

## **Appendix C-6**

# **Coastal Zone Management Act Coordination – Consistency Determination**

Job No. TGL18185

## **APPENDIX C-6**

**DRAFT**  
**TEXAS COASTAL ZONE MANAGEMENT PROGRAM**  
**CONSISTENCY DETERMINATION**  
**FOR THE**  
**COASTAL TEXAS PROTECTION AND RESTORATION STUDY**

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and  
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## Acronyms and Abbreviations

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CNRA	coastal natural resource area
CSRM	coastal storm risk management
DIFR-EIS	Draft Integrated Feasibility Report and Environmental Impact Statement
ER	ecosystem restoration
GIWW	Gulf Intracoastal Waterway
Gulf	Gulf of Mexico
HEP	Habitat Evaluation Procedure
NED	National Economic Development
NEPA	National Environmental Policy Act
NER	National Ecosystem Restoration
PL	Public Law
ppt	parts per thousand
ROW	right-of-way
RSLR	relative sea level rise
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TSP	Tentatively Selected Plan
USACE	U.S. Army Corps of Engineers
WRDA	Water Resources Development Act
WVA	Wetland Value Assessment

## 1.0 INTRODUCTION

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Along the Texas coast, vital resources critical to the economic and environmental welfare of the Nation are at risk from coastal storm damage. This area is home to 40 percent of the Nation's petrochemical industry, 25 percent of national petroleum-refining capacity, eight deep-draft ports, and 750 miles of shallow-draft channels (including 400 miles of the Gulf Intracoastal Waterway [GIWW]). The region and critical transportation infrastructure are at risk without a comprehensive plan to protect, restore, and maintain a robust coastal ecosystem and reduce the risk of storm damage to industries and businesses critical to the Nation's economy and protect the health and safety of Texas coastal communities. The study area for the Coastal Texas Protection and Restoration Study (Coastal Texas Study) consists of the entire Texas Gulf Coast from the mouth of the Sabine River to the mouth of the Rio Grande and includes the Gulf of Mexico (Gulf) and tidal waters, barrier islands, estuaries, coastal wetlands, rivers and streams, and adjacent areas that make up the interrelated ecosystem along the coast of Texas. The study area encompasses 18 coastal counties along the Gulf coast and bayfronts. It also includes critical coastal ecosystems in need of restoration, including wetlands, seagrass beds, sea turtle nesting habitat, piping plover critical habitat, and whooping crane critical habitat, as well as numerous State and Federal wildlife refuges (U.S. Army Corps of Engineers [USACE], 2015). Additional information can be found in Section 1 (Introduction and Purpose) of the Draft Integrated Feasibility Report and Environmental Impact Statement (DIFR-EIS).

The feasibility study identifies critical data needs and recommends a comprehensive strategy for reducing coastal storm flood risk through structural and nonstructural measures that take advantage of natural features like barrier islands and storm surge storage in wetlands. Structural alternatives to be considered include improvements to existing systems (such as existing hurricane protection projects at Texas City, Freeport, and Lynchburg and seawalls at Galveston and South Padre Island), and the creation of new structural plans for coastal storm risk management (CSRM). Ecosystem restoration (ER) alternatives to be considered include estuarine marsh restoration, beach and dune restoration, rookery island restoration, oyster reef restoration, and seagrass bed restoration (USACE, 2015). As noted in Engineer Regulation 1105-2-100, CSRM and ER are two of the USACE's high-priority authorized missions. Additional information can be found in Section 1 (Introduction and Purpose) of the DIFR-EIS.

This DIFR-EIS examines CSRM and ER opportunities within 18 counties along the entire Texas Gulf coast. The report presents the investigation of comprehensive water resources management for the Texas Gulf coast to ensure public safety and benefit the Nation, while balancing the primary missions of navigation, flood, and hurricane storm damage reduction and environmental stewardship. This DIFR-EIS will be used to inform decisionmakers, stakeholders, and the public of the tradeoffs that should be considered in future decisions to maintain existing coastal storm risk levels and/or reduce coastal storm risk along the Texas Gulf coast. Additional information can be found in Section 1 (Introduction and Purpose) of the DIFR-EIS.

The CSRM planning goals promote a sustainable economy by reducing the risk of storm damage to residential structures, industries, and businesses critical to the Nation's economy. The CSRM measures and alternatives were formulated to achieve National Economic Development (NED) principles and objectives. CSRM features include

surge barrier gates, levees, floodwalls, pump stations, and, potentially, nonstructural approaches (e.g., buyouts, policy changes, etc.). Additional information can be found in Section 1 (Introduction and Purpose) of the DIFR-EIS.

The planning goals for ER sustainably reduce coastal erosion, restore fish and wildlife habitat, and include a range of coastal restoration components to address a multitude of ecosystem problems. ER measures and alternatives were formulated to achieve National Ecosystem Restoration (NER) principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources and are measured in the study area and nationwide. ER measures and alternatives include a collection of projects intended to restore oyster reefs, marshes, beaches and dunes, tidal hydrology, and bird islands. Additional information can be found in Section 1 (Introduction and Purpose) of the DIFR-EIS.

