LAGUNA SHORES ROAD ACCESS FEASIBILITY STUDY

Acknowledgments

Partner Acknowledgment

Coastal Bend Bays & Estuaries Program

Friends of Redhead Pond

Flour Bluff Citizens Council

Texas Parks and Wildlife Department

City of Corpus Christi

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Consultant Team

FREESE AND NICHOLS

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Project Overview

In May of 2025, the Coastal Bend Bays and Estuaries Program (CBBEP) retained Freese and Nichols (FNI) to perform an Access Feasibility Study surrounding two ecologically significant sites along Laguna Shores Road, located within the Flour Bluff region of Corpus Christi. This study was to build on the planning and volunteer efforts previously completed with assistance from the National Parks Service, which identified potential access and environmental improvements to the ecologically sensitive habitats flanked by Hustlin Hornet Drive and Glenoak Drive along Laguna Shores Road. These areas known as Redhead Pond and Duncan Pond form two critical ecological nodes of the Coastal Bend.

Redhead Pond

Redhead Pond, officially designated as a Wildlife Management Area by Texas Parks and Wildlife, spans approximately 37 acres on the Encinal Peninsula between Oso Bay and Laguna Madre. Named for its role as a wintering ground for redhead ducks, which still congregate in large numbers during migration seasons. The pond's freshwater wetlands, sand flats, and uplands provides essential habitat for diverse avian species, including American coots, black-necked stilts, reddish egrets, and peregrine falcons, which are routinely observed there.

Redhead Pond has faced ecological challenges, notably invasive Brazilian peppertrees and guineagrass, which threatened native plant communities and wildlife diversity. Restoration efforts led by the Friends of Redhead Pond and supported by Coastal Management Program grants have focused on removing invasives, monitoring regrowth, and reestablishing native vegetation. These actions aim to preserve the pond's role as a freshwater refuge for migratory birds adjacent to the hypersaline Laguna Madre.

Redhead Pond

Duncan Pond

Duncan Pond shares a similar ecological function as Redhead Pond within the Laguna Shores Road corridor. Historically, it has been a part of the dynamic coastal wetland complex shaped by tidal influence, sea-level fluctuation and sediment deposition. Duncan Pond contributes to stormwater retention and wildlife habitat in an increasingly urbanized landscape. Recent initiatives, such as feasibility studies for trail development and educational programs under Flour Bluff ISD's OCEANS initiative, underscore its growing role in community engagement and conservation literacy. These programs link Duncan and Redhead Ponds as focal points for outdoor learning and stewardship, reinforcing their combined significance in sustaining biodiversity and promoting resilience against coastal development pressures.

Together, these ponds exemplify the delicate balance between ecological preservation and human interaction along the Texas coast. They serve not only as sanctuaries for migratory birds and native flora but also as living classrooms and stormwater buffers, integral to the health of Corpus Christi's coastal environment. Conservation partnerships—from grassroots volunteerism to regional planning—continue to weave these habitats into a broader vision of sustainability for the Coastal Bend.

The goal of this study was to determine ecologically sensitive and site appropriate development goals which would enhance the use of these ponds as living classrooms as well as critical habitat. This report will document existing site conditions which were considered as well as provide development scenarios for all partnership groups to consider as funding becomes available.

Duncan Pond

Existing Site Conditions

Civil and Utilities

Stormwater

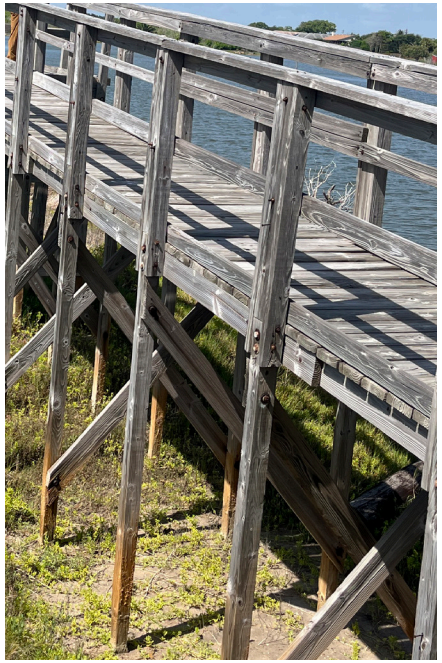
There is an existing storm water drainage system along Hustlin Hornet Drive, however, no storm water lines or inlets are currently in use along the portions of Laguna Shores Road or Glenoak Drive within the project site.

Site Elevations

The project site sits in Zone AE according to the FEMA Floodplain maps. Any new structures would need to be elevated above the minimum flood plain. At the intersection of Hustlin Hornet and Debra Lane, this would require a structure elevated between 2 and 3 feet.

Surrounding Roadway Classifications

Hustlin Hornet and Debra Lane are classified as C1- Minor Residential Collector and Laguna Shores Road is classified as a P1 – Parkway Collector.



Existing Lookout Pier

There is an existing wooden lookout structure on the east side of Redhead Pond. This structure is in poor structural condition and should be removed. Several lookout structures are planned for the project including replacing the pier along with other new improvements.

