
Attachment B – Texas Commission on
Environmental Quality
Tier II
401 Certification Questionnaire
Alternatives Analysis Checklist



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Tier II 401 Certification Questionnaire

The following questions seek to determine how adverse impacts will be avoided during construction or upon completion of the project. If any of the following questions are not applicable to your project, write NA ('not applicable') and continue.

Please include the applicant's name as it appears on the Corps of Engineers' permit application (and permit number, if known) on all material submitted. The material should be sent to:

Texas Commission on Environmental Quality
Attn: 401 Coordinator(MC-150)
P.O. Box 13087
Austin, TX 78711-3087

I Impacts to surface water in the State, including wetlands

- A. What is the area of surface water in the State, including wetlands, that will be disturbed, altered or destroyed by the proposed activity?

The proposed activity will dredge approximately 770.3 acres of undredged ocean bottom below mean low lower water in the Gulf of Mexico, 369.0 acres of undredged and partially dredged ocean and estuarine bottom adjacent to the existing and authorized Corpus Christi Ship Channel (CCSC), 588.9 acres of the existing and authorized CCSC channel bottom, 36.1 acres of estuarine bottom in the Lydia Ann Channel, and in Aransas Pass as part of proposed channel improvements.

For the proposed placement plan, using available Texas Parks and Wildlife Department (TPWD), Texas General Land Office (TGLO), and U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data, approximately 4,219.9 acres of surface waters, 656.6 acres of mapped seagrass, and 984.3 acres of mapped wetland were identified as located in the proposed placement features.

Of the wetlands, 262.6 acres are features mapped within an active Placement Area (PA) or have eroded away based on aerial review, 512.2 acres are San Jose Island shoreline that proposed placement would directly restore as beach or dune (SJI), 68.0 acres would be avoided or integrated into [Ducks Unlimited and TPWD's] planned Dagger Island shoreline restoration (M4). The remaining 141.5 acres would be impacted by beneficial use features proposed to protect large areas of seagrass.

Of seagrass, 559.0 acres would be in the interior of M4 at Dagger Island, and would be largely avoided except at the fringes of shoreline restoration which would protect this seagrass from further erosion, and 17.1 acres at M3 where proposed BU marsh can be reconfigured to replace impacted seagrass acreage. The remaining 80.5 acres would be impacted by shore and land loss restoration at SSI, which will protect a very large seagrass area behind Harbor Island.

- B. Is compensatory mitigation proposed? If yes, submit a copy of the mitigation plan. If no, explain why not.

Except for SSI, the remaining seagrass and wetland impacts would be addressed by reconfiguring the BU placement to provide suitable area for the reestablishment of impacted habitat. SSI establishes a protective barrier to larger seagrass areas that would otherwise be very prone to erosion if further shoreline loss is experienced,

- C. Please complete the attached Alternatives Analysis Checklist.

Alternatives Analysis Checklist is attached.

II. Disposal of waste materials

- A. Describe the methods for disposing of materials recovered from the removal or destruction of existing structures.

No removal or destruction of existing structures is expected. Minor removal of debris and unsuitable materials encountered during dredging may be necessary during construction. Minimal disposal will be required. All material that is not re-usable will be disposed of at a properly permitted facility.

- B. Describe the methods for disposing of sewage generated during construction. If the proposed work establishes a business or a subdivision, describe the method for disposing of sewage after completing the project.

Sewage generated during construction would be collected on ship-board facilities or in self-contained portable toilets that would be serviced regularly. The proposed activity will be dredging in the marine environment and dredged material placement at existing placement areas (PA), beneficial use (BU) sites or proposed PA or BU sites. No wastewater services currently exist within the project area and none are included in the proposed construction.

- C. For marinas, describe plans for collecting and disposing of sewage from marine sanitation devices. Also, discuss provisions for the disposing of sewage generated from day-to-day activities.

N/A

III. Water quality impacts

- A. Describe the methods to minimize the short-term and long-term turbidity and suspended solids in the waters being dredged and/or filled. Also, describe the type of sediment (sand, clay, etc.) that will be dredged used for fill.

The proposed action would generate approximately 38.9 million cubic yards (MCY) of new work dredged material. Based on review of existing borings, approximately 15.1 MCY of the new work material would consist of clay material and 23.7 CY would consist of sand material. Placement and use of these materials is planned as follows, employing standards dredged material placement construction techniques generally described here and in more detail under Item B:

Offshore Placement – For construction of the proposed action, the existing and currently approved dispersive offshore placement site (a.k.a. New Work ODMDS) would be used to place new work clay and silty material. Placement would be by scow, hopper, or direct pipeline placement, employing standard scow or hopper operation techniques to achieve controlled deposition.

Repair and nourishment of Gulf-side shorelines – For construction of the proposed action, pending owner approval, sandy material would be used to restore dunes in large dune breaches, and restore the eroded foreshore on San Jose Island (SJI) due to damage caused by Hurricane Harvey. Standard construction techniques for beach nourishment used elsewhere on the Texas coast would be employed such as the use of temporary dewatering dikes to effect deposition and material retention. Restored dunes would be planted with native stabilizing vegetation to anchor dunes. Sandy and other appropriate new work material would also be used to create a series of offshore feeder berms (B-1 through B-6) that would be located within the active shoreward transport zone to indirectly nourish San Jose and Mustang Islands. According to the Texas General Land Office (TGLO) 2014 Coastwide Erosion Response Plan (CERP) and Bureau of Economic Geology (BEG) Shoreline Change Map, these islands have experienced historical shoreline erosion of approximately 2 or more feet per year. These berms would be constructed using standard submerged placement techniques for either hydraulic placement at sites closer to the point of dredging and potentially by scow for sites more distant from the point of dredging.

Repair of bay-side shorelines and land loss – For construction of the proposed action, new work dredged material would be used to repair eroded shorelines at Harbor Island (SS1), Port Aransas Nature Preserve [PANS] (SS2), and Dagger Island (M4) to stem further land, tidal flat and seagrass habitat loss due to damage experienced during Hurricane Harvey and over time. At SS1, containment dikes for dewatering would be used, and would have seeding on dike crowns and interiors, and armoring on the channel side. At SS2, the previous shoreline profile would be restored and would be backfilled behind it to bolster and reestablish the original land barrier to tidal sand flats in the PANS, using armoring where it previously was used in the breaches. At M4, material would be used to construct containment dikes on certain sides of Dagger Island to prevent channel sediment migration and to build/preserve marsh and seagrass elevation behind it, with these areas potentially seeded for initial stabilization and blending in with existing seagrass. M4 would provide material to implement breakwater and land loss restoration measures already permitted by TPWD and included in the USACE Coastal Texas Study and TGLO Coastal Resiliency Master Plan. Suitable new work material would also be used to build containment dikes toward the channel and fill in behind them at the existing PA4 on Harbor Island to restore severe upland losses experienced over the years. This would also help preserve the land buffer between Aransas Pass the large seagrass habitat area behind Harbor Island to protect the seagrass habitat from future damage. Containment dikes would be seeded on the crowns and interiors, and armored on the channel side.

Upland Placement – For construction of the proposed action, new work material would also be used for raising containment dikes on PA 6, and to fill the interior using capacity created by dike raising. Upon the completion of construction, the dikes would be seeded and vegetated to minimize erosion.

Estuarine/Aquatic Habitat Creation – M3, M9, and M10 will create estuarine/aquatic habitat by placing material on bay bottom to raise elevation to optimal subtidal and intertidal marsh elevation, likely using erodible containment dike techniques previously employed elsewhere in Texas. These features would ultimately be planted or colonized by appropriate native vegetation.

Maintenance – Over the 10-year permit life, approximately 1.08 MCY of maintenance materials would be generated annually from the deepened channel, of which approximately 399,000 CY would be additional material due to the deepened channel. The material is expected to consist of fine grained silts, sands, and clays, and would be dredged and placed in either existing upland placement areas (PA2), ODMDS No. 1, or proposed BU feeder berms B-1 through B-6, as material suitability allows. Use of the existing sites is consistent with the current operations and maintenance (O&M) placement of the existing and authorized CCSC managed by the USACE Galveston District.

The Port of Corpus Christi Authority (PCCA) would follow the current USACE CCSC procedures used for dredging and dredged material placement during construction dredging and channel maintenance. These include standard dredging techniques to construct submerged and emergent containment dikes, and interior placement of material. These techniques are described further in Item B below.

- B. Describe measures that would be used to stabilize disturbed soil areas, including: dredge material mounds, new levees or berms, building sites, and construction work areas. The description should address both short-term (construction related) and long-term (normal operation or maintenance) measures. Typical measures might include containment structures, drainage modifications, sediment fences, or vegetative cover. Special construction techniques intended to minimize soil or sediment disruption should also be described.

Techniques used successfully in Texas, around the U.S., and by USACE to construct stable PA and BU restoration features were described in general above. The following provides more details on these techniques which prevent short and long term erosion and turbidity.

- **Beach nourishment temporary dewatering dikes** – This would involve the use of in-situ sand to form a series of temporary retention dikes to dewater hydraulically pumped sand, constructed as placement moves along the shoreline.
- **In-water placement for submerged berm, in-water dike construction or in-water fill** – This would involve one of two potential general methods: 1) the use of diffusers and downspouts at the end of pipelines to slow exit velocities to achieve focused placement to build the intended template, 2) the use of hydraulically loaded scows or hopper dredges to discharge by gravity fall during a controlled release, to minimize sediment migration and achieve focused placement around the scow or hopper.
- **Upland dike construction** – Material would be hydraulically pumped to create containment dikes. After dike construction riprap, rock, etc. would be added where

armorings is indicated and dike side slopes would be seeded and vegetated as soon as practicable with robust and rapidly establishing species to provide long term stability.

- ***Interior filling*** – *Where practicable for the type of feature, containment dikes with limited weir outlets or spill boxes designed or planned to allow retention and eventually dewatering as features become emergent. For placement on emergent interiors, interior training dikes, ditching and other enhanced dewatering techniques would be employed to further optimize material retention and dewatering.*

- C. Discuss how hydraulically dredged materials will be handled to ensure maximum settling of solids before discharging the decant water. Plans should include a calculation of minimum settling times with supporting data (Reference: Technical Report, DS-7810, Dredge Material Research Program, GUIDELINES FOR DESIGNING, OPERATING, AND MAINTAINING DREDGED MATERIAL CONTAINMENT AREAS). If future maintenance dredging will be required, the disposal site should be designed to accommodate additional dredged materials. If not, please include plans for periodically removing the dried sediments from the disposal area.

