

APPENDIX A

**TEXAS COASTAL MANAGEMENT PROGRAM (CMP)
COMPLIANCE WITH GOALS AND POLICIES**

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Section 501.14(h)	Development in Critical Areas
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The purpose of the CMP is to effectively manage Texas' coastal resources through goals and policies established by the Coastal Coordination Council. Thus, certain State and Federal actions should be consistent with the established goals and policies of the CMP. For Federal permits for development, dredging, or dredged material placement in critical areas (coastal wetlands, SAV, oyster reefs, tidal sand or mud flats), a certificate of compliance with water quality requirements must be issued.

Section 501.14(h) Development in Critical Areas.

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

(A) *The policies in this subsection shall be applied in a manner consistent with the goal of achieving no net loss of critical area functions and values.*

Compliance: The project has been designed to minimize adverse impacts to critical areas, by following an existing dredged channel for the majority of the alignment and by extending the new channel through an intermittently open washover pass. The channel was sited to avoid seagrasses to the extent possible and seagrass habitat will be created.

(B) *Persons proposing development in critical areas shall demonstrate that no practicable alternative with fewer adverse effects is available.*

(i) *The person proposing the activity shall demonstrate that the activity is water-dependent. If the activity is not water-dependent, practicable alternatives are presumed to exist, unless the person clearly demonstrates otherwise.*

(ii) *The analysis of alternatives shall be conducted in light of the activity's overall purpose.*

- (iii) *Alternatives may include different operation or maintenance techniques or practices or a different location, design, configuration, or size.*

Compliance: The project is a channel, which will provide access to the Gulf of Mexico and the dredging of which will provide sand for beach restoration. Thus, it is water dependent. Alternatives were defined by WRDA of 1999.

- (C) *In evaluating practicable alternatives, the following sequence shall be applied:*
 - (i) *Adverse effects on critical areas shall be avoided to the greatest extent practicable.*
 - (ii) *Unavoidable adverse effects shall be minimized to the greatest extent practicable by limiting the degree or magnitude of the activity and its implementation.*
 - (iii) *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 USACE was directed by Congress, in Section 556 of WRDA of 1999 (PL 106-53, 8/17/99), to carry out a project for ecosystem restoration and storm damage reduction at North Padre Island, Texas. A Project Study Plan, prepared by the USACE in 1999, examined three alternative sites, including Packery Channel. Three different channel widths under three different salinity regimes were also examined to determine the environmental benefits of an opening between the Laguna Madre and the Gulf of Mexico. The environmental benefits of all alternatives were essentially negligible. Based on this information, only the proposed action was fully developed and compared with the No-Action alternative in this Draft EIS (DEIS).

Unavoidable adverse impacts to critical areas has been minimized by shifting the channel alignment to avoid beds of submerged aquatic vegetation. The channel design incorporated benched areas upslope from the channel bottom to support shallow water habitat for potential seagrass recruitment. A 3:1 mitigation ratio is being proposed for seagrass replacement.

- (D) *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:*
 - (i) *on-site, in-kind;*
 - (ii) *off-site, in-kind;*

(iii) on-site, out-of-kind; and

(iv) off-site, out-of-kind.

Compliance: Approximately 5.4 acres of shallow benched areas above the channel bottom were designed to support seagrass recruitment and will supply on-site, in-kind mitigation. Loss of approximately 5.2 acres of SAV beds and 1.5 acres of tidal flats are estimated. Proposed secondary recreational development will impact 0.3 acre of tidal flats. There is no proposed tidal flat mitigation. A 3:1 mitigation for impacts to seagrass will be proposed to the FWS.

(E) *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: Not applicable.

(F) *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: Loss of 5.2 acres of patchy seagrass beds will be replaced by a proposed 3:1 ratio, resulting in creation of 15.6 acres. In addition, potential opportunity for SAV recruitment will occur within 5.4 acres of shallow benched areas.

