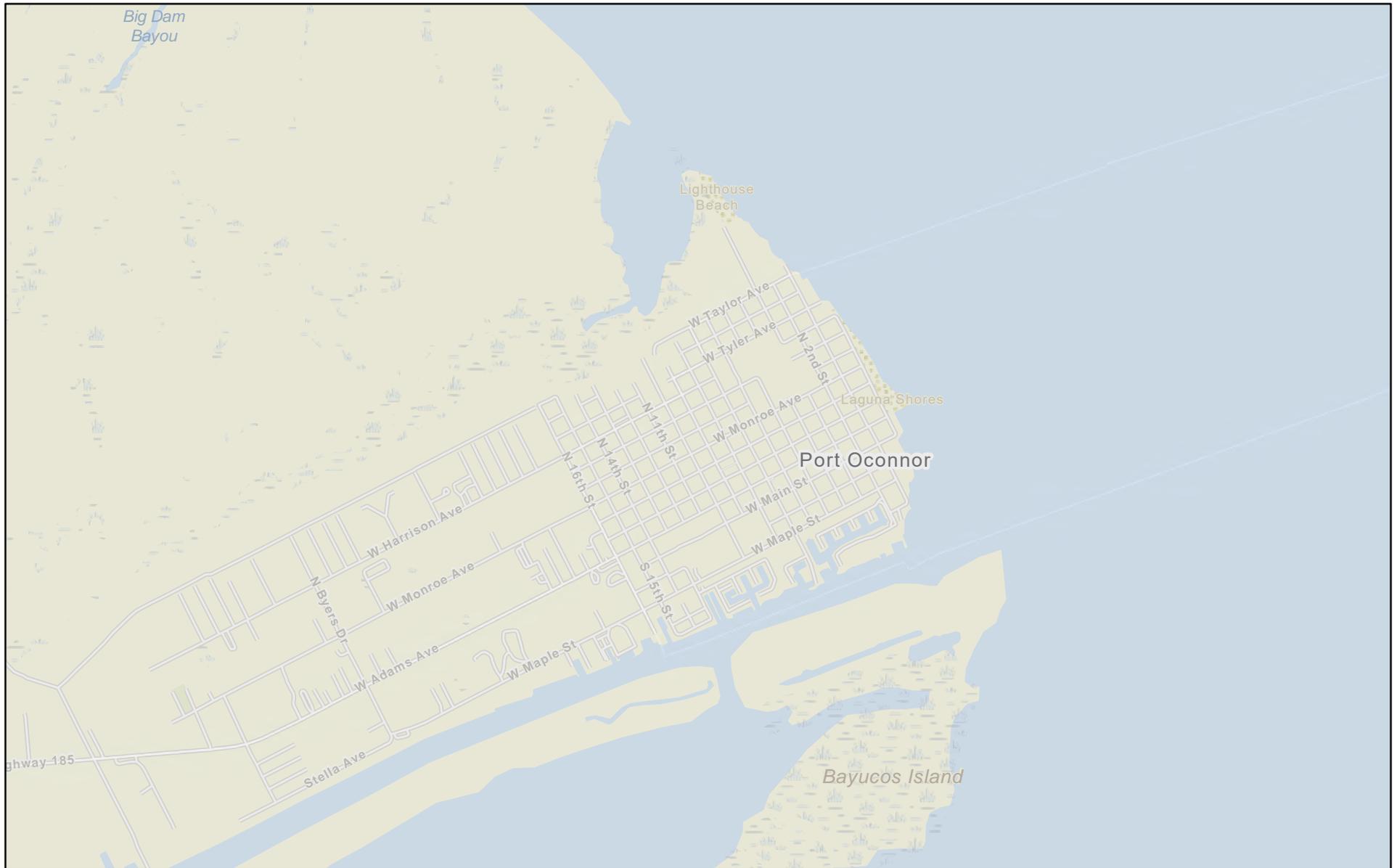
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