Technical Report, DS-78-10 is a former Waterways Extension Service (WES) publication that has been superseded by newer USACE guidance contained in Engineering Manuals (EM) including EM 1110-2-5025 Dredging and Dredged Material Management, and EM 1110-2-5027 Confined Disposal of Dredged Material, for the design of contained dredged material placement. Where applicable and appropriate, these design criteria would be used during the detailed design phase to configure feature geometry and discharge placement. For other unconfined feature construction (e.g. beach nourishment), use of the above described hydraulic placement techniques would be used.

The proposed action is deepening of the existing and authorized Federal channel. Maintenance for the incremental annual amount of 399,000 CY of extra shoaled material would be accomplished as part of the existing channel maintenance cycle using the existing, approved offshore dispersive sites ODMDS No. 1 and MN, and if suitable material is generated, the existing PAZ on San Jose Island, and the proposed of shore feeder berms B-1 through B-6.

- D. Describe any methods used to test the sediments for contamination, especially when dredging in an area known or likely to be contaminated, such as downstream of municipal or industrial wastewater discharges.

The segment of the CCSC to be dredged for the proposed action has two wastewater discharges located directly adjacent to the channels. One is a private domestic wastewater (TCEQ Permit #12731-001) and the other brine discharge (Permit No. WQ0005253000). However, dredged materials from the CCSC to be dredged for the proposed action are not known or likely to be contaminated. The CCSC is tested and maintained in accordance with USA CE sediment testing guidelines. No increases in contaminant levels is expected during dredge and fill operations.

The potential for contaminants has been evaluated through chemical analyses, grain-size analyses, bioassays, and bioaccumulation tests in the surrounding area as part of the Corpus Christi Ship Channel, Texas Channel Improvement Project for the current authorized Federal channel. These tests spanned a wide variety of volatile, semi-volatile (e.g. PAH),

pesticide and persistent organic (e.g. PCB, dioxin) compounds, and metal constituents. The 2003 "Corpus Christi Ship Channel, Texas Channel Improvement Project, Volume I Final Feasibility Report and Final Environmental Impact Statement" concluded that contaminant studies showed that new work and maintenance dredged material from all sections of the channel, with the exception of the Inner Harbor (which is not part of the proposed action), is acceptable for offshore placement, beneficial uses in the bay or ocean, or upland placement.

More recent testing conducted in 2018 for the Entrance Channel segment and entrance channel extension of the CCSC for the current authorized Federal channel to support offshore placement for the purposes Marine Protection, Research and Sanctuaries Act (MPRSA) Section 103 included chemical, grain-size, bioassays, and bioaccumulation tests on new work material samples between current depths and the proposed depth of -54 feet MLLW. Testing results indicated no contaminant concerns and supported offshore placement. This recently tested segment comprises the majority of the project segment for the proposed action. The proposed action would dredge new work, in-situ geological material below the recently tested layer (from -54 feet MLLW to -80 feet MLLW), and thus would be less prone to surface human impacts. The proposed action would also dredge existing Gulf of Mexico seafloor materials to extend the entrance channel further to the -80 foot MLLW contour. This segment would be as or less prone to impacts than the recently tested extension for the authorized Federal channel. The proposed areas to be dredged have been extensively tested previously and/or are not prone to contamination.



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Tier II Alternative Analysis Checklist

I Alternatives

- A. How could you satisfy your needs in ways which do not affect surface water in the State?

Work below mean low lower water of the Gulf of Mexico, Corpus Christi Bay, and Redfish Bays within the proposed project area is necessary to meet the project needs of increasing crude oil export efficiency and safety. Crude oil export efficiency and safety in the Corpus Christi Ship Channel (CCSC) cannot be improved without affecting waters in the State. Activities may affect water quality within the proposed project area by temporarily increasing turbidity and suspended sediment load in the estuarine water column. However, these temporary conditions would not be expected to adversely impact marine mammals, essential fish habitat or other aquatic resources in the study area to a significant degree.

- B. How could the project be re-designed to fit the site without affecting surface water in the State

*Initial crude oil export alternatives were evaluated and screened including alternatives to deepening the channel, which consisted of offshore loading facility options (See Attachment A of the Permit Application). Offshore options did not meet the purpose and need of the proposed action as well as the channel deepening alternative, and channel deepening performed better in most major criteria including export efficiency, flexibility to accommodate growth, and environmental and safety risk. Offshore options would expose San Jose Island and Mustang Island (with the National Seashore) to a greater risk of oil spills during loading activities compared to channel deepening which brings loading activities in a more controlled environment of Corpus Christi Bay. Both barrier islands which host Piping plover (*Charadrius melodus*) critical habitat and endangered sea turtle nesting beaches. Therefore, channel deepening was selected. The proposed project terminus is Harbor Island, and deepening to accommodate full loading of Very Large Crude Carriers (VLCC) and Suezmax tankers is the only navigation improvement being examined, only one channel extent and alignment was examined. Deepening of the CCSC cannot be done without affecting surface water in the State.*

- C. How could the project be made smaller and still fit your needs?

The deepening could be done to an optimized depth that serves the majority of the intended design vessel (VLCC) class and likely prevailing crude oil type instead of absolutely maximizing the depth for all versions of the design vessel, carrying the densest crude oil. This has already been examined and incorporated into the channel alternative selected for the proposed action. First, world fleet registry data from IHS Fairplay was used to analyze and identify the appropriate target vessel dimensions (including draft) from the variation in size among the VLCC fleet. A 99th percentile set of dimensions was identified, and individual vessel dimensions clustered tightly around the selected dimensions. Second, the fully loaded draft for the design vessel was calculated assuming the American Petroleum Institute gravity for West Texas Intermediate (WTI) crude oil, which will be the predominant controlling grade of crude oil exported from the Port of Corpus Christi. This was done in lieu of assuming the largest VLCC carrying the heaviest crude oil possible for this Port (heavy sour). Appropriate under keel clearance in consideration of sea state and climatic factors and guiding navigation standards (USACE and World Association for Waterborne Transport Infrastructure [PIANC]) was added. Ship simulation was accomplished in

December 2018 at the Maritime Institute of Technology and Graduate Studies (MITAGS) to verify the depths and under keel clearances were navigable under a range of conditions. Therefore, the depth of the proposed deepening has been optimized.

Another way the project could be made smaller is to use the steepest channel side slopes and narrowest bottom width allowable for one way passage. Geotechnical borings and analyses have been accomplished to determine the steepest stable slopes for the in situ material. Steeper slopes than the existing side slope are being coordinated with the USAACE for acceptability under 33 U.S.C. Section 408 approval. December 2018 ship simulation at MITAGS also examined alternate channel bottom widths for one way VLCC transit. This is also being coordinated with the USAACE for acceptability under 33 U.S.C. Section 408 approval. If approved and possible, steeper side slopes and narrower bottom widths will be planned for implementation.

D. What other sites were considered?

Offshore alternatives that were initially considered, but would be located a minimum of 13 or more miles. For the reasons discussed in Item I.B above, these offshore options were eliminated. Alternative sites for increasing the efficiency of moving crude oil would require new development of terminal facilities and/or dredging completely new navigation channels; both of which are not practical, nor least environmentally damaging, and therefore were not considered. Alternative sites for dredged material placement considered were existing placement areas (PA), offshore disposal, and beneficial use (BU) sites, and a variety of new and expanded PA and BU site initiatives, within the practical distance for hydraulic dredging pipeline or scow placement. New terrestrial sites were considered in general, but were not practical due to distance, existing infrastructure and residential development, and presence of ecologically sensitive habitat and refuges in nearby terrestrial sites (e.g. Mustang Island). Details of the alternatives considered for both channel improvement and placement are in Attachment A of the Permit Application

1. What geographical areas were searched for alternative sites?

The proposed deepening must occur within the proposed project area, thereby precluding the consideration of alternative sites. For dredged material placement, initially, existing PA and BU sites used for the current and authorized CCSC stretching from the Gulf of Mexico to Ingleside, initial new BU concepts coordinated with resource agencies located from the Gulf-side of Mustang and San Jose Islands north and south of the CCSC, and throughout Corpus Christi Bay and Redfish Bay, were all considered.

As the proposed channel was refined to an extent from the Gulf to Harbor Island, and existing PA capacities ruled out all but a few current PA and BU sites available for use, the initial PA and BU concepts were further developed and focused to the lower Corpus Christi Bay and Gulf of Mexico. Existing sites are located on existing PAs located on Harbor Island (PA4), Mustang Island (PA6), offshore waters adjacent near the existing channel (New Work ODMDS) or originally developed in the Bay (PA13). New BU sites located adjacent to existing PAs (M3, M9, and M10) in Corpus Christi Bay, in Redfish Bay (M4), near the Port Aransas Nature Preserve (SSI), and in nearshore waters along Mustang and San Jose Islands (B1 through B6) and on San Jose Island (SJI), were considered. Most of these BU sites were associated with restoring habitat and shoreline from Hurricane Harvey damage or long term erosion and land loss. The dredged material placement alternatives were generally limited to within the 10 miles as a practical and cost-feasible radius for hydraulic dredging and dredged material placement or use of scows.

2. How did you determine whether other non-wetland sites are available for development in the area?

Aerial imagery, appraisal district data, and distance criteria were used to determine if terrestrial sites without wetlands were likely to be viable. Both existing development, refuge and habitat presence, and property parcel sizes versus needed capacity were used to screen out the viability of terrestrial sites that might be free of wetlands. Once it was determined to use existing and new or

expanded PA and BU sites, National Wetland Inventory (NWI), and Texas Parks and Wildlife (TPWD) and National Oceanic and Atmospheric Administration (NOAA) sea grass mapping were used to configure and refine PA concepts to minimize impacts. Very little mapped wetland is present in the BU sites and mapped seagrass directly in the footprint of the proposed placement is limited to natural recruitment at the shallow bathymetric margins of PA dike slopes. The initiatives to use the material beneficially will create more tidal marsh, restore shoreline that protects seagrass habitat, or repair damaged dunes and beaches in sensitive barrier island habitat.

3. In recent years, have you sold or leased any lands located within the vicinity of the project? If so, why were they unsuitable for the project?

No.

E. What are the consequences of not building the project?

The No Action alternative would not increase efficiency of moving crude oil exports from the Port of Corpus Christi in support of national energy security and national trade objectives, which is the proposed project's purpose and would not increase the safety of this movement, which is an underlying need. This would result in a channel depth that forces shippers to light load their vessels, requiring multiple smaller lightering vessels to shuttle oil to deeper waters, increasing the numbers of vessels needed to move crude oil, which would increase shipping costs and volatile organic chemical (VOC) vapor and greenhouse gas emissions. This would substantially affect the ability of the CCSC to efficiently and safely accommodate the projected increase in tanker tonnage to be handled at existing and planned VLLC-capable crude oil terminals at Harbor Island and at Ingleside, as well the larger VLCCs to which industry is moving towards. This would increase costs to shippers and consumers from continued light-loading of tanker vessels. The No Action alternative would not satisfy the PCCA's mission of leveraging commerce to drive prosperity for the region and community.

