US Army Corps
of Engineers ®
Galveston District

SUPPLEMENTAL
ENVIRONMENTAL ASSESSMENT

Sabine Pass to Galveston Bay
Port Arthur and Vicinity
Segments 2, 3, 4, 5 and 5A
SEAX-202-00-M3P-1736767711

U.S. Army Corps of Engineers
Southwestern Division
Galveston District

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers, Galveston District (USACE) in partnership with Jefferson County Drainage District, the Non-Federal Sponsor (NFS) prepared this Supplemental Environmental Assessment (SEA) to evaluate and disclose the potential impacts to the natural and human environment from modifying the Authorized Plan for the Port Arthur and Vicinity (PAV) of Sabine Pass to Galveston Bay Coastal Storm Risk Management (CRSM) and Ecosystem Restoration Project (S2G). The Final Integrated Feasibility Report – Environmental Impact Statement (FIFR-EIS) for S2G evaluated three distinct project areas including Orange County, Port Arthur and Vicinity, and Freeport and Vicinity (USACE 2017). The FIFR-EIS was completed in 2017 with Record of Decision signed October 2, 2018, and the project was authorized under Section 110 of the Rivers and Harbors Act of 1962 in 2018. Following authorization, the project was separated by area for the preconstruction, engineering, and design (PED) phase.

In addition to the 2017 FIFR/EIS, modifications to the design have been made for the PAV plan, triggering supplemental NEPA be done. The Final Supplemental Environmental Assessment (SEA) Sabine Pass to Galveston Bay, Port Arthur and Vicinity, Segments 3B and 3C, Jefferson County, Texas, August 2023 was completed, and Finding of No Significant Impact (FONSI) signed August 8, 2023, documenting impacts from modifications to the Authorized Plan (USACE 2023).

Since the 2023 SEA, further levee and floodwall designs have been modified from the Authorized Plan due to updated modeling showing potential overtopping and flanking of the original design, thus triggering supplemental NEPA documentation and evaluation; this SEA focuses on the entire alignment of the PAV plan, known as Segments 2, 3, 4, 5, and 5A (Figure 1). This SEA evaluates the environmental impacts that have changed with the PAV project area following additional analyses conducted in PED that were not considered or disclosed in the 2017 FIFR-EIS. This SEA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S. Code [USC] 4321 et seq.) and its implementing regulations published by the USACE (33 CFR 230) and associated implementation guidance (ER 200-2-2). This SEA supplements the S2G PAV impact analysis discussed in the 2017 FIFR-EIS and supersedes the 2023 SEA.

1.1 STUDY AUTHORITY

The S2G project including PAV was authorized by Section 1401(3)(3) of the Water Resources Development Act of 2018, Public Law 115-270 in accordance with the Report of the Chief of Engineers dated 7 December 2017. Appropriations were provided under the Construction heading, Title IV, Division B of the Bipartisan Budget Act of 2018, Public Law 115-123. The study authority remains unchanged from that of the FIFR-EIS.

1.2 PROJECT HISTORY

The S2G recommended plan proposed to reduce the risks of tropical storm surge impacts by constructing a new coastal storm risk management (CSRM) system in Orange County, increasing the level of risk reduction and resiliency of the existing Port Arthur and Vicinity and

Freeport and Vicinity Hurricane Flood Protection systems in Jefferson and Brazoria Counties, Texas. This SEA only focuses on the design modifications to PAV plan in Jefferson County from the 2017 Authorized Plan.

The environmental impacts anticipated from constructing the PAV elements of the Authorized Plan were evaluated in the 2017 FIFR-EIS. The Authorized Plan for the PAV plan would raise approximately 5.5 miles of the existing 27.8 miles of earthen levee to elevations ranging from 14.4 to 17.2 feet NAVD88, and construct or reconstruct about 5.7 miles of floodwall to elevations ranging from about 14.4 to 19.4 feet NAVD88. A separate 1,830 feet of new earthen levee would be constructed in the Port Neches area northwest of the existing northern terminus. Numerous vehicle closure structures would be replaced, and erosion protection would be added. At the time of the 2017 FIFR-EIS, environmental impacts of the 2017 PAV plan are negligible, and no mitigation was needed.

1.3 PROJECT AREA

The overall PAV project area is the same for the proposed modified PAV plan as that described in the FIFR-EIS (Figure 1).

1.4 PURPOSE AND NEED

The purpose of the project is to provide an increased level of coastal storm flood risk protection for the PAV project area. This SEA presents the findings and analyses conducted to disclose and evaluate potential design changes from the PAV Authorized Plan to the modified PAV plan. As stated in the 2017 FIFR-EIS, the project area has sustained several major historical surge events in the past 120 years along the Texas coast. In the Texas-Louisiana border, Hurricane Rita in 2005 resulted in storm surge of 9.24 feet in Port Arthur, Texas, and just over eight feet in Sabine Pass. Hurricane Ike in 2008 produced storm surges from 14 feet near Sabine Pass with 11 to 12 feet across Sabine Lake. Port Arthur was spared the storm surge thanks to its 14- to 17-foot seawall. However, the remaining southern half of Jefferson County was inundated, with estimated high-water marks reaching 18 to 19 feet to the south and east of High Island. These hurricanes resulted in significant impacts on infrastructure and residents, coastal shorelines, marsh, and forested wetlands spurring the need to reduce coastal storm risks in the project area.

1.5 SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT SCOPE

The 2017 FIFR-EIS analyzed the Authorized Plan and the no action alternative. The scope of this SEA is to identify and evaluate the environmental effects that could result from implementation of the proposed modification to the PAV elements of Authorized Plan. Environmental effects analyzed in the 2017 FIFR-EIS that have not changed are incorporated by reference and will not be discussed further in this SEA. The proposed modification will be further discussed in Chapter 2.0 Alternatives of this SEA. This SEA describes the differences between the Authorized Plan and design modifications in PED for the PAV, and evaluate the associated impacts, not previously discussed in the 2017 FIFR-EIS. These differences include:

- Evaluation of impacts to wetlands, the 2017 FIFR-EIS stated no impacts to wetlands due to work being within the existing Hurricane Flood Protection Project (HFPP) floodwall

and levee alignments. However, changes in alignments and new levee additions would have impacts to wetlands not previously discussed.

- Evaluation of impacts to essential fish habitat (EFH) due to a floodwall realignment outside of the existing alignment in the Sabine Neches Waterway.

- A proposed levee raise of the existing HFPP located within the Star Lake Superfund site. As discussed in the EIS, some of the construction areas for the Port Arthur CSRM Plan are in or immediately adjacent to industrial sites that have a history of generating, handling, or storing hazardous or toxic materials. All material will be evaluated for hazardous, toxic, radioactive waste sampling prior to construction, all best management protocols will be utilized during construction, and active communication/coordination with regulating agencies Texas Commission of Environmental Quality (TCEQ) and Environmental Protection Agency (EPA) would be conducted. All work would be done in accordance with ER 1165-2-132 HTRW Guidance for Civil Works Projects and relevant USACE policy. No work would be performed until a 'clean' site is provided by the NFS that meets TCEQ TRRP I residential standards and is approved by USACE.

- Evaluation of impacts to recently listed species protected under the Endangered Species Act (ESA): eastern black rail (threatened), tricolored bat (proposed), Louisiana pigtoe (proposed), Texas heelsplitter (proposed), alligator snapping turtle (proposed), and monarch butterfly(candidate). Further, changes in migration, stop-over habitat, and populations for the whooping crane have changed since the original conclusions of the 2015 biological assessment. A newly introduced whooping crane population in Louisiana has triggered reevaluation.

- Based on feedback from prior public engagements and resource agency suggestions, limit the project footprint to existing flood protection infrastructure footprints to the extent practicable.

2.0 ALTERNATIVES

This chapter describes and compares the No Action Alternative, the Authorized Plan, and Modified Plan.

2.1 NO ACTION

USACE is required to consider the No Action Alternative during the assessment of impacts to comply with the NEPA and CEQ guidance (40 CFR §1502.14) as well as USACE regulations (ER 200-2-2) for implementing the NEPA. The No Action Alternative is a forecast of the future without-project (FWOP) conditions which provide the basis for comparison to all other alternative plans. The terms “No Action Alternative”, “future without-project” or FWOP is used synonymously or interchangeably throughout the SEA. With the No Action Alternative, it is assumed that no project would be implemented by the Federal Government to address the problems identified by the 2017 FIFR-EIS, therefore the No Action Alternative would not reduce damages from coastal storm surge inundation. For more detailed description of the No Action Alternative, see Chapter 2 No Action Alternative of the 2017 FIFR-EIS.

The No Action Alternative condition assumes the continuation of existing conditions for the resources described in the affected environment chapter and no intervention to reduce the impacts of storm surge on the vulnerable populations and infrastructure of the project area.

2.2 AUTHORIZED PLAN

In summary, the Authorized Plan for the PAV would raise approximately 5.5 miles of the existing 27.8 miles of earthen levee to elevations ranging from 14.4 to 17.2 feet NAVD88, and construct or reconstruct about 5.7 miles of floodwall to elevations ranging from about 14.4 to 19.4 feet NAVD88. A separate 1,830 feet of new earthen levee would be constructed in the Port Neches area northwest of the existing northern terminus. Numerous vehicle closure structures would be replaced, and erosion protection would be added (Figure 1). See Section 6 Recommended Plan of the FIFR-EIS for more information of the Authorized Plan (USACE 2017).

2.3 PROPOSED MODIFIED RECOMMENDED PLAN

During design efforts of the authorized plan, updated hydrologic and hydraulic analysis were conducted to include a flanking analysis. Those revealed the need to update the authorized plan to achieve the intended flood risk reductions. The alignment of the proposed modified recommended plan (RP) has been broken down into segments: Segments 2, 3, 4, 5, and 5A as shown on the map on the right in Figure 1. The sub-sections below describe each segment in more detail.

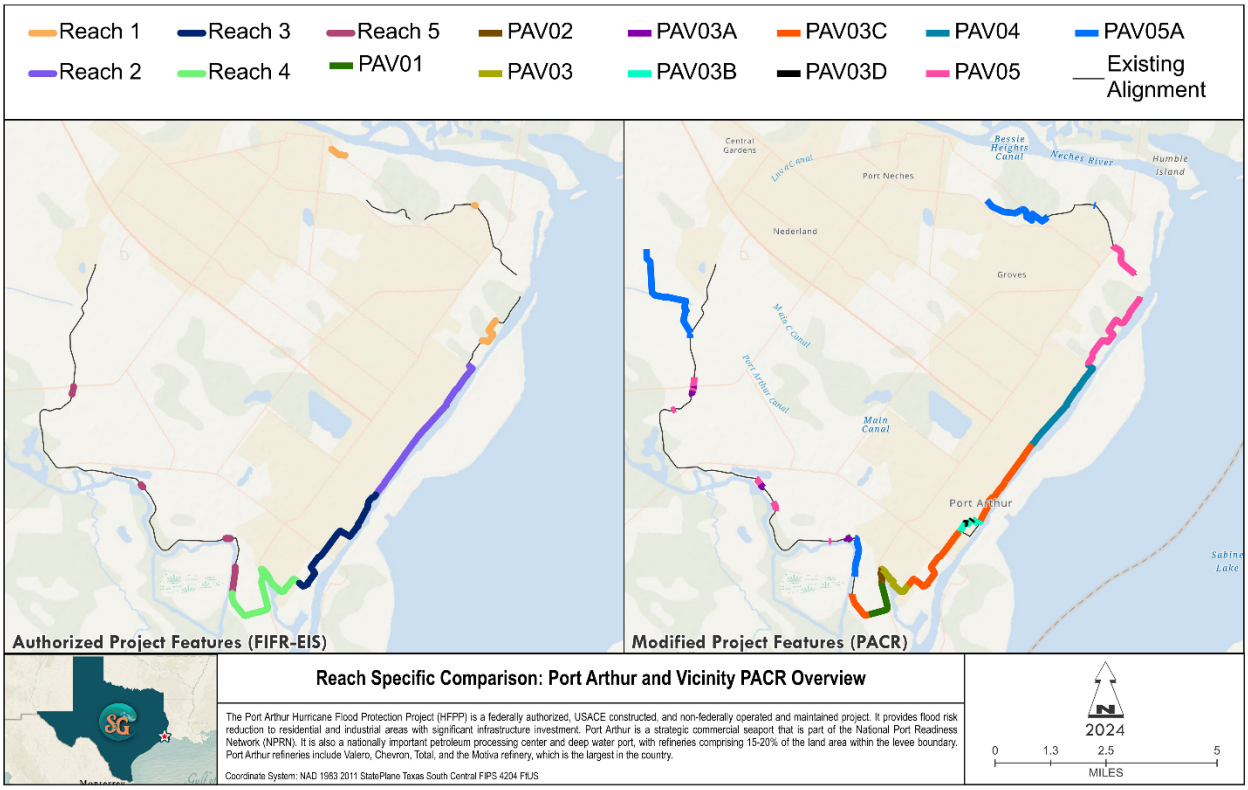

Figure 1: Port Arthur Coastal Storm Risk Management System

Table 1. Updated information on the difference with the modified plan

Reach # in 2017 EIS	Station #	Existing Features	Proposed Change from 2017 EIS	Modified Plan Contract # or #'s
Reach 1	0+00 to 381+30	Levee and Floodwall	increased floodwall and levee height and extents	PAV 05 and PAV 05A
Reach 2	381+30 to 579+87	Levee and Floodwall	increased floodwall and levee height and extents	PAV 04 and PAV 03C
Reach 3	579+87 to 733+41	Levee and Floodwall	increased floodwall and levee height and extents	PAV 03B, PAV 03C, and PAV 03C
Reach 4	733+41 to 970+00	Levee and Floodwall	increased floodwall and levee height and extents	PAV 03C, PAV 03, PAV 02, and PAV 01
Reach 5	970+00 to 1609+00	Levee and Floodwall	increased floodwall and levee height and extents	PAV 03A, PAV 03A.1, PAV 05, and PAV05A

2.3.1 Segment 2

Segment 2 consists of raising approximately 415 linear feet (lf) of existing levee, constructing approximately 410 lf of new levee, approximately 527 lf of new floodwall replacing 427 lf of existing

floodwall, one levee-floodwall tie-in, replacement of one railroad gate, scour protection, and road raise along State Highway 87. The current floodwall is a solid wall which divides the Port Arthur Canal (Figure 2). Northern portions of the canal are a dead-water channel meaning it only influenced by the influx of water from Salt Bayou and rainwater runoff. The southern portions are part of the Port Arthur Canal federal navigation channel in west Port Arthur. The new alignment would be a combination concrete T-wall-levee design tying into the existing wall, crossing the channel bayou, then turning 90 degrees across the railroad with a closure gate and then running parallel to the channel bayou with an earthen levee segment with a 45 degree turn across Highway 87 connecting with other contract levee alignments (Figure 3). Construction of the alignment includes disruption of previously undisturbed unconsolidated bottom and placement of fill into the waterway. Construction will utilize adjacent disturbed lands and existing roadways for contract staging and access to the project site. Similarly, material from commercial borrow sources will be utilized for all construction. See Figures 2 and 3 for an overview of the project location and alignment.