(G) *Development in critical areas shall not be authorized if significant degradation of critical areas will occur. Significant degradation occurs if:*

(i) *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;*

- (ii) *the activity will cause or contribute, after consideration of dilution and dispersion, to violation of any applicable surface water quality standards established under subsection (f) of this section;*
- (iii) *the activity violates any applicable toxic effluent standard or prohibition established under subsection (f) of this section;*
- (iv) *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*
- (v) *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 subparagraphs (C) and (D) of this paragraph, 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 proposed project will not jeopardize the continued existence of species listed as endangered or threatened. The proposed channel and jetty construction will remove approximately 6.2 acres of critical habitat for the piping plover, primarily along the beach and shore that is part of a county park beach. Approximately 24.6 acres of beach within the critical habitat area will be temporarily impacted with sand placement for beach nourishment. The proposed beach nourishment will restore beach erosion in these areas and also provide additional forage habitat for the piping plover.

The proposed activity violates no Texas Water Quality Standard and will impact no marine sanctuary.

The proposed projects will not contribute to significant adverse effects on the human health and welfare, aquatic organisms and wildlife or their habitat, ecosystem diversity or health, or recreation.

- (2) *The TNRCC and the RRC shall comply with the policies in this subsection 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 subsection 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 Civil Statutes, Article 5421u, for mitigation banks operated by subdivisions of the state.

Compliance: No certification is required from the RRC, but information is supplied in this DEIS pertinent to a TNRCC Section 401 water quality certification.

- (3) *Agencies required to comply with this subsection 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 paragraph (1)(A)-(G) of this subsection have been satisfied.*

Compliance: Information is supplied in this DEIS relative to TNRCC Section 401 water quality certification, the Texas Coastal Management Plan, and those Federal laws and regulations noted in Section 7.0 of the DEIS.

- (4) *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 affects of the project need not be produced or evaluated to comply with this subsection if such data and information is produced and evaluated in compliance with §501.15(b)-(c) of this title (relating to Policy for Major Actions).*

Compliance: This project involves action subject to §501.15 and constitutes a major action. Coordination has occurred among the State and Federal agencies having jurisdiction over the proposed activity and this DEIS will be sent to them. Additionally, cumulative impacts are considered in Section 5.0 of this DEIS.

Section 501.14(i) Construction of Waterfront Facilities and Other Structures on Submerged Lands.

(1) *Development on submerged lands shall comply with the policies in this subsection.*

(A) *Marinas shall be designed and, to the greatest extent practicable, sited so that tides and currents will aid in flushing of the site or renew its water regularly.*

Compliance: Not applicable.

(B) *Marinas designed for anchorage of private vessels shall provide facilities for the collection of waste, refuse, trash, and debris.*

Compliance: Not applicable.

(C) *Marinas with the capacity for long-term anchorage of more than ten vessels shall provide pump-out facilities for marine toilets, or other such measures or facilities that provide an equal or better level of water quality protection.*

Compliance: Not applicable.

(D) *Marinas, docks, piers, wharves and other structures shall be designed and, to the greatest extent practicable, sited to avoid and otherwise minimize adverse effects on critical areas from boat traffic to and from those structures.*

Compliance: Not applicable.

(E) *Construction of docks, piers, wharves, and other structures shall be preferred instead of authorizing dredging of channels or basins or filling of submerged lands to provide access to coastal waters if such construction is practicable, environmentally preferable, and will not interfere with commercial navigation.*

Compliance: Not applicable.

(F) *Piers, docks, wharves, bulkheads, jetties, groins, fishing cabins, and artificial reefs (including artificial reefs for compensatory mitigation) shall be limited to the minimum necessary to serve the project purpose and shall be constructed in a manner that:*

(i) *does not significantly interfere with public navigation;*

(ii) *does not significantly interfere with the natural coastal processes which supply sediments to shore areas or otherwise exacerbate erosion of shore areas; and*

(iii) *avoids and otherwise minimizes shading of critical areas and other adverse effects.*

Compliance: This project has been designed to accommodate public navigation. The vessel size limit is based on the structural limitations of the SH 361 bridge over Packery Channel. A sand bypassing system is proposed at the jetties to redistribute accreted sand as beach nourishment to the eroded shoreline.

- (G) *Facilities shall be located at sites or designed and constructed to the greatest extent practicable to avoid and otherwise minimize the potential for adverse effects from:*
 - (i) *construction and maintenance of other development associated with the facility;*
 - (ii) *direct release to coastal waters and critical areas of pollutants from oil or hazardous substance spills or stormwater runoff; and*
 - (iii) *deposition of airborne pollutants in coastal waters and critical areas.*

Compliance: The project location was defined by WRDA 1999. No adverse impacts to other development, no release of oil or hazardous substances are anticipated, although the potential exists, albeit small, no stormwater runoff, and no deposition of significant airborne pollution are expected. These items are addressed in this DEIS.