July 10, 2020

NATA Respiratory HI  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

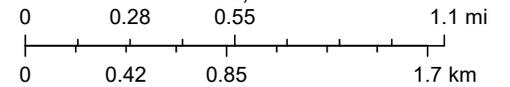
□ 70 -80 percentile

□ 80 - 90 percentile

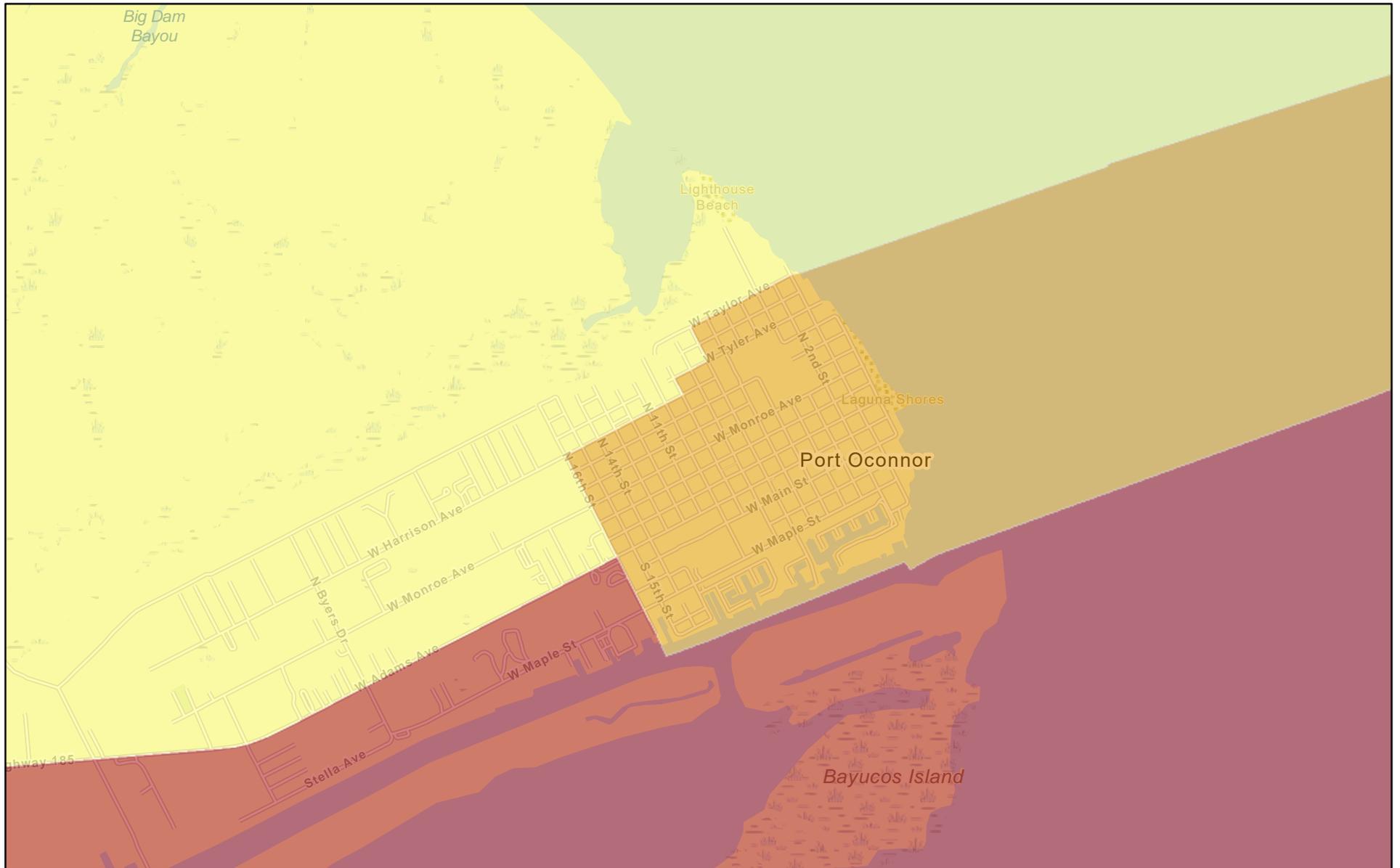
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