II. Comparison of alternatives

A. How do costs compare for the alternatives considered above?

No costs were estimated for the initial channel concepts. However, offshore options consisting of Single Point Moorings (SPM) and offshore loading platforms have substantially higher long term operating and maintenance costs due to the distance over which product must be pumped from onshore storage facilities to loading points out in the Gulf of Mexico which could be as far as 13 or more miles. They are also more costly to expand additional loading points, compared to adding berths along water frontage served by a deepened channel. For this and the aforementioned reasons discussed in I.B. the offshore options were screened out. The preferred channel improvement project is the least cost alternative that increases crude oil export efficiency. For dredged material placement, the proposed placement alternatives considered are cost effective compared to new upland sites, meet the placement capacity needed, and make beneficial use of the dredged material or use of existing PA and BU sites.

B. Are there logistical (location, access, transportation, etc.) reasons that limit the alternatives considered?

The logistical factor that limits the consideration of alternatives is the location of the CCSC and future expected crude terminal developments. Alternative sites would require development in a new area and were not considered. The proposed project is designed to provide the needed increase in crude oil export efficiency while minimizing adverse environmental impacts to the Gulf of Mexico and Corpus Christi Bay. For dredged material placement, distance over which material must be pumped or transported by scow, required water depths for hopper or scow use, and access to stage and route hydraulic pipelines, all constrain where cost effective dredge material placement can be achieved. Terrestrial sites are more constrained by available contiguous land and parcel size, easement and access across roads, properties

etc. needed for pipelines. In the vicinity of Harbor Island, there are no sizable contiguous tracts to accommodate an upland PA to contain substantial planned new work volumes on the adjacent islands of Mustang or San Jose that aren't local or national refuges, seagrass habitat, or T&E critical habitat. Along with the planned crude terminal, Martin Midstream, and Gulf Copper are located on Harbor Island at the channel entrance. Therefore, BU and offshore placement in this vicinity was planned. The next nearest mainland with larger tracts of land is Ingleside, 8 miles farther in, where several crude oil export facilities are being planned on the land nearest water. Flint Hills Resources, OXY Ingleside Energy Center, Kiewit Offshore, Chemours, Oxychem, Ingleside Ethylene, Cheniere, and Voestalpine Texas are existing facilities located along Ingleside. These limit upland placement options, and options to use material beneficially would be cost competitive due to the distance.

C. Are there technological limitations for the alternatives considered?

For the channel alternative selected, several technological limitations result in the selected depth, width and side slope ratios. These are the required draft to fully load a VLCC with the intended product (WTI crude), the design criteria from USACE Engineering Manuals and PLANC guidelines to determine required under keel clearances to accommodate dynamic movement due to sea state and climatic conditions, wind and current conditions constraining minimum one-way passage widths, and geotechnical slope stability. For placement, technological limitations mainly involve cost-effective hydraulic pump distances (typically 10 miles), and required draft and cost-effective travel distances for scows and hoppers.

D. Are there other reasons certain alternatives are not feasible?

For channel alternatives, the primary reasons offshore alternatives are not feasible are discussed in IIA above. For placement, new upland sites would be less cost effective due to farther distances required to reach sizable contiguous tracts of land, could involve impacts to terrestrial wetlands, would require new property purchases, and routing and burial of temporary hydraulic pipelines across existing roads and properties. Depending on land elevation, pumping hydraulic pressure head limitations could be reached, which would force less cost effective transport by truck. These factors would complicate the usability and viability

III. If you have not chosen an alternative which would avoid impacts to surface water in the State, please explain:

A. Why your alternative was selected, and

The preferred channel alternative would provide a substantial increase in the efficiency of crude oil exports, increase the safety of loading operations, provides more efficient loading and flexibility for future growth than offshore options, and provides material for beneficial use to areas in need of restoration. It meets the overall purpose and needs of the proposed action the best. The selected depth optimizes the necessary draft to address efficient export while minimizing environmental impacts. The proposed dredged material placement alternatives were chosen because they meet a variety of needs for providing sufficient and additional new work and maintenance dredged material placement capacity. Existing placement capacity for the CCSC is limited to take on new work material, new upland sites would likely be more costly and disruptive, and PCCA engaged planning and coordination to identify desirable BU and PA expansion/extension where possible. Attachment A provides the full discussion and justification for selecting the channel and placement alternatives.

B. What do you plan to do to minimize adverse effects on the surface water in the State impacted?

The construction techniques described in Section III of the Tier II 401 Certification Questionnaire would be employed to minimize migration of placed material. These techniques are standard industry methods of placement employed in USACE and non-Federal projects to construct PAs, and BU sites. In summary, these methods are discharge end measures to slow deposition velocity for hydraulic placement, controlled

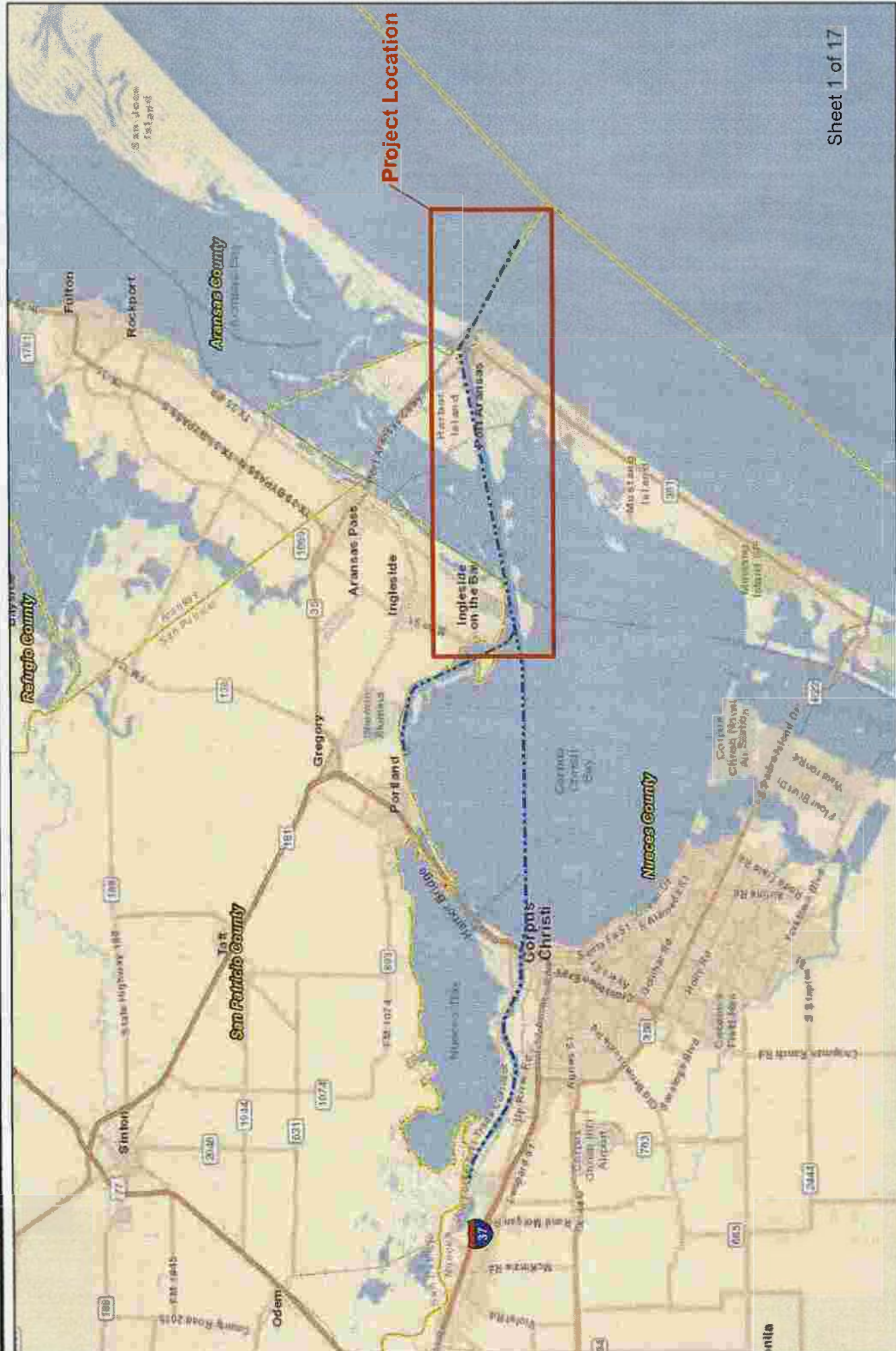
release from scows or hoppers, diked and contained dewatering methods, and dike erosion control methods including seeding and armoring.

IV. Please Provide Comparison of Each Criteria (From Part II) For Each Site Evaluation in The Alternatives Analysis

See Attachment A of the Permit Application for details. The outcome of initial screening of channel alternatives is summarized in the table below.