The study is authorized under Section 4091, Water Resources Development Act (WRDA) of 2007 Public Law (PL) 110-114 which states:

*“Sec. 4091. Coastal Texas Ecosystem Protection and Restoration, Texas.*

*(a) In General. — The Secretary shall develop a comprehensive plan to determine the feasibility of carrying out projects for flood damage reduction, hurricane and storm damage reduction, and ecosystem restoration in the coastal areas of the State of Texas.*

*(b) Scope. — The comprehensive plan shall provide for the protection, conservation, and restoration of wetlands, barrier islands, shorelines, and related lands and features that protect critical resources, habitat, and infrastructure from the impacts of coastal storms, hurricanes, erosion, and subsidence.*

*(c) Definition. — For purposes of this section, the term “coastal areas in the State of Texas” means the coastal areas of the State of Texas from the Sabine River on the east to the Rio Grande on the west and includes tidal waters, barrier islands, marshes, coastal wetlands, rivers and streams, and adjacent areas.”*

This Consistency Determination is applied to the Tentatively Selected Plan (TSP) which consists of 1) the Coastal Barrier CSRM measure, 2) a collection of 9 ER measures, and 3) the South Padre Island CSRM measure. Additional information can be found in Section 4 (Formulation and Evaluation of Alternative Plans) of the DIFR-EIS.

## **2.0 IMPACTS ON COASTAL NATURAL RESOURCE AREAS**

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### **2.1 WATERS OF THE OPEN GULF OF MEXICO**

ER measures that target beach and dune restoration may use shoreface and offshore sediment sources for large-scale nourishment. Potential shoreface sources could include areas in front of Bolivar Peninsula, Galveston Island, Follets Island, and South Padre Island; potential offshore sources include the Sabine and Heald banks.

### **2.2 WATERS UNDER TIDAL INFLUENCE**

Much of the Tentatively Selected Plan (TSP) would be constructed within waters under tidal influence. Although there would be direct impacts from dredging and placement activities, ER measures are intended to improve coastal resources such as wetlands, bird islands, oyster reefs, and beaches and dunes (and these coastal resources are also located within waters under tidal influence). Some ER measures may have some localized and relative minor effect to hydrosalinity gradients near marshes that are restored. W-3, an ER measure that involves maintenance dredging of the Mansfield Channel, is anticipated to positively influence hydrosalinity within the Lower Laguna Madre through water exchange with the Gulf. McAlpin et al. (2018) performed estuarine modeling on the Coastal Barrier CSRM measure only; no modeling was performed on the other measures.

The Coastal Barrier CSRM measure would have the following impacts to waters under tidal influence within Galveston Bay (McAlpin et al., 2018):

- Relatively minor amounts of vertical salinity stratification may result from the TSP; however, minor amounts of vertical salinity stratification are present under the existing conditions.
- Modeling predicts a 16.5 percent reduction in the average tidal prism at Bolivar Roads and a tidal amplitude reduction up to 0.23 foot in areas of the bay.
- Freshwater retention times would increase; due to increased freshwater retention times, average salinity is expected to decrease by 2 parts per thousand.

### **2.3 SUBMERGED LANDS**

Much of the TSP would be constructed within submerged lands. The Coastal Barrier and South Padre Island CSRM measures would be constructed partially on submerged lands. Most of the ER measures would be constructed on submerged lands; however, those submerged lands were identified by an interagency team of coastal resource managers as critical coastal areas requiring restoration actions. Long-term positive impacts to submerged lands are expected due to restoration actions.

### **2.4 COASTAL WETLANDS**

The Coastal Barrier CSRM measure may indirectly affect coastal wetlands by altering hydrosalinity gradients, tidal amplitude, and tidal prism (these changes would result in some loss of coastal wetlands). Habitat Evaluation Procedure (HEP) modeling was used to identify potential impacts to coastal wetlands, as well as appropriate

mitigation. Several ER measures are intended to restore degraded coastal wetlands and long-term positive impacts are anticipated. Short-term localized impacts are expected during marsh restoration activities as a result of increased turbidity, or thin-layer placement, for example.

## **2.5 SUBMERGED AQUATIC VEGETATION**

No direct impacts to submerged aquatic vegetation are anticipated. ER measure SP-1 is intended to protect and promote seagrass by restoring several islands, installing breakwaters, and establishing oyster reef on the perimeter of a large area of seagrass. ER measure W-3 is intended to improve tidal exchanges within the Lower Laguna Madre (through hydrological restoration of the Mansfield Channel), which is expected to restore and promote seagrass.

## **2.6 TIDAL SAND AND MUD FLATS**

CSRM measures would not directly impact tidal sand or mud flats. Some ER measures include marsh fills in areas where tidal sand and mud flats occur due to recent marsh loss. According to National Oceanic and Atmospheric Administration sea level rise models, areas that are currently tidal sand or mud flats would become subtidal by 2065 and would no longer be intermittently exposed (and thus no longer tidal sand and mud flats). Some ER actions are intended to restore elevations to maintain coastal resources.

## **2.7 OYSTER REEFS**

Mapped oyster reefs were avoided with the Coastal Barrier CSRM measure. Positive impacts to oysters are expected as some ER measures include features that establish oyster reef through cultch placement or reef balls. Oysters may also colonize breakwater features of ER measures. Establishment of oyster reefs would yield long-term benefits including increasing sources of larval oysters to promote general resiliency and sustainability. Unmapped scattered oysters may occur in ER and CSRM project footprints (such as within Offatts Bayou), and preconstruction surveys would document impacts and necessary mitigation.

## **2.8 HARD SUBSTRATE REEFS**

No positive or negative impacts to hard substrate reefs would result from the TSP.

## **2.9 COASTAL BARRIERS**

The Coastal Barrier CSRM measure is intended to fortify Galveston Island and Bolivar Peninsula with a levee system. ER measures consisting of beach and dune restoration (on Bolivar Peninsula and Galveston and Follets Island) would have positive impacts in terms of maintaining coastal barriers. ER measures restoring marshes on the backside of Bolivar Peninsula and Galveston and Follets Island would also help maintain these coastal barriers.