- (H) *Where practicable, pipelines, transmission lines, cables, roads, causeways, and bridges shall be located in existing rights-of-way or previously disturbed areas if necessary to avoid or minimize adverse effects and if it does not result in unreasonable risks to human health, safety, and welfare.*

Compliance: Proposed park roads or road expansions will be designed to minimize adverse effects and built with human safety in mind. Underground utility placement has also been designed in locations that minimize adverse effects.

- (I) *To the greatest extent practicable, construction of facilities shall occur at sites and times selected to have the least adverse effects on recreational uses of CNRAs and on spawning or nesting seasons or seasonal migrations of terrestrial and aquatic wildlife.*

Compliance: The timing of beach placement will require coordination with the local sponsor and Federal agencies to determine the appropriate season for construction activities on the beach but, overall, the activity will increase opportunity for recreational uses. The beach areas are used by the public and also as foraging habitat for the piping plover and other shorebirds.

- (J) *Facilities shall be located at sites which avoid the impoundment and draining of coastal wetlands. If impoundment or draining cannot be avoided, adverse effects to the impounded or drained wetlands shall be mitigated in accordance with the sequencing requirements of subsection (h) of this section. To the greatest extent practicable, facilities shall be located at sites at which expansion will not result in development in critical areas.*

Compliance: No impounding or draining of wetlands is expected.

- (K) *Where practicable, piers, docks, wharves, bulkheads, jetties, groins, fishing cabins, and artificial reefs shall be constructed with materials that will not cause any adverse effects on coastal waters or critical areas.*

Compliance: Construction materials used for this project will not cause any adverse effects on coastal waters or critical areas.

- (L) *Developed sites shall be returned as closely as practicable to pre-project conditions upon completion or cessation of operations by the removal of facilities and restoration of any significantly degraded areas, unless:*
- (i) *the facilities can be used for public purposes or contribute to the maintenance or enhancement of coastal water quality, critical areas, beaches, submerged lands, or shore areas; or*
 - (ii) *restoration activities would further degrade CNRAs.*

Compliance: All areas temporarily disturbed by equipment, temporary roads, or material shall be restored to the original or better conditions, except those designed for public purposes.

- (M) *Water-dependent uses and facilities shall receive preference over those uses and facilities that are not water-dependent.*
- (N) *Nonstructural erosion response methods such as beach nourishment, sediment bypassing, nearshore sediment berms, and planting of vegetation shall be preferred instead of structural erosion response methods.*

Compliance: This is a water-dependent project. Beach nourishment is proposed for two areas located north and south of the proposed jetties. Sand dredged from the proposed channel will be deposited on the beach to aid in restoration of the eroding beach. A sand bypass system will be used to transfer accreted sand from either side of the jetty to the appropriate beach location for nourishment.

- (O) *Major residential and recreational waterfront facilities shall to the greatest extent practicable accommodate public access to coastal waters and preserve the public's ability to enjoy the natural aesthetic values of coastal submerged lands.*

Compliance: The amenities proposed for the activity are for beach-front public use.

- (P) *Activities on submerged land shall avoid and otherwise minimize any significant interference with the public's use of and access to such lands.*

Compliance: The channel will not significantly interfere with the public's use and access. The channel construction and proposed recreational developments will provide additional access to recreation activities for boating, fishing, and use of the beach.

- (Q) *Erosion of Gulf beaches and coastal shore areas caused by construction or modification of jetties, breakwaters, groins, or shore stabilization projects shall be mitigated to the extent the costs of mitigation are reasonably proportionate to the benefits of mitigation. Factors that shall be considered in determining whether the costs of mitigation are reasonably proportionate to the cost of the construction or modification and benefits include, but are not limited to, environmental benefits, recreational benefits, flood or storm protection benefits, erosion prevention benefits, and economic development benefits.*

Compliance: Beach nourishment to eroded shoreline along with some storm protection benefits will be provided by construction of this proposed project.

- (2) *To the extent applicable to the public beach, the policies in this subsection are supplemental to any further restrictions or requirements relating to the beach access and use rights of the public.*

Compliance: The City of Corpus Christi, local sponsor, will provide guidelines for beach construction activities on the public beach areas.