Figure 2: Existing Levee-Floodwall System

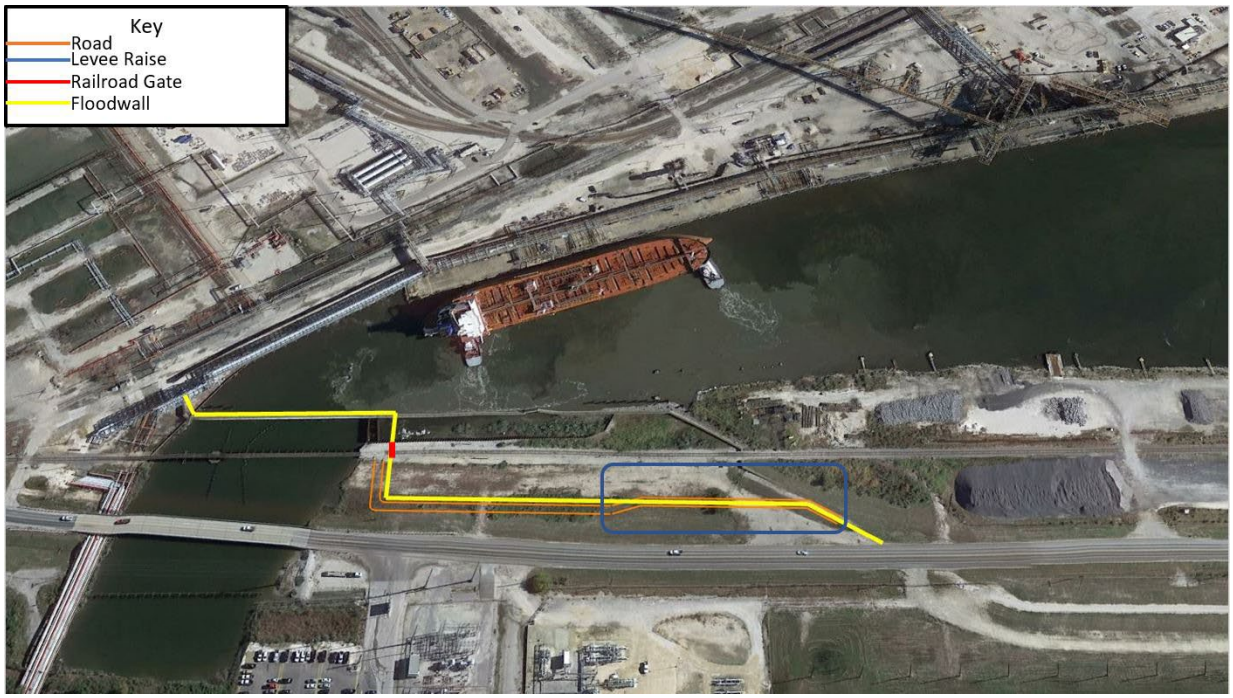

Figure 3: Proposed Segment 2 Modified Alignment

2.3.2 **Segment 3**

Segment 3 would include the reconstruction of approximately 3,500 lf of existing floodwall and the construction of approximately 1,750 lf of new floodwall, eight road closure structures and one railroad closure structure. This construction would be within the Valero refinery and connects to Segments 2 and 3. Segment 3 consists of the following proposed features:

- Fronting protection for three pumpstations.
- Crossing at HWY 365 by a levee.

- Raise of approximately 176 lf of existing levee, construct of 950 lf of new levee, reconstruct of approximately 500 lf of floodwall, construct of 1,640 lf of new floodwall, construction of 3 road closures, construct of one railroad closure and one road raise.
- Raise of approximately 17,200 lf of existing levee, construct of 3,306 lf of new levee, reconstruct of approximately 5,150 lf of existing floodwall, fronting protection for three pumpstations, and one road raise.
- construct for approximately 60 lf floodwall section at the Motiva tank facility.
- construct of approximately 640 lf of new floodwall, construction of one new road closure and construct of two railroad closures.

2.3.3 Segment 4

Segment 4 would include construction of approximately 10,205 lf of reinforced concrete floodwall replacement, along the Sabine Neches Canal (station 380+80 to 505+40), approximately 2,045 lf of earthen levee raises, fronting protection on three existing pump stations (Lakeview, Stadium Road, and Del-Mar), improvements on nine existing gravity drainage systems include outfall pipe extensions at existing outfall pipes and riprap erosion protection along the earthen levees (Figure 4). Figure 5 depicts a conceptual pumpstation fronting protection. During PED, the dimensions of the existing floodwall were determined to be inefficient for reducing risk from predicted future coastal storms and a new floodwall alignment is proposed by shifting 30 feet (ft) outside of the existing right-of-way towards the waterway (also referred to as flood side) (Figure 4). The shift towards flood side was due to terrestrial restrictions such as existing residential neighborhoods, utility relocations, and roadways that would need to be coordinated with various owners prior to construction. To minimize project delays and costs for utility relocations, the right-of-way was therefore extended towards on the flood side (channel side) and coordinated with the Sabine Navigational District, Sabine Pilots, and the U.S. Coast Guard. Further, another federal project, the Sabine-Neches Waterway Channel Improvement Project is slated for construction, the new floodwall and its armoring would not impact upcoming or future navigation project efforts.

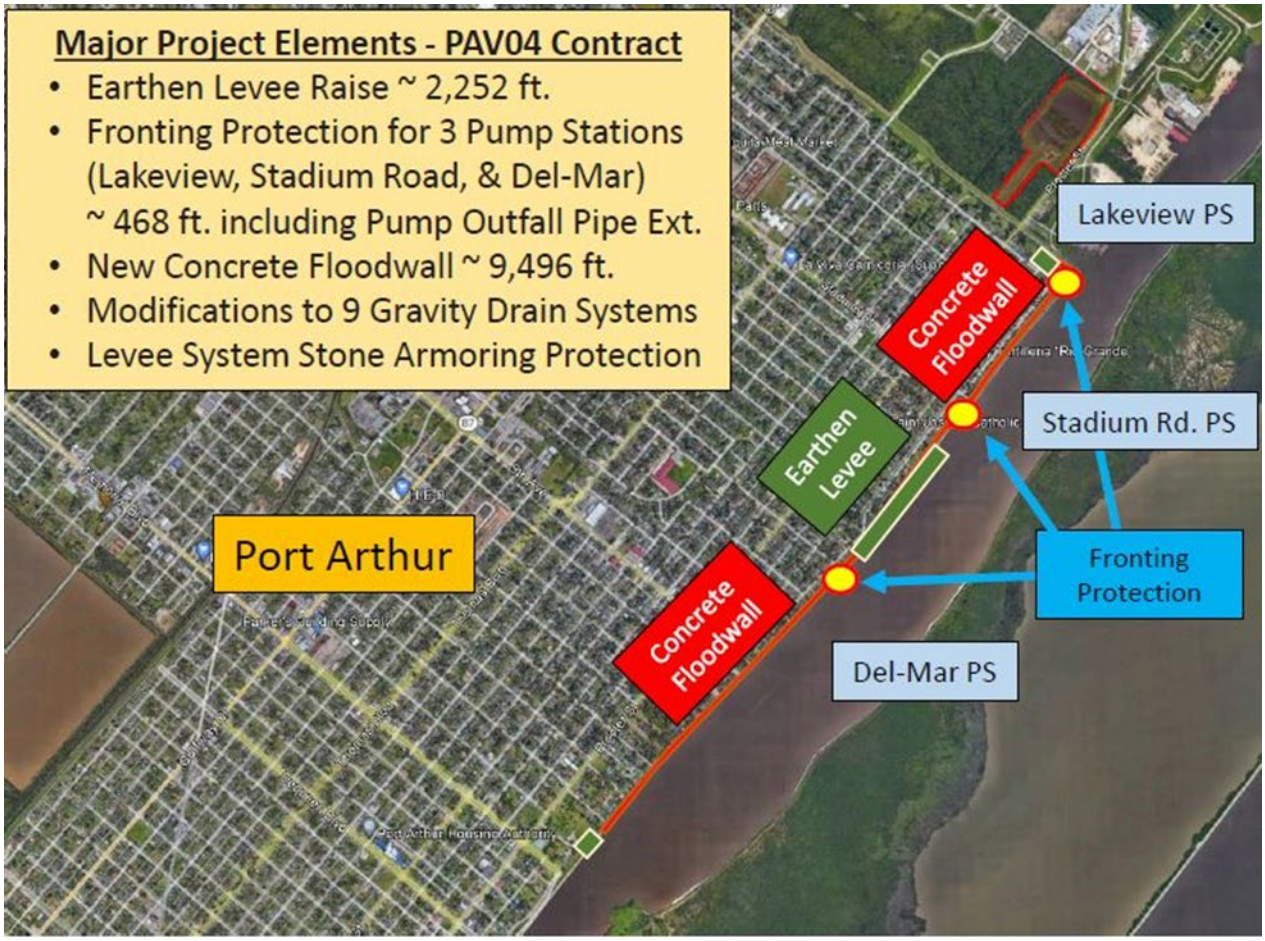

Figure 4: Segment 4 features

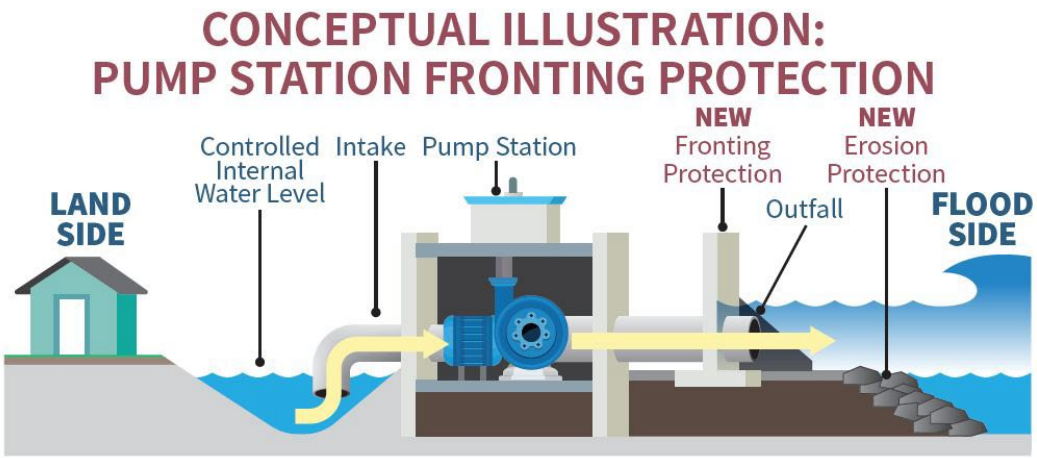

Figure 5: Conceptual Flood Protection Structures

2.3.4 Segment 5

Segment 5 consists of construction of approximately 690 ft of replacement floodwall, approximately 20,600 lf of levee raises with four levee-floodwall tie-ins, replacement of one road closure gate at Drainage District 7 Levee Road, replacement of one Canadian Pacific Kansas City Railroad closure gate, and two concrete fronting protection of an existing pumpstations (Crane Bayou) (Figures 7 and 8).