## **2.10 COASTAL SHORE AREAS**

Some portions of the Coastal Barrier CSRM would be constructed within 100 feet landward of the high tide line, which is within coastal shore areas. The Coastal Barrier CSRM measure is intended to protect these coastal shore areas during storm surges.

## **2.11 GULF BEACHES**

Several ER measures (on Bolivar Peninsula and Galveston and Follets Island) and the South Padre Island CSRM measure would include restoration of beaches and dune. These restoration actions would help maintain gulf beaches against forces of erosion and sea level rise.

## **2.12 CRITICAL DUNE AREAS**

Several ER measures (on Bolivar Peninsula and Galveston and Follets Island) and the South Padre Island CSRM measure would include restoration of beaches and dune. These restoration actions would help maintain Gulf beaches and dunes against forces of erosion and sea level rise.

## **2.13 SPECIAL HAZARD AREAS**

Most of the TSP would be constructed within the 100-year floodplain. The project is intended to provide CSRM and ER measures, which should improve the natural storm-buffer functions offered by wetlands, islands, and oyster reefs.

## **2.14 CRITICAL EROSION AREAS**

Many ER measures were designed to address areas that are known for high rates of erosion and were considered critical for restoration by State and Federal agencies during planning phases.

## **2.15 COASTAL HISTORIC AREAS**

No impacts to coastal historic areas are expected; however, CSRM features may help preserve coastal historic areas during storm events.

## **2.16 COASTAL PRESERVES**

Some ER measures are intended to address current erosion problems and future land loss (based on relative sea level rise modeling predictions); some of these areas include national wildlife refuges, state parks, and wildlife management areas.

## **2.17 COMPLIANCE WITH GOALS AND POLICIES**

The following goals and policies of the Texas Coastal Management Program were reviewed for compliance:

- §501.15 – Policy for Major Actions
- §501.23 – Policies for Development in Critical Areas
- §501.25 – Policies for Dredging and Dredged Material Disposal and Placement
- §501.28 – Policies for Development Within Coastal Barrier Resource System Units and Otherwise Protected Areas on Coastal Barriers
- §501.29 – Policies for Development in State Parks, Wildlife Management Areas or Preserves

**2.17.1 Section 501.15 – Policy for Major Actions**

- (a) *For purposes of this section, "major action" means an individual agency or subdivision action listed in §505.11 of this title (relating to Actions and Rules Subject to the Coastal Management Program), §506.12 of this title (relating to Federal Actions Subject to the Coastal Management Program), or §505.60 of this title (relating to Local Government Actions Subject to the Coastal Management Program), relating to an activity for which a Federal environmental impact statement under the National Environmental Policy Act, 42 United States Code Annotated, §4321, et seq. is required.*
- (b) *Prior to taking a major action, the agencies and subdivisions having jurisdiction over the activity shall meet and coordinate their major actions relating to the activity. The agencies and subdivisions shall, to the greatest extent practicable, consider the cumulative and secondary adverse effects, as described in the Federal environmental impact assessment process, of each major action relating to the activity.*
- (c) *No agency or subdivision shall take a major action that is inconsistent with the goals and policies of this chapter. In addition, an agency or subdivision shall avoid and otherwise minimize the cumulative adverse effects to coastal natural resource areas of each of its major actions relating to the activity.*

**Compliance: The Coastal Texas Study is a Federal action that includes the preparation of and EIS under the National Environmental Policy Act (NEPA). All plan formulations have included coordination with an interagency team consisting of State and Federal agencies. The TSP will comply with the goals and policies of this chapter. The TSP is intended to be beneficial by reducing coastal storm risks and providing more ecological restoration; any unavoidable impacts would be mitigated.**

**2.17.2 Section 501.23 – Policies for Development in Critical Areas**

- (a) *Dredging and construction of structures in, or the discharge of dredged or fill material into, critical areas shall comply with the policies in this section. In implementing this section, cumulative and secondary adverse effects of these activities will be considered.*

- (1) *The policies in this section shall be applied in a manner consistent with the goal of achieving no net loss of critical area functions and values.*
- (2) *Persons proposing development in critical areas shall demonstrate that no practicable alternative with fewer adverse effects is available.*

**Compliance: HEPs were used to determine benefits and impacts of the TSP. The planning leading to the TSP considered numerous alternative CSRMs and ER alternatives. Additional mitigation projects have been identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRMs measure.**

- (3) *In evaluating practicable alternatives, the following sequence shall be applied:*
  - (A) *Adverse effects on critical areas shall be avoided to the greatest extent practicable.*
  - (B) *Unavoidable adverse effects shall be minimized to the greatest extent practicable by limiting the degree or magnitude of the activity and its implementation.*
  - (C) *Appropriate and practicable compensatory mitigation shall be required to the greatest extent practicable for all adverse effects that cannot be avoided or minimized.*

**Compliance: The TSP includes ER measures that would be beneficial to critical areas. The planning leading to the TSP considered numerous alternative CSRMs and ER alternatives. Additional mitigation projects have been identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRMs measure.**

- (4) *Compensatory mitigation includes restoring adversely affected critical areas or replacing adversely affected critical areas by creating new critical areas. Compensatory mitigation should be undertaken, when practicable, in areas adjacent or contiguous to the affected critical areas (on-site). If on-site compensatory mitigation is not practicable, compensatory mitigation should be undertaken in close physical proximity to the affected critical areas if practicable and in the same watershed if possible (off-site). Compensatory mitigation should also attempt to replace affected critical areas with critical areas with characteristics identical to or closely approximating those of the affected critical areas (in-kind). The preferred order of compensatory mitigation is: (A) on-site, in-kind; (B) off-site, in-kind; (C) on-site, out-of-kind; and (D) off-site, out-of-kind.*