July 10, 2020

Over Age 64  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

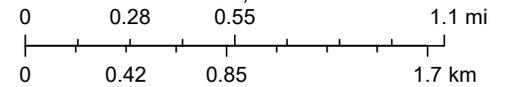
□ 70 -80 percentile

□ 80 - 90 percentile

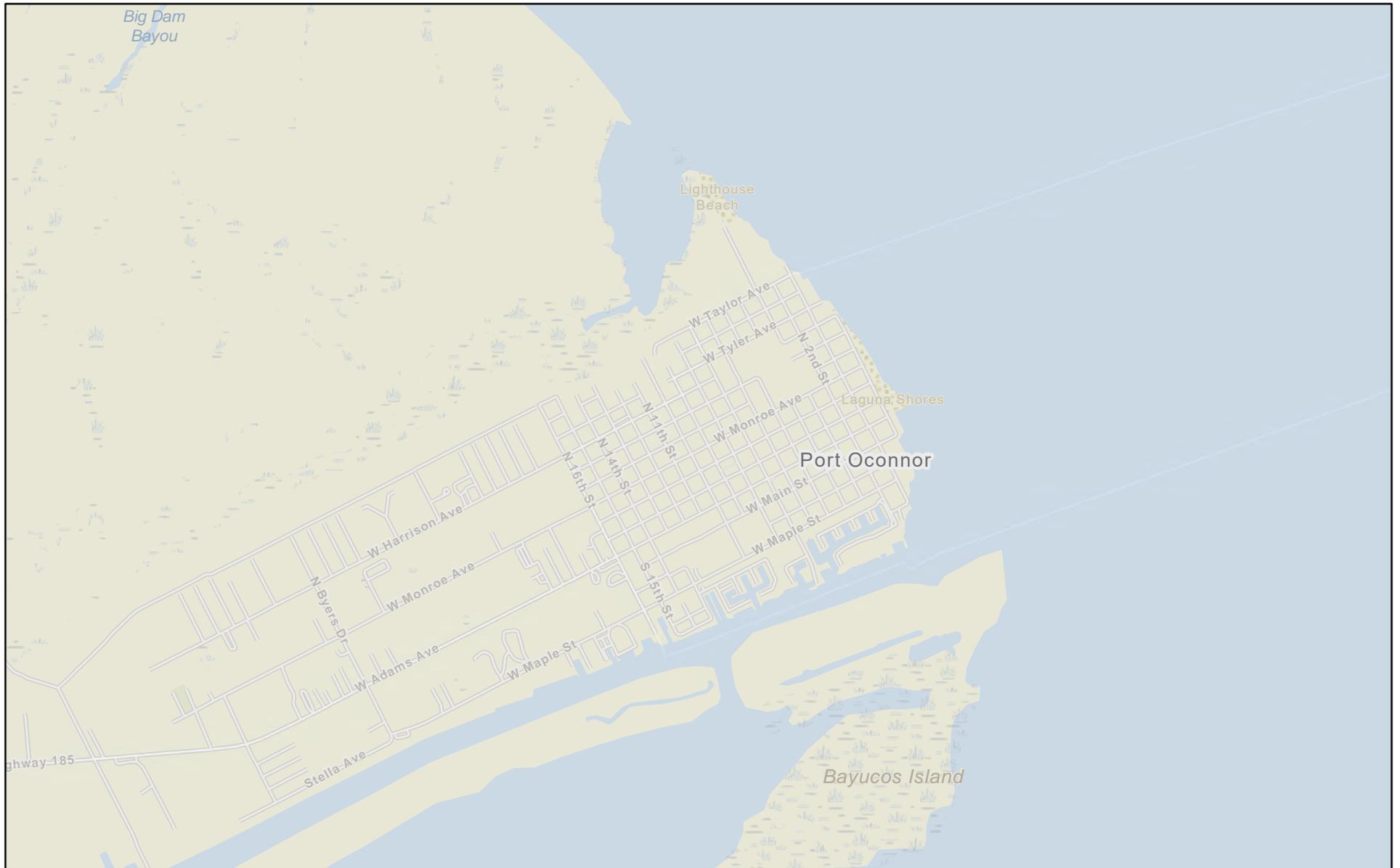
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