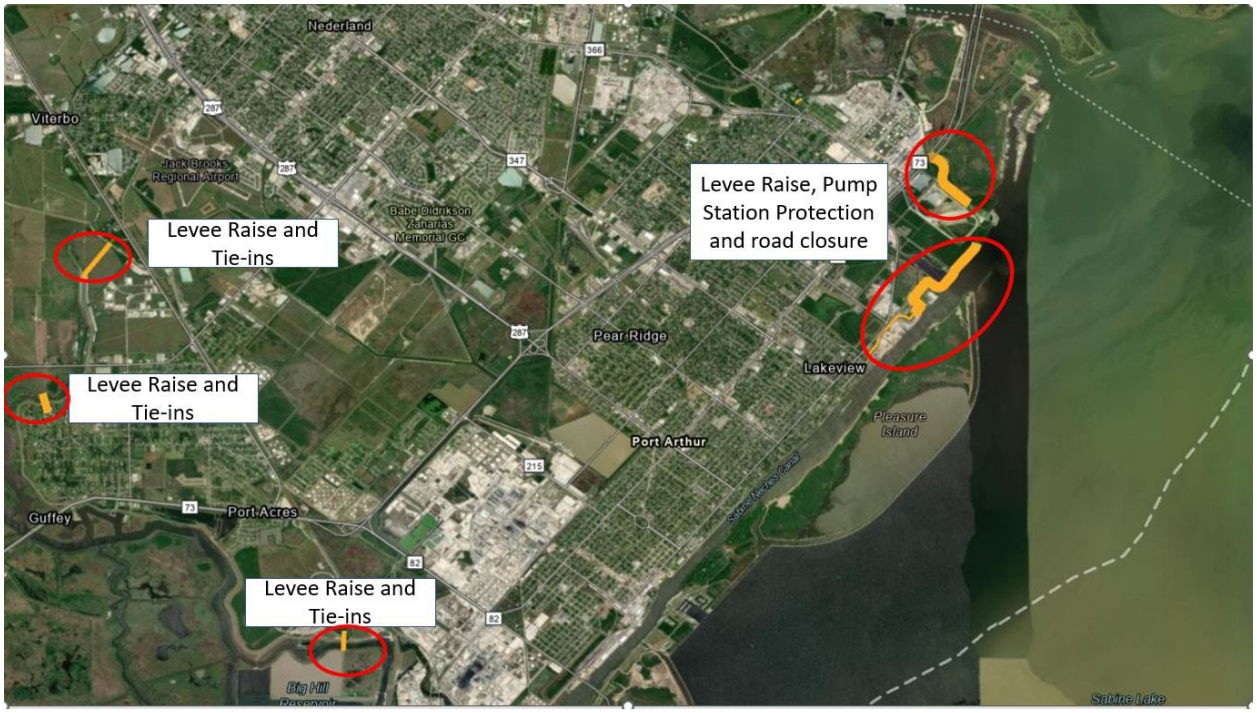

Figure 6: Segment 5 Features

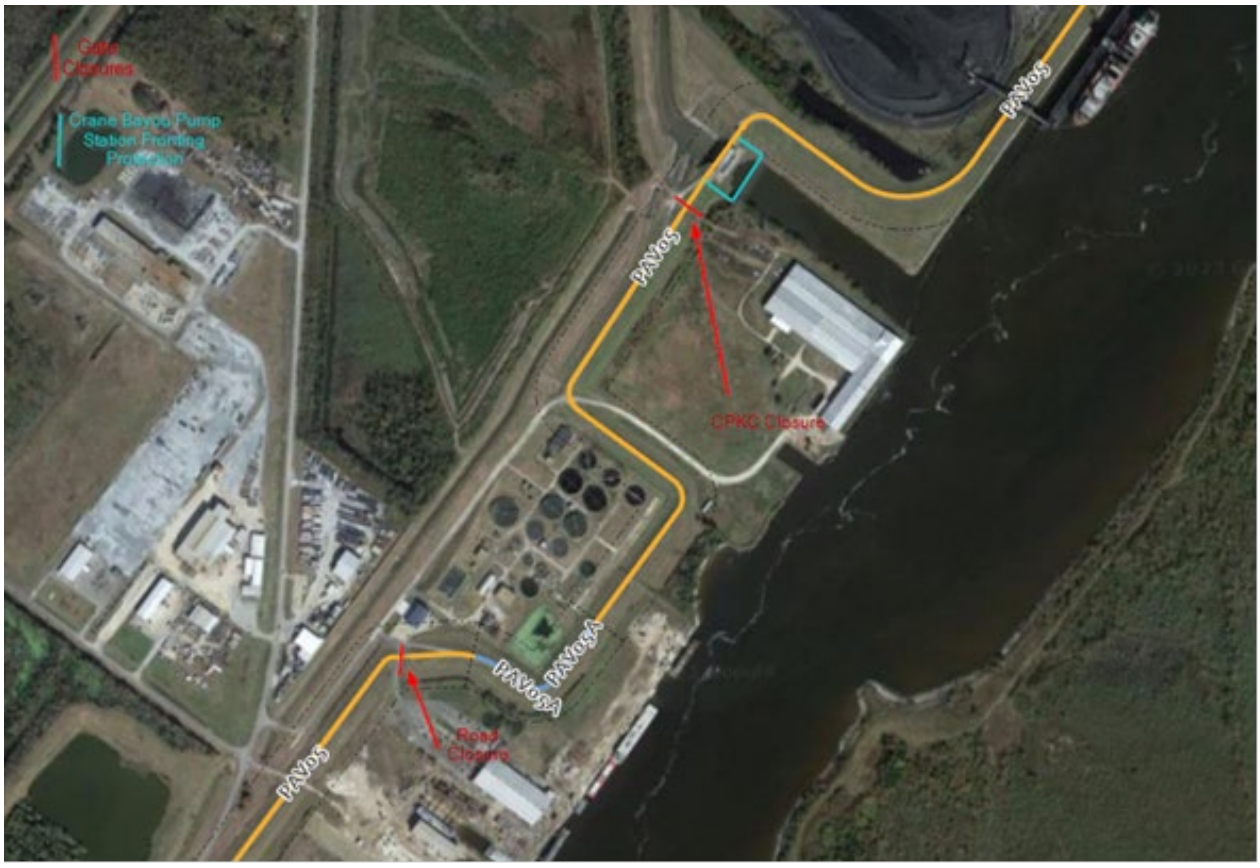

Figure 7: Pump Station Protection and Road Closure

2.3.5 Segment 5A.

Segment 5A would consists of approximately 4,585 lf of floodwall, approximately 25,600 lf of new levee and levee raises, road raising, new pump station, road gate, and a new water control structure.

While updating hydraulic modeling during PED, a flanking analysis was performed by USACE's Engineering and Design Center on additional levee alignments, a northeastern levee extension/gap fill, a north middle connection, and a western levee extension. These new levees and levee extension from the flanking analysis were not discussed in the 2017 FIFR-EIS, a summary of these new features is below:

- The new northeast levee was previously evaluated under the 2017 EIS, however, updated flanking analysis determined approximately 2,470 lf of levee along Port Neches Atlantic Road would reduce inundation during storm events. The conclusions from the 2017 FIFR-EIS remain the same, the footprint of the proposed levee lies within disturbed petrochemical and residential areas, there will be no impacts to mitigatable resources.
- The north-middle connection levee would be approximately 6,700 lf of levee and approximately 3,675 lf of I-wall along the existing Atlantic Road (referred locally as 'Sarah Jane Road') and connecting to Coke Road. The proposed new north-middle-connection levee is adjacent to and within the Star Lake Superfund site. However, sediment evaluations of the area shall be performed by the NFS and submitted for analysis, no work would be conducted until analysis is conducted and determined to be within USACE policy and national regulation.
- As discussed in the 2017 FIFR-EIS, the existing north-middle levee would run through the Star Lake Superfund site, since then, it was determined this levee would need to be raised. Work in the Environmental Protection Agency (EPA) delineated area of concern would not be conducted until all Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and suitability concerns are resolved with managing EPA and Texas Commission of Environmental Quality (TCEQ). Currently, the NFS serves as the principle responsible party (PRP) for the levee. The federal project would not be conducted until all coordination and remediation is performed by the PRP and accepted by TCEQ and EPA.
- The western levee extension lies within Viterbo, TX on privately owned land between Gallier Canal and Rhodair Gulley Canal. The proposed approximately 13,620 lf of new levee would tie into the existing Port Arthur HFPP system, cross Rhodair Gully Canal with a pumpstation and water control structure, run parallel to Gallier Canal and terminate in a privately owned parcel off Knauth Road.

2.3.6 Potential Staging Areas and Borrow Site

Temporary work area easement would be used for staging for three years. No designated staging areas have been selected at the time of this SEA, however, proposed staging areas for each segment are outlined in Figure 9. Preliminary staging areas for Segments 2 and 4 area are referenced in Figures 10 and 11. Potential staging areas options for PAV05 and PAV05 are referenced in Figure 15. In the EIS, it stated 'fill material for PAV CSRMS construction would likely come from approved commercial borrow sources. It is the responsibility of the NFS to provide suitable material and proof of compliance of various environmental even when utilizing commercial borrow sources. All material, regardless of its source, would be tested and evaluated to federal standards and proof of compliance would be provided prior to utilization.

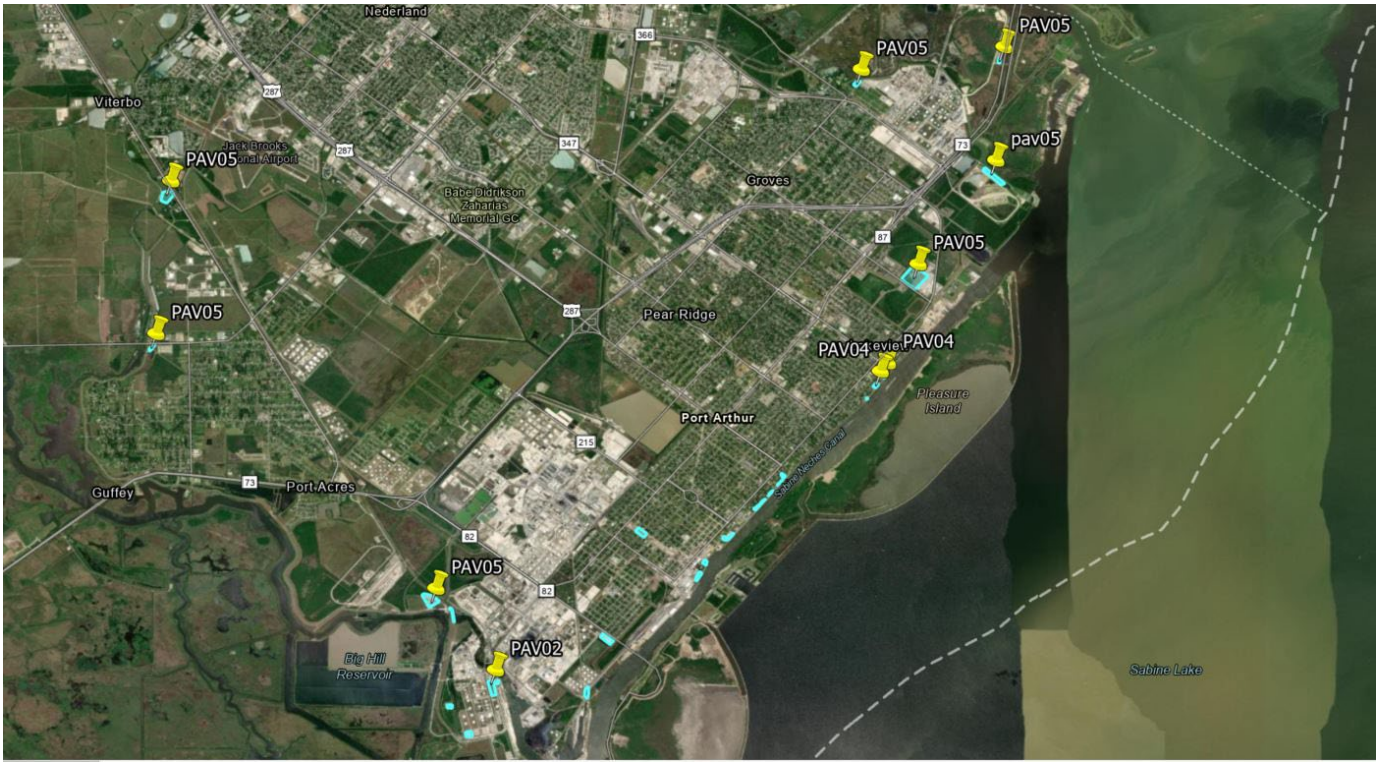

Figure 8: Proposed Staging Areas

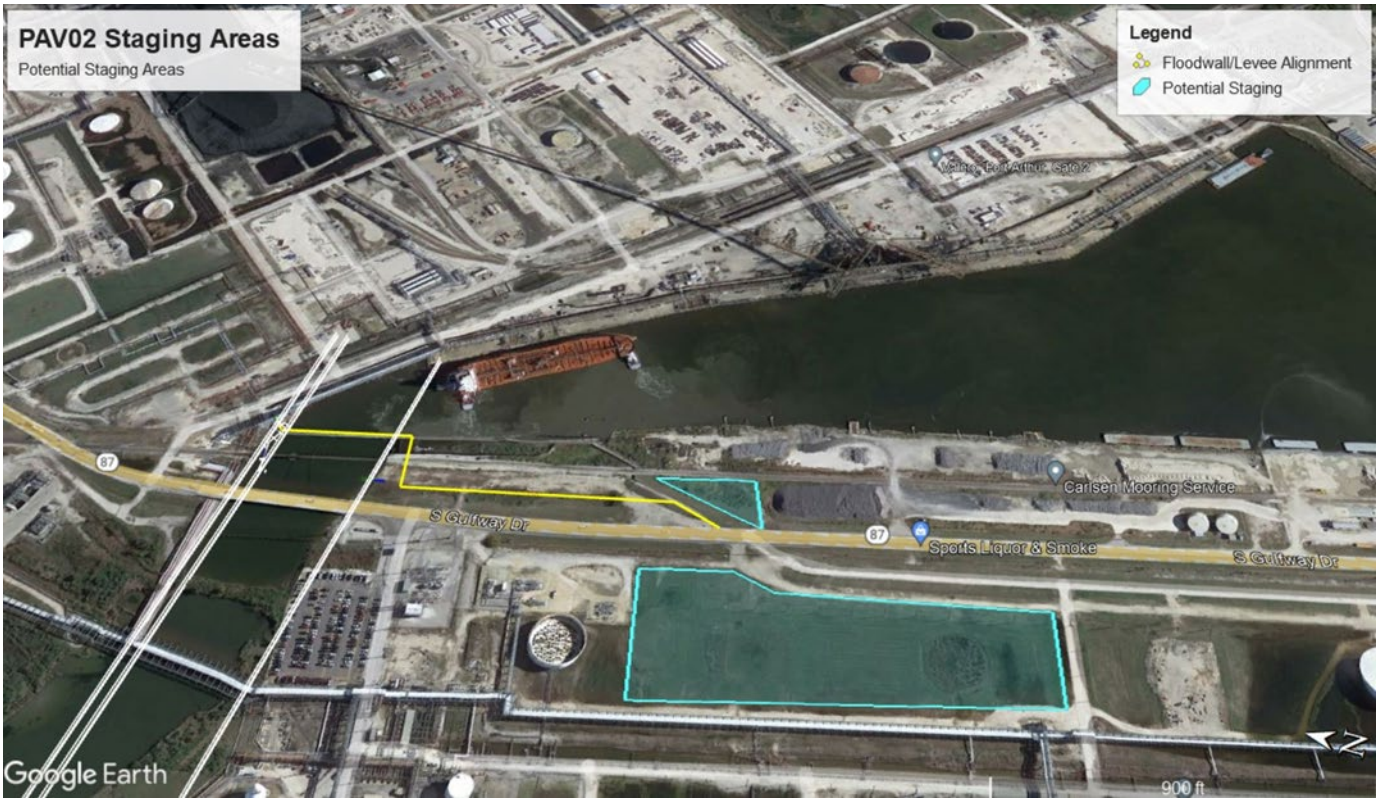

Figure 9: Segment 2 Proposed Staging Areas

Figure 10: Segment 4 Proposed Staging Areas

Figure 11: Segments 5 and 5A Proposed Staging Areas Options

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

The National Environmental Policy Act (NEPA) requires that Federal agencies evaluate the effects of their actions on the human environment prior to deciding on an action alternative. This chapter describes the affected environment, or existing conditions, of the study area that could be affected by the alternatives and the environmental effects of a federal action evaluated with respect to what the environmental conditions would be in the future if no action is taken. Both adverse and beneficial effects of an action must be considered. This chapter provides that evaluation of potential effects of the design modifications from the Authorized Plan, known as the proposed modified recommended plan. Affected environment and environmental consequences of the Authorized Plan are described in the 2017 FIFR-EIS.