- (3) *The GLO and the SLB, in governing development on state submerged lands, shall comply with the policies in this subsection when approving oil, gas, and other mineral lease plans of operation and 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.*

Compliance: The City of Corpus Christi, as local sponsor, has negotiated with the General Land Office.

Section 501.14(j) Dredging and Dredged Material Disposal and Placement

- (1) *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 subsection are supplemental to any further restrictions or requirements relating to the beach access and use rights of the public. In implementing this subsection, 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: Construction dredging and jetty placement of the proposed Packery Channel would impact 2.9 acres of submerged aquatic vegetation, approximately 3.7 acres of high salt marsh, 1.6 acres of primary/secondary dune complexes, 0.1 acre of tidal flats, and 6.1 acres of beach. The channel alignment was altered as much as practicable to avoid seagrasses, and 5.4 acres of shallow-water habitat will be created by the channel benches, potentially allowing for natural recruitment of seagrasses. Approximately 8 acres of Gulf of Mexico bottom habitat will be impacted by the excavation of the channel and 2.9 acres for placement of fill for the jetties. A sand bypass system will be installed to remove sand that accumulates updrift of the jetties. This material, in addition to much of the construction material, will be used for beach nourishment (a beneficial use) at PA 4, totaling 46 acres. Impacts to coastal communities from the placement of dredged material in the placement areas will displace approximately 3.9 acres of channel fill sands, 13.5 acres of primary/secondary dune complexes, and 2.8 acres of beach for PA 1; 0.8 acre of submerged aquatic vegetation, 4.3 acres of high salt marsh, 1.2 acres of tidal flats, 0.1 acre of channel fill sands, 0.2 acre of upland grasslands, 8.6 acres of primary/secondary dune complexes, and 0.3 acre of beach for PA 2; and 1.5 acres of submerged aquatic vegetation, 3.1 acres of emergent wetlands (low and high salt marsh), 0.2 acre of algal flats, 2.1 acres of upland grasslands, and 0.2 acre of open water for PA 3. Placement material at the MMPA would potentially impact 7.5 acres of upland grasslands. Potential secondary recreational development will impact 0.3 acre of tidal flats, 3.4 acres of primary/secondary dune complexes, and 3.7 acres of beach.

- (A) *Dredging and dredged material disposal and placement shall not cause or contribute, after consideration of dilution and dispersions to violation of any applicable surface water quality standards established under subsection (f) of this section.*

Compliance: For placement areas, adequate dilution and dispersion occurs so as not to violate applicable surface water quality standards. The materials from the proposed channel area have been tested and meet standards (DEIS Sections 3.2.3, 3.3, 4.2, 4.3).

- (B) *Except as otherwise provided in subparagraph (D) of this paragraph, 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 subsection (h) of this section.*

Compliance: Some critical areas (coastal wetlands, submerged aquatic vegetation, and tidal flats) will be affected by the project but others may be created. Shallow-water habitat (approximately 5.4 acres) will be

created above the channel bottoms on side benches. Beach nourishment is proposed for approximately 46 acres. Potential submerged aquatic vegetation mitigation for Packery Channel at the proposed BU Site GH for the CCSCCIP will be suggested to the FWS. A proposed 3 to 1 ratio (to be discussed with the FWS) will account for planting approximately 15.6 acres of seagrass.

(C) *Except as provided in subparagraph (D) of this paragraph, dredging and the disposal and placement of dredged material shall not be authorized if:*

(i) *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: Channel construction and placement of new work and maintenance material have been designed to maximize enhancement to the environment. The proposed channel deepening and widening is following an existing channel for approximately 2.6 miles, thus minimizing impacts to undisturbed areas. The new portion of the channel extending 0.9 mile is designed to use an historic, intermittent washover area. There is no practicable alternative to the location of the project in the coastal shore area of Gulf beach for it to operate as intended. Therefore, there are no practicable alternatives that would have greater beneficial effects and maintain the purpose of the project.

(ii) *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: All practicable steps have been taken to minimize adverse effects on these resources. Natural areas outside of the project will be demarcated as off-limits to construction activities. Relocation and revegetation of 5,670 cy of dunes (approximately 1.5 acres) has been proposed by the City of Corpus Christi in their dune protection permit application to the GLO.