July 10, 2020

RMP Proximity  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

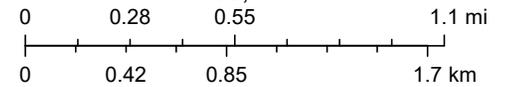
□ 70 -80 percentile

□ 80 - 90 percentile

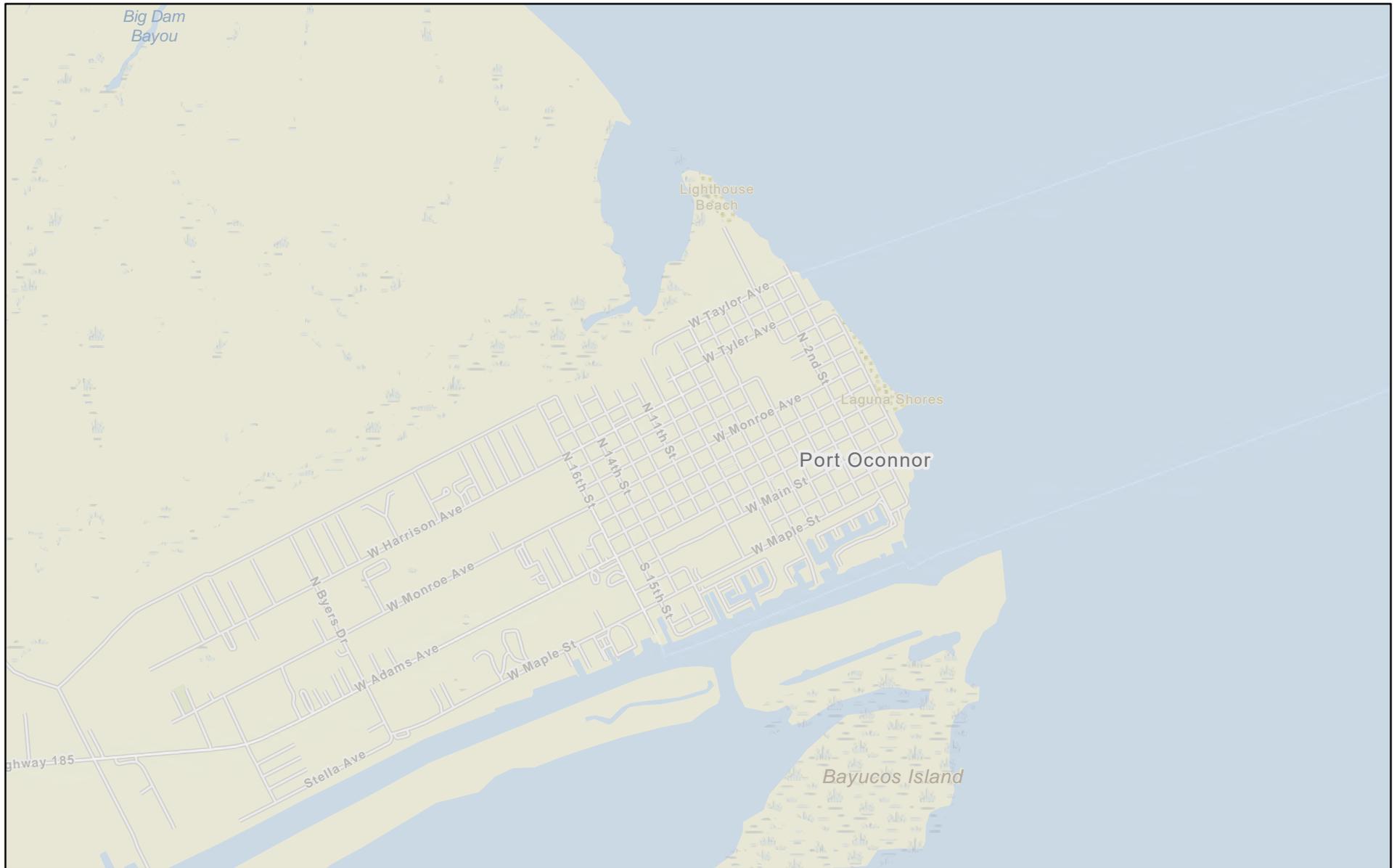
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



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Superfund Proximity  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