3.2 RESOURCES CONSIDERED FOR ANALYSIS

As mentioned in Chapters 1 and 2, design changes including extending, raising and/or realigning levee and floodwall are proposed based on further engineering analysis. These proposed design changes warrant further impact evaluation from those impacts already disclosed in the 2017 FIFR-EIS. Further, the 2017 FIFR-EIS assumed no construction activities would be performed in the vicinity of the Star Lake Canal site, while the design changes are proposing construction within this area. A summary of the changes in impacts and design are summarized below:

- A direct impact on essential fish habitat is expected with construction of floodwalls within Segments 2 and 4.
- A direct impact on riverine and emergent wetlands are expected with construction of Segment 5A, western levee alignments.
- A direct impact on coastal prairie is expected with construction of Segment 5A, western levee.
- The proposed levee raise along a known superfund site along Segment 5A, north-middle levee.

Other than these design changes, the proposed modified recommended plan would be constructed within the existing disturbed Port Arthur HFPP alignments to avoid any adverse impacts to adjacent resources or would be same proposed design in the Authorized Plan as described in Section 6 Recommended Plan of the FIFR-EIS (USACE 2017). No change in cumulative impacts are anticipated since the original FIFR-EIS (USACE 2017) was issued.

Environmental effects analyzed in the 2017 FIFR-EIS that have not changed as a result of the proposed modifications to the PAV design are incorporated by reference (USACE 2017) as shown in Table 2 and will not be discussed further in this SEA.

Table 2. Resources Incorporated by Reference

Resource	2017 FIFR-EIS	Rationale
Hydrology and Hydraulics	Sections 2.2 and 7.2	No change in types of coastal storm risk reduction features that would change previous analysis
Protected Land	Sections 2.3.4.1 and 7.1.2	No change in protected lands
Forested Wetlands	Sections 2.3.6.2 and 7.3.1	No change in types of coastal storm risk reduction features that would change previous analysis
Water and Sediment Quality	Sections 2.3.9 and 7.7.2	No change in types of coastal storm risk reduction features that would change previous analysis
Changing Conditions	Section 6.10	No increases in construction duration or noise generated equipment
Air Quality	Section 7.8.2	No increases in construction duration or noise generated equipment
Greenhouse Gas	Section 7.8.2	No increases in construction duration or noise generated equipment
Noise	Section 7.9.2	No increases in construction duration or noise generated equipment
Floodplain	Section 7.13	No change in types of coastal storm risk reduction features that would change previous analysis

3.3 COASTAL PRAIRIE

3.3.1 Affected Environment

Remnant tracts of tall grass and salty prairies are present in the study area, often interspersed within coastal marshes. Slightly higher in elevation, the grass and prairie tracts offer a different type of habitat (USFWS 2008). Wooly rosemallow, bushy bluestem, and gulf cordgrass thrive

there and provide important nesting habitat for mottled ducks, dickcissels, and other species. Black rails, short-eared owls, and LeConte's sparrow find shelter and feed within these prairie habitats. Almost all the region's historic native coastal tall grass prairie and its associated prairie wetlands have been lost through conversion to agricultural uses and urban development (USFWS 2008). For additional information see Section 2.3.6.1 Coastal prairies of the 2017 FIFR-EIS described the existing conditions of the coastal prairies in the study area and are incorporated by references (USACE 2017).

3.3.2 Environmental Consequences

3.3.2.1 No Action

Coastal prairie would continue to be critically imperiled in the nearby regions. Although no remnant tracts of native tall grass or salty prairies were originally identified in the study area, with the revised proposed Segments 5 and 5A design, coastal prairie habitat is located within the revised project area, approximately 42 acres. Slightly higher in elevation, than the surrounding marshes and wetlands, the coastal prairie grasses and tracts offer a different type of habitat. Woolly rose mallow, bushy bluestem, and gulf cordgrass thrive in coastal prairies and provide important nesting habitat for mottled ducks, dickcissels, and other species. Black rails, short-eared owls, and LeConte's sparrow find shelter and feed within these prairie habitats. Almost all the region's historic native coastal tall grass prairie and its associated prairie wetlands have been lost through conversion to agricultural uses and urban development. It is expected this coastal prairie located in the revised project area would remain unless a change in land ownership occurred.

3.3.2.2 Proposed Modified RP

The 2017 FIFR-EIS stated the Authorized Plan for PAV plan would not impact any coastal prairie because this type of habitat is not present along the PAV Authorized Plan alignment; however, coastal prairie habitat is present within the proposed alignment of the modified RP would impact coastal prairie habitat. The proposed western levee of modified RP would result in approximately 42 acres of permanent loss of coastal prairie due the construction of the new proposed western levee. To offset this impact, approximately 60 acres of coastal prairie would be needed based habitat modeling (Appendix A). The habitat modeling and proposed mitigation is described in more detail in Appendix A.

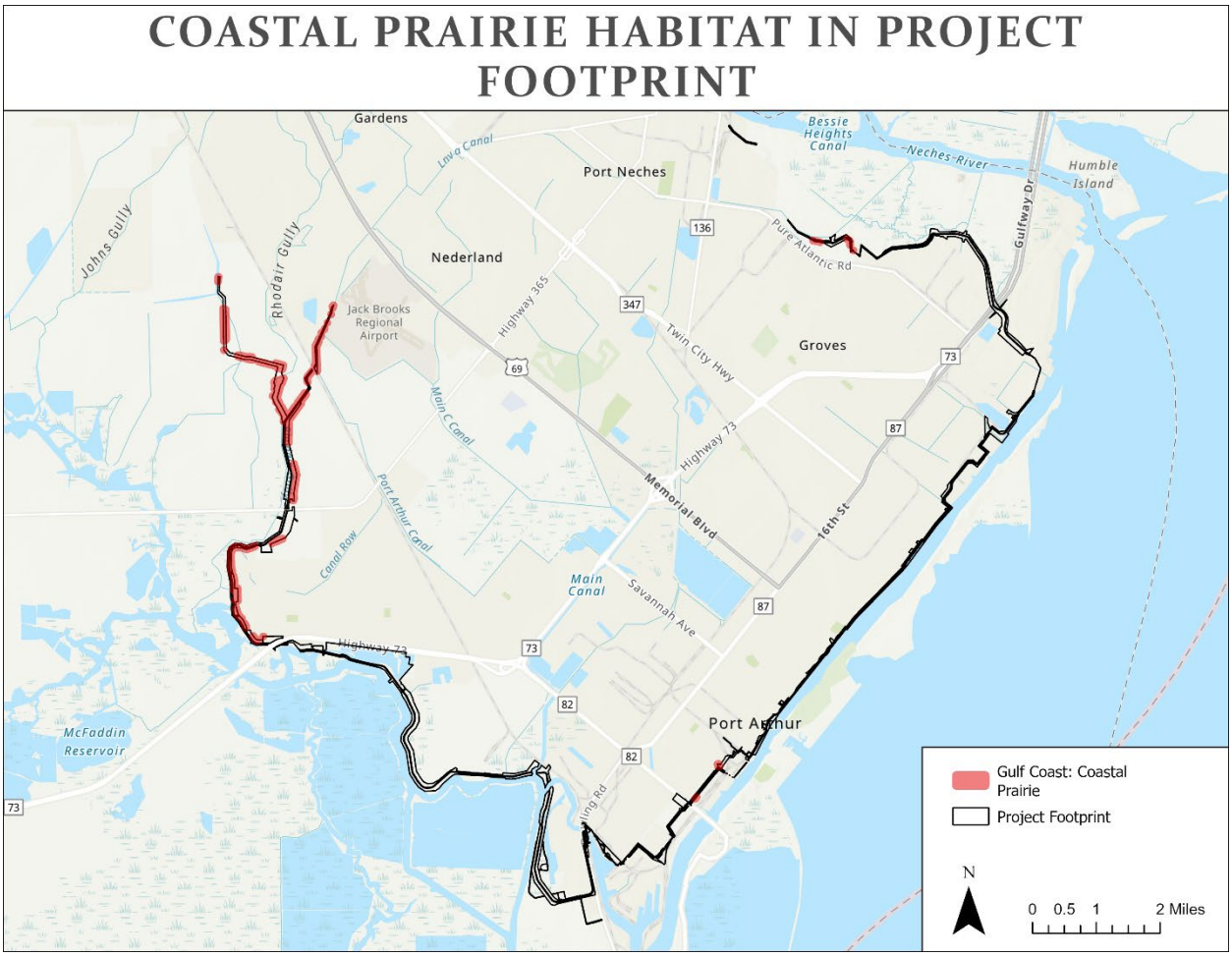

Figure 12: Coastal Prairie Habitat within Project Footprint

3.4 COASTAL MARSH

3.4.1 Affected Environment

Salt marsh is located close to the Gulf shoreline and higher salinity areas of the estuarine systems. Subjected to regular tidal inundation, low saline marsh is dominated by smooth cordgrass/oystergrass (Spartina alterniflora) and often accompanied by seashore saltgrass (Distichlis spicata), blackrush (Juncus romerianus), saline marsh aster (Aster tenuifolius), and marsh hay cordgrass/wiregrass (S. patens). The dominant species in high salt marsh, which is subject to less-frequent tidal inundation, is glasswort (Salicornia spp.). Brackish marshes grade inland from salt marsh. The dominant species in low brackish marsh is saltmarsh bulrush (Scirpus robustus); seashore salt grass and marsh hay cordgrass are co-dominant species in high brackish marsh. Intermediate marshes are subjected to periodic pulses of salt water and maintain a year-round salinity in the range of 0.5 to 4 ppt. They grade inland from brackish marshes and dominate interior marshes of the Sabine and Galveston Bay systems. For additional information see Section 2.3.6.2 Coastal marshes of the 2017 FIFR-EIS described the existing conditions of the coastal march in the study area and are incorporated by references (USACE 2017).

3.4.2 Environmental Consequences

3.4.2.1 No Action

Tens of thousands of acres of coastal marsh are present in the study area, located primarily in the floodplains of the Sabine and Neches Rivers, as well as Cow and Adams Bayous. These marshes would be expected to persist, with some areas undergoing slow wetland loss and conversion to open water over the period of analysis. In the lower Neches River Valley, this conversion is caused by subsidence and faulting (sometimes related to oil and gas production), dredged canals, alteration of hydrologic regime (due to channelization and placement of dredged material), decreased input of fluvial sediment (due to upstream dams), and construction of artificial levees (White and Tremblay 1995). Similar factors are responsible for marsh loss in the Sabine River Basin. For additional information see Section 7.4 Coastal Marsh of the 2017 FIFR-EIS discusses the No Action Alternative for coastal marsh in the study area and are incorporated by references (USACE 2017).

3.4.2.2 Proposed Modified RP

The 2017 FIFR-EIS stated the Authorized Plan for PAV plan would not impact any coastal marsh; however, with the proposed modification to the PAV alignment would impact marsh habitat. The proposed modified RP would result in approximately 104 acres of permanent loss of marsh due the implementation of the proposed revisions to the design. To offset this impact, approximately 150 acres of coastal marsh would be needed based habitat modeling (Appendix A). The habitat modeling and proposed mitigation is described in more detail in Appendix A.

Figure 13: Freshwater Marsh Habitat in the Project Footprint

3.5 FISH AND WILDLIFE

3.5.1 Affected Environment

Extensive freshwater aquatic habitats are present in the upstream reaches of rivers and bayous in the study area. Large estuarine aquatic habitats are present in the Sabine Lake area and the greater Galveston Bay area; somewhat smaller estuarine aquatic habitats are present in Chocolate Bayou, and the San Bernard River delta area. For additional information see Section 2.3.6 Biological Communities in the Study Area of the 2017 FIFR-EIS described the existing conditions of the fish and wildlife in the study area and are incorporated by references (USACE 2017).

3.5.2 Environmental Consequences

3.5.2.1 No Action

The transition from the uplands to the Neches floodplain in the area affected by the CSRM plan is lined with continuous urban or industrial development. Wildlife accesses the floodplain using narrow corridors through development or crossing over leveed placement areas, in addition to

passing through natural areas. Fishery access is unobstructed in most streams and bayous. Fish and wildlife access is unobstructed across the levees of the existing Port Arthur HFP levee system, on the northeast and southwest sides of the system. The right-of-way of the existing system is maintained as cleared, grassy levee with side slopes, and as floodwall systems. Existing culverts are open in their normal, operating condition; they are closed for short periods before and after storm surge events. For additional information see Section 7.6.1 Fish and Wildlife Impacts of the 2017 FIFR-EIS assessed the No Action Alternative for fish and wildlife in the study area and are incorporated by references (USACE 2017).