**Compliance: HEPs were used to determine benefits and impacts of the TSP. The planning leading to the TSP considered numerous alternative CSRMs and ER alternatives. Additional mitigation projects have been identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRMs measure.**

- (5) *Mitigation banking is acceptable compensatory mitigation if use of the mitigation bank has been approved by the agency authorizing the development and mitigation credits are*

*available for withdrawal. Preservation through acquisition for public ownership of unique critical areas or other ecologically important areas may be acceptable compensatory mitigation in exceptional circumstances. Examples of this include areas of high priority for preservation or restoration, areas whose functions and values are difficult to replicate, or areas not adequately protected by regulatory programs. Acquisition will normally be allowed only in conjunction with preferred forms of compensatory mitigation.*

**Compliance: For impacts to freshwater wetlands from levee construction of the Coastal Barrier CSRM measure, mitigation banks may be considered as an option. HEPs were used to determine benefits and impacts of the TSP. Additional mitigation projects have been identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRM measure.**

- (6) *In determining compensatory mitigation requirements, the impaired functions and values of the affected critical area shall be replaced on a one-to-one ratio. Replacement of functions and values on a one-to-one ratio may require restoration or replacement of the physical area affected on a ratio higher than one-to-one. While no net loss of critical area functions and values is the goal, it is not required in individual cases where mitigation is not practicable or would result in only inconsequential environmental benefits. It is also important to recognize that there are circumstances where the adverse effects of the activity are so significant that, even if alternatives are not available, the activity may not be permitted regardless of the compensatory mitigation proposed.*

**Compliance: Additional mitigation projects have been identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRM measure, with HEPs used to identify impaired functions and values.**

- (7) *Development in critical areas shall not be authorized if significant degradation of critical areas will occur. Significant degradation occurs if:*
- (A) *the activity will jeopardize the continued existence of species listed as endangered or threatened, or will result in likelihood of the destruction or adverse modification of a habitat determined to be a critical habitat under the Endangered Species Act, 16 United States Code Annotated, §§1531 - 1544;*

**Compliance: The TSP is expected to have long-term benefits to Federally listed species through ER measures. Short-term, localized impacts may occur during dredging and placement operations.**

- (B) *the activity will cause or contribute, after consideration of dilution and dispersion, to violation of any applicable surface water quality standards established under §501.21 of this title;*

**Compliance: The TSP would comply with all State and Federal water quality standards; a 404(b)1 evaluation has been prepared for this project and will be submitted to the Texas Commission on Environmental Quality (TCEQ) for approval.**

- (C) *the activity violates any applicable toxic effluent standard or prohibition established under §501.21 of this title;*

**Compliance: The TSP would only use clean sediments for construction and toxic effluent would not result. The TSP would comply with all State and Federal water quality standards; a 404(b)(1) evaluation has been prepared for this project and will be submitted to TCEQ for approval.**

- (D) *the activity violates any requirement imposed to protect a marine sanctuary designated under the Marine Protection, Research, and Sanctuaries Act of 1972, 33 United States Code Annotated, Chapter 27; or*

**Compliance: The TSP would not affect any marine sanctuaries.**

- (E) *taking into account the nature and degree of all identifiable adverse effects, including their persistence, permanence, areal extent, and the degree to which these effects will have been mitigated pursuant to subsections (c) and (d) of this section, the activity will, individually or collectively, cause or contribute to significant adverse effects on:*
- (i) *human health and welfare, including effects on water supplies, plankton, benthos, fish, shellfish, wildlife, and consumption of fish and wildlife;*
  - (ii) *the life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, or spread of pollutants or their byproducts beyond the site, or their introduction into an ecosystem, through biological, physical, or chemical processes;*
  - (iii) *ecosystem diversity, productivity, and stability, including loss of fish and wildlife habitat or loss of the capacity of a coastal wetland to assimilate nutrients, purify water, or reduce wave energy; or*
  - (iv) *generally accepted recreational, aesthetic or economic values of the critical area which are of exceptional character and importance.*

**Compliance: The TSP includes CSRSM and ER measures. The CSRSM measures are intended to reduce coastal storm risk, which is a benefit to human health and welfare. ER measures are intended have long-**

**term benefits to the overall ecology of the coast, including plankton, benthos, fish, shellfish, and wildlife. During construction, localized temporary effects to these resources may occur.**

- (b) *The TCEQ and the RRC shall comply with the policies in this section when issuing certifications and adopting rules under Texas Water Code, Chapter 26, and the Texas Natural Resources Code, Chapter 91, governing certification of compliance with surface water quality standards for federal actions and permits authorizing development affecting critical areas; provided that activities exempted from the requirement for a permit for the discharge of dredged or fill material, described in Code of Federal Regulations, Title 33, §323.4 and/or Code of Federal Regulations, Title 40, §232.3, including but not limited to normal farming, silviculture, and ranching activities, such as plowing, seeding, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices, shall not be considered activities for which a certification is required. The GLO and the SLB shall comply with the policies in this section when approving oil, gas, or other mineral lease plans of operation or granting surface leases, easements, and permits and adopting rules under the Texas Natural Resources Code, Chapters 32, 33 and 51–53, and Texas Water Code, Chapter 61, governing development affecting critical areas on state submerged lands and private submerged lands, and when issuing approvals and adopting rules under Texas Natural Resources Code, Chapter 221, for mitigation banks operated by subdivisions of the state.*