(iii) *significant degradation of critical areas under subsection (h)(1)(G)(v) of this section would result.*

Compliance: Some critical areas will be affected by the project, as noted above. However, these have been minimized. Creation of shallow-water habitat will occur, and eroding beach areas will be nourished with sand from new work and maintenance material.

(D) *A dredging or dredged material disposal or placement project that would be prohibited solely by application of subparagraph (C) of this paragraph 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: Application of subparagraph (C) does not prohibit the construction or maintenance of Packery Channel. Dredging is necessary to reopen and maintain Packery Channel.

- (2) *Adverse effects from dredging and dredged material disposal and placement shall be minimized as required in paragraph (1) of this subsection. Adverse effects can be minimized by employing the techniques in this paragraph where appropriate and practicable.*

Compliance: Adverse effects of dredging and disposal as described in this DEIS have been minimized as described under "Compliance" for paragraph (1) of this subsection.

- (A) *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:*
- (i) *locating and confining discharges to minimize smothering of organisms;*
 - (ii) *locating and designing projects to avoid adverse disruption of water inundation patterns, water circulation, erosion and accretion processes, and other hydrodynamic processes;*
 - (iii) *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;*
 - (iv) *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;*
 - (v) *discharging materials at sites where the substrate is composed of material similar to that being discharged;*
 - (vi) *locating and designing discharges to minimize the extent of any plume and otherwise control dispersion of material; and*
 - (vii) *avoiding the impoundment or drainage of critical areas.*

Compliance: Changes in water circulation, and thus salinity, will have a minor improvement to fisheries. The existing channel and basins are being utilized to the extent practicable. Most discharged material will be used for beach nourishment. No impoundment or draining of critical areas will occur.

- (B) *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:*

- (i) *disposal or placement of dredged material in a manner that maintains physicochemical conditions at discharge sites and limits or reduces the potency and availability of pollutants;*
- (ii) *limiting the solid, liquid, and gaseous components of material discharged;*
- (iii) *adding treatment substances to the discharged material; and*
- (iv) *adding chemical flocculants to enhance the deposition of suspended particulates in confined disposal areas,*

Compliance: While there are no standards for sediment toxicity, sediments to be dredged from Packery Channel have been tested for a variety of chemical parameters of concern to resource agencies. Sediments located in Packery Channel reveal trace metal contaminants, as is common for the Upper Laguna Madre. All non-sandy material will be placed in upland confined placement areas. A summary of this information is included in the DEIS.

- (C) *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:*
 - (i) *use of containment levees and sediment basins designed, constructed, and maintained to resist breaches, erosion, slumping, or leaching;*
 - (ii) *use of lined containment areas to reduce leaching where leaching of chemical constituents from the material is expected to be a problem;*
 - (iii) *capping in-place contaminated material or, selectively discharging the most contaminated material first and then capping it with the remaining material;*
 - (iv) *properly containing discharged material and maintaining discharge sites to prevent point and nonpoint pollution; and*
 - (v) *timing the discharge to minimize adverse effects from unusually high water flows, wind, wave, and tidal actions.*

Compliance: All non-sandy material will be placed in upland confined placement areas. Sandy material will be used beneficially to nourish nearby beaches.

- (D) *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:*
 - (i) *where environmentally desirable, distributing the material in a thin layer;*

- (ii) *orienting material to minimize undesirable obstruction of the water current or circulation patterns;*
- (iii) *using silt screens or other appropriate methods to confine suspended particulates or turbidity to a small area where settling or removal can occur;*
- (iv) *using currents and circulation patterns to mix, disperse, dilute, or otherwise control the discharge;*
- (v) *minimizing turbidity by using a diffuser system or releasing material near the bottom;*
- (vi) *selecting sites or managing discharges to confine and minimize the release of suspended particulates and turbidity and maintain light penetration for organisms; and*
- (vii) *setting limits on the amount of material to be discharged per unit of time or volume of receiving waters.*

Compliance: In PAs where fill will be composed of fine-grained material, ponding to allow for settling of solids will be accomplished by blocking the weir structure. Once sediments have settled, the weir blockage is removed and effluent is allowed to drain from the PA. Placement into PA 3 and PA 2 may alternate to allow sufficient settling to occur, thus preventing turbid water discharge.