3.5.2.2 Proposed Modified RP

Direct impacts from the proposed modified design would result in a loss up to 104 acres of marsh habitat and 42 acres of coastal prairie habitat that would affect fish and wildlife habitat. During construction, fish and wildlife would be able to move out of the construction corridors into adjacent habitat and avoid harm. Typical BMPs would be implemented to minimize construction related impacts. To minimize impacts to nesting migratory birds, when possible, vegetation removal would occur outside of nesting season. If not possible, surveys would be conducted prior to construction activities to determine if active nests are present within the area of impact. No tree removal would occur, avoiding impacts to raptors nesting locations and other wildlife.

3.6 ESSENTIAL FISH HABITAT

3.6.1 Affected Environment

Essential fish habitat (EFH) consists of those habitats necessary for spawning, breeding, feeding, or growth to maturity of species managed by Regional Fishery Management Councils, as described in a series of Fishery Management Plans, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. For additional information see Section 2.3.7 Essential Fish Habitat in the Study Area of the 2017 FIFR-EIS described the existing conditions of the essential fish habitat in the study area and are incorporated by references (USACE 2017).

3.6.2 Environmental Consequences

3.6.2.1 No Action

Estuarine habitats in the study area (estuarine emergent marsh, estuarine submerged aquatic vegetation, and estuarine mud/soft bottoms) would continue to be open and available for use by fish and shellfish through the period of analysis. Shallow open water estuarine areas are likely to increase and estuarine emergent marsh is likely to decrease. For additional information see Section 7.6.2 Essential Fish Habitat Impacts of the 2017 FIFR-EIS assessed the No Action Alternative for essential fish habitat in the study area and are incorporated by references (USACE 2017).

3.6.2.2 Proposed Modified RP

The modification to proposed Segments 2 and 4 floodwalls would extend into the Sabine Neche and is expected to have impacts to EFH not previously described in the 2017 FIFR-EIS.

EFH consists of those habitats necessary for spawning, breeding, feeding, or growth to maturity of species managed by Regional Fishery Management Councils, as described in a series of

Fishery Management Plans, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. EFH is found in the tidally influenced or estuarine emergent wetland communities and brackish or marine open-water communities within the proposed project areas. These communities play an important role in the cycling of nutrients and food energy through coastal ecosystems. Communities, such as wetlands, produce detritus that is transferred to food energy for higher trophic levels via zooplankton, bivalves, crustaceans, and small fish. Fish and macroinvertebrate species of special concern that occur in the vicinity of the project areas include those with designated EFH and those of commercial and recreational value. The categories of EFH that occur within the project area include estuarine water column, estuarine mud, and silt bottoms (unvegetated estuarine benthic habitats), and estuarine emergent wetlands. Additionally, portions of the project area are in marine waters and include the marine water column and unconsolidated marine water bottoms.

EFH consists of those habitats necessary for spawning, breeding, feeding, or growth to maturity of species managed by Regional Fishery Management Councils, as described in a series of Fishery Management Plans, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (USACE 2022). Section 2.3.6.3 of the 2017 lists estuarine essential fish habitat for Gulf Managed Species in the whole Sabine to Galveston study area. The EIS stated there would be no impacts expected from the Port Arthur CSRM Plan due to construction occurring within the existing floodwalls right-of-way and alignment for marine traffic. However, Segment 4 design would be 30ft outside of the existing right-of-way and Segment 2 alignment up to 800 ft. No impact to navigation with the shifting of these floodwalls adjacent to the federal waterway is expected to occur. Coordination with the Pilots, Coast Guard, and Navigation District has been conducted. There are no expected changes to the types of species impacted by these new floodwall locations into EFH within the Sabine Neches Canal and Port Arthur Canal described in the 2017 FIFR-EIS. However, the scope of impact to these species has changed those disclosed in the 2017 FIFR-EIS.

The direct and indirect impacts associated with Segment 4 modified design would result in the loss of approximately .01 acre of unconsolidated bottom within the Sabine Neches. Similarly, Segment 2 modified design would result in the loss of maximum .1 acre of unconsolidated bottom within the west Port Arthur Canal. Localized impacts to turbidity and burial of benthic organisms are expected from construction. However, impacts to turbidity and benthic communities would be temporary, the average recovery of benthic macroinvertebrates following burial is typically within months will no long-term effects expected (VanDerWal et al. 2011; Wilber et al. 2006; Wilber and Clarke, 2001). Lastly, the displacement of finfish and shrimp species during levee/floodwall system construction would be temporary and individuals should move back into these specific areas upon completion of the construction.

3.6.2.2.1 Recreational Species

The main commercial species in Texas are black drum (*Pogonias cromis*), southern flounder (*Paralichthys lethostigma*), sheepshead (*Archosargus probatocephalus*), striped mullet (*Mugil cephalus*), blue crab (*Callinectes sapidus*), Eastern oyster (*Crassostrea virginica*), brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), and pink shrimp (*Farfantepenaeus duorarum*). No impacts to eastern oyster are expected due to the high velocity wave energy and currents generated from the federal channel resulting in a lack of habitat for eastern oyster.

Black drum is an estuarine-dependent species that occurs in open bays and estuaries. Mature black drum spawn in the open bay, in nearshore Gulf waters, or in connecting passes from January to mid-April. During spawning, eggs and sperm are released into the water column for fertilization. Black drum larvae and juveniles move into upper bay areas and tidal creeks, where they remain until they reach about 4 inches in length and then move into the open bay. Black drum remain in the bay until they reach sexual maturity (about 2 years) (Pattillo et al. 1997). Adult and juvenile black drum are common and occur throughout the project areas all year (Table 2) (Pattillo et al. 1997; Nelson et al. 1992). Larval black drum occurs from February through April over the continental shelf; juveniles inhabit muddy bottoms in marsh habitats year-round; and adults are predominantly estuarine, preferring unvegetated sand, mud, and oyster reefs year-round (Pattillo et al. 1997; Sutter et al. 1986; Nelson et al., 1992).

Southern Flounder are distributed throughout estuarine and coastal waters of the Gulf from Florida to Texas (Hoese and Moore, 1998). Spawning occurs during late fall and early winter in nearshore waters (Gilbert, 1986). Once they reach sexual maturity (2 years), they begin migrating to the Gulf to spawn (Pattillo et al. 1997; Daniels 2000). Juveniles and adults are demersal and prefer estuarine, riverine, or marine environments, depending on the hydrography (Pattillo et al. 1997).

This species is found over unconsolidated clayey silts and organic muds or associated with seagrass meadows or flooded marsh (Pattillo et al. 1997). Southern flounder are carnivorous during most life history stages, feeding mostly on crustaceans (Gilbert 1986). Juvenile southern flounder are common to abundant throughout most of the project areas year-round (Table 2). Adults are most common in the project areas from the spring through late fall (Table 2). During late fall, they move to deeper offshore waters to spawn (Pattillo et al., 1997; Reagan and Wingo, 1985; Nelson et al., 1992). Within the project areas, Southern Flounder may occur in the tidally influenced emergent wetlands and within or adjacent to open-water areas.

Sheepshead is an estuarine-dependent species that inhabits much of the Atlantic and Gulf coasts of the United States. Spawning occurs offshore from February through April, with the peak in March and April. Eggs typically are laid over the inner continental shelf (Pattillo et al., 1997). Larvae are pelagic, but move into estuaries, seeking refuge in seagrass (Pattillo et al., 1997; Lee et al., 1980). Juveniles begin leaving seagrass in late summer, congregating with adults around nearshore reefs as they mature (Pattillo et al., 1997; Jennings, 1985). Adults also use oyster reefs, shallow muddy bottoms, marshes, piers and rocks, and over bare sands of the surf zone. Larval and juvenile sheepshead consume primarily zooplankton, whereas larger juveniles and adults' prey on blue crab, oysters, clams, and small fish (Pattillo et al. 1997). Juvenile and adult life stages of sheepshead are common to abundant year-round in the project areas (Nelson et al., 1992; Pattillo et al. 1997). Since juveniles are typically associated with seagrass (Pattillo et al. 1997), they may occur in the tidally influenced brackish marshes in the project areas. Adults may occur in open-water habitat and likely would not occur in brackish marsh habitats in the project areas. Larval stages are also common February through April in Corpus Christi Bay (Nelson et al. 1992).

Blue Crab are harvested commercially and recreationally throughout the coastal waters of the Gulf. These fisheries have become increasingly important in the Gulf, with reported landings exceeding 4.3 million pounds in 2015 (NOAA 2017b). Blue crabs occupy a variety of habitats, including the upper, middle, and lower estuaries, as well as associated marine environments,

depending on their life history stage. Larvae occupy the lower estuary and marine water with salinities greater than 20 ppt. blue crabs first enter the estuary during the megalopae life stage where they begin a benthic existence. Spawning occurs during the spring, summer, and fall (Pattillo et al. 1997). Factors that affect the distribution and survival of blue crabs are substrate, food availability, water temperature, and salinity. Blue crabs are opportunistic omnivores and feed on fish, detritus, crustaceans, mollusks, and other blue crabs. They are also prey for higher trophic levels, including diving ducks, herons, and predatory fish, including commercial and recreational species (Perry and McIlwain, 1986). All life stages are common to highly abundant year-round in the bay systems where the project areas are located (Table 2) (Nelson et al., 1992; Pattillo et al., 1997).

Striped Mullet spawn offshore near the surface from October to March. Eggs and sperm are released into the water column for fertilization. Once they reach the pre-juvenile stage, they enter the bays and estuaries to mature. Sexual maturity is reached at 3 years of age, and adults remain near shore throughout their life. Striped mullet feed mainly on microalgae, detritus, and sediment particles (Pattillo et al., 1997). Adult and juvenile striped mullet are common to abundant throughout bays in the project area.

3.6.2.2.2 Federally Managed Species

Several federally managed fisheries existing within the Sabine Neches Waterway such as shrimp, red drum, reef fish, coastal migratory pelagic resources (mackerels), spinner shark, and bull shark. Section 2.3.6.3 of the 2017 lists estuarine essential fish habitat for Gulf Managed Species in the whole Sabine to Galveston study area. There are no expected changes to the types of species impacted by this change of floodwall alignment within essential fish habitat along the Sabine Neches Waterway based on National Marine Fisheries' 5-year review report for EFH.

Table 3-Federal Managed EFH Species

Common and Species Name	Eggs	Larvae	Post Larvae	Early Juvenile	Late Juvenile	Adult
Estuarine Emergent Marsh						
Red drum (*Sciaenops ocellatus*)			●	●		●
Gray snapper (*Lutjanus griseus*)						●
Brown shrimp (*Penaeus aztecus)*				●		
White shrimp *(Penaeus setiferus*)				●		
Estuarine Submerged Aquatic Vegetation						
Red drum (*Sciaenops ocellatus*)		●	●		●	●
Lane snapper (*Lutjanus synagris*)			●	●	●	
Brown shrimp (*Penaeus aztecus)*				●		
Estuarine Mud/Soft Bottom						
Red drum (*Sciaenops ocellatus*)		●	●	●		●
Gray snapper (*Lutjanus griseus*)						●

Common and Species Name	Eggs	Larvae	Post Larvae	Early Juvenile	Late Juvenile	Adult
Lane snapper (*Lutjanus synagris*)				●	●	
Brown shrimp (*Penaeus aztecus)*				●		
White shrimp *(Penaeus setiferus*)				●		

3.6.2.2.3 Impacts Common to All Actionable Measures

Construction activities occurring in or near open water, including placement of sediment or hard material, operation of vessels, and equipment is expected to temporarily impact Federally managed species. Species that have larval or immobile life stages are expected to have greater impacts during construction due to a lack of mobility. However, mobile adult species would have temporary impacts such as noise and turbidity from construction that should resolve quickly after construction.

Brown shrimp (*Farfantepenaeus aztecus*) and pink shrimp (*Farfantepenaeus duorarum*) both spawn in offshore waters with larval and post larval stages moving into estuaries with shallow SAV coverage. The impacts expected during construction of floodwalls, with an average depth of -41ft MLLW to -43ft MLLW would be temporary since vulnerable larval stages prefer shallower vegetative estuaries. White shrimp larvae (*Litopenaeus setiferus*), however, are planktonic and occur in nearshore Gulf waters. There is a higher probability for impact with the white shrimp larvae for construction floodwalls.

For all actionable measures, USACE has determined that construction of the actionable measure may have minor adverse effects on EFH of Federally managed species, but the adverse effects are expected to be temporary and localized within the footprints of the constructed feature. Long-term operation of the features is not expected to impact “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” to any appreciable extent over a significantly large area or over any significant period. Although construction of the project may impact individual fish, no adverse effects to the populations of Federally managed species that inhabit any of the project areas are expected. Also, conversion of EFH habitat to non-EFH habitat is considered a long-term adverse impact to EFH habitat; however, the long-term benefit of protection of a significantly larger area of EFH habitat outweighs the minor loss.

Water Column Impacts

Construction would temporarily generate reduced visibility and turbidity from total suspended solids in the water column. Increased turbidity can cause impacts to light penetration for aquatic vegetation relying on photosynthesis. Aquatic excavation equipment can include various sizes of clam shell buckets on mechanical dredges or long arm terrestrial crawler cranes. Floodwall construction is anticipated to include clearing, grubbing, and stripping along the planned terrestrial alignments. Further, clearing and grubbing may be expected to remove aquatic vegetation along the potential alignments. Cranes would be used to drive piles to provide structural stability and sheet piles. Existing compacted sheet pile would either be removed or left in place. Formworks would be installed to form the footing and wall stem and reinforcing steel bar would be placed. Concrete mixer trucks would pump concrete to the footing and into the stem via a concrete boom. Additional earthwork would involve tying the floodwall into adjacent

earthen levees and backfilling and compacting around the completed wall. All construction materials for floodwall would be suitable for the marine environment according to hazard communication standards. The project area is expected to have increased localized turbidity that is expected to resolve quickly after construction completion.