**Compliance: The TSP would comply with all State and Federal water quality standards. This project does not involve agricultural actions, oil and gas activities, or establishment of a mitigation bank.**

- (c) *Agencies required to comply with this section will coordinate with one another and with federal agencies when evaluating alternatives, determining appropriate and practicable mitigation, and assessing significant degradation. Those agencies' rules governing authorizations for development in critical areas shall require a demonstration that the requirements of subsection (a)(1)–(7) of this section have been satisfied.*

**Compliance: All plan formulations have included coordination with an interagency team consisting of State and Federal agencies. The TSP is would comply with the goals and policies of this chapter. The TSP is intended to be beneficial by reducing coastal storm risks and providing more ecological restoration; any unavoidable impacts would be mitigated.**

- (d) *For any dredging or construction of structures in, or discharge of dredged or fill material into, critical areas that is subject to the requirements of §501.15 of this title (relating to Policy for Major Actions), data and information on the cumulative and secondary adverse effects of the project need not be produced or evaluated to comply with this section if such data and information is produced and evaluated in compliance with §501.15(b)–(c) of this title.*

**Compliance: The Coastal Texas Study is a Federal action that includes the preparation of an EIS under the NEPA. All plan formulations included coordination with an interagency team consisting of State and**

**Federal agencies. The TSP is would comply with the goals and policies of this chapter. The TSP is intended to be beneficial by reducing coastal storm risks and providing more ecological restoration; any unavoidable impacts would be mitigated. Cumulative and secondary impacts were evaluated in Section 501.15(b)–(c) of this compliance document.**

**2.17.3 Section 501.25 – Dredging and Dredged Material Disposal and Placement**

- (a) *Dredging and the disposal and placement of dredged material shall avoid and otherwise minimize adverse effects to coastal waters, submerged lands, critical areas, coastal shore areas, and Gulf beaches to the greatest extent practicable. The policies of this section are supplemental to any further restrictions or requirements relating to the beach access and use rights of the public. In implementing this section, cumulative and secondary adverse effects of dredging and the disposal and placement of dredged material and the unique characteristics of affected sites shall be considered.*

**Compliance: The TSP includes dredging and placement actions within coastal waters, submerged lands, critical areas, critical shore areas, and Gulf beaches; however, the TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. All plan formulations included coordination with an interagency team consisting of State and Federal agencies. Any unavoidable impacts would be mitigated.**

- (1) *Dredging and dredged material disposal and placement shall not cause or contribute, after consideration of dilution and dispersion, to violation of any applicable surface water quality standards established under §501.21 of this title.*

**Compliance: The TSP would only use clean sediments for construction, which would minimize the potential for toxic effluent. The TSP would comply with all State and Federal water quality standards; a 404(b)(1) evaluation was prepared for this project and will be submitted to TCEQ for approval.**

- (2) *Except as otherwise provided in paragraph (4) of this subsection, adverse effects on critical areas from dredging and dredged material disposal or placement shall be avoided and otherwise minimized, and appropriate and practicable compensatory mitigation shall be required, in accordance with §501.23 of this title.*

**Compliance: For impacts to freshwater wetlands from levee construction of the Coastal Barrier CSRM measure, mitigation banks may be considered as an option. HEPs and Wetland Value Assessments (WVAs) were used to determine benefits and impacts of the TSP. Additional mitigation projects were identified to offset unavoidable tidal wetland impacts from the Coastal Barrier CSRM measure.**

- (3) *Except as provided in paragraph (4) of this subsection, dredging and the disposal and placement of dredged material shall not be authorized if:*

- (A) *there is a practicable alternative that would have fewer adverse effects on coastal waters, submerged lands, critical areas, coastal shore areas, and Gulf beaches, so long as that alternative does not have other significant adverse effects;*

**Compliance: The planning leading to the TSP considered numerous alternative CSRM and ER alternatives. All plan formulations included coordination with an interagency team consisting of State and Federal agencies. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Any unavoidable impacts would be mitigated.**

- (B) *all appropriate and practicable steps have not been taken to minimize adverse effects on coastal waters, submerged lands, critical areas, coastal shore areas, and Gulf beaches; or*

**Compliance: The planning leading to the TSP considered numerous alternative CSRM and ER alternatives. All plan formulations included coordination with an interagency team consisting of State and Federal agencies. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Any unavoidable impacts would be mitigated.**

- (C) *significant degradation of critical areas under §501.23(a)(7)(E) of this title would result.*

**Compliance: The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies.**

- (4) *A dredging or dredged material disposal or placement project that would be prohibited solely by application of paragraph (3) of this subsection may be allowed if it is determined to be of overriding importance to the public and national interest in light of economic impacts on navigation and maintenance of commercially navigable waterways.*

**Compliance: The TSP is intended to be beneficial by reducing coastal storm risks and providing more ecological restoration. Reducing coastal storm risks and ecological restoration for this area is of public and national interest as demonstrated within the EIS prepared for the TSP.**



- (b) *Adverse effects from dredging and dredged material disposal and placement shall be minimized as required in subsection (a) of this section. Adverse effects can be minimized by employing the techniques in this subsection where appropriate and practicable.*

**Compliance: The planning leading to the TSP considered numerous alternative CSRM and ER alternatives. All plan formulations included coordination with an interagency team consisting of State and Federal agencies. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies.**