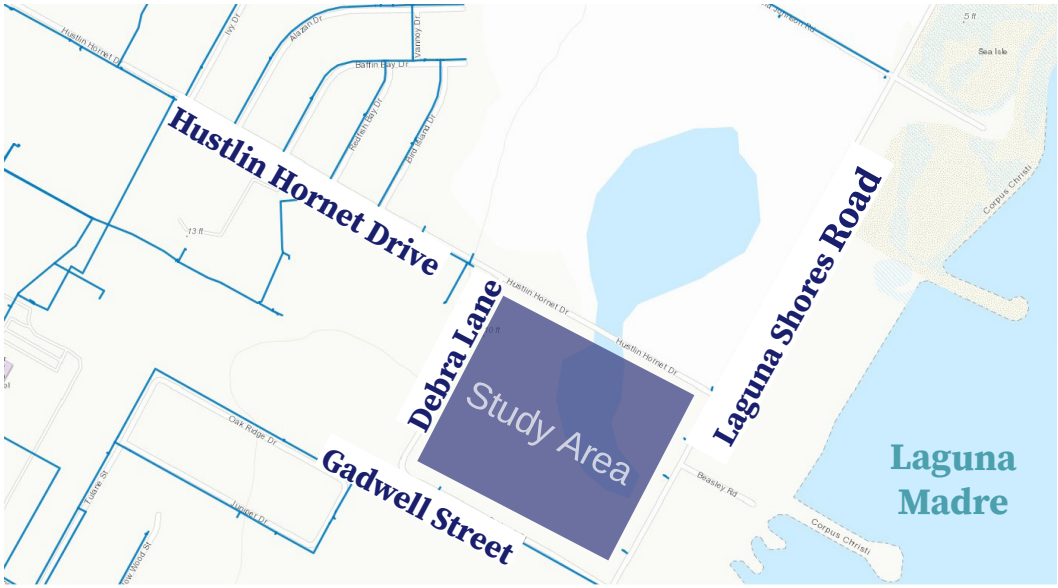
Wastewater

There are wastewater lines at the intersections of Hustlin Hornet Drive and Debra Lane, Glenoak Drive and Debra Lane, as well as along Laguna Shores Drive.

Existing Waste Water Lines

Water

City water lines within the project limits are limited to an 8" line along Laguna Shores Drive and a 6" line along Glenoak Drive. Additionally, a 6" water line dead-ends near the intersection of Hustlin Hornet and Debra Lane, just short of our project site.



Existing Water Lines

Environmental

The Laguna Shores site lies within the Gulf Coast Prairie and Marshes ecoregion (TPWD, 2025). The site is comprised mainly of coastal salt marsh and open water, with small upland areas along the northern border and southeast corner of the study area. The coastal salt marsh vegetation is dominated by saltwort (Batis maritima), eastern baccharis (Baccharis halimifolia), marshhay cordgrass (Spartina patens), and black mangrove (Avicennia germinans). Due to the proximity and surface connection to the Laguna Madre, waters within the site would be considered waters of the United States (WOTUS).

Duncan Pond

Regulatory Considerations and Permitting

Federal Agencies

The U.S. Army Corps of Engineers (USACE) regulates the discharges of dredged or fill material within federal jurisdictional Waters of the U.S. (WOTUS) under Section 404 of the Clean Water Act. USACE also regulates work or construction within navigable WOTUS under Section 10 of the Rivers and Harbors Act. Within the context of this project, federal jurisdictional WOTUS include wetlands and streams with a hydrologic surface connection to either Redhead Pond, Duncan Pond, or Laguna Madre. Based on a desktop review and initial site visit, it is assumed that all wetlands within the site will be considered federal jurisdictional WOTUS.

Based on the Project location, administration of USACE permitting falls under the responsibility of the Galveston District (SWG) of the USACE. Within the SWG, there are a variety of Department of Army (DA) permits available that potentially suit this project; some of these permits may be suitable individually while others may need to be used in combination.

One category of available permits is the General Permits (GP). GPs include Nationwide Permits (NWPs) and Regional General Permits (RGPs). Several NWPs have the potential to be applicable to one or more of the proposed activities. Some NWPs require the submittal of a Pre-Construction Notification (PCN) to the USACE prior to authorization. Note that the Nationwide Permit Program must comply with the 32 general conditions, particularly compliance with ESA and Section 106 of the National Historic Preservation Act (NHPA). All GPs are designated for specific, minimally-adverse activities and promulgated to be processed and issued relatively quickly by the USACE without any public notices or requirements to address public comments.

The other category of permits is the Individual Permits (IPs). These include Letter of Permission (LOP) and Standard IPs. Unlike GPs, IPs require the preparation of an alternatives analysis that demonstrates why the applicant's preferred alternative is also the least environmentally damaging practicable alternative (LEDPA). A Standard IP is typically reserved for more complex Projects with significant impacts to WOTUS and/or of a controversial nature. Standard IPs require full-scale public notices, including solicitation of comments from the general public, which the applicant is then required to address and the USACE to consider prior to permit issuance. If feasible, FNI advises the Project be designed to meet the terms and conditions of one or more GPs or an LOP to avoid the complexities of a Standard IP.

Figure 1 below includes a summary of potential DA permits available in SWG for the proposed activities.