Activities that disturb sediments may reduce dissolved oxygen (DO) depending on the volume and duration of sediment resuspension, and the oxygen demand of the sediment. Fine sediments high in organic matter have greater potential oxygen demand than sandy sediments. DO reduction generally is associated with near bottom waters adjacent to the disturbance and decrease towards the surface and with increasing distance. The effect is anticipated to be temporary and localized in nature. The effects of temporary DO reduction on EFH managed species may be negligible during winter-spring when DO levels are naturally high. However, similar reductions may result in temporary adverse effects in summer when DO is naturally lower. The potential to impact managed fishery species would depend on existing conditions and project-specific factors such as location, construction schedule, and impact duration. Avoidance displacement associated with project-related DO reduction could be locally adverse if spawning movements and/or recruitment of nursery areas were affected.

3.6.2.2.4 Conclusion for Impacts to EFH

The proposed modified design for the PAV plan that includes construction within the marine environment is expected to have an adverse direct and indirect impact to EFH in the project area through the loss of habitat for floodwall construction and temporary impacts such as noise, avoidance, and turbidity. The project would result in a permanent loss of unconsolidated marine water bottoms and continued long term effects on connectivity within the Port Arthur Canal on Salt Bayou. This SEA serves to initiate EFH consultation under the Magnuson-Stevens Fishery Conservation and Management Act for the actionable measures of the proposed plan.

3.7 THREATENED AND ENDANGERED SPECIES

3.7.1 Affected Environment

Endangered Species Act (ESA) compliance for the Port Arthur and vicinity project was conducted in the 2017 FIFR-EIS, however, new species were listed since 2017, and re-initiation of ESA consultation is required. These additions include the newly listed eastern black rail (BLRA) *(Laterallus jamaicensis ssp. jamaicensis*), giant manta ray (*Manta birostris*) and candidate species monarch butterfly (*Danaus plexippus*). Proposed species, that are likely to become listed during construction or during maintenance of the system, the Louisiana pigtoe (*Pleurobema riddellii*), Texas heelsplitter (*Potamilus amphichaenus*), Tricolored Bat (*Perimyotis subflavus),* and alligator snapping turtle (*Macrochelys temminckii*). Changes in population for the whooping cranes (*Grus americana*) and Texas prairie dawn (*Hymenoxys texana*) since 2017 warranted updated analysis.

Responsibility for management of threatened, endangered, candidate, and proposed species under the Endangered Species Act are managed by the federal agencies: U.S. Fish and Wildlife Service and National Marine Fisheries Service.

Endangered Species Act (ESA)-listed species have been identified in the U.S. Fish and Wildlife Service (USFWS) Official Species List dated September 1, 2024. There is no critical habitat designated in the focused project area.

Endangered Species Act (ESA)-listed species managed by the National Marine Fisheries Service (NMFS) have historically been identified in the Sabine Neches Waterway and surrounding project waters. There is no critical habitat designated in the focused project area.

3.7.2 Environmental Consequences

3.7.2.1 No Action

Dredging would continue with potential for takes of threatened and endangered green, Kemp's ridley, loggerhead, and hawksbill sea turtles. These potential impacts are addressed in the November 19, 2003, Gulf Regional Biological Opinion (GRBO) to USACE on Hopper Dredging of Navigation Channels and Borrow Areas in the U.S. Gulf of Mexico, and Revision 2 to the GRBO, issued January 9, 2007, for USACE dredging projects on the Gulf Coast. Existing threats to the twelve remaining listed and three candidate species described below would be expected to be minor, as most of the species rarely occur, and some do not occur, in the project areas. For additional information see Section 7.6.3 Threatened and Endangered Species of the 2017 FIFR-EIS assessed the No Action Alternative for Threatened and Endangered Species in the study area and are incorporated by references (USACE 2017).

3.7.2.2 ***Proposed Modified RP***

A Biological Assessment (BA) was prepared describing the project area, federally listed threatened and endangered species of potential occurrence in the study area as identified by the USFWS, and potential impacts of PAV02, 03, 04, 05, and 05A on these protected species (Appendix B). From the biological assessment, USACE has determined construction of the western levee "may affect but is not likely to adversely affect" species, eastern black rail (*Laterallus jamaicensis)* and whooping crane (*Grus americana).*

The USACE has determined that PAV02, PAV03, PAV04, PAV05, and PAV05A would continue to have no effect on the following listed animal species: piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), West Indian manatee (*Trichechus manatus*), and five sea turtle species (green *[Chelonia mydas*], Kemp's ridley [*Lepidochelys kempii*], loggerhead [*Caretta caretta*], hawksbill [*Eretmochelys imbricata*], and leatherback [*Dermochelys coriacea*]), fin whale (*Balaenoptera physalus)*, Humpback whale (*Megaptera novaeangliae),* sei whale (*Balaenoptera borealis),* sperm whale (*Physeter macrocephalus),* four corals (lobed star coral [*Orbicella annularis],* mountainous star coral [*Orbicella faveolate],* boulder star coral [*Orbicella franksi],* eklkhorn coral [*Acropora palmata]),* Sprague's pipit (*Anthus spragueii),* smooth pimpleback clam (*Quadrula houstonensis),* Texas fawnsfoot clam (*Truncilla macrodon).*

There is no designated critical habitat in either the PAV02, PAV03, PAV04, PAV05, and PAV05 project area. Further, the USACE has determined that PAV CSRMS would have no effect on recently listed, proposed, or candidate species: alligator snapping turtle (*Macrochelys temminckii),* Louisiana pigtoe (*Pleurobema riddellii*), Texas heelsplitter (*Potamilus amphichaenus),* giant manta ray (*Manta birostris),* monarch butterfly (*Danaus plexippus),* oceanic whitetip shark (*Carcharhinus longimanus*), and Rice's whale (*Balaenoptera ricei*). Lastly, despite populations being found in Orange, TX, based on soil analysis, there is no effect on Texas prairie dawn (*Hymenoxys texana*).

3.8 AIR QUALITY

3.8.1 Affected Environment

Jefferson County is located in the Beaumont-Port Arthur (BPA) AQCR. On October 20, 2010, the EPA published a final rule in the Federal Register (75 FR 64675), effective November 19, 2010, approving a redesignation request and finalizing a determination that the BPA area is in attainment for the revoked one-hour ozone standard. The EPA's determination to redesignate signifies that the BPA area has met all of the applicable Federal Clean Air Act requirements for the purpose of redesignation to attainment. For additional information see Section 2.3.10 of the 2017 FIFR-EIS.

3.8.2 Environmental Consequences

The Beaumont-Port Arthur counties were either in attainment or unclassified/attainment with the National Air Quality Standards (NAAQS) (TCEQ, 2023). There is no change in the existing environment and conditions from the original EIS. Therefore, no updating of information in this subsection was necessary for the SEA (see Section 2.3.10 of the EIS [USACE, 2017]).

3.9 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

3.9.1 Affected Environment

Hundreds of petrochemical plants, oil storage facilities, hazardous waste facilities, aboveground tanks, and underground storage tanks are located in storm surge-vulnerable regions of the numerous industrial centers in the study area (Orange, Beaumont, Port Arthur, Texas City, Pasadena/Deer Park, Houston, Baytown, Chocolate Bayou, and Freeport). In the Houston Ship Channel area alone, about 20,000 acres along lower Buffalo Bayou contain industrial facilities with potential for toxic environmental releases as a result of storm surge (Rifai and Burleson 2012). Hurricane Ike caused hundreds of localized oil and other toxic spills that threaten fish and wildlife throughout the affected area (FEMA 2008). For additional information see Section 2.3.11 Hazardous, Toxic and Radioactive Waste (HTRW) of the 2017 FIFR-EIS described the existing conditions of HTRW in the study area and are incorporated by references (USACE 2017).

3.9.2 Environmental Consequences

3.9.2.1 No Action

The Port Arthur CSRM alignment lies adjacent to three large petroleum and petrochemical facilities – Texaco Chemical Company (Neches Plant), Total Refinery-BASF Chemicals, and the Valero Port Arthur Refinery. A smaller chemical facility, Calabrian Corporation, is located about 900 feet away. Motiva Enterprises - Port Arthur Refinery, currently with the largest refining capacity in the U.S., is located in Port Arthur, but is over 1 mile away from the construction right□of-way. The project area would continue to be subject to future risks of I-wall overtopping due to storm surge, and related potential impacts of petrochemical spills. These industries have emergency operating plans, which help reduce the risks of spills caused by tropical storm impacts, but impacts can occur with storms of great magnitude or when storms spin up quickly and come ashore with little advance warning. For additional information see Section 7.10.1.1

Hazardous, Toxic and Radioactive Waste (HTRW) of the 2017 FIFR-EIS assessed the No Action Alternative for HTRW in the study area and are incorporated by references (USACE 2017).

3.9.2.2 Proposed Modified RP

3.9.2.2.1 Segment 2

As part of USACE's commitment to evaluate impacts to human and environmental resources in the recommended plan, an initial HTRW phase II sediment evaluation was performed within the Segment 2's existing alignment on June 21, 2022. The results indicated concentrations of barium, copper, lead, selenium, vanadium, and zinc were detected in the sediment exceeding respective TCEQ Ecological Screening Saltwater Benthic PCLs or calculated wildlife PCLs. Additionally, SVOCs; chrysene, fluorene, phenanthrene, pyrene and total polycyclic aromatic hydrocarbons (PAH) were reported in all samples at concentrations exceeding respective TCEQ Ecological Screening Saltwater Benthic PCLs or calculated wildlife PCLs. Based on the report, supplementary sampling to represent statistically valid sediment data encompassing the full project footprint was needed. In September of 2023, additional sediment samples were collected, and results showed no human health-based impacts. Some metals however, exceeded ecological benchmarks or calculated wildlife PCLS, thus the preferred management of sediment during construction is for the sediment to remain in place and to minimize disturbance of the sediment. If any dredging of sediment is needed to allow for construction of the flood wall, the material will be relocated to an area or areas within and in close proximity of the dredge location. According to Subpart G, Paragraph 230.60 (c):

(c) To reach the determinations in § 230.11 involving potential effects of the discharge on the characteristics of the disposal site, the narrative guidance in subparts C through F shall be used along with the general evaluation procedure in § 230.60 and, if necessary, the chemical and biological testing sequence in § 230.61. Where the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and materials at the two sites are substantially similar, the fact that the material to be discharged may be a carrier of contaminants is not likely to result in degradation of the disposal site. In such circumstances, when dissolved material and suspended particulates can be controlled to prevent carrying pollutants to less contaminated areas, testing will not be required.

If dredged sediment cannot be managed within or near the project area as previously described and must be removed from the project location to allow for construction of the floodwall, the sediment will be tested (TCLP analysis) and profiled for proper disposal at an authorized disposal facility.

3.9.2.2.2 Segment 4

No HTRW concerns were found within the alignment of Segment 4.

3.9.2.2.3 Segments 5 and 5A

The northwestern levee alignment lies adjacent to three large petroleum and petrochemical facilities – Texaco Chemical Company (Neches Plant), Total Refinery-BASF Chemicals, Indorama, and the Valero Port Arthur Refinery. As part of USACE's commitment to evaluate impacts to human and environmental resources in the recommended plan, sediment evaluations would be performed by the NFS within the planned alignment.

As discussed in the 2017 EIS, adjacent to the existing north-middle levee, there is an EPA managed Superfund site "Star Lake Canal." The Star Lake Canal is in Port Neches, Texas adjacent to the Neches River, the site comprises surface water and sediments in the Star Lake Canal, Jefferson Canal, and Molasses Bayou and its' wetlands (EPA, 2022). The superfund site contains legacy concerns of copper, PAHs, and polychlorinated biphenyls (PCBs) (EPA, 2022); in 2013 the EPA issued the record of decision (ROD) outlining the cleanup remedy (EPA, 2022). Any work within the footprint of this superfund site is the sole responsibility of the NFS to comply with all applicable federal and state regulations, as well as all USACE regulations, policies, and agreements.

In conjunction to the study performed by the EPA, the NFS intends to perform HTRW phase II sediment evaluations along the existing north middle levee. Similarly, any excavated soil for sediment analysis would be handled and properly disposed of in accordance with federal, state, and local laws. The NFS would be responsible for ensuring the performance of all regulatory notifications and response coordination with managing agencies. All work would be done in accordance with ER 1165-2-132 HTRW Guidance for Civil Works Projects and relevant USACE policy. No work would be performed until a 'clean' site is provided by the NFS that meets TCEQ TRRP I residential standards and is approved by USACE.

The conclusions of the 2017 EIS remain the same, the improvements on existing levees and construction of new levees adjacent to the northwest levee would reduce the risk of spills associated with storm surge impacts if the PAV CSRM system is implemented.

3.9.2.2.4 Borrow Sources

In the EIS, it stated 'fill material for PAV CSRMS construction would likely come from approved commercial borrow sources. It is the responsibility of the NFS to provide suitable material and proof of compliance of various environmental even when utilizing commercial borrow sources. All material, regardless of its source, would be tested and evaluated to federal standards and proof of compliance would be provided prior to utilization.

3.10 CULTURAL RESOURCES

3.10.1 Affected Environment

Numerous cultural resource surveys in the area have documented over 1,000 cultural resource sites in the study area, ranging from prehistoric shell middens to numerous historic sites including houses, buildings, bridges, tunnels, and lighthouses. The area includes several National Historic Landmarks, including the San Jacinto Battlefield, the Battleship Texas, the Tall Ship Elissa, and the Spindletop Oil Field, as well as National Historic Landmark Districts, such as the Galveston Strand Historic District and the Galveston East End Historic District. The Galveston Strand District contains many Victorian-era National Register structures from the city's historic heyday when Galveston's national prominence resulted in it being called "the Wall Street of the Southwest". There are over 100 National Register Properties within the study area. The majority of these cultural resources are vulnerable to damage or destruction from hurricane storm surge. For additional information see Section 2.3.12 Cultural Resources of the 2017 FIFR-EIS describes the existing conditions of cultural resources in the study area and are incorporated by references (USACE 2017).