- (1) *Adverse effects from dredging and dredged material disposal and placement can be minimized by controlling the location and dimensions of the activity. Some of the ways to accomplish this include:*
- (A) *locating and confining discharges to minimize smothering of organisms;*
  - (B) *locating and designing projects to avoid adverse disruption of water inundation patterns, water circulation, erosion and accretion processes, and other hydrodynamic processes;*
  - (C) *using existing or natural channels and basins instead of dredging new channels or basins, and discharging materials in areas that have been previously disturbed or used for disposal or placement of dredged material;*
  - (D) *limiting the dimensions of channels, basins, and disposal and placement sites to the minimum reasonably required to serve the project purpose, including allowing for reasonable overdredging of channels and basins, and taking into account the need for capacity to accommodate future expansion without causing additional adverse effects;*
  - (E) *discharging materials at sites where the substrate is composed of material similar to that being discharged;*
  - (F) *locating and designing discharges to minimize the extent of any plume and otherwise control dispersion of material; and*
  - (G) *avoiding the impoundment or drainage of critical areas.*

**Compliance: The planning leading to the TSP considered numerous alternative CSRM and ER alternatives. All plan formulations included coordination with an interagency team consisting of State and Federal agencies. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the**

**areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Avoidance, minimization, and best management practices would be employed as best as practicable.**

- (2) *Dredging and disposal and placement of material to be dredged shall comply with applicable standards for sediment toxicity. Adverse effects from constituents contained in materials discharged can be minimized by treatment of or limitations on the material itself. Some ways to accomplish this include:*
- (A) *disposal or placement of dredged material in a manner that maintains physiochemical conditions at discharge sites and limits or reduces the potency and availability of pollutants;*
  - (B) *limiting the solid, liquid, and gaseous components of material discharged;*
  - (C) *adding treatment substances to the discharged material; and*
  - (D) *adding chemical flocculants to enhance the deposition of suspended particulates in confined disposal areas.*

**Compliance: The TSP would only use clean sediments for construction and toxic effluent would not result. The TSP would comply with all State and Federal water quality standards; a 404(b)(1) evaluation has been prepared for this project and will be submitted to TCEQ for approval.**

- (3) *Adverse effects from dredging and dredged material disposal or placement can be minimized through control of the materials discharged. Some ways of accomplishing this include:*
- (A) *use of containment levees and sediment basins designed, constructed, and maintained to resist breaches, erosion, slumping, or leaching;*
  - (B) *use of lined containment areas to reduce leaching where leaching of chemical constituents from the material is expected to be a problem;*
  - (C) *capping in-place contaminated material or, selectively discharging the most contaminated material first and then capping it with the remaining material;*
  - (D) *properly containing discharged material and maintaining discharge sites to prevent point and nonpoint pollution; and*
  - (E) *timing the discharge to minimize adverse effects from unusually high water flows, wind, wave, and tidal actions.*

**Compliance: Avoidance, minimization, and best management practices would be employed as best as practicable. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies.**

- (4) *Adverse effects from dredging and dredged material disposal or placement can be minimized by controlling the manner in which material is dispersed. Some ways of accomplishing this include:*
- (A) *where environmentally desirable, distributing the material in a thin layer;*
  - (B) *orienting material to minimize undesirable obstruction of the water current or circulation patterns;*
  - (C) *using silt screens or other appropriate methods to confine suspended particulates or turbidity to a small area where settling or removal can occur;*
  - (D) *using currents and circulation patterns to mix, disperse, dilute, or otherwise control the discharge;*
  - (E) *minimizing turbidity by using a diffuser system or releasing material near the bottom;*
  - (F) *selecting sites or managing discharges to confine and minimize the release of suspended particulates and turbidity and maintain light penetration for organisms; and*
  - (G) *setting limits on the amount of material to be discharged per unit of time or volume of receiving waters.*

**Compliance: Avoidance, minimization, and best management practices would be employed as best as practicable. The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures would include thin-layer placement and confinement methods when needed.**

- (5) *Adverse effects from dredging and dredged material disposal or placement operations can be minimized by adapting technology to the needs of each site. Some ways of accomplishing this include:*
- (A) *using appropriate equipment, machinery, and operating techniques for access to sites and transport of material, including those designed to reduce damage to critical areas;*

- (B) *having personnel on site adequately trained in avoidance and minimization techniques and requirements; and*
- (C) *designing temporary and permanent access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high-water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement.*

**Compliance: Avoidance, minimization, and best management practices would be employed as best as practicable, including those methods outlined in Subsection (b) 5 (A)–(C). The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration.**

- (6) *Adverse effects on plant and animal populations from dredging and dredged material disposal or placement can be minimized by:*
  - (A) *avoiding changes in water current and circulation patterns that would interfere with the movement of animals;*
  - (B) *selecting sites or managing discharges to prevent or avoid creating habitat conducive to the development of undesirable predators or species that have a competitive edge ecologically over indigenous plants or animals;*
  - (C) *avoiding sites having unique habitat or other value, including habitat of endangered species;*
  - (D) *using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics;*
  - (E) *using techniques that have been demonstrated to be effective in circumstances similar to those under consideration whenever possible and, when proposed development and restoration techniques have not yet advanced to the pilot demonstration stage, initiating their use on a small scale to allow corrective action if unanticipated adverse effects occur;*
  - (F) *timing dredging and dredged material disposal or placement activities to avoid spawning or migration seasons and other biologically critical time periods; and*
  - (G) *avoiding the destruction of remnant natural sites within areas already affected by development.*

**Compliance: The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Avoidance, minimization, and best management practices would be employed as best as practicable.**