Figure 1. Laguna Shores Permitting Options

Permit Type	Permit Number	Permit Name	WOTUS Impact Limit	Notification Required
General	NWP 14	Linear Transportation Projects	1/2-acre , 1/3-acre in tidal waters	Sometimes
General	NWP 18	Minor Discharges	25 cubic yards, 1/10-acre	Sometimes
General	NWP 27	Aquatic Habitat Restoration, Enhancement, and Establishment	No Limit	Always
Individual	N/A	Standard	N/A	Always

City or State Agencies

Developing the site located within FEMA Zone AE at the southeast corner of Hustlin Hornet Drive and Debra Lane—and situated on a parcel owned by the City of Corpus Christi—begins with comprehensive due diligence and early coordination with the City's Floodplain Administrator, Development Services, Public Works, and Parks & Recreation. As Zone AE floodplain carries defined Base Flood Elevations (BFEs), engineers must demonstrate that the design complies with the City's Flood Damage Prevention Ordinance and FEMA requirements, ensuring that proposed structures—such as the restroom facility—are elevated or floodproofed appropriately. Site planning includes hydrologic and hydraulic analyses that show no adverse impacts to flood storage or conveyance and provide mitigation for any fill. Because the land is City-owned, approval pathways may include additional internal coordination or interdepartmental agreements, though standard development requirements still apply. During planning, the team determines whether an Application for Land Subdivision (Platting) is needed to establish easements or adjust boundary lines. New access points into City right-of-way require a Commercial Driveway Application, reviewed for compliance with Access Management Standards, including spacing from the Hustlin Hornet/Debra Lane intersection, pavement thickness, and sight-distance. Public infrastructure elements—including hike and bike trails, public utility extensions, and stormwater features—trigger a Public Improvement Plan (PIP) designed in accordance with the City's Standard Construction Specifications.

Once design development is complete, permitting proceeds through the City's development portal beginning with the Floodplain Development Permit, which must include drainage analyses, elevation information, and Zone AE compliance documentation. If improvements affect a regulatory floodway or alter flood behavior, a No-Rise Certification or FEMA CLOMR may be required. Vertical structures such as the proposed restroom facility require a Building Permit to confirm compliance with building codes, utility standards, and ADA accessibility, including ensuring finished floor elevations meet or exceed BFE requirements. Any work in the public right-of-way—including the new driveway approaches, utility taps, manholes, and sidewalk connections—requires a Right-of-Way Construction Permit, which must follow the City's requirements for traffic control, excavation safety, and pavement restoration. Public water and wastewater connections must meet the Utilities Department's criteria for minimum cover, backflow prevention, and cleanout placement. Hard-surface trail improvements must adhere to City trail standards, ADA accessibility, and coordination with drainage requirements to avoid obstructing flood conveyance in the Zone AE floodplain. Once all required permits and applications—floodplain, PIP, building, platting (if applicable), driveway, and right-of-way—are approved, and all City departments with ownership or operational interest sign off, the project may proceed to construction consistent with Corpus Christi's flood-resilient development standards.

The State of Texas, through the Texas Parks and Wildlife Department , will need to be consulted during the design process. The Friends of Red Head Pond has had initial discussions with the responsible contact with TPWD, indicating potential improvements on the Redhead Pond Side of the project area. TPWD should be engaged during the design kick-off and throughout the project duration.

Texas Parks and Wildlife Department Signage

Accessibility Standards and Considerations

Accessibility at the Laguna Shores site must conform to the applicable federal and state regulatory framework governing public facilities. The Americans with Disabilities Act (ADA) establishes nationwide requirements for accessible design under Titles II and III, covering public entities and public accommodations. In Texas, compliance with the Texas Accessibility Standards (TAS), administered by the Texas Department of Licensing and Regulation, is mandatory for new construction and renovation, and projects involving $50,000 or more in accessibility improvements are required to be registered with the state, although TAS provisions remain applicable to all projects regardless of cost. Additional federal requirements may apply where funding or ownership involves federal agencies through the Architectural Barriers Act (ABA). Guidance from the Public Rights-of-Way Accessibility Guidelines (PROWAG) informs best practices for sidewalks, trails, and shared-use paths within the public right-of-way, while the Web Content Accessibility Guidelines (WCAG 2.1 AA) define accessibility criteria for digital content, signage, and interpretive materials associated with site programs.

The application of these standards at Laguna Shores focuses on both physical and programmatic accessibility. Field observations and discussions with staff identified several deficiencies relative to ADA and TAS criteria, including insufficient accessible parking and surfacing, limited route connectivity between site elements, and a lack of accessible restrooms. Recommended improvements include the addition of a van-accessible parking space with firm, stable surfacing and direct access to an accessible route, widening of any boardwalks to a minimum clear width of five feet with compliant passing spaces and edge protection, provision of ADA-compliant portable or permanent restroom facilities, and incorporation of companion seating and turning areas at observation platforms and gathering areas. Collectively, these measures would achieve compliance with ADA/TAS Section 206 (Accessible Routes) and related provisions while enhancing usability and safety for all site visitors.

Integration of accessibility into the project's design framework supports the Coastal Bend Bays & Estuaries Program (CBBEP) mission by ensuring that public access improvements are inclusive and sustainable. Applying universal design principles in combination with durable, environmentally sensitive materials allows the site to balance accessibility with habitat protection and low-maintenance operation. The resulting upgrades will establish Laguna Shores as a model for ADA-compliant outdoor recreation facilities within the Coastal Bend region, supporting long-term public engagement and stewardship.