No Action	Channel Deepening Project	Offshore SPM Facility
<ul style="list-style-type: none"> No increase in export efficiency. Inefficient lightering process, involving more vessel calls, transit, and longer VLCC loading process will still occur Would involve light-loaded VLCC transit on lower 3rd of CCSC Increase in congestion with future growth from more lightering vessels 	<ul style="list-style-type: none"> Lightering can be eliminated or reduced, decreasing vessel traffic and shortening the duration of VLCC loading process Would still require VLCC transit on lower 3rd of CCSC, but elimination or reduction of lightering transit would free up channel availability for future growth. Multiple tenant accommodation discussed below would allow more fully loaded VLCC participation, increasing efficiency for more exporters Port can operate VLCC berths as public docks, servicing multiple tenants and shipping lines, encouraging healthy competition and raising revenue for the Port and local communities. Centralized and integrated land use planning of developable land assets at Harbor Island. Loading of different grades from onshore terminals would be easier compared to offshore options. 	<ul style="list-style-type: none"> Lightering can be eliminated or reduced, thereby reducing vessels involved and shorten VLCC loading process Would eliminate VLCC transit. Exporting participants would be more limited than channel option, and exporting nonparticipants who couldn't fully load VLCCs would resort to smaller vessels or lightered VLCCs, leaving this congestion component in place as growth occurs. See multiple tenant and future growth discussion below.
<ul style="list-style-type: none"> No Change 	<ul style="list-style-type: none"> Port can operate VLCC berths as public docks, servicing multiple tenants and shipping lines, encouraging healthy competition and raising revenue for the Port and local communities. Centralized and integrated land use planning of developable land assets at Harbor Island. Loading of different grades from onshore terminals would be easier compared to offshore options. Local and regional economy is enhanced as revenues are collected for ships calling at and products moving through the PCCA. Efficient use of capital to achieve growth and meet overall crude export forecast for the nation Allows for future growth within the PCCA under a single permitting process for deepening the channel 	<ul style="list-style-type: none"> Difficult to plan multiple offshore SPMs connected individually to individual tank farms. Accommodating different grades from different customers would be more cumbersome, requiring flushing of longer lengths of line to switch grades, compared to onshore terminals.
<ul style="list-style-type: none"> No accommodation of future growth Vessel draft limitations Increased vessel traffic due to large increase in reverse lightening 	<ul style="list-style-type: none"> Local and regional economy is enhanced as revenues are collected for ships calling at and products moving through the PCCA. Efficient use of capital to achieve growth and meet overall crude export forecast for the nation Allows for future growth within the PCCA under a single permitting process for deepening the channel Construction largely being undertaken within existing channel limits. New entrance channel extension would temporarily disturb 770.3 acres of 60-ft deep Gulf bottom, convert it to deeper bottom, but benthos would recolonize within a year, and water column would remain. Amount of conversion to deeper bottom would be insignificant compared to available Gulf Habitat. Dredged material will be evaluated for beneficial use and building resilient community. Potential to reduce more than 485,000 MT of CO₂ emissions by eliminating or reducing reverse lightering when annual export rate 	<ul style="list-style-type: none"> Multiple single SPMs may need to be planned by the industry. Multiple permits required for each individual project. Future expansion of offshore SPM facility more difficult to accommodate new users. Limited users can access the facility at any one time due to complex financing and project development challenges.
<ul style="list-style-type: none"> No habitat impact Increase in air emissions due to increase from reverse lightering activities. CO₂ emissions would be greater than other options due to continuing lightering activities 	<ul style="list-style-type: none"> Construction largely being undertaken within existing channel limits. New entrance channel extension would temporarily disturb 770.3 acres of 60-ft deep Gulf bottom, convert it to deeper bottom, but benthos would recolonize within a year, and water column would remain. Amount of conversion to deeper bottom would be insignificant compared to available Gulf Habitat. Dredged material will be evaluated for beneficial use and building resilient community. Potential to reduce more than 485,000 MT of CO₂ emissions by eliminating or reducing reverse lightering when annual export rate 	<ul style="list-style-type: none"> Puts active loading facility and new pipelines in previously undisturbed part of Gulf of Mexico. Permanent but negligible size (compared to available Gulf Habitat) of conversion of Gulf bottom and water column to SPM platform No potential beneficial use of dredged material Similar potential to reduce CO₂, NOx, and VOC from eliminating or reducing lightering vessel emissions. Spillages are more likely to happen and not as easily confined or cleaned up. Potential for higher vapour emissions and higher CO₂ emissions from vessels hoteling due to reduced loading rates.

No Action	Channel Deepening Project	Offshore SPM Facility
<ul style="list-style-type: none"> • More vessels in Harbor will make monitoring harder 	<p>and 2,200- 9,270 tons of VOC from elimination of some lightering activity</p> <ul style="list-style-type: none"> • Enables faster loading rates than SPM, reducing CO₂ emissions from hoteling vessels. • Ability to provide vapour recovery system and shore power to operate vessel systems for reduced emissions. • Severity of accidental spills would be reduced compared to offshore options as facilities and vessels are in a more controlled Port environment. • Environmental accidents better controlled at onshore facilities in protected waters. • Comprehensive spill response would be quicker than offshore options due to proximity to response resources • Incidents at onshore terminal can be more easily contained to avoid affecting other users. • Risk of in-channel vessel incident or allision present, but would be reduced greatly by slow vessel speed, multiple tug assist, and one way transit when bringing VLCCs in the Port. • Loading spill incident would be closer to Redfish Bay seagrass and marsh areas, but would not significantly expose National Seashore or San Jose Island beaches to impact <ul style="list-style-type: none"> - Prevailing SE winds directed towards terminal shore which would help containment - Tidal transport may vary however • Strong security presence within the port environment to protect against deliberate damage and sabotage. 	<p>over 30 miles (assuming support facilities are home based at Port Aransas) from the CCSC to service the platform increasing air emissions generated.</p> <ul style="list-style-type: none"> • No technically feasible method for providing vapour recovery of vapour combustion systems for reducing emissions. • Damage to subsea pipelines or the platform will render the facility unusable until repaired. • Environmental conditions such as high winds, high waves, and strong currents can be designed for, however potential is there for conditions that could restrict use of the facility. • Avoids potential for in-channel vessel incident, but trades it for more risk of pipeline failures due to miles of multiple necessary pipelines. • Comprehensive spill response times to address environmental accidents longer compared to onshore terminals • Loading spill incident would not significantly expose Redfish Bay seagrass and marsh areas to impact, but an offshore facility may be potentially expose National Seashore or San Jose Island beaches to impact depending on the location <ul style="list-style-type: none"> - Prevailing SE winds directed towards beaches which would hamper containment • More accessible by non-authorized persons; can lead to accidental damage, deliberate damage and sabotage. • Higher risk to human safety with offshore operations. • Response time to the facility by emergency services will be greater and more costly due to offshore location.
<ul style="list-style-type: none"> • Beneficial use occurring under the - 54 foot project would continue. As before, since there would be no change in dredging or other actions that could contribute. 	<ul style="list-style-type: none"> • New work dredging would provide 38 MCY of varying sandy, clayey and some silty material some of which could be used for ecological or construction BU. Channel maintenance material could also be used long term for future BU such as restoring subsided or submerged marsh. 	<ul style="list-style-type: none"> • Would require virtually no dredging, and therefore would not provide material that could be used to construct BU features. • Would require therefore w be used to



Project Location

Sheet 1 of 17

Legend

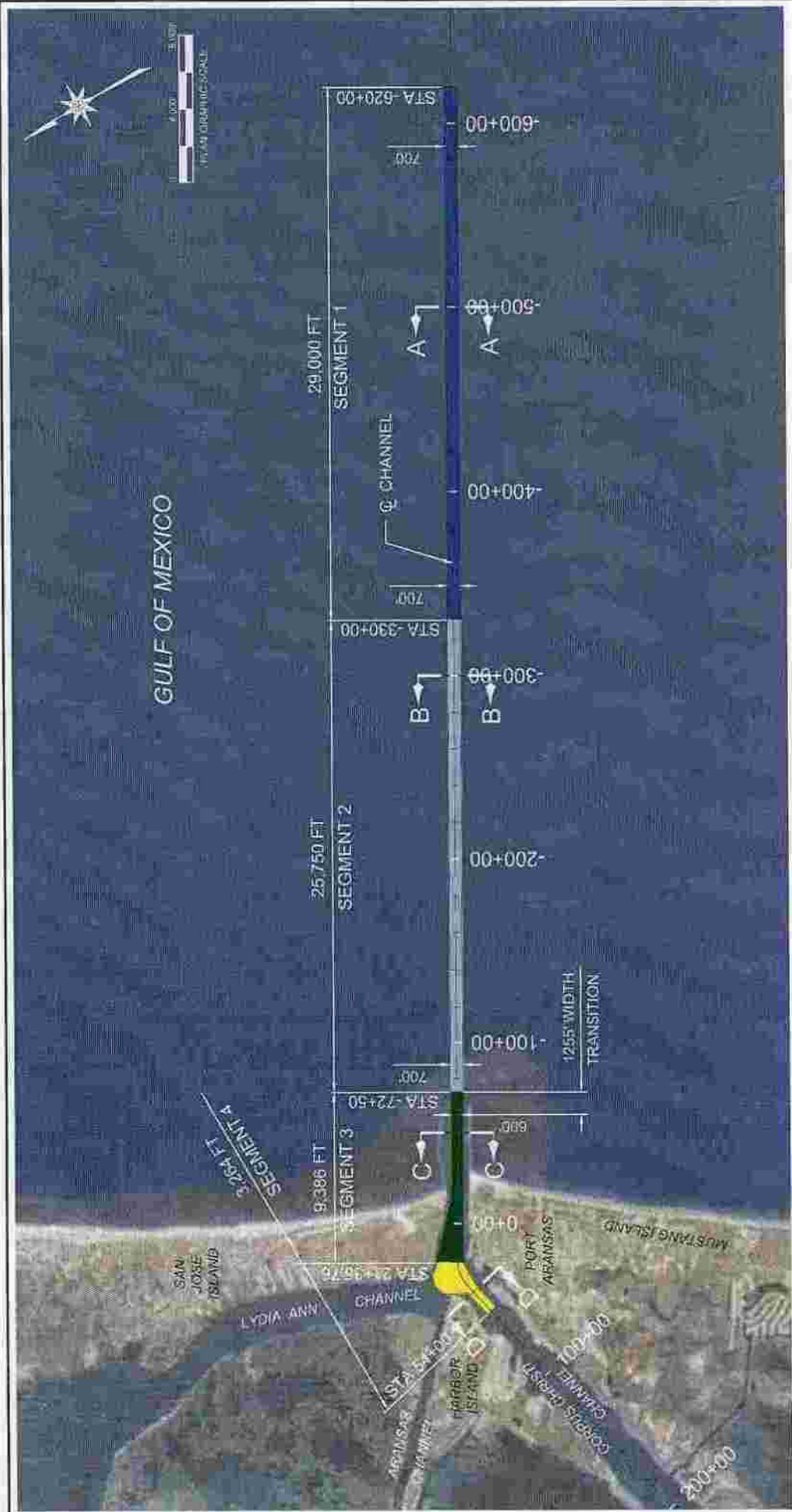
- Corpus Christi Shp Channel
- Project Location
- USACE Maintained Channels
- County Boundary



Vicinity Map

Project	Corpus Christi Ship Channel
Channel Deepening Project	Part of Corpus Christi Authority
Issue No.	12/16/2016
Issue No.	60578532

AECOM
 19215 Katy Freeway, Suite 100
 Houston, TX 77058
 Tel: 281.484.1000



DREDGING PLAN

SCALE: 1" = 800'

Corpus Christi Ship Channel Deepening Project
 Individual Permit Application SWG-XXXX-XXXX