(E) *Adverse effects from dredging and dredged material disposal or placement operations can be minimized by adopting technology to the needs of each site. Some ways of accomplishing this include:*

- (i) *using appropriate equipment, machinery, and operating techniques for access to sites and transport of material, including those designed to reduce damage to critical areas;*
- (ii) *having personnel on site adequately trained in avoidance and minimization techniques and requirements; and*
- (iii) *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: All dredging and placement of dredged material will be from water-based equipment. A sand bypass system will be installed to reduce future maintenance dredging at the mouth of the channel. Effluent from upland confined PAs will be returned to the channel via a weir and a drainage ditch to avoid adverse effects to nearby resources. Adjacent natural areas to the project will be demarcated as off-limits to construction activities.

- (F) *Adverse effects on plant and animal populations from dredging and dredged material disposal or placement can be minimized by:*
- (i) *avoiding changes in water current and circulation patterns that would interfere with the movement of animals;*
 - (ii) *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;*
 - (iii) *avoiding sites having unique habitat or other values including habitat of endangered species;*
 - (iv) *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;*
 - (v) *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;*
 - (vi) *timing dredging and dredged material disposal or placement activities to avoid spawning or migration seasons and other biologically critical time periods; and*
 - (vii) *avoiding the destruction of remnant natural sites within areas already affected by development.*

Compliance: Changes in water circulation will provide minor but positive benefits. No sites that are advantageous to predators or non-indigenous species are proposed. There is no unique habitat in the project impact area, although approximately 6.2 acres of piping plover critical habitat will be dredged for the channel. Approximately 24.6 acres of beach nourishment will be placed onto critical habitat areas, resulting in temporary impacts. Beach placement of new materials would be scheduled from May to July to avoid the period when piping plovers may be using the area. All appropriate material will be used for beach nourishment.

- (G) *Adverse effects on human use potential from dredging and dredged material disposal or placement can be minimized by:*
- (i) *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;*
 - (ii) *selecting sites which are not valuable as natural aquatic areas;*

- (iii) *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*
- (iv) *selecting sites that will not increase incompatible human activity or require frequent dredge or fill maintenance activity in remote fish and wildlife areas.*

Compliance: Opening Packery Channel will increase recreational boating opportunities. Beach nourishment and the other amenities will increase the aesthetics of the area but decrease it for others. A sand bypass system will be installed to reduce dredging frequency at the mouth of the channel. Placement of sand on the beach may temporarily restrict use of the area by the public for recreational use.

- (H) *Adverse effects from new channels and basins can be minimized by locating them at sites:*
 - (i) *that ensure adequate flushing and avoid stagnant pockets; or*
 - (ii) *that will create the fewest practicable adverse effects on CNRAs (Coastal Natural Resource Areas) 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*
 - (iii) *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;*
 - (iv) *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 subparagraph if such data and information is produced and evaluated in compliance with §501.15(b)(1) of this title (relating to Policy for Major Actions).*

Compliance: Adequate flushing will occur. Adverse effects, including those to CNRAs, have been minimized, and while 5.2 acres of submerged aquatic vegetation will be impacted, 5.4 acres of shallow-water habitat will be created for potential SAV recruitment. Potential SAV mitigation at the proposed BU Site GH for CCSCCIP will be suggested to the FWS for 3:1 mitigation resulting in 15.6 acres of seagrass. The channel and jetty design accounted for the safety of recreational boating. An EIS has been prepared.

- (3) *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 paragraph (1) of this subsection unless modified in design, size, use, or function.*

Compliance: No existing placement areas are proposed for use in this project.

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

Compliance: All new work and maintenance material from this project, which has the proper characteristics, is being used beneficially for beach nourishment/shoreline protection.

- (A) *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.*
- (B) *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:*
- (i) *environmental benefits, recreational benefits, flood or storm protection benefits, erosion prevention benefits, and economic development benefits;*
 - (ii) *the proximity of the beneficial use site to the dredge site; and*
 - (iii) *the quantity and quality of the dredged material and its suitability for beneficial use.*
- (C) *Examples of the beneficial use of dredged material include, but are not limited to:*
- (i) *projects designed to reduce or minimize erosion or provide shoreline protection;*
 - (ii) *projects designed to create or enhance public beaches or recreational areas;*
 - (iii) *projects designed to benefit the sediment budget or littoral system;*
 - (iv) *projects designed to improve or maintain terrestrial or aquatic wildlife habitat;*
 - (v) *projects designed to create new terrestrial or aquatic wildlife habitat, including the construction of marshlands, coastal wetlands, or other critical areas;*
 - (vi) *projects designed and demonstrated to benefit benthic communities or aquatic vegetation;*
 - (vii) *projects designed to create wildlife management areas, parks, airports, or other public facilities;*
 - (viii) *projects designed to cap landfills or other waste disposal areas;*
 - (ix) *projects designed to fill private property or upgrade agricultural land, if cost-effective public beneficial uses are not available; and*