Typical Timber Boardwalk

Stakeholder Engagement

FNI participated in two public engagement activities as part of this work. The surrounding public was given a presentation and project update at the Flour Bluff Citizens Council meeting on August 11, 2025. After a brief presentation to the assembly on the project schedule, progress and direction, FNI received comments from the public. FNI asked participants to express their preferences and visions for the project by leaving a comment

After this feedback was received, FNI presented the proposed concept plan for the project area during another meeting of the Flour Bluff Citizens Council meeting on November 3, 2025. The presentation focused on the proposed layout for trails and boardwalks, and other amenities such as restrooms, bird viewing areas, pavilions and parking areas.

Most Desired Amenities

01 Boardwalk

02 Restrooms

03 Water Access

04 Restoration Area

Citizen feedback at the Flower Bluff Citizen Council Meeting

Proposed Amenities and Improvements

New Facilities

Restroom

A small, prefabricated restroom facility will be included on the northern end of the site. This location is in an upland area of the site and closest to existing utility tie ins. There are several reputable companies that supply these restrooms in many different configurations, sizes, and exterior aesthetics.

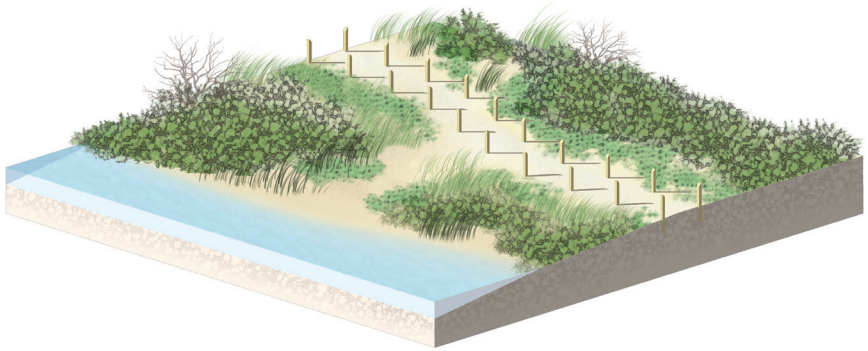
Pavilion

A medium sized, prefabricated pavilion will be included on the northern end of the site. This location is in an upland area and will have proximity to the restroom and parking area. This pavilion will be used for many uses including parties, gatherings, picnics, and as a staging area for local environmental education sessions.

Trails and Boardwalks

Primitive Trail

Since most of the available location for trails are within Waters of the US, there are significant limitations on how trails can be installed. Primitive trails that are either cleared by volunteers or workers with hand tools or small equipment can be constructed along the desired path. The trail limits will be defined by pressure treated wooden bollards on either side and a desirable interval (6'-8'). This solution along with signage throughout should direct pedestrians to stay with the dedicated walking area of the project. Over time and with enough foot traffic the vegetation should subside within this corridor and a hard-packed trail will emerge on the sand flats. These trails should be routed along the more degraded areas of the site.

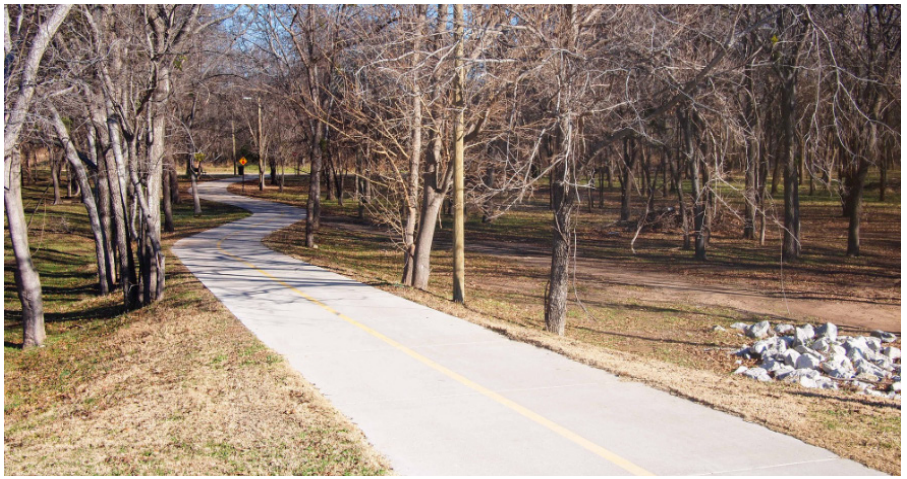


Typical Primitive Trail

Concrete Trail

Concrete trails will be installed in very selective areas in the upland areas of the site. Concrete trails will be located near the parking lot and restrooms and along Hustlin Hornet. These trails will be compliant with accessibility standards and provide a portion of the site that is accessible to those who have limitations.