**Preferred Channel Alternative
 Full Extent**

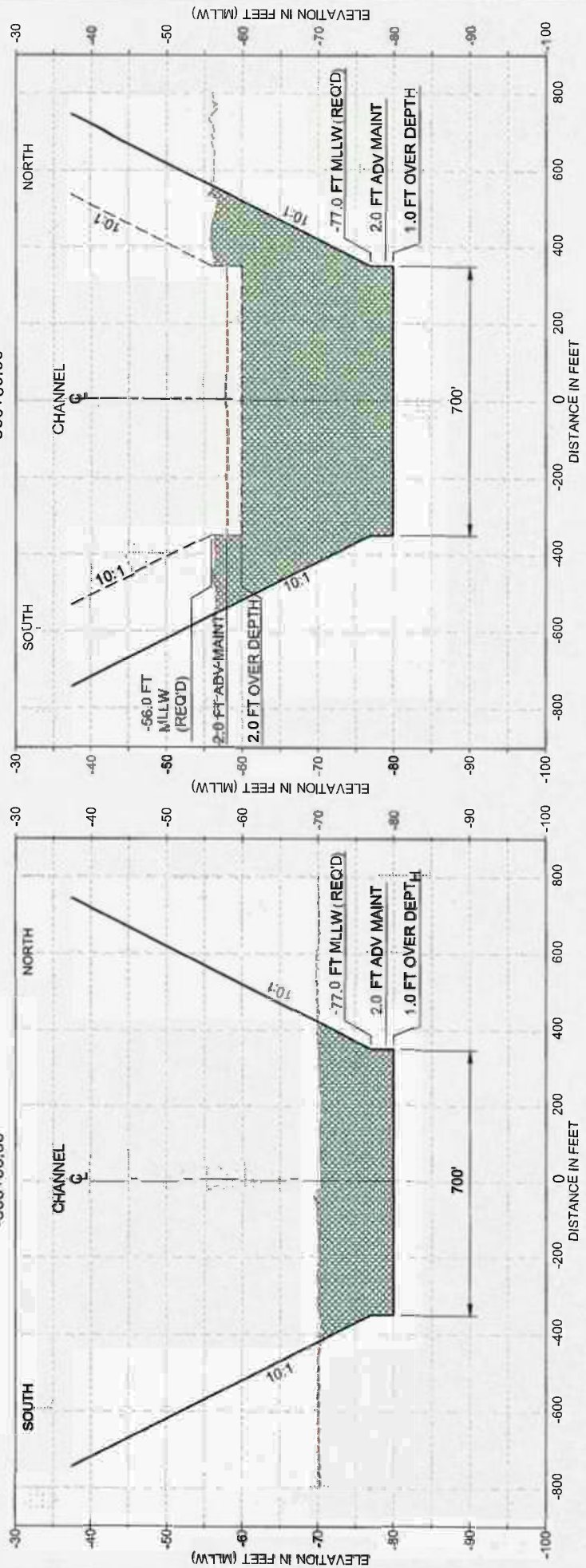
County: Aransas and Nueces
 Application By: Port of Corpus Christi Authority

State: Texas
 Date: December 2018

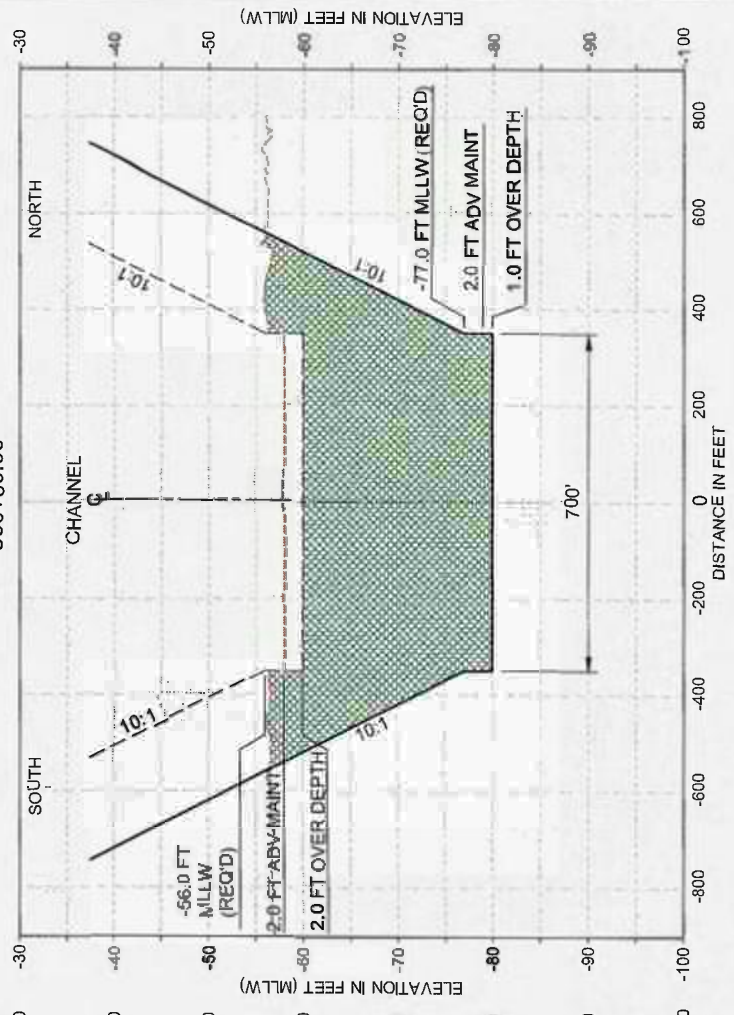
SEGMENT	STATIONING (@ CHANNEL CL)		*DEPTH (FT BELOW MLLW)	DESCRIPTION	PLAN VIEW LEGEND
	FRGM	TO			
1	STA -620+00	STA -330+00	-77.0	Outer Channel	[Blue Box]
2	STA -330+00	STA -72+50	-77.0	Approach Channel	[Light Blue Box]
3	STA -72+50	STA 21+35.76	-75.0	Jetties to Harbor Island Turning Basin	[Green Box]
4	STA 21+35.76	STA 54+00	-75.0	Harbor Island Junction	[Yellow Box]

* DESIGN DEPTH SHOWN. DGES NOT INCLUDE 2.0 FT ADVANCED MAINTENANCE DREDGING OR 1.0 FT ALLOWABLE OVER DREDGE.

CROSS SECTION A-A (TYPICAL SECTION)
-500+00.00



CROSS SECTION B-B (TYPICAL SECTION)
-300+00.00



CROSS SECTION GRAPHIC SCALES:



CROSS SECTION LEGEND:

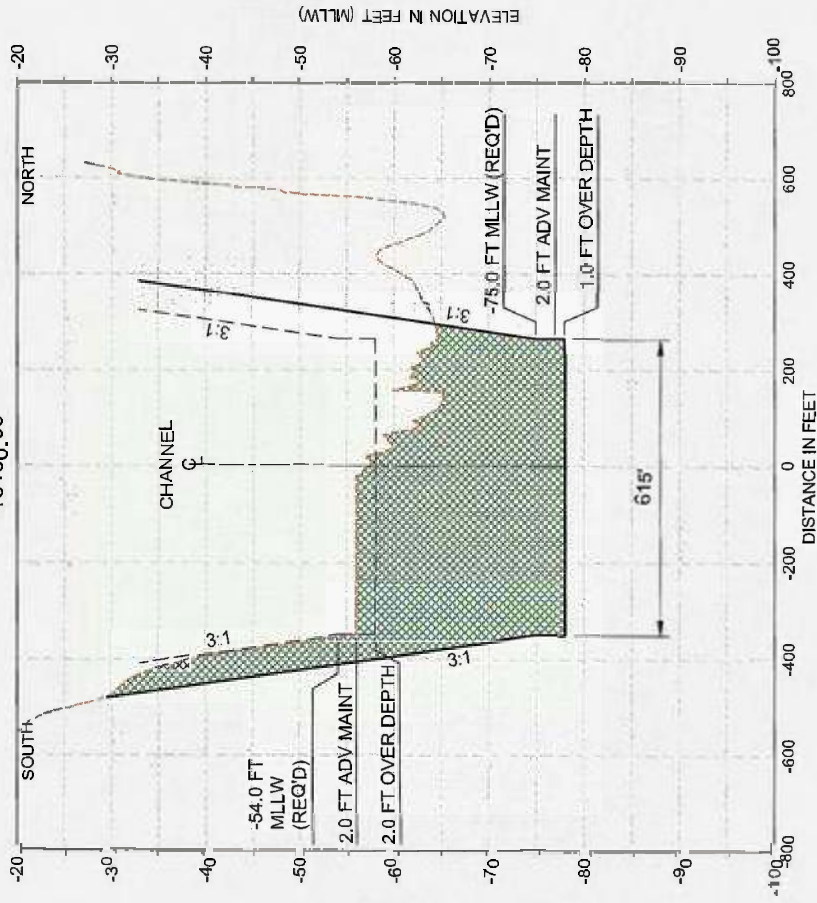
- EXISTING BOTTOM
- - - EXISTING CHANNEL DREDGE TEMPLATE
- PROPOSED CHANNEL
- ▨ PROPOSED AREA TO BE DREDGED

Sheet 3 of 17

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

Preferred Channel Alternative
Dredging Cross Sections A-A & B-B

CROSS SECTION D-D (TYPICAL SECTION)
40+00.00



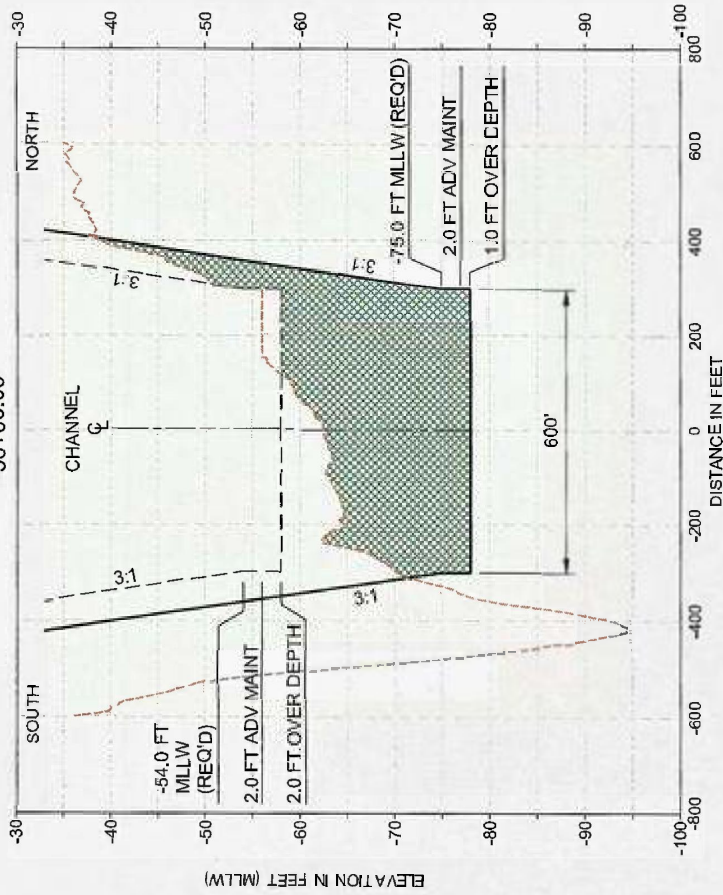
CROSS SECTION LEGEND:

- EXISTING BOTTOM
- - - EXISTING CHANNEL DREDGE TEMPLATE
- PROPOSED CHANNEL
- ▨ PROPOSED AREA TO BE DREDGED

CROSS SECTION GRAPHIC SCALES:



CROSS SECTION C-C (TYPICAL SECTION)
-50+00.00





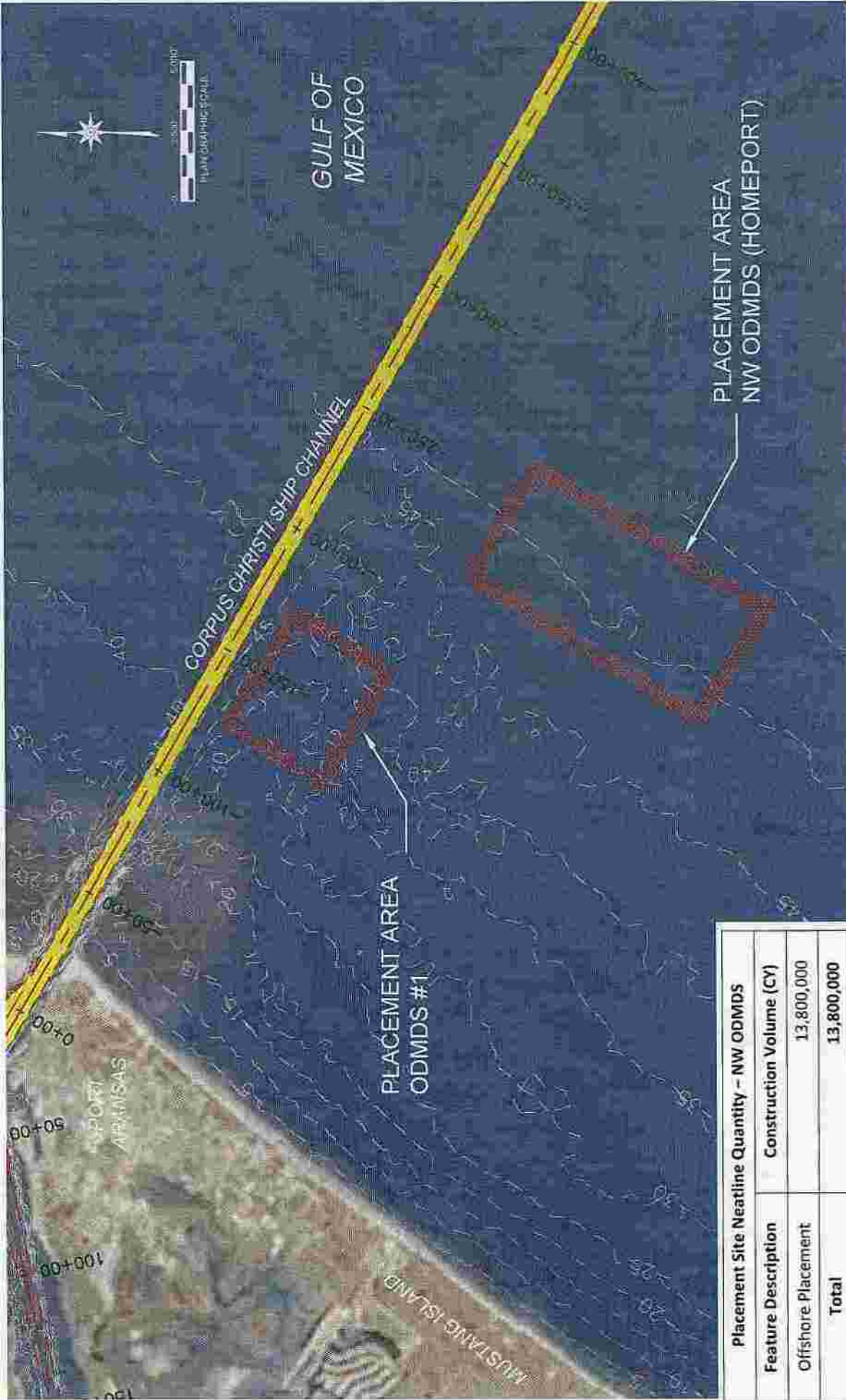
Corpus Christi Ship Channel Deepening Project
 Individual Permit Application SW/G-XXX-XXXX

**OVERALL DREDGE MATERIAL
 PLACEMENT PLAN**

County: Aransas and Nueces
 Application By: Port of Corpus Christi Authority
 State: Texas
 Date: December 2018

- GENERAL NOTES**
1. BASE MAPPING SHOWN IS ESRI WORLD IMAGERY, RETRIEVED FROM ARCGIS TO AUTOCAD IN JANUARY 2019 - LAST UPDATED IN SEPTEMBER 2018.
 2. HORIZONTAL COORDINATE SYSTEM IS NAD83 TEXAS STATE PLANE, SOUTH ZONE, US FOOT.
 3. VERTICAL DATUM IS REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
 4. PIPELINE DATA FOR ARANSAS AND NUECES COUNTIES RETRIEVED FROM RAILROAD COMMISSION OF TEXAS ON NOVEMBER 19, 2018.

- LEGEND**
- DEEPENING IMPROVEMENTS (-75' / -77' MLLW)
 - DREDGE MATERIAL PLACEMENT AREA
 - EXIST OFFSHORE PLACEMENT AREA
 - EXIST SEAGRASS (RETRIEVED FROM NOAA CSC, 2007)
 - EXIST OYSTER REEFS (RETRIEVED FROM TPWD, 2004)
 - EXIST PIPELINES (SEE NOTE 4)



Sheet 6 of 17

Corpus Christi Ship Channel Deepening Project
 Individual Permit Application SWG-XXXX-XXXX

**OFFSHORE DREDGE
 MATERIAL PLACEMENT
 NW ODMDS (HOMEPORT)**

County: Aransas and Nueces State: Texas
 Application By: Port of Corpus Christi Authority Date: December 2018

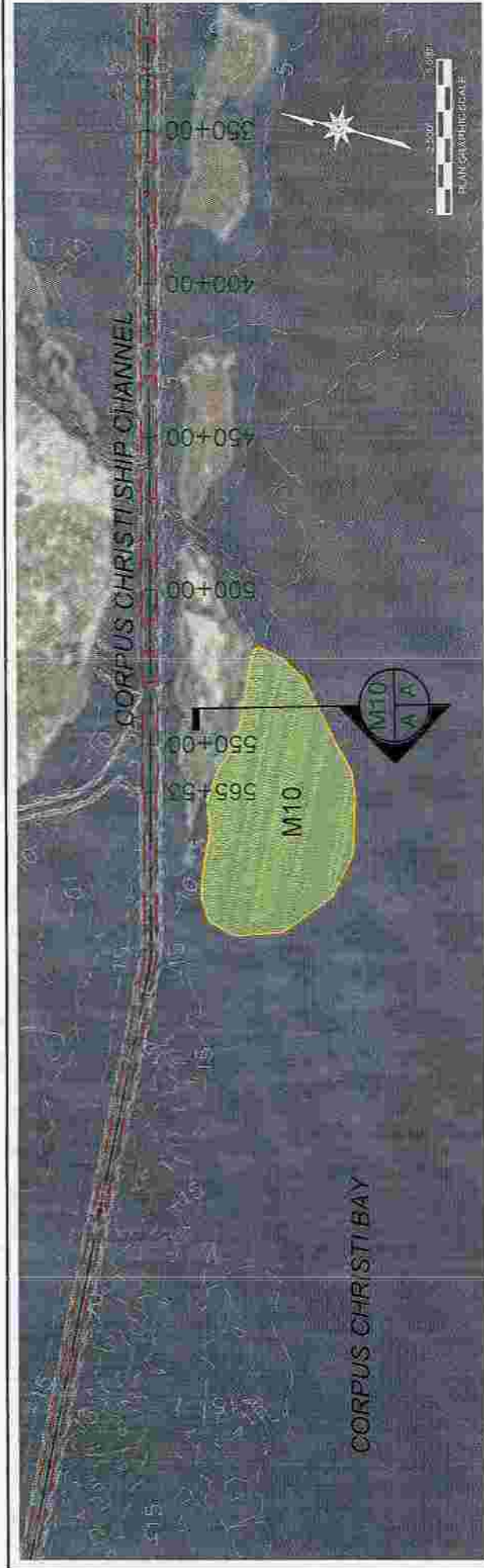
GENERAL NOTES

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2. HORIZONTAL COORDINATE SYSTEM IS NAD83 TEXAS STATE PLANE, SOUTH ZONE, US FOOT.
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Placement Site Neatline Quantity - NW ODMDS	
Feature Description	Construction Volume (CY)
Offshore Placement	13,800,000
Total	13,800,000

LEGEND

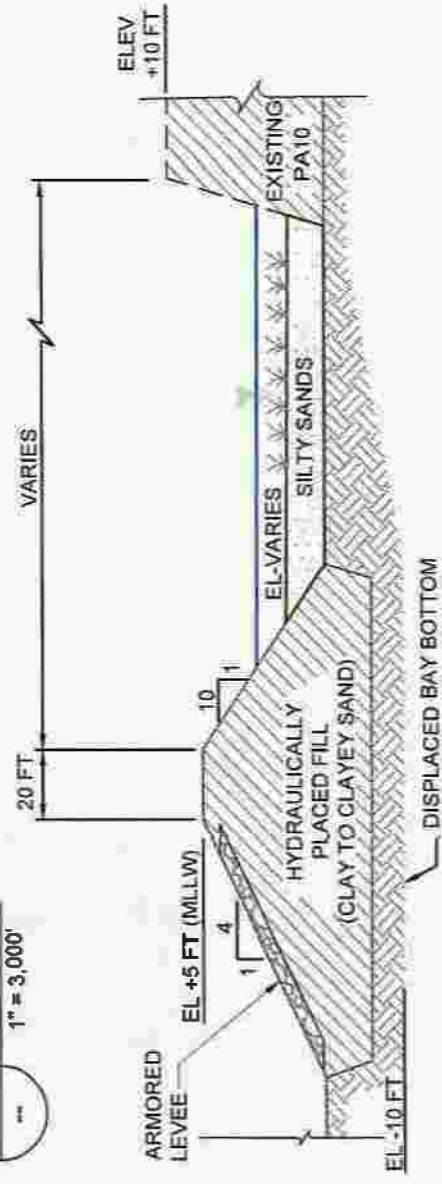
- DEEPENING IMPROVEMENTS (-75' / -77' MLLW)
- EXIST OFFSHORE PLACEMENT AREA
- EXIST CONTOURS



M10
PLAN
1" = 3,000'

Placement Site Neatline Quantity - Site M10	
Feature Description	Construction Volume (CY)
Armoring*	10,667
Levee Creation	997,300
770 Acre Estuarine / Aquatic Habitat	9,936,300
Total	10,933,600

*Note: Quantity not included in CY total



M10
SECTION
NOT TO SCALE

GENERAL NOTES

1. BASE MAPPING SHOWN IS ESRI WORLD IMAGERY, RETRIEVED FROM ARCGIS TO AUTOCAD IN DEC 2018 - LAST UPDATED IN SEPT 2018.
2. HORIZONTAL COORDINATE SYSTEM IS NAD83 TEXAS STATE PLANE, SOUTH ZONE, US FOOT.
3. VERTICAL DATUM IS REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
4. PIPELINE DATA FOR ARKANSAS AND NUECES COUNTIES RETRIEVED FROM RAILROAD COMMISSION OF TEXAS ON NOVEMBER 19, 2018.

LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- EXIST. CONTOURS

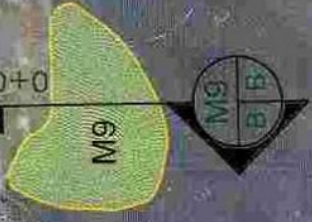
Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX
BENEFICIAL USE SITE
AND SECTION VIEW - M10
770 ACRE ESTUARINE / AQUATIC HABITAT

County: Arkansas and Nueces
Application By: Port of Corpus Christi Authority
State: Texas
Date: December 2018

CORPUS CHRISTI BAY

CORPUS CHRISTI SHIP CHANNEL

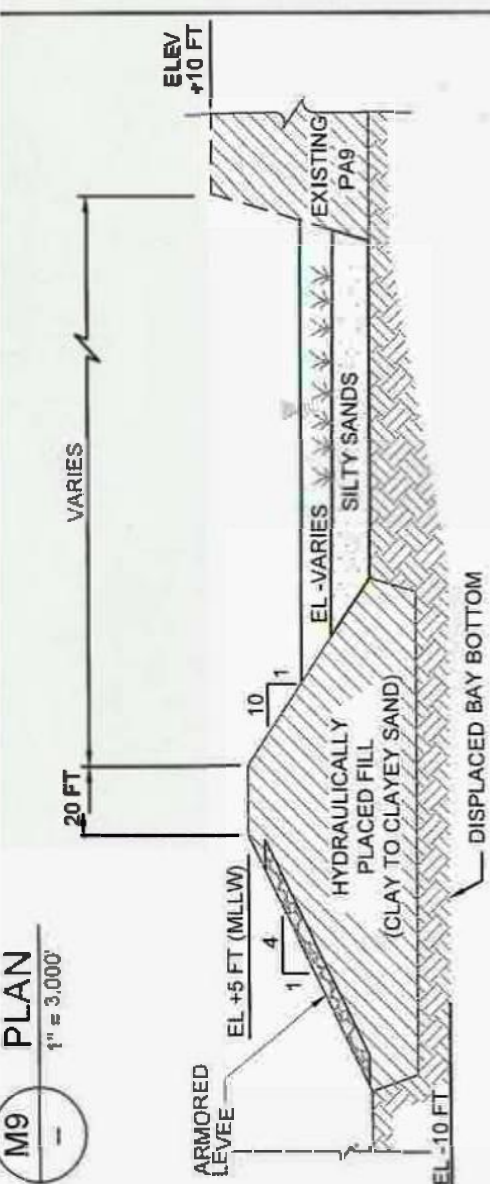
565+53
550+00
500+00
400+00
350+00
500+00
250+00



M9
PLAN
1" = 3,000'

Placement Site Neatline Quantity - Site M9	
Feature Description	Construction Volume (CY)
Armoring*	5,333
Levee Creation	312,000
329 Acre Estuarine / Aquatic Habitat	3,188,000
Total	3,500,000

*Note: Quantity not included in CY total



M9
SECTION
NOT TO SCALE

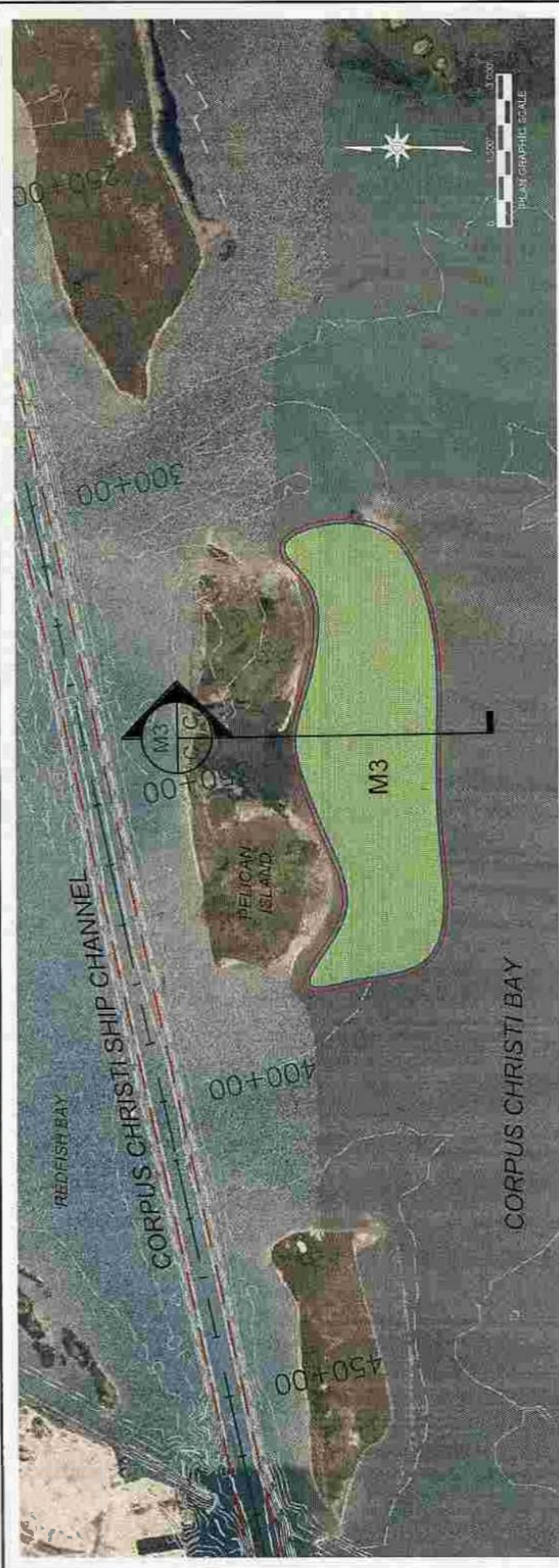
LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- EXIST CONTOURS

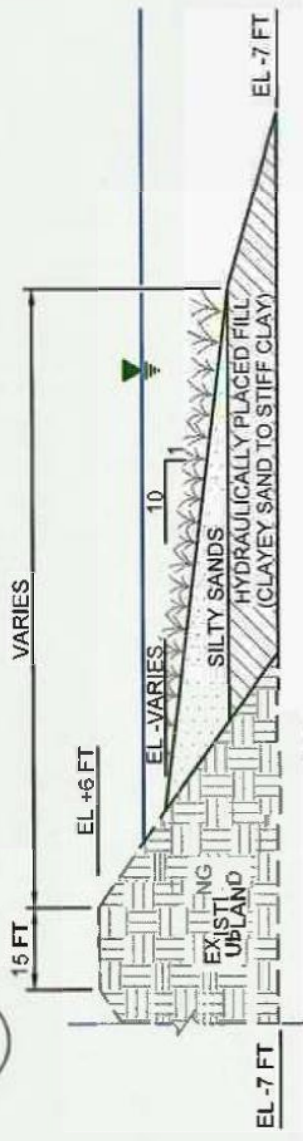
GENERAL NOTES

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Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX
**BENEFICIAL USE SITE
AND SECTION VIEW - M9
329 ACRE ESTUARINE / AQUATIC HABITAT**



M3
PLAN
1" = 2,500'



M3
SECTION
NOT TO SCALE

Placement Site Neatline Quantity - Site M3	
Feature Description	Construction Volume (CY)
Foundation Fill	3,269,200
330-Acre Estuarine / Aquatic Habitat	1,059,200
Total	4,328,400

LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- EXIST CONTOURS

GENERAL NOTES

1. BASE MAPPING SHOWN IS ESRI WORLD IMAGERY, RETRIEVED FROM ARCGIS TO AUTOCAD IN DEC 2018 - LAST UPDATED IN SEPT 2018.
2. HORIZONTAL COORDINATE SYSTEM IS NAD83 TEXAS STATE PLANE, SOUTH ZONE, US FOOT.
3. VERTICAL DATUM IS REFERENCED TO NORTH AMERICAN PIPELINE DATA FOR ARANSAS AND NUECES COUNTIES RETRIEVED FROM RAILROAD COMMISSION OF TEXAS ON NOVEMBER 19, 2018.

Corpus Christi Ship Channel Deepening Project
 Individual Permit Application SWG-XXXX-XXXX

**BENEFICIAL USE SITE
 AND SECTION VIEW - M3**

330 ACRE ESTUARINE / AQUATIC HABITAT

State: Texas
 County: Aransas and Nueces
 Application By: Port of Corpus Christi Authority
 Date: December 2018

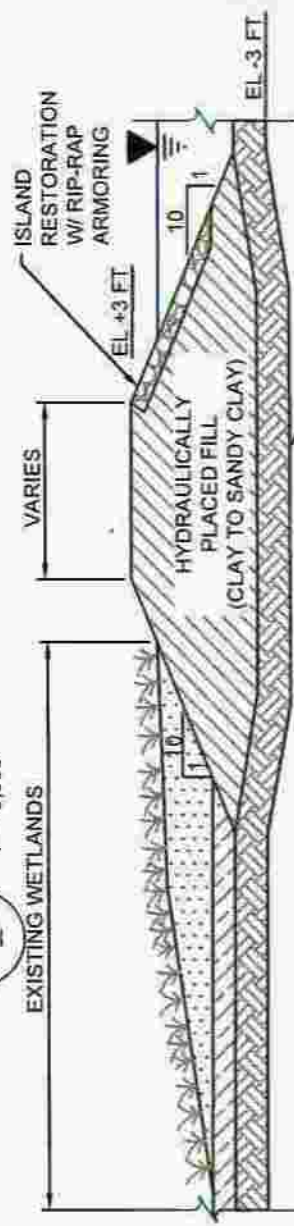
1-023-18 - 210300 - User: Nathan Macosko DWS: 11/14/2018 10:00:00 AM Project: Corpus Christi Ship Channel Deepening Project Figure: M3 Section View



Placement Site Neatline Quantity - Site M4	
Feature Description	Construction Volume (CY)
Armoring*	6,667
Levee Creation	867,000
Total	867,000

*Note: Quantity not included in CY total

M4 PLAN
1" = 3,000'



M4 SECTION
NOT TO SCALE

Sheet 10 of 17

GENERAL NOTES

1. BASE MAPPING SHOWN IS ESRI WORLD IMAGERY, RETRIEVED FROM ARCGIS TO AUTOCAD IN DEC 2018 - LAST UPDATED IN SEPT 2018. HORIZONTAL COORDINATE SYSTEM IS NAD83 TEXAS STATE PLANE, SOUTH ZONE, US FOOT.
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3. PIPELINE DATA FOR ARKANSAS AND NUECES COUNTIES RETRIEVED FROM RAILROAD COMMISSION OF TEXAS ON NOVEMBER 19, 2018.
- 4.