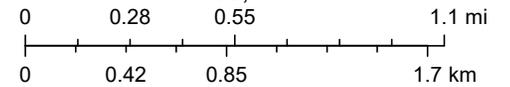
□ 70 -80 percentile

□ 80 - 90 percentile

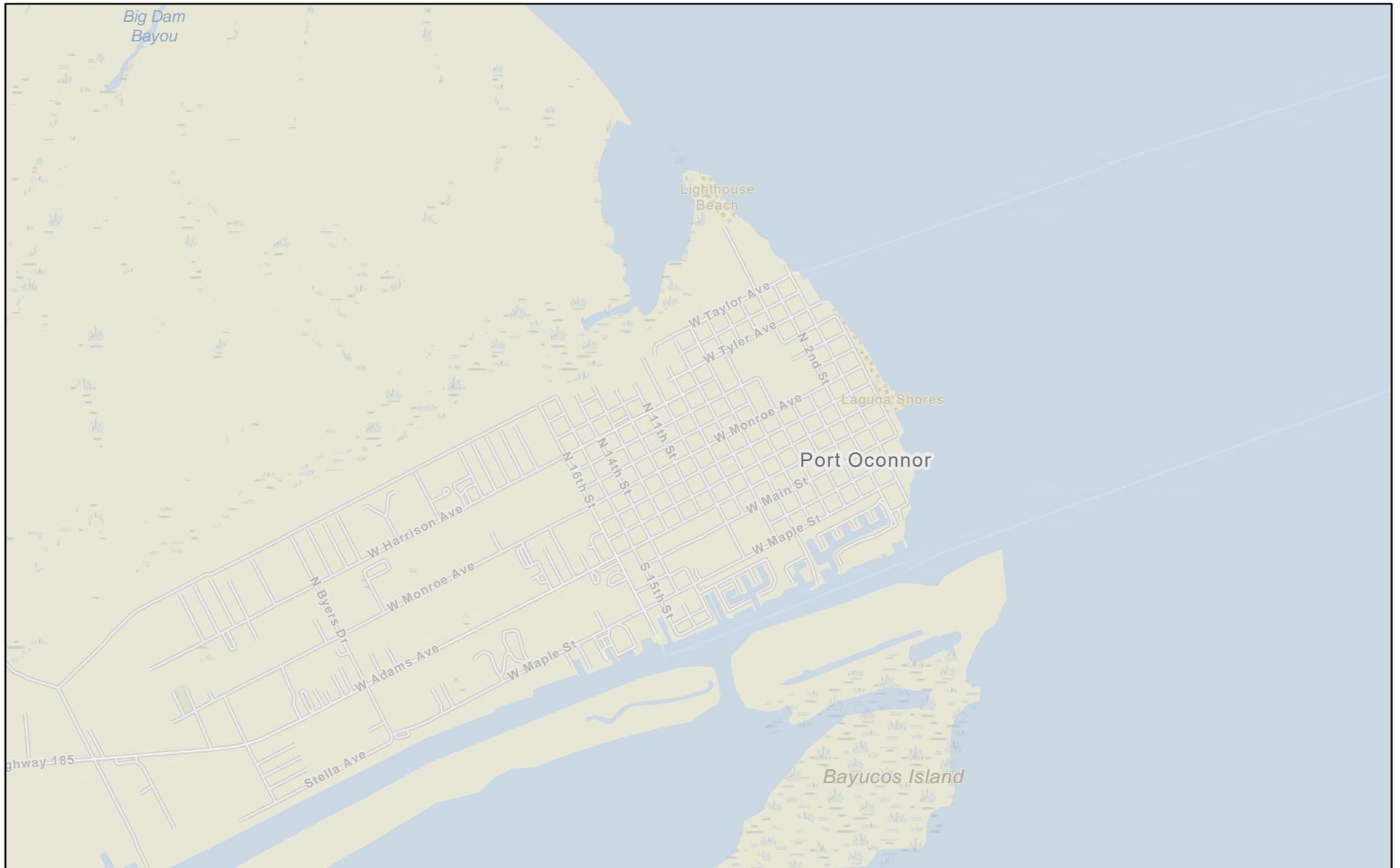
□ 90 - 95 percentile

□ 95 - 100 percentile

1:36,112



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Traffic Proximity  
(State Percentiles)