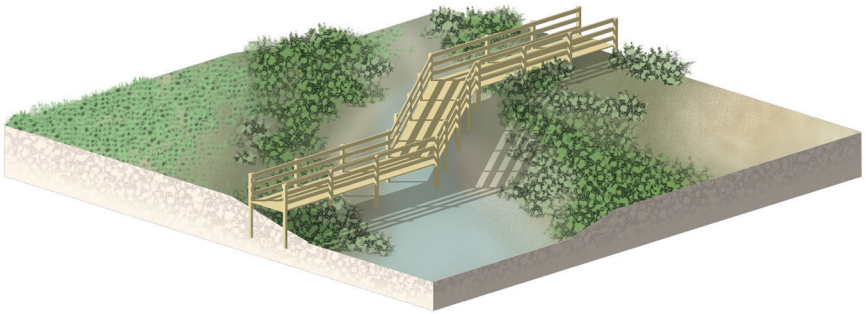
Typical Concrete Trail



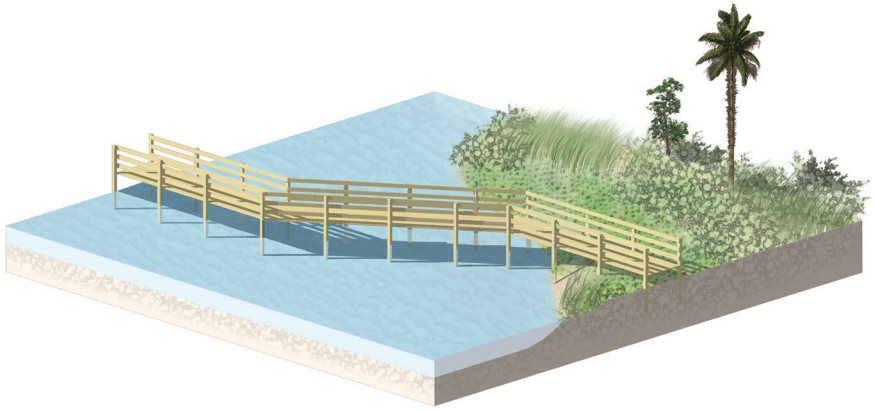
Typical Concrete Trail

Boardwalk Trail

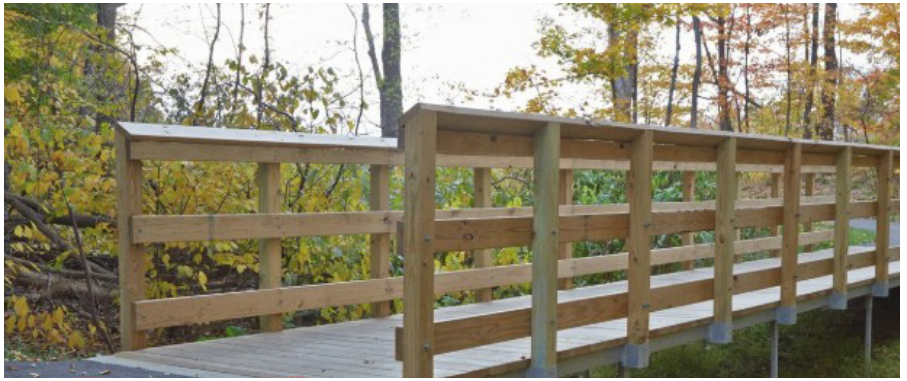
Boardwalks will be installed in areas where standing water is more common on the site. The elevation of the boardwalk trail will need to consider potential water elevations and sun angles as to not shade out native grasses and other plants. There are several material options to consider for the boardwalk. Pressure treated wood, fiber-reinforced polymer (FRP) or concrete boardwalks could all be used and would stand up well in this coastal condition. These three-building materials range in cost from low to high but also range from low to high in terms of longevity.



Typical Boardwalk



Typical Boardwalk Over Water



Pressure Treated Wood Boardwalk

Fiber Reinforced Polymer (FRP) Boardwalk

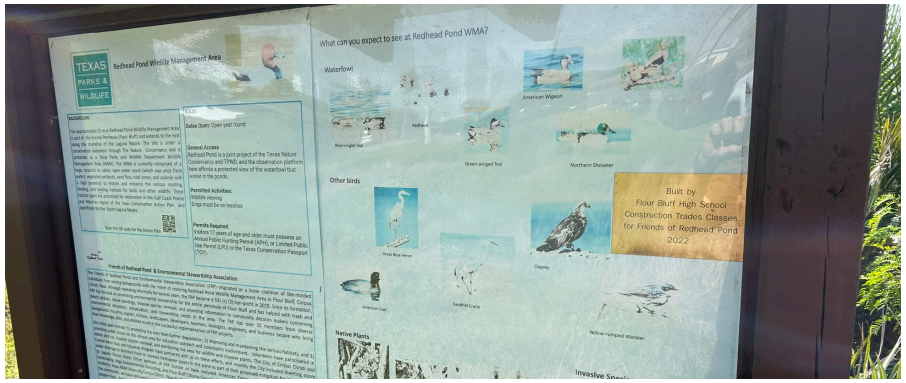
Concrete Boardwalk

Wayfinding and Information Signage

Wayfinding signage can be placed throughout the site to direct visitors to major features of the site (i.e. Duncan Pond, Redhead Pond, Restroom). Options for wayfinding signage vary in scale and complexity and can be added as the project develops if a need arises. Identifying the accessible and non-accessible portions of the trail network will also be important.

Informative Signage

Information signage should be reflected with the history, nature, and wildlife found on the site. Highlighting the site's unique status as a Wildlife Management Area and sharing the story of the migratory birds and others who visit the site is a key educational and environmental narrative worth telling. Engaging the Flour Bluff OCEANS program for this exercise may be an exciting way to engage students who have a love and an interest for this place.