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

The proposed project area is located along the upper Texas coast and has been occupied by humans since the Paleoindian period dating to around 11,500 BP. The study area is characterized by upland coastal prairies dissected by streams and rivers and extensive bay and estuarine systems along the coast. Sediments in the region are generally fluvial sandy and silty clays overlying Pleistocene-aged clay. Prehistoric sites are commonly found within these upper sediments along streams and rivers and along the shorelines of the bays and gulf coast, close to prime areas for resource exploitation. These sites include campsites, dense shell middens, and cemeteries containing projectile points, stone, bone, and shell tools, aquatic and terrestrial faunal remains, hearth features, ceramics, and in some cases, human remains and associated funerary objects. Historic-age resources in the region consist of farmsteads and ranches, houses, buildings, bridges, tunnels, oil industry structures, cemeteries, lighthouses, shipwrecks, and the ruins of these buildings and structures. Although historic-age resources can occur anywhere, these sites tend to be concentrated in small towns and urban areas, along roads, and within current and historic navigation paths. Shipwrecks may also occur in numerous locales due to the dynamic nature of the sea floor and bay bottoms and the lack of navigation improvements until the latter part of the nineteenth century. These dynamic conditions can result in shifting shoals and reefs that endanger ships, as well as bury their wrecks as shorelines and bars migrate through time.

A preliminary assessment of the cultural resources within the region was conducted using a desktop review of the databases maintained by the Texas Historical Commission and the Texas Archeological Research Laboratory for terrestrial and marine cultural resources, as well as the shipwreck and obstruction databases of the National Oceanic and Atmospheric Administration and the Bureau of Ocean Energy Management. There are over 3,600 cultural resources located within this region of the upper Texas Coast. These cultural resources include National Historic Landmarks, NRHP listed properties, archeological sites, cemeteries, historical markers, and shipwrecks and submerged resources. The National Historic Landmarks in the six-county study area are all located in the Galveston Region. These are the San Jacinto Battlefield, the Battleship Texas, and the Tall Ship Elissa, as well as National Historic Landmark Districts, the Galveston Strand Historic District and the Galveston East End Historic District. The NRHP Properties are generally located in urban areas and consist of historic houses, commercial and government buildings, and structures. NRHP Properties in the Sabine Region include the Navy Park Historic District, W.H. Stark House, Sims House, and Woodmen of the World Lodge. These are all located in the area that would be protected by the Port Arthur and Vicinity CSRM Plan. NRHP Properties in the Galveston Region include the Main Street/Market Square Historic District, Pomeroy Homestead, Ross S. Sterling House, Ashbel Smith Building, Fort Travis, Washburn Tunnel, and others. NRHP Properties in Brazoria are generally located in more inland areas of the county, with the southernmost property located in Lake Jackson, just inland of the Freeport and Vicinity CSRM project area.

3.10.2.2 Proposed Modified RP

The primary considerations concerning cultural resources are threats from direct impacts on intact terrestrial archeological sites and indirect impacts on historic structures and buildings from

new construction and improvements. A large portion of the study area has been altered for industrial and commercial use. As such, these urban areas have a low probability for intact prehistoric archeological sites to occur. However, there is a moderate to high potential for encountering historic-age archeological sites and cemeteries, as well as historic-age structures and buildings. In those areas outside of the urban centers, the potential for encountering prehistoric archeological sites is moderate to high. There are no proposed actions within marine environments and therefore no potential to impact submerged cultural resources.

The Area of Potential Effect (APE) for this project has been the footprint of the Recommended Plan for direct impacts on archeological resources plus a 1,500-foot buffer for indirect impacts on standing structures or buildings. There are numerous cultural resources that occur near the APE for the Port Arthur Plans; however, most of these resources occur outside of the areas proposed for improvements.

Based on the current information for the proposed levee construction and improvements, USACE determined there was a potential to affect historic properties and cemeteries. These effects consist of direct impacts from earth moving and excavation activities related to construction and potential indirect effects on historic structures such as diminished viewshed from the raising of levees and floodwalls. USACE recommended intensive cultural resources investigations to identify and evaluate any historic properties within proposed construction areas. The scope of these investigations has been determined in concert with the Tribes Texas SHPO and Native American and in accordance with the Programmatic Agreement for this project (Appendix E).

Portions of the Port Arthur APE were surveyed in 2020. Investigations in those sections covered several disjointed segments of the direct-impact zone within the northern and eastern portions of the Port Arthur area. Virtually all of the surveyed locations appear to have been impacted by one or more of a number of activities related to infrastructure associated with Port Arthur, the GIWW, and Sabine Lake.

Additional areas, which were surveyed in 2021, also included scattered survey segments, although more coverage of the direct-impact zone was possible than in the 2020 survey. This was mainly due to access afforded to the area by the DD7 easement and Golden Triangles Properties, LLC. Unfortunately, because most of the survey transects needed to be confined to the DD7 easement, most occurred within a very narrow sliver of land sandwiched between the toe of the existing levee and the edge of the DD7 easement. Still, three archaeological sites were found, all on public land. One (41JF108) was a small, shallowly buried likely prehistoric oyster and Rangia shell deposit, while the others (41JF109 and 41JF110) included trash dumps related to the early and middle portions of the twentieth century. Of those three sites, additional research should be conducted at 41JF108 to determine if it is eligible for inclusion in the NRHP and if it should be considered as an SAL.

Overall, the survey crew was able to excavate 464 shovel tests in Port Arthur during both the 2020 and 2021 investigations. Another 65 locations were recorded as “no-digs,” although several of those were simply areas along the seawall adjacent to the GIWW where visual inspection of the direct-impact zone was undertaken as there were no places available to excavate shovel tests.

To reiterate the public vs. non-public aspect of the Port Arthur survey area, 638 ac of proposed survey parcels (those property parcels within the direct-impact zone not eliminated prior to the fieldwork) fell on public lands, while 168 ac occurred on private property. Most of the public property concerned parcels owned by DD7, although other public entities also were included: City of Port Arthur, Lamar State University at Port Arthur, Port Arthur ISD, Jefferson County, and the Port of Arthur Navigation District. However, of the parcels actually surveyed, only 283 ac occurred on public lands, while 137 ac fell on non-public property.

Field investigations were also conducted in September and October 2021 in Port Arthur survey area. One archaeological site (41JF116) was found in the Port Arthur survey area along the lower reaches of Taylor Bayou. Although no artifacts were found in any of the 11 positive shovel tests that were used to define the site limits, the thickness of the deposit, along with the presence of charcoal and possibly some burned shells, suggests that the site is a true prehistoric shell midden. The site is situated immediately west of the toe of the existing levee, and some of the site area is known to be covered by levee material. Whether the site will be adversely affected by any future levee construction is not known at this time. However, if widening of the levee is planned, then it is recommended that controlled test excavations take place to determine if the site is eligible for inclusion in the NRHP. Given the proximity of the site to the existing levee, backhoe trenching may not be possible. If so, then investigations may need to be confined to systematic augering and controlled hand excavations.

To summarize, for the built environment, USACE has determined there will be no adverse impact to historic architectural properties. Two archeological sites, however, will require additional testing if they cannot be avoided. If one, or both, of these sites is determined eligible for the NRHP, a Memorandum of Agreement would be necessary in order to mitigate the impacts. Mitigation typically involves scientific excavation, a timely and potentially expensive process.

3.11 PRIME AND UNIQUE FARMLAND

3.11.1 Affected Environment

Prime and other unique farmlands in the CSRM plan areas were mapped using the NRCS Web Soil Survey website (USDA 2015). Custom Soil Reports and soil maps were downloaded for each area and area available upon request. Soils were clipped from the USDA database to calculate prime farmland impacts of CSRM Plan construction right-of-ways. No updating of information in this subsection was necessary for the SEA (see Section 7.12.2.1 of the EIS [USACE, 2017]).

3.12 SOCIO-ECONOMICS

3.12.1 Affected Environment

Based off solely demographics, this area already warrants significant consideration for disadvantage communities. Most of the AOI has a below average median household income and has especially high poverty rates of 26.7%. This project would have direct impacts on thirteen different census tracts, and indirect impacts on numerous more.

Census Tract 108 (48245010800)

- High expected building loss rate (98th percentile), reflecting significant annual economic loss from natural hazards.
- High projected flood risk (93rd percentile) and close proximity to Risk Management Plan (RMP) facilities (99th percentile).

Census Tract 66 (48245006600)

- Disadvantaged community with several notable concerns.
- High expected building loss rate (99th percentile) and expected population loss rate (91st percentile).
- High projected flood risk (98th percentile) and low-income communities (94th percentile).
- Significant health indicators: high diabetes rates (93rd percentile) and linguistic isolation (92nd percentile).
- High poverty rates (91st percentile) and proximity to RMP facilities (97th percentile).

Census Tract 51 (48245005100)

- Disadvantaged community with significant environmental risks.
- High expected building loss rate (98th percentile), projected flood risk (99th percentile), and wildfire risk (91st percentile).
- Significant health concerns: high diabetes rates (99th percentile) and heart disease rates (96th percentile).
- Lack of indoor plumbing (93rd percentile) and close proximity to RMP sites (98th percentile).
- Notably, 12% of people aged 25 or older do not have a high school diploma.

Census Tract 101 (48245010100)

- Disadvantaged community with substantial environmental and socio-economic risks.
- High expected building loss rate (97th percentile), projected flood risk (99th percentile), and wildfire risk (95th percentile).
- High energy costs (93rd percentile), diabetes rates (93rd percentile), and proximity to RMP sites (93rd percentile).
- Significant transportation barriers (99th percentile), linguistic isolation (98th percentile), and poverty rates (94th percentile).
- Notably, 59% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 56 (48245005600)

- Disadvantaged community with high environmental risks.
- High expected building loss rate (99th percentile), expected population loss rate (99th percentile), projected flood risk (99th percentile), and wildfire risk (96th percentile).
- High linguistic isolation (98th percentile) and 39% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 55 (48245005500)

- Disadvantaged community with significant environmental and socio-economic concerns.
- High expected building loss rate (97th percentile), projected flood risk (99th percentile), and wildfire risk (96th percentile).
- High diabetes rates (95th percentile), lack of indoor plumbing (91st percentile), and proximity to RMP facilities (92nd percentile).
- High linguistic isolation (92nd percentile) and 32% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 54 (48245005400)

- Disadvantaged community with high environmental and socio-economic risks.
- High expected building loss rate (97th percentile), projected flood risk (99th percentile), and wildfire risk (93rd percentile).
- High energy costs (94th percentile), diabetes rates (98th percentile), heart disease rates (90th percentile), and low life expectancy (99th percentile).
- High lack of indoor plumbing (96th percentile), proximity to RMP facilities (97th percentile), low median income (91st percentile), and high unemployment rate (98th percentile).
- Notably, 27% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 118 (48245011800)

- Disadvantaged community with significant environmental and health concerns.
- High expected building loss rate (97th percentile), projected flood risk (99th percentile), and low-income metric (87th percentile).
- High energy costs (97th percentile), asthma rates (90th percentile), diabetes rates (99th percentile), and heart disease rates (93rd percentile).

- Low life expectancy (99th percentile), high proximity to RMP facilities (99th percentile), and low median income (93rd percentile).
- Notably, 25% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 61 (48245006100)

- Disadvantaged community with high environmental and socio-economic risks.
- High expected building loss rate (97th percentile), projected flood risk (99th percentile), and low-income metric (99th percentile).
- High energy costs (99th percentile), asthma rates (95th percentile), diabetes rates (99th percentile), and heart disease rates (99th percentile).
- High proximity to RMP facilities (98th percentile), low median income (98th percentile), poverty rates (98th percentile), and unemployment rate (94th percentile).
- Notably, 28% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 116 (48245011600)

- Not considered a disadvantaged community but has significant environmental risks.
- High expected agricultural loss rate (96th percentile), expected building loss rate (99th percentile), and expected population loss rate (97th percentile).
- High projected flood risk (98th percentile), lack of indoor plumbing (91st percentile), and transportation barriers (96th percentile).
- Notably, 18% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 69 (48245006900)

- Disadvantaged community with high environmental risks.
- High expected agricultural loss rate (90th percentile), expected building loss rate (99th percentile), and expected population loss rate (95th percentile).
- High projected flood risk (99th percentile), wildfire risk (91st percentile), and diabetes rates (96th percentile).
- High proximity to RMP facilities (91st percentile) and 15% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 71 (48245007100)

- Disadvantaged community with significant environmental risks.

- High expected building loss rate (98th percentile), projected flood risk (99th percentile), and wildfire risk (93rd percentile).
- High low-income metric (74th percentile), low life expectancy (90th percentile), and 17% of the population aged 25 or older have an education level less than a high school diploma.

Census Tract 113.04 (48245011304)

- Not considered a disadvantaged community but has notable environmental risks.
- High expected agricultural loss rate (94th percentile), expected building loss rate (99th percentile), and expected population loss rate (90th percentile).
- High projected flood risk (96th percentile) and transportation barriers (93rd percentile).

Shared Concerns Across Census Tracts:

- High Expected Building Loss Rate: All tracts are in the 96th percentile or above, indicating significant economic loss to building value from natural hazards.
- High Projected Flood Risk: All tracts are in the 93rd percentile or above, highlighting a significant flood risk.
- Proximity to RMP Facilities: Many tracts are in the 90th percentile or above, indicating close proximity to facilities that use or store hazardous substances.
- Health Concerns: Several tracts have high rates of diabetes, heart disease, and asthma, with some also showing low life expectancy.
- Socio-Economic Issues: Many tracts have high poverty rates, low-income metrics, and unemployment. Some also have high linguistic isolation and lack of indoor plumbing.
- Education: A significant percentage of the population aged 25 or older lack a high school diploma in many tracts.

Disadvantaged vs Not Disadvantaged:

- Census Tracts 108, 116, 113.04: Not considered disadvantaged but have significant environmental risks.
- Census Tracts 66, 51, 101, 56, 55, 54, 118, 61, 69, 71: Disadvantaged communities with varying combinations of high environmental, socio-economic, and health concerns.