□ Data not available

□ Less than 50 percentile

□ 50 -60 percentile

□ 60 -70 percentile

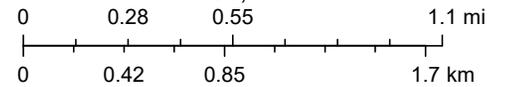
□ 70 -80 percentile

□ 80 - 90 percentile

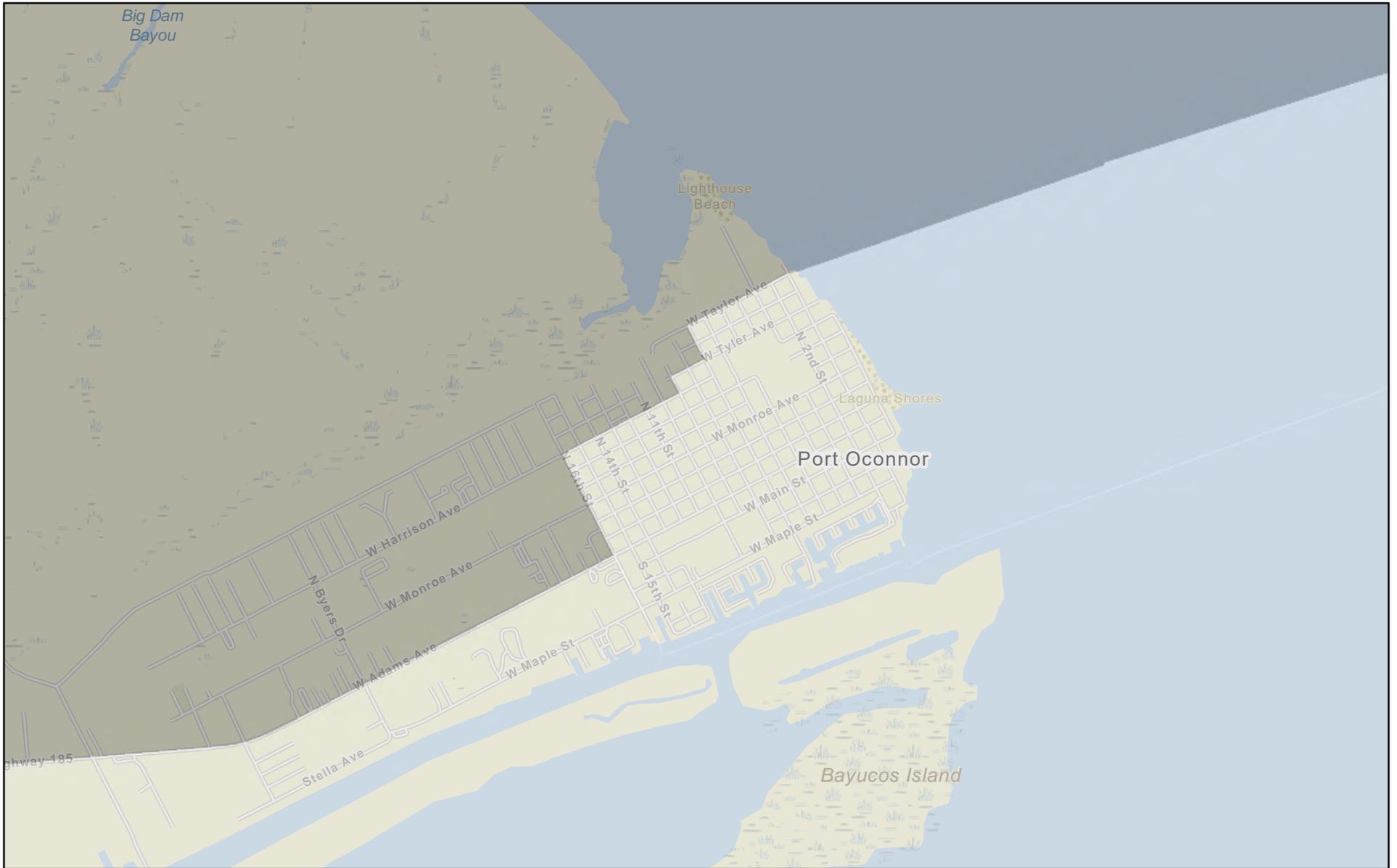
□ 90 - 95 percentile

□ 95 - 100 percentile

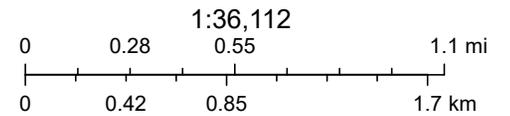
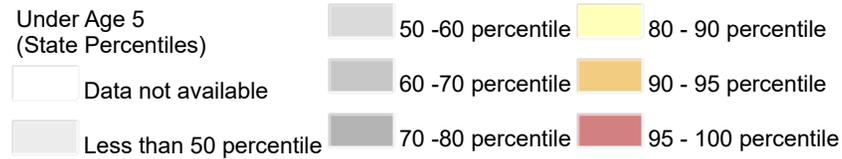
1:36,112