Informative Signage

Ecological Restoration

Several areas within the site were identified as potential areas for restoration or enhancement. Restoration and enhancement efforts may include:

- Invasive species removal
- Native coastal wetland species plantings
- Installation of bollards to prevent negative impacts from vehicular access to tidal flats and wetlands
- Trash and debris removal

Restoration Opportunity

OPCC Phase A

LAGUNA SHORES ROAD ACCESS FEASIBILITY STUDY

COASTAL BEND BAYS AND ESTUARIES PROGRAM **12/3/2025**

OPINION OF PROBABLE COST TO CONSTRUCT

PHASE A - PRESSURE TREATED BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 5,000.00	$ 10,000.00
BOARDWALK SYSTEM	2521	SF		
PRESSURE TREATED WOOD			$ 441,175.00	$ 756,300.00
CONCRETE WALKS AND FLATWORK	7740	SF	$ 100,620.00	$ 116,100.00
PARKING LOT	8680	SF	$ 130,200.00	$ 156,240.00
6" REINFORCED CONCRETE			$ 112,840.00	$ 130,200.00
PARKING STRIPING	200	LF	$ 400.00	$ 800.00
PAVILION (PREFABRICATED)	1	EA	$ 145,000.00	$ 200,000.00
RESTROOM BUILDING (PREFABRICATED)			$ 265,000.00	$ 300,000.00
2" WATER SERVICE CONNECTION	165	LF	$ 2,970.00	$ 4,125.00
4" SANITARY SEWER CONNECTION	165	LF	$ 9,900.00	$ 16,500.00
MISC. WATER AND SEWER COSTS	1	LS	$ 20,000.00	$ 30,000.00
MISC. ELECTRICAL AND LIGHTING	1	LS	$ 20,000.00	$ 30,000.00
MISC. STORM SEWER	1	LS	$ 20,000.00	$ 30,000.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
SUBTOTAL			**$ 1,273,505.00**	**$ 1,780,865.00**
MOBILIZATION (5%)			**$ 63,675.25**	**$ 89,043.25**
CONTINGENCY (30%)			**$ 401,154.08**	**$ 560,972.48**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 127,350.50**	**$ 178,086.50**
PROJECT GRAND TOTAL			**$ 1,865,684.83**	**$ 2,608,967.23**

PHASE A - FIBER REINFORCED POLYMER BOARDWALK OPTIONS

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 5,000.00	$ 10,000.00
BOARDWALK SYSTEM	2521	SF		
FIBER REINFORCED POLYMER (FRP)			$ 630,250.00	$ 882,350.00
CONCRETE WALKS AND FLATWORK	7740	SF	$ 100,620.00	$ 116,100.00
PARKING LOT	8680	SF	$ 130,200.00	$ 156,240.00
6" REINFORCED CONCRETE			$ 112,840.00	$ 130,200.00
PARKING STRIPING	200	LF	$ 400.00	$ 800.00
PAVILION (PREFABRICATED)	1	EA	$ 145,000.00	$ 200,000.00
RESTROOM BUILDING (PREFABRICATED)			$ 265,000.00	$ 300,000.00
2" WATER SERVICE CONNECTION	165	LF	$ 2,970.00	$ 4,125.00
4" SANITARY SEWER CONNECTION	165	LF	$ 9,900.00	$ 16,500.00
MISC. WATER AND SEWER COSTS	1	LS	$ 20,000.00	$ 30,000.00
MISC. ELECTRICAL AND LIGHTING	1	LS	$ 20,000.00	$ 30,000.00
MISC. STORM SEWER	1	LS	$ 20,000.00	$ 30,000.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
SUBTOTAL			**$ 1,462,580.00**	**$ 1,906,915.00**
MOBILIZATION (5%)			**$ 73,129.00**	**$ 95,345.75**
CONTINGENCY (30%)			**$ 460,712.70**	**$ 600,678.23**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 146,258.00**	**$ 190,691.50**
PROJECT GRAND TOTAL			**$ 2,142,679.70**	**$ 2,793,630.48**

PHASE A - CONCRETE BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 5,000.00	$ 10,000.00
BOARDWALK SYSTEM	2521	SF		
CONCRETE BOARDWALK SYSTEM ON PILES			$ 441,175.00	$ 819,325.00
CONCRETE WALKS AND FLATWORK	7740	SF	$ 100,620.00	$ 116,100.00
PARKING LOT	8680	SF	$ 130,200.00	$ 156,240.00
6" REINFORCED CONCRETE			$ 112,840.00	$ 130,200.00
PARKING STRIPING	200	LF	$ 400.00	$ 800.00
PAVILION (PREFABRICATED)	1	EA	$ 145,000.00	$ 200,000.00
RESTROOM BUILDING (PREFABRICATED)			$ 265,000.00	$ 300,000.00
2" WATER SERVICE CONNECTION	165	LF	$ 2,970.00	$ 4,125.00
4" SANITARY SEWER CONNECTION	165	LF	$ 9,900.00	$ 16,500.00
MISC. WATER AND SEWER COSTS	1	LS	$ 20,000.00	$ 30,000.00
MISC. ELECTRICAL AND LIGHTING	1	LS	$ 20,000.00	$ 30,000.00
MISC. STORM SEWER	1	LS	$ 20,000.00	$ 30,000.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
SUBTOTAL			**$ 1,273,505.00**	**$ 1,843,890.00**
MOBILIZATION (5%)			**$ 63,675.25**	**$ 92,194.50**
CONTINGENCY (30%)			**$ 401,154.08**	**$ 580,825.35**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 127,350.50**	**$ 184,389.00**
PROJECT GRAND TOTAL			**$ 1,865,684.83**	**$ 2,701,298.85**