- (7) *Adverse effects on human use potential from dredging and dredged material disposal or placement can be minimized by:*
- (A) *selecting sites and following procedures to prevent or minimize any potential damage to the aesthetically pleasing features of the site, particularly with respect to water quality;*
  - (B) *selecting sites which are not valuable as natural aquatic areas;*
  - (C) *timing dredging and dredged material disposal or placement activities to avoid the seasons or periods when human recreational activity associated with the site is most important; and*
  - (D) *selecting sites that will not increase incompatible human activity or require frequent dredge or fill maintenance activity in remote fish and wildlife areas.*

**Compliance: The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Avoidance, minimization, and best management practices would be employed as best as practicable.**

- (8) *Adverse effects from new channels and basins can be minimized by locating them at sites:*
- (A) *that ensure adequate flushing and avoid stagnant pockets; or*
  - (B) *that will create the fewest practicable adverse effects on coastal natural resource areas (CNRAs) from additional infrastructure such as roads, bridges, causeways, piers, docks, wharves, transmission line crossings, and ancillary channels reasonably likely to be constructed as a result of the project; or*
  - (C) *with the least practicable risk that increased vessel traffic could result in navigation hazards, spills, or other forms of contamination which could adversely affect CNRAs;*
  - (D) *provided that, for any dredging of new channels or basins subject to the requirements of §501.15 of this title (relating to Policy for Major Actions),*

*data and information on minimization of secondary adverse effects need not be produced or evaluated to comply with this paragraph if such data and information is produced and evaluated in compliance with §501.15(b)(1) of this title.*

**Compliance: The TSP is intended to result in positive impacts and beneficial effects by reducing coastal storm risks and providing more ecological restoration. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Avoidance, minimization, and best management practices would be employed as best as practicable. Cumulative and secondary impacts were evaluated in Section 501.15(b)–(c) of this compliance document.**

(c) *Disposal or placement of dredged material in existing contained dredge disposal sites identified and actively used as described in an environmental assessment or environmental impact statement issued prior to the effective date of this chapter shall be presumed to comply with the requirements of subsection (a) of this section unless modified in design, size, use, or function.*

**Compliance: Use of contained dredge disposal sites or modifications of a contained dredge disposal site is not anticipated as part of the TSP.**

(d) *Dredged material from dredging projects in commercially navigable waterways is a potentially reusable resource and must be used beneficially in accordance with this policy.*

(1) *If the costs of the beneficial use of dredged material are reasonably comparable to the costs of disposal in a non-beneficial manner, the material shall be used beneficially.*

(2) *If the costs of the beneficial use of dredged material are significantly greater than the costs of disposal in a non-beneficial manner, the material shall be used beneficially unless it is demonstrated that the costs of using the material beneficially are not reasonably proportionate to the costs of the project and benefits that will result. Factors that shall be considered in determining whether the costs of the beneficial use are not reasonably proportionate to the benefits include, but are not limited to:*

(A) *environmental benefits, recreational benefits, flood or storm protection benefits, erosion prevention benefits, and economic development benefits;*

(B) *the proximity of the beneficial use site to the dredge site; and*

(C) *the quantity and quality of the dredged material and its suitability for beneficial use.*

(3) *Examples of the beneficial use of dredged material include, but are not limited to:*

- (A) *projects designed to reduce or minimize erosion or provide shoreline protection;*
- (B) *projects designed to create or enhance public beaches or recreational areas;*
- (C) *projects designed to benefit the sediment budget or littoral system;*
- (D) *projects designed to improve or maintain terrestrial or aquatic wildlife habitat;*
- (E) *projects designed to create new terrestrial or aquatic wildlife habitat, including the construction of marshlands, coastal wetlands, or other critical areas;*
- (F) *projects designed and demonstrated to benefit benthic communities or aquatic vegetation;*
- (G) *projects designed to create wildlife management areas, parks, airports, or other public facilities;*
- (H) *projects designed to cap landfills or other waste disposal areas;*
- (I) *projects designed to fill private property or upgrade agricultural land, if cost-effective public beneficial uses are not available; and*
- (J) *projects designed to remediate past adverse impacts on the coastal zone.*

**Compliance: The TSP includes a variety of ER measures that would use maintenance materials beneficially on large areas. All other materials would be used for CSRMs. ER measures include beneficial use for many of the project types described in Subsection (d) 3 (A)–(J).**

(e) *If dredged material cannot be used beneficially as provided in subsection (d)(2) of this section to avoid and otherwise minimize adverse effects as required in subsection (a) of this section, preference will be given to the greatest extent practicable to disposal in:*

- (1) *contained upland sites;*
- (2) *other contained sites; and*
- (3) *open water areas of relatively low productivity or low biological value.*

**Compliance: The TSP includes a variety of ER measures that would use maintenance materials beneficially on large areas. All other materials would be used for CSRMs. The use of contained upland sites or open waters is not anticipated.**

- (f) *For new sites, dredged materials shall not be disposed of or placed directly on the boundaries of submerged lands or at such location so as to slump or migrate across the boundaries of submerged lands in the absence of an agreement between the affected public owner and the adjoining private owner or owners that defines the location of the boundary or boundaries affected by the deposition of the dredged material.*

**Compliance: The TSP includes a variety of ER measures that would use maintenance materials beneficially on large areas. No privately submerged lands are anticipated to be affected by the TSP.**

**2.17.4 Section 501.28 – Policies for Development Within Coastal Barrier Resource System Units and Otherwise Protected Areas on Coastal Barriers**

- a) *Development of new infrastructure or major repair of existing infrastructure within or supporting development within Coastal Barrier Resource System Units and Otherwise Protected Areas designated on maps dated October 24, 1990, as those maps may be modified, revised, or corrected, under the Coastal Barrier Resources Act, 16 United States Code Annotated, §3503(a), shall comply with the policies in this section.*