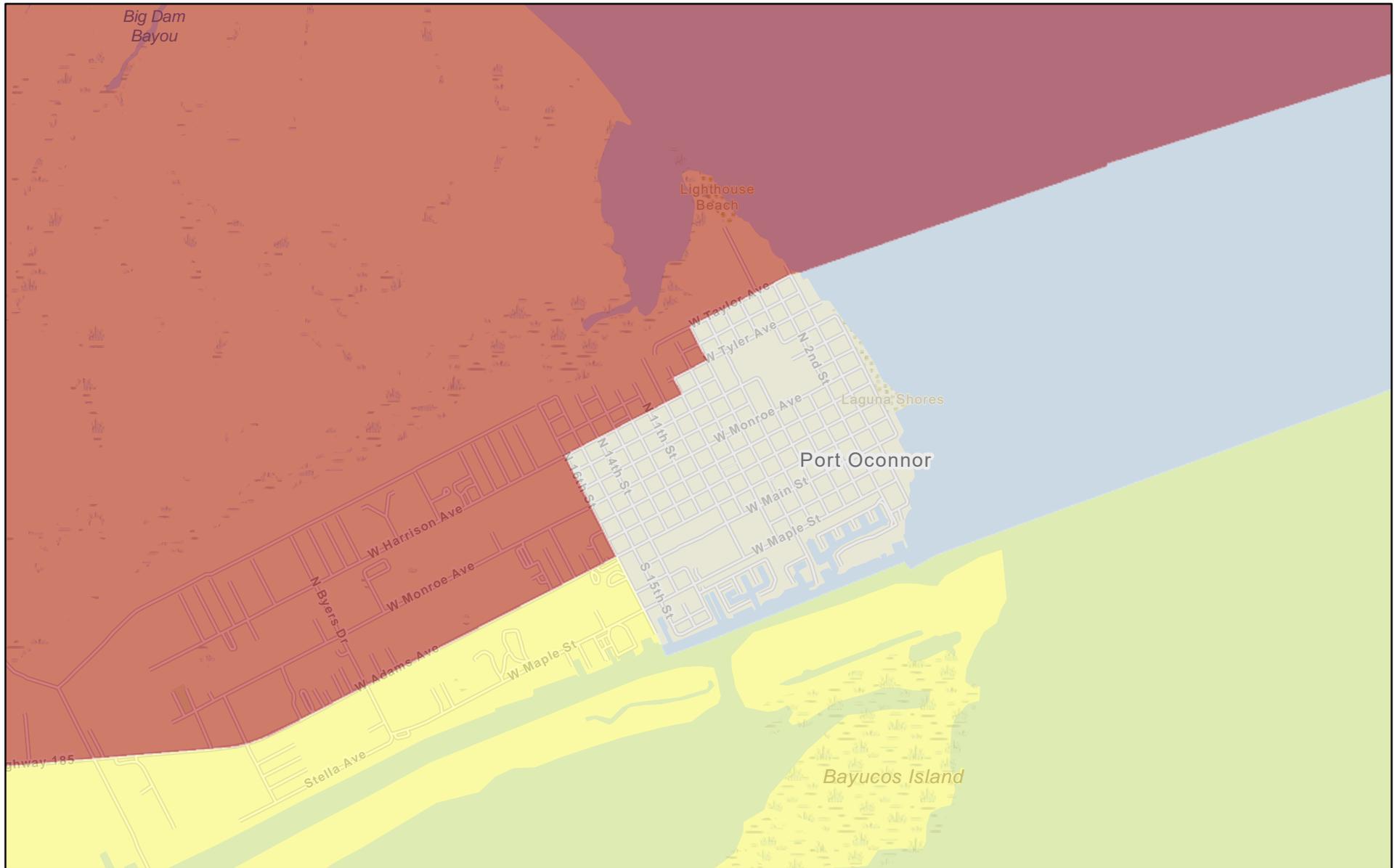
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



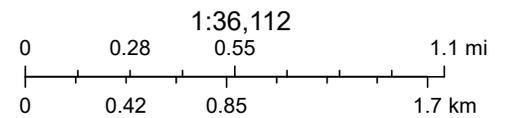
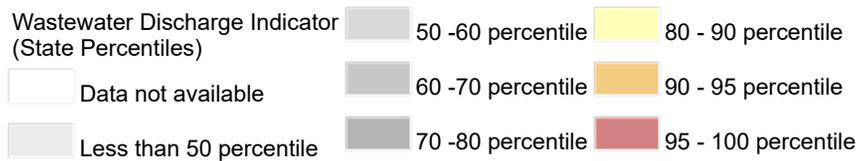
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