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

OPCC Phase B

LAGUNA SHORES ROAD ACCESS FEASIBILITY STUDY

COASTAL BEND BAYS AND ESTUARIES PROGRAM **12/3/2025**

OPINION OF PROBABLE COST TO CONSTRUCT

PHASE B - PRESSURE TREATED BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM	3266	SF		
PRESSURE TREATED WOOD			$ 571,550.00	$ 979,800.00
PARKING AREA	4660	SF	$ 69,900.00	$ 83,880.00
GRAVEL			$ 25,630.00	$ 32,620.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	509	EA	$ 33,085.00	$ 43,265.00
PRIMITIVE TRAIL CLEARING	12480	SF	VOLUNTEER	$ 31,200.00
VEGETATION RESTORATION ACTIVITIES	1.5	AC	VOLUNTEER	$ 6,750.00

SUBTOTAL			**$ 704,065.00**	**$ 1,184,115.00**
MOBILIZATION (5%)			**$ 35,203.25**	**$ 59,205.75**
CONTINGENCY (30%)			**$ 221,780.48**	**$ 372,996.23**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 70,406.50**	**$ 118,411.50**
PROJECT GRAND TOTAL			**$ 1,031,455.23**	**$ 1,734,728.48**

PHASE B - FIBER REINFORCED POLYMER BOARDWALK OPTIONS

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM	3266	SF		
FIBER REINFORCED POLYMER (FRP)			$ 816,500.00	$ 1,143,100.00
PARKING AREA	4660	SF	$ 69,900.00	$ 83,880.00
GRAVEL			$ 25,630.00	$ 32,620.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	509	EA	$ 33,085.00	$ 43,265.00
PRIMITIVE TRAIL CLEARING	12480	SF	VOLUNTEER	$ 31,200.00
VEGETATION RESTORATION ACTIVITIES	1.5	AC	VOLUNTEER	$ 6,750.00

SUBTOTAL			**$ 949,015.00**	**$ 1,347,415.00**
MOBILIZATION (5%)			**$ 47,450.75**	**$ 67,370.75**
CONTINGENCY (30%)			**$ 298,939.73**	**$ 424,435.73**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 94,901.50**	**$ 134,741.50**
PROJECT GRAND TOTAL			**$ 1,390,306.98**	**$ 1,973,962.98**

PHASE B - CONCRETE BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM	3266	SF		
CONCRETE BOARDWALK SYSTEM ON PILES			$ 571,550.00	$ 1,061,450.00
PARKING AREA	4660	SF	$ 69,900.00	$ 83,880.00
GRAVEL			$ 25,630.00	$ 32,620.00
SMALL SIGNAGE ASSEMBLIES	4	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	509	EA	$ 33,085.00	$ 43,265.00
PRIMITIVE TRAIL CLEARING	12480	SF	VOLUNTEER	$ 31,200.00
VEGETATION RESTORATION ACTIVITIES	1.5	AC	VOLUNTEER	$ 6,750.00

SUBTOTAL			**$ 704,065.00**	**$ 1,265,765.00**
MOBILIZATION (5%)			**$ 35,203.25**	**$ 63,288.25**
CONTINGENCY (30%)			**$ 221,780.48**	**$ 398,715.98**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 70,406.50**	**$ 126,576.50**
PROJECT GRAND TOTAL			**$ 1,031,455.23**	**$ 1,854,345.73**

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OPCC

Phase C

LAGUNA SHORES ROAD ACCESS FEASIBILITY STUDY

COASTAL BEND BAYS AND ESTUARIES PROGRAM **12/3/2025**

OPINION OF PROBABLE COST TO CONSTRUCT

PHASE C - PRESSURE TREATED BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	4013	SF		
PRESSURE TREATED WOOD			$ 702,275.00	$ 1,203,900.00
SMALL SIGNAGE ASSEMBLIES	2	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	268	EA	$ 17,420.00	$ 22,780.00
PRIMITIVE TRAIL CLEARING	4940	SF	VOLUNTEER	$ 12,350.00
VEGETATION RESTORATION ACTIVITIES	1.6	AC	VOLUNTEER	$ 7,200.00
SUBTOTAL			**$ 723,595.00**	**$ 1,252,830.00**
MOBILIZATION (5%)			**$ 36,179.75**	**$ 62,641.50**
CONTINGENCY (30%)			**$ 227,932.43**	**$ 394,641.45**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 72,359.50**	**$ 125,283.00**
PROJECT GRAND TOTAL			**$ 1,060,066.68**	**$ 1,835,395.95**

PHASE C - FIBER REINFORCED POLYMER BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	4013	SF		
FIBER REINFORCED POLYMER (FRP)			$ 1,003,250.00	$ 1,404,550.00
SMALL SIGNAGE ASSEMBLIES	2	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	268	EA	$ 17,420.00	$ 22,780.00
PRIMITIVE TRAIL CLEARING	4940	SF	VOLUNTEER	$ 12,350.00
VEGETATION RESTORATION ACTIVITIES	1.6	AC	VOLUNTEER	$ 7,200.00
SUBTOTAL			**$ 1,024,570.00**	**$ 1,453,480.00**
MOBILIZATION (5%)			**$ 51,228.50**	**$ 72,674.00**
CONTINGENCY (30%)			**$ 322,739.55**	**$ 457,846.20**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 102,457.00**	**$ 145,348.00**
PROJECT GRAND TOTAL			**$ 1,500,995.05**	**$ 2,129,348.20**