3.12.2 Environmental Consequences

Based on the findings of a socio-economics review, the Recommended Plan would not significantly disproportionately effect at risk communities such as low-income or minority populations. Any at risk communities in the vicinity of the construction areas may experience temporary increases in noise, traffic, and other disturbances associated with construction. In addition, all at risk communities currently protected by the existing levee system would receive

increased coastal storm risk benefits from the proposed project. For additional information see Section 7.14 Socioeconomic Impacts (Environmental Justice) of the 2017 FIFR-EIS describes the environmental consequences for both the No Action and Recommended Plan alternatives for socioeconomic/ environmental justice and are incorporated by references (USACE 2017).

4.0 ENVIRONMENTAL COMPLIANCE

This section addresses the primary Federal environmental laws, implementing regulations, and executive orders that potentially need to be reevaluated for the proposed modified recommended plan due to changes in design and/or new ESA-listed species. These environmental statutes are summarized below along with a brief description of the law, regulations, and executive orders. The status of compliance and environmental commitments identified for each to date are also included.

Compliance with the following Federal laws, regulations, and executive orders are still applicable for the Authorized Plan and the proposed modified recommended plan due to no new and similar impacts to resources protected by these laws, regulation, and executive orders, and therefore do not trigger updated compliance. The following Federal laws, regulations, and executive orders will not be discussed further: Coastal Barrier Resources Act, Coastal Zone Management, Marine Mammal Protections Act, Clean Air Act, Federal Water Project Recreation Act, Fish and Wildlife Coordination Act, Executive Order (EO) 11988, EO 13045, EO 13175. Refer to Chapter 6 Consistency with Other State and Federal Laws for status of compliance, as described in the 2017 FIFR-EIS.

4.1 FEDERAL STATUTES

4.1.1 National Environmental Policy Act of 1969

NEPA (42 USC 4321 et seq.) provides a commitment that Federal agencies will consider the environmental effects of their actions. It also requires that an Environmental Impact Statement (EIS) or EA be included in every recommendation or report on proposals for legislation and other major Federal actions. The EIS or EA must provide detailed information regarding the TSP and alternatives, the environmental impacts of the alternatives, and potential mitigation measures. Agencies are required to demonstrate that these factors have been considered by decision-makers prior to undertaking actions.

This SEA is the primary vehicle to achieve NEPA compliance for the proposed action. The 30-day public review period on the SEA provides disclosure of the environmental effects of the alternatives to the public. After review and consideration of agency and public comment on the SEA, USACE would proceed to preparation of a final SEA and USACE decision makers would sign a FONSI, outlining the rationale for their decision.

4.1.2 Federal Water Pollution Control Act (Clean Water Act)

The Federal Water Pollution Control Act (33 USC 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA). This Act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The CWA was established to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The CWA sets goals to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The sections of the CWA that may apply to the proposed modified recommended plan are Section 401, regarding state water quality certifications that existing water quality standards would not be violated if a

Federal permit that causes discharges into navigable waters were issued; Section 402, regarding discharges of pollutants from point sources under the National Pollutant Discharge Elimination System (NPDES); and Section 404, regarding fill material discharged into the waters of the U.S., including wetlands.

Section 404 of the Clean Water Act (CWA) regulates dredge-and/or-fill activities in waters of the U.S. Special aquatic sites ("wetlands") would be impacted by construction of PAV02, 03, 04, 05 and 05A. Unavoidable impacts would be fully mitigated by the proposed mitigation plan (Appendix A). The CWA Section 404(b)(1) Evaluation (presented in Appendix C) concludes that the discharge of fill material in conjunction with construction of PAV02, 03, 04, 05, and 05A complies with Section 404(b)(1) Guidelines.

In Texas, Section 401 of the CWA is regulated by the TCEQ. A Section 401water quality certification was received on March 12, 2025, and included as Appendix G.

4.1.3 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531–1544), amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires that Federal agencies consult with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy their designated critical habitats.

USACE has been coordinating with USFWS. No NMFS ESA-listed species or designated critical habitat are located within the project area. Effects to threatened and endangered species and critical habitat have been evaluated with respect to Section 7(a)(2) and informal consultation has been initiated with the submittal of the biological assessment on November 20, 2024. Consultation with USFWS was completed on February 27, 2025, a copy of the concurrence letter is attached in Appendix B.

4.1.4 Migratory Bird Treaty Act and Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. §§ 703–712), as amended, protects over 800 bird species and their habitat, and implements various treaties and conventions between the United States and other countries, including Canada, Japan, Mexico, and Russia, for the protection of migratory birds. Under the act, taking, killing, or possessing migratory birds, or their eggs or nests, is unlawful. The act classifies most species of birds as migratory, except for upland and non-native birds such as pheasant, chukar, gray partridge, house sparrow, European starling, and rock dove. Executive Order 13186, dated January 10, 2001, directs Federal agencies to evaluate the effects of their actions on migratory birds, with emphasis on species of concern, and inform USFWS of potential negative effects to migratory birds.

Sections 3a and 3e of EO 13186 direct Federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential

adverse impacts on migratory birds. Potential impacts to migratory birds associated with the Proposed Modified Recommended Plan are described in Section 3.7.

During construction, avoidance and minimization measure including BMPs would be implemented with the Proposed Modified Recommended Plan. When necessary, the area would be surveyed for migratory birds or their nests before any shrubs or trees are cleared during the nesting season or would be avoided in the nesting season completely.

4.1.5 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.) requires Federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat (EFH). The objective of an EFH assessment is to determine whether the proposed action(s) "may adversely affect" designated EFH for relevant commercial, federally managed fisheries species within the proposed action area. EFH includes those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity managed by Regional Fishery Management Councils in a series of fish management plans.

The modification to the proposed Segments 2 and 4 floodwall would extend those floodwalls outside the existing right-of-way into the Sabine Neches and therefore would require updated EFH consultation. The assessment of EFH in the project area can be found in Section 3.6. This SEA serves to initiate EFH consultation with NMFS. Consultation was completed on December 30, 2024, and a copy of the concurrence letter has been attached in Appendix B.

4.1.6 Farmland Protection Policy Act of 1981 and the CEQ Memorandum on Prime and Unique Agricultural Lands

The purpose of the Farmland Protection Policy Act is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. The act requires among other things, agencies to identify and take into account the adverse effects of Federal programs on the preservation of prime and unique farmlands, and consider alternative actions, as appropriate that could lessen such adverse effects. The CEQ issued a memorandum "Analysis of Prime and Unique Agricultural Lands in Implementing the National Environmental Policy Act" that supplemented NEPA procedures to include analysis of these impacts in NEPA documents. The regulation codifying the Act in 7 CFR Part 658 specified procedures and criteria for the analysis of these impacts. The definitions in this regulation specify that farmland does not include land already used as water storage, which would include open water.

Neither of the planned PAV CSRMS alignments will have any permanent adverse impacts on prime farmlands. For majority of the PAV CSRMS there are not any prime farmland soils within the project areas. For PAV05, the contract would have minimal impacts on prime and unique farmlands with construction of the proposed western levee alignment. Construction of the proposed plan would not make areas outside of the alignment unfarmable; interior drainage patterns would be maintaining conditions and access across the levee system would be possible. Any areas compatible with agricultural use that occur in the vicinity of the proposed alignment would remain fully compatible with agricultural use after project construction. Impacts

on prime and otherwise important farmlands have been minimized to the greatest extent practicable.

4.1.7 Rivers and Harbors Appropriation Act

Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. § 403 et seq.), commonly known as the Rivers and Harbors Act, prohibits the construction of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any navigable water without Congressional consent or approval by USACE. Section 10 regulates structures in or over any navigable water of the U.S., the excavating from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters. Section 9 of the Rivers and Harbors Act (33 U.S.C. § 491) grants the authority to approve the construction or modification of bridges over any of the navigable waters of the U.S. to the U.S. Coast Guard.

The construction of the segments, as part of the federal action, would not obstruct the maintenance of navigation or interfere with navigation safety. This study is compliant with the Rivers and Harbors Act of 1899.

4.1.8 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) and its implementing regulations, 36 Code of Federal Regulations (C.F.R.) Part 800, provides a regulatory framework for the identification, documentation, and evaluation of historic and cultural resources that may be affected by Federal undertakings. Under the Act, Federal agencies must take into account the effects of their undertakings on historic properties, including resources that are listed or are eligible for listing in the National Register of Historic Places, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertaking. Additionally, a Federal agency shall consult with any tribe that attaches religious and cultural significance to such properties. Section 110(f) of the NHPA (54 U.S.C. § 306107) requires USACE to minimize harm to all National Historic Landmarks (NHL) within the Area of Potential Effects to the maximum extent possible.

In the EIS, USACE committed to a development of a mitigation plan will be developed in PED when surveys and site assessments are completed. Surveys and assessments have been ongoing during PED for Port Arthur. Surveys have been conducted for the majority of the proposed footprints. If impacts are identified, archeological historic properties would require data recovery excavations or avoidance, and cemeteries would need disinterment and interment of burials to a new location. The relocation of burials from impacted cemeteries might also involve purchasing land if other arrangements cannot be made. No work shall be conducted until all surveys and site assessments are completed if no resources are impacted. If resources are impacted, a mitigation plan and coordination with the State Historical Preservation Office (SHPO) shall occur. No work will proceed until all coordination and concurrence is received in compliance with the law.

No updating of information in this subsection was necessary for the SEA (see Section 6.4.3 of the EIS [USACE, 2017]).

4.1.9 Compensatory Mitigation for Losses of Aquatic Resources (40 CFR Part 230 and 33 CFR Parts 325 and 33

Section 2036(a) of WRDA 2007 (33 USC 2283) required, among other things, that mitigation plans comply with the applicable mitigation standards and policies of the regulatory programs administered by the Secretary of the Army. On April 10, 2008, USACE and USEPA published regulations entitled, "Compensatory Mitigation for Losses of Aquatic Resources" ("Mitigation Rule"). The primary goal of these regulations was to improve the quality and success of compensatory mitigation plans that are designed and implemented to offset impacts to aquatic resources. The Mitigation Rule emphasizes the strategic selection of mitigation sites on a watershed basis and established equivalent standards for all types of compensatory mitigation (mitigation banks, in-lieu fee programs, and permittee-responsible mitigation plans). According to the regulation, compensatory mitigation means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of wetlands for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. The three mechanisms for providing compensatory mitigation listed in order of preference as stated in the Mitigation Rule are the following: mitigation banks, in-lieu fee programs, and permittee-responsible mitigation. Compensatory mitigation is necessary to offset these unavoidable impacts to aquatic resource functions and services and to meet the programmatic goal of "no overall net loss" of aquatic resource functions and services.

Implementation Guidance for Section 2036(a) issued 31 August 2009 concluded that civil works guidance on mitigation planning was consistent with the standards and polices of USACE Regulatory Program for wetlands mitigation. However, the Mitigation Rule underlies the mitigation framework laid out for compensatory mitigation of the adverse effects to wetlands that are expected from the Federal action. This framework is described in detail in the Mitigation Plan in Appendix A.

4.2 EXECUTIVE ORDERS

4.2.1 Executive Order 11990, Protection of Wetlands

Executive Order 11990, dated May 24, 1977, requires Federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetland destruction and preserve the values of wetlands, and to prescribe procedures to implement the policies and procedures of this executive order. In addition, Federal agencies shall incorporate floodplain management goals and wetlands protection considerations into its planning, regulatory, and decision-making processes.

USACE has evaluated potential direct and indirect effects on wetlands from the federal action and taken considerable steps to avoid adverse effects. After avoidance and minimization, USACE has identified that approximately 104 acres of wetlands would be adversely affected by the Federal action and approximately 146 acres of wetland habitat function lost would be offset through compensatory mitigation. The steps that USACE has and will take to avoid, minimize and mitigate for adverse effects of the Federal action on wetlands are described in the Mitigation Plan found in Appendix A. This SEA and the proposed action are in compliance with this Executive Order.

5.0 COORDINATION AND PUBLIC INVOLVEMENT

5.1 NEPA PUBLIC INVOLVEMENT

Both the 2017 FIFR-EIS and 2023 SEA conducted NEPA public involvement efforts. To summarize the 2017 FIFR-EIS NEPA public involvement, USACE published the Notice of Intent to prepare an EIS in the Federal Register on November 24, 2014 (79 FR 69841). Written comments were accepted for a 30-day period following that notice. In total, about 20 written comments were received following the public meetings and NOI. The Notice of Availability and draft IFR-EIS were released for a 45-day public comment period from September 11 to October 26, 2015. Public meetings on the draft IFR-EIS were held on October 6 and 8, 2015, in Beaumont and Freeport, Texas, respectively. Refer to Appendix F Public Coordination of the 2017 FIFR-EIS for more detail.

The 2023 SEA had a 30-day public comment period from August 8 to September 6, 2022, and received approximately three comment letters.

The public comment period, during which any person or organization may comment on the draft EIS, is mandated by Federal laws. For this draft SEA, the public comment was from December 9, 2024, to January 9, 2025, and received one comment letter. The complete list of comments received on the draft SEA and responses will be included as an appendix to the final SEA.

The 2025 FONSI had a 15-day public comment period from February 6, 2025 to February 21, 2025, and received no comments.

5.2 AGENCY INVOLVEMENT

USACE has been coordinating with resource agencies and will continue through the NEPA process and ESA and EFH consultations.

USFWS issued a concurrence letter on February 27, 2025. This letter has been included as an attachment to Appendix B.

NMFS issued a letter on “no objection” on December 30, 2024. This letter has been included as an attachment to Appendix B.

TCEQ issued water quality certification on March 12, 2025. This letter has been included as Appendix G.

6.0 REFERENCES

Environmental Impact Statement (FIFR-EIS) for S2G evaluated three distinct project areas including Orange County, Port Arthur and Vicinity, and Freeport and Vicinity (USACE 2017)

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