- (1) *Development of publicly funded infrastructure shall be authorized only if it is essential for public health, safety, and welfare, enhances public use, or is required by law.*

**Compliance: The TSP includes CSRMs and ER measures that would be constructed within Coastal Barrier Resources Act Units on Bolivar Peninsula, in the form of a levee (CSRMs), estuarine restoration (ER), and beach and dune restoration (ER). The CSRMs measures are intended to reduce coastal storm risk, which is a benefit to public health, safety, and welfare. ER measures are intended have long-term benefits to the overall ecology of the coast, including plankton, benthos, fish, shellfish, and wildlife. The TSP would also enhance public use by restoring degraded coastal natural resources.**

- (2) *Infrastructure shall be located at sites at which reasonably foreseeable future expansion will not require development in critical areas, critical dunes, Gulf beaches, and, washover areas within Coastal Barrier Resource System Units or Otherwise Protected Areas.*

**Compliance: The levee associated with the CSRMs measure is currently planned for an alignment with an existing roadway right-of-way (ROW); however, there is some possibility of a beach alignment for the CSRMs measure. ER measures beach and dune restoration would include routine nourishments on Gulf beaches. Despite the placement of CSRMs and ER measures on Coastal Barrier Resources Act units on Bolivar Peninsula, the TSP is intended to be beneficial to coastal barrier resources and yield long-term positive impacts.**

- (3) *Infrastructure shall be located at sites that, to the greatest extent practicable, avoid and otherwise minimize the potential for adverse effects on critical areas, critical dunes, Gulf*



*beaches, and washover areas within Coastal Barrier Resource System Units or Otherwise Protected Areas from:*

- A. construction and maintenance of roads, bridges, and causeways; and*
- B. direct release to coastal waters, critical areas, critical dunes, Gulf beaches, and washover areas within Coastal Barrier Resource System Units or Otherwise Protected Areas of oil, hazardous substances, or stormwater runoff.*

**Compliance: CSRSM and ER measures on Coastal Barrier Resources Act Units on Bolivar Peninsula would not result in impacts from roadway, bridge, or causeway construction, nor would the TSP result in the release of oil, hazardous substances, or stormwater runoff.**

- (4) There practicable, infrastructure shall be located in existing rights-of-way or previously disturbed areas to avoid or minimize adverse effects within Coastal Barrier Resource System units or Otherwise Protected Areas.*

**Compliance: The levee associated with the CSRSM measure is currently planned for an alignment with an existing roadway ROW; however, there is some possibility of a beach alignment for the CSRSM measure. ER measures beach and dune restoration would include routine nourishments on Gulf beaches. Despite the placement of CSRSM and ER measures on Coastal Barrier Resources Act units on Bolivar Peninsula, the TSP is intended to be beneficial to coastal barrier resources and yield long-term positive impacts.**

- (5) Development of infrastructure shall occur at sites and times selected to have the least adverse effects practicable within Coastal Barrier Resource System Units or Otherwise Protected Areas on critical areas, critical dunes, Gulf beaches, and washover areas and on spawning or nesting areas or seasonal migrations of commercial, recreational, threatened, or endangered terrestrial or aquatic wildlife.*

**Compliance: The TSP is intended to have positive impacts resulting from the CSRSM and ER measures. ER measures were explicitly identified because the areas need restoration and were considered some of the more critical areas needing action by State and Federal agencies. Avoidance, minimization, and best management practices would be employed as best as practicable.**

- b) TCEQ rules and approvals for the creation of special districts and for infrastructure projects funded by issuance of bonds by water, sanitary sewer, and wastewater drainage districts under Texas Water Code, Chapters 49, 50, and 59; water control and improvement districts under Texas Water Code, Chapter 50; municipal utility districts under Texas Water Code, Chapter 54; regional plan implementation agencies under Texas Water Code, Chapter 54; special utility districts under Texas Water Code, Chapter 65; stormwater control districts under Texas Water Code, Chapter 66; and all other general and special law districts subject to and within the jurisdiction of the TCEQ, shall comply with the policies in this section. TxDOT rules and*

*approvals under Texas Transportation Code Chapter 201, et seq., governing planning, design, construction, and maintenance of transportation projects, shall comply with the policies in this section.*

**Compliance: The TSP would comply with all applicable State and Federal regulations and requirements.**

**2.17.5           Section 501.29 – Policies for Development in state parks,  
wildlife management areas, or preserves**

*Development by a person other than the Parks and Wildlife Department that requires the use or taking of any public land in such areas shall comply with Texas Parks and Wildlife Code, Chapter 26 Protection of Public Parks and Recreational Lands.*

**Compliance: The TSP includes ER measures on Texas Parks and Wildlife Department (TPWD) public lands. All plan formulations have included coordination with an interagency team consisting of State and Federal agencies, including representatives of TPWD. The TSP would comply with the goals and policies of this chapter. The TSP is intended to be beneficial in terms of reducing coastal storm risks and providing more ecological restoration.**

- McAlpin, J., C. Ross, and J. McKnight. 2018. Draft Coastal Texas Region 1 (CTR1) Estuarine Numerical Modeling Report. ERDC/CHL TR-18-XX. USACE Engineer Research and Development Center, Coastal and Hydraulics Laboratory. Vicksburg, Mississippi. 278 pp.
- U.S. Army Corps of Engineers (USACE). 2015. Final Reconnaissance 905(b) Report – Coastal Texas Restoration and Protection Study. 74 pages.

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