PHASE C - CONCRETE BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	4013	SF		
CONCRETE ON PILES			$ 662,145.00	$ 1,304,225.00
SMALL SIGNAGE ASSEMBLIES	2	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	268	EA	$ 17,420.00	$ 22,780.00
PRIMITIVE TRAIL CLEARING	4940	SF	VOLUNTEER	$ 12,350.00
VEGETATION RESTORATION ACTIVITIES	1.6	AC	VOLUNTEER	$ 7,200.00
SUBTOTAL			**$ 683,465.00**	**$ 1,353,155.00**
MOBILIZATION (5%)			**$ 34,173.25**	**$ 67,657.75**
CONTINGENCY (30%)			**$ 215,291.48**	**$ 426,243.83**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 68,346.50**	**$ 135,315.50**
PROJECT GRAND TOTAL			**$ 1,001,276.23**	**$ 1,982,372.08**

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OPCC Phase D

LAGUNA SHORES ROAD ACCESS FEASIBILITY STUDY

COASTAL BEND BAYS AND ESTUARIES PROGRAM **12/3/2025**

OPINION OF PROBABLE COST TO CONSTRUCT

PHASE D - PRESSURE TREATED BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	3940	SF		
PRESSURE TREATED WOOD			$ 689,500.00	$ 1,182,000.00
SMALL SIGNAGE ASSEMBLIES	5	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	575	EA	$ 37,375.00	$ 48,875.00
PRIMITIVE TRAIL CLEARING	9755	SF	VOLUNTEER	$ 24,387.50
VEGETATION RESTORATION ACTIVITIES	4.75	AC	VOLUNTEER	$ 21,375.00
SUBTOTAL			**$ 730,775.00**	**$ 1,283,237.50**
MOBILIZATION (5%)			**$ 36,538.75**	**$ 64,161.88**
CONTINGENCY (30%)			**$ 230,194.13**	**$ 404,219.81**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 73,077.50**	**$ 128,323.75**
PROJECT GRAND TOTAL			**$ 1,070,585.38**	**$ 1,879,942.94**

PHASE D - FIBER REINFORCED POLYMER BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	3940	SF		
FIBER REINFORCED POLYMER (FRP)			$ 985,000.00	$ 1,379,000.00
SMALL SIGNAGE ASSEMBLIES	5	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	575	EA	$ 37,375.00	$ 48,875.00
PRIMITIVE TRAIL CLEARING	9755	SF	VOLUNTEER	$ 24,387.50
VEGETATION RESTORATION ACTIVITIES	4.75	AC	VOLUNTEER	$ 21,375.00
SUBTOTAL			**$ 1,026,275.00**	**$ 1,480,237.50**
MOBILIZATION (5%)			**$ 51,313.75**	**$ 74,011.88**
CONTINGENCY (30%)			**$ 323,276.63**	**$ 466,274.81**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 102,627.50**	**$ 148,023.75**
PROJECT GRAND TOTAL			**$ 1,503,492.88**	**$ 2,168,547.94**

PHASE D - CONCRETE BOARDWALK OPTION

Item	QTY	UNIT	LOW RANGE COST	HIGH RANGE COST
SITE CLEARING AND PRE-DEVELOPMENT ACTIVITIES	1	LS	$ 3,500.00	$ 6,000.00
BOARDWALK SYSTEM (BASED ON OPTION)	3940	SF		
CONCRETE ON PILES			$ 650,100.00	$ 1,280,500.00
SMALL SIGNAGE ASSEMBLIES	5	EA	$ 400.00	$ 600.00
BOLLARDS (6" PT WOOD)	575	EA	$ 37,375.00	$ 48,875.00
PRIMITIVE TRAIL CLEARING	9755	SF	VOLUNTEER	$ 24,387.50
VEGETATION RESTORATION ACTIVITIES	4.75	AC	VOLUNTEER	$ 21,375.00
SUBTOTAL			**$ 691,375.00**	**$ 1,381,737.50**
MOBILIZATION (5%)			**$ 34,568.75**	**$ 69,086.88**
CONTINGENCY (30%)			**$ 217,783.13**	**$ 435,247.31**
PROFESSIONAL DESIGN SERVICES (10%)			**$ 69,137.50**	**$ 138,173.75**
PROJECT GRAND TOTAL			**$ 1,012,864.38**	**$ 2,024,245.44**

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Exhibit A


DEBRA LANE
DEBRA LANE
FLOUR BLUFF
JUNIOR HIGH
CEMETERY
PAVILION
GLENOAK DRIVE
HUSTLIN HORNET DRIVE
REDHEAD POND
WILDLIFE MANAGEMENT
AREA
DUNCAN POND
TRAIL
TRAIL ACCESS
ACCESSIBLE TRAIL
LAGUNA SHORES ROAD
LAGUNA MADRE
TYPICAL BOLLARD
LAYOUT
LEGEND
SITE BOUNDARY
WATERS OF THE U.S.
BOLLARDS
PARCELS
BOARDWALK
PRIMITIVE TRAIL
CONCRETE SIDEWALK
RESTORATION AREAS
0
100
200
SCALE IN FEET
Laguna Shores Access Study
Coastal Bend Bays & Estuaries Program

Exhibit B

Laguna Shores Access Study

Coastal Bend Bays & Estuaries Program