(x) *projects designed to remediate past adverse impacts on the coastal zone.*

(5) *If dredged material cannot be used beneficially as provided in paragraph (4) (B) of this subsection, to avoid and otherwise minimize adverse effects as required in paragraph (1) of this subsection, preference will be given to the greatest extent practicable to disposal in:*

(A) *contained upland sites;*

(B) *other contained sites; and*

(C) *open water areas of relatively low productivity or low biological value.*

Compliance: All new work and maintenance material from this project, which has the proper characteristics, is being used beneficially for beach nourishment/shoreline protection. Material not capable of being used beneficially will be placed in upland confined placement areas.

(6) *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 only new contained upland placement area will not affect submerged lands, nor will the new placement areas along the side of the channel and east of SH 361. The new beach nourishment/shoreline protection placement area will affect submerged lands but will be of overall net environmental benefit.

Section 501.14 (k) Construction in the Beach/Dune System.

(1) *Construction in critical dune areas and adjacent to Gulf beaches shall comply with the policies in this subsection.*

(A) *Construction within a critical dune area that results in the material weakening of dunes and material damage to dune vegetation shall be prohibited.*

Compliance: This project will negatively impact approximately 23.7 acres of primary and secondary dune complexes. Proposed secondary recreational development would potentially affect an additional 3.4 acres of primary and secondary dune complexes. However, less than 6 acres would be within the critical dune area. This is possible because the new portion of the channel is being dredged through the historic channel/washover area for Packery Channel. Additionally, §63.121 defines critical dune areas as those dune areas that “are essential to the protection of State-owned lands, public beaches, and submerged land.” The construction of the proposed activity will not affect dune areas such that State-owned lands, public beaches, or submerged lands will be endangered. Almost all of the impacts will be from PAs 1 and 2 and access roads, all of which will be designed to be stable and not lead to erosion of surrounding dune complexes. Furthermore, the City of Corpus Christi proposes to mitigate for displaced dunes (5,670 cy encompassing approximately 1.5 acres) by relocating them immediately to the northeast in a depressional area and revegetating the dunes to approximate the natural formed position, sediment content, volume, elevation, and vegetative cover.

(B) *Construction within critical dune areas that does not materially weaken dunes or materially damage dune vegetation shall be sited, designed, constructed, maintained, and operated so that adverse "effects" (as defined in §15.2 of this title (relating to Coastal Area Planning)) on the sediment budget and critical dune areas are avoided to the greatest extent practicable. For purposes of this subsection, practicability shall be determined by considering the effectiveness, scientific feasibility, and commercial availability of the technology or technique. Cost of the technology or technique shall also be considered. Adverse effects (as defined in Chapter 15 of this title (relating to Coastal Area Planning)) that cannot be avoided shall be:*

(i) *minimized by limiting the degree or magnitude of the activity and its implementation;*

(ii) *rectified by repairing, rehabilitating, or restoring the adversely affected dunes and dune vegetation; and*

(iii) *compensated for on-site or off-site by replacing the resources lost or damaged seaward of the dune protection line.*

Compliance: 5,670 cy of affected dunes (approximately 1.5 acres) will be relocated to a depression landward of the foredune ridge.

- (C) *Rectification and compensation for adverse effects that cannot be avoided or minimized shall provide at least a one-to-one replacement of the dune volume and vegetative cover, and preference shall be given to stabilization of blowouts and breaches and on-site compensation.*

5,670 cy of displaced dunes will be mitigated by relocating the displaced dunes to a site immediately northeast of PA 2 to a depression landward of the existing foredune ridge. The 5,670 cy of critical dunes will be restored to simulate the natural position, sediment content, volume, elevation, and vegetative cover (City of Corpus Christi, 2002b). The City of Corpus Christi proposes to revegetate using native species that will provide the same or greater protective capability as the surrounding natural dunes.

- (D) *The ability of the public, individually and collectively, to exercise its rights of use of and access to and from public beaches shall be preserved and enhanced.*

Compliance: Public beach access will be provided on both sides of the proposed channel.

- (E) *Non-structural erosion response methods such as beach nourishment, sediment bypassing, nearshore sediment berms, and planting of vegetation shall be preferred instead of structural erosion response methods. Subdivisions shall not authorize the construction of a new erosion response structure within the beach/dune system, except for a retaining wall located more than 200 feet landward of the line of vegetation. Subdivisions shall not authorize the enlargement, improvement, repair or maintenance of existing erosion response structures on the public beach. Subdivisions shall not authorize the repair or maintenance of existing erosion response structures within 200 feet landward of the line of vegetation except as provided in §15.6(d) of this title (relating to Concurrent Dune Protection and Beachfront Construction Standards).*

Compliance: Beach nourishment is proposed on both sides of the jetties along the eroding shoreline. Relocated dunes will simulate the natural position, sediment content, volume, elevation, and vegetative cover of the displaced critical dune complex.

- (2) *The GLO shall comply with the policies in this subsection when certifying local government dune protection and beach access plans and adopting rules under the Texas Natural Resources Code, Chapters 61 and 63. Local governments required by the Texas Natural Resources Code, Chapters 61 and 63, and Chapter 15 of this title (relating to Coastal Area Planning) to adopt dune protection and beach access plans shall comply with the applicable policies in this subsection when issuing beachfront construction certificates and dune protection permits.*

Compliance: Not applicable.

Section 501.14(m) Development Within Coastal Barrier Resource System Units and Otherwise Protected Areas on Coastal Barriers.

- (1) *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, under the Coastal Barrier Resources Act, 16 United States Code Annotated, §3503(a), shall comply with the policies in this subsection.*
- (A) *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 U.S. Army Corps of Engineers, Galveston District (USACE), has been directed by the U.S. Congress to carry out a Storm Damage Reduction and Environmental Restoration Project (P.L. 106-53) at North Padre Island, Corpus Christi, Texas. Pursuant to this directive, the USACE prepared a "Project Report" including an "Environmental Acceptability Document" for the project based on the non-Federal sponsor's (City of Corpus Christi) plan. The Environmental Acceptability Document concluded that, because of the size of the study area, potential impacts, and political controversy of this restoration project, an Environmental Impact Statement (EIS) would need to be prepared. A Project Study Plan, prepared by the USACE in 1999, examined three alternative sites, including Packery Channel. The environmental benefits of all alternatives were essentially negligible. Based on this information, only the proposed action was fully developed and compared with the No-Action alternative in this DEIS.

- (B) *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: No reasonably foreseeable future expansion is proposed for this project. Any secondary development spurred by the proposed activity would be governed by applicable State and Federal laws and regulations.

- (C) *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:*
- (i) *construction and maintenance of roads, bridges, and causeways; and*
- (ii) *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: Standard construction techniques for the coastal area, which provide adequate safeguards for critical areas will be required by the plans and specifications for the project. No release of oil, hazardous substances, or stormwater runoff is expected.

- (D) *Where 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 proposed channel deepening and widening is following an existing channel for approximately 2.6 miles, thus minimizing impacts to undisturbed areas. The new portion of the channel, extending 0.9 mile, is designed to use an historic, intermittent washover area.

- (E) *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 timing of beach placement will require coordination with the local sponsor and Federal agencies to determine the appropriate season for construction activities on the beach. The beach areas are used by the public and also as foraging habitat for the Federally listed piping plover. Placement of dunes will simulate the natural position of those to be displaced by the project.

- (2) *TNRCC 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, Chapter 50; 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 TNRCC, shall comply with the policies in this subsection. TxDOT rules and approvals under Texas Civil Statutes, Article 6663 et seq, governing planning, design, construction, and maintenance of transportation projects, shall comply with the policies in this subsection.*

Compliance: Not applicable.

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: This project constitutes a major action. Therefore, a Federal EIS is required under NEPA, 42 USC, §4321, et seq. Federal and State agencies have met and coordinated on the project design and impacts. The purpose of this portion of the EIS is to demonstrate that the proposed project is consistent with the TCMP.