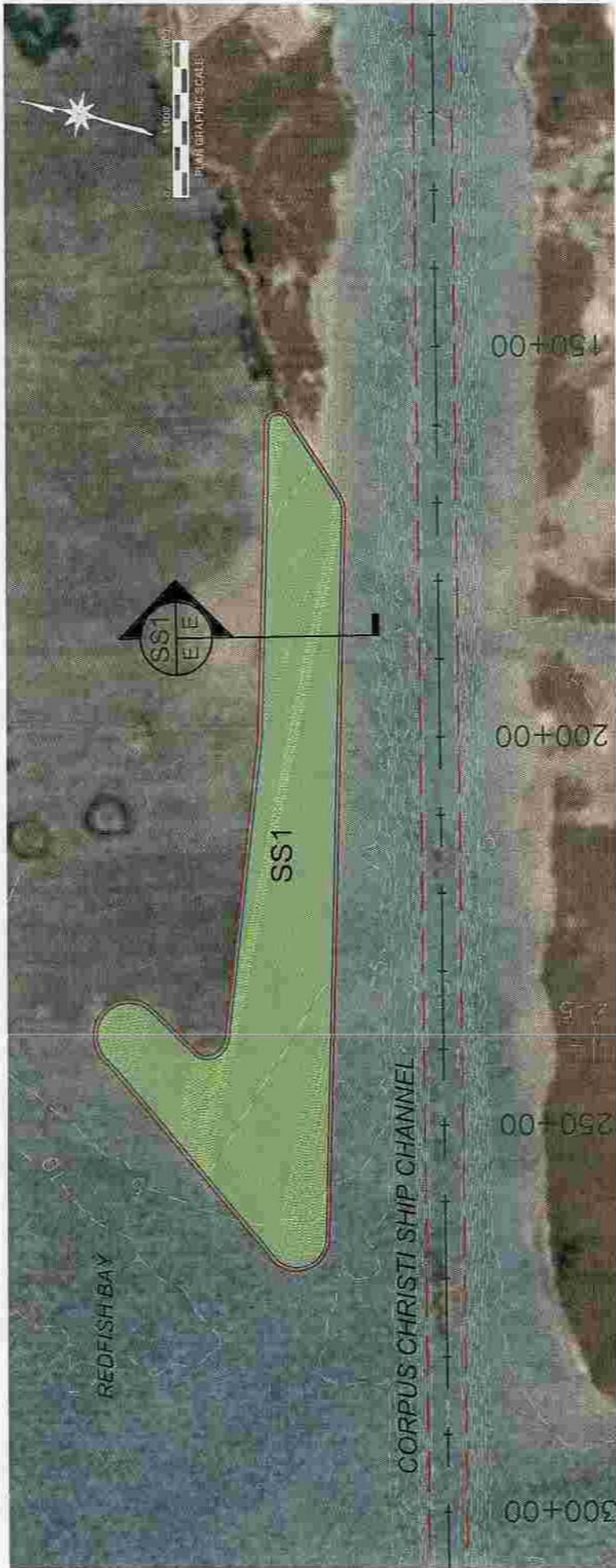
LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- POTENTIAL RESTORATION
- EXIST CONTOURS

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

BENEFICIAL USE SITE AND SECTION VIEW - M4
DAGGER ISLAND LEVEE CREATION

County: Aransas and Nueces
Application By: Port of Corpus Christi Authority
State: Texas
Date: December 2018



Placement Site Neatline Quantity - Site SS1	
Feature Description	Construction Volume (CY)
Armoring*	5,555
Levee	107,400
Foundation Fill	1,574,500
Total	1,681,900

*Note: Quantity not included in CY total

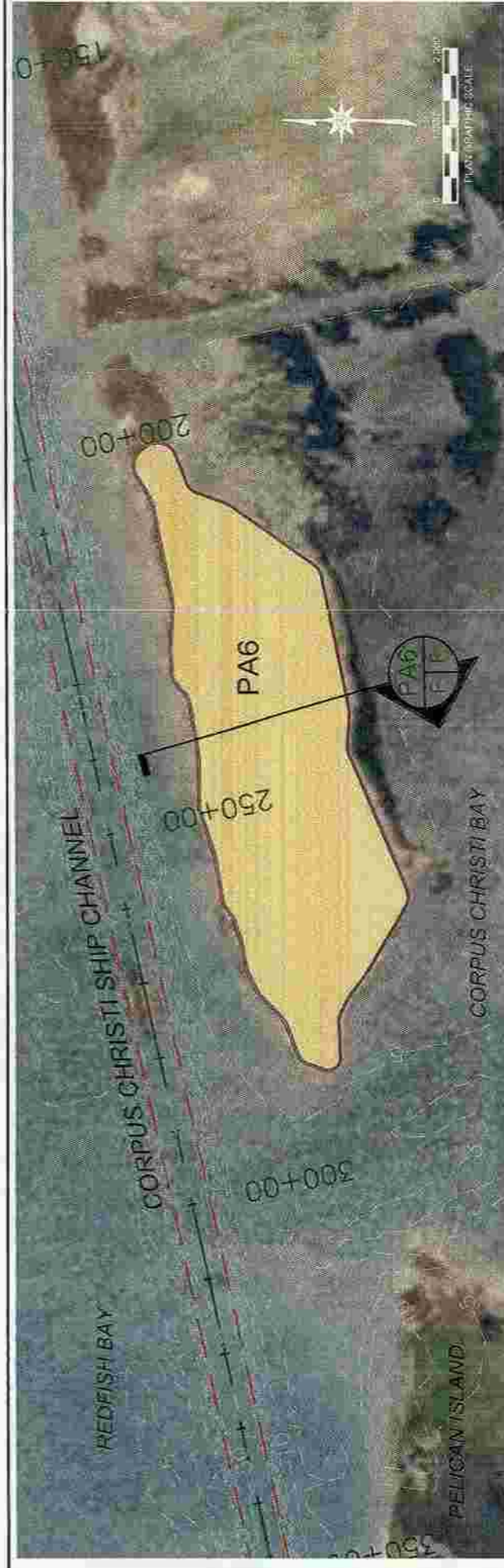
LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- EXIST CONTOURS

GENERAL NOTES

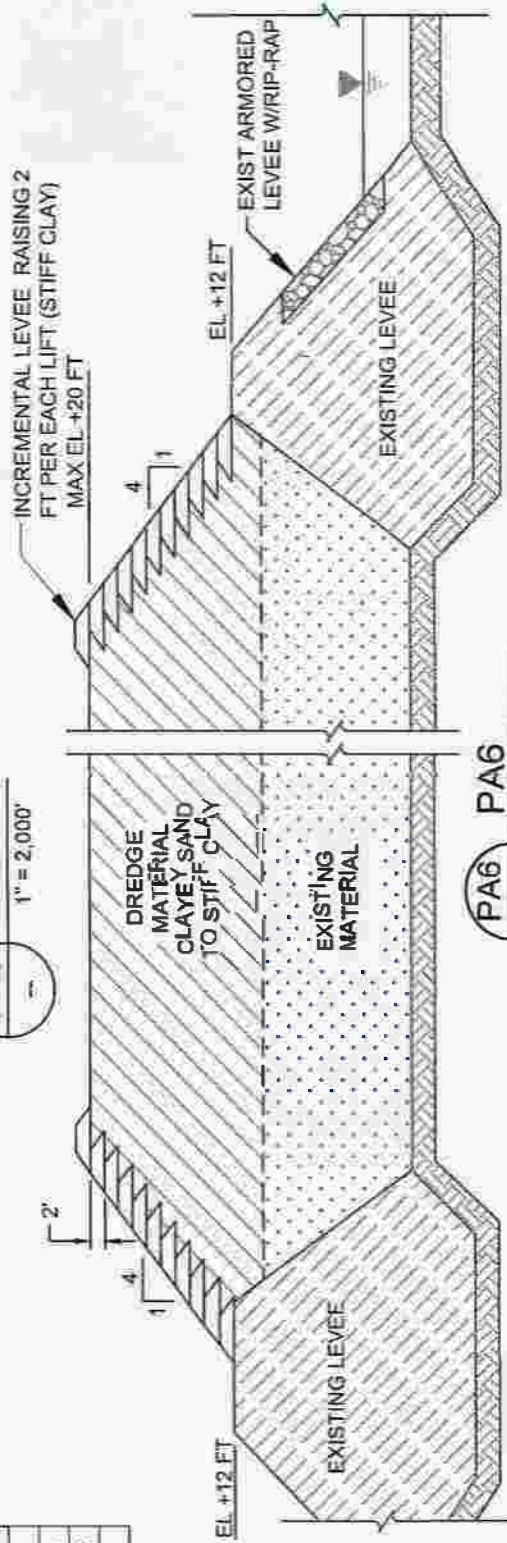
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4. PIPELINE DATA FOR ARKANSAS AND NUECES COUNTIES RETRIEVED FROM RAILROAD COMMISSION OF TEXAS ON NOVEMBER 19, 2018.

Corpus Christi Ship Channel Deepening Project
 Individual Permit Application SWG-XXXX-XXXX
**BENEFICIAL USE SITE AND
 SECTION VIEW - SS1
 SHORELINE RESTORATION**
 County: Arkansas and Nueces
 Application By: Port of Corpus Christi Authority
 State: Texas
 Date: December 2018



Placement Site Neatline Quantity - Site PA 6	
Feature Description	Construction Volume (CY)
2-ft Levee Raise	116,100
PA Fill	3,588,800
Total	3,704,900

PA6 PLAN
1" = 2,000'



PA6 F F NOT TO SCALE

Sheet 12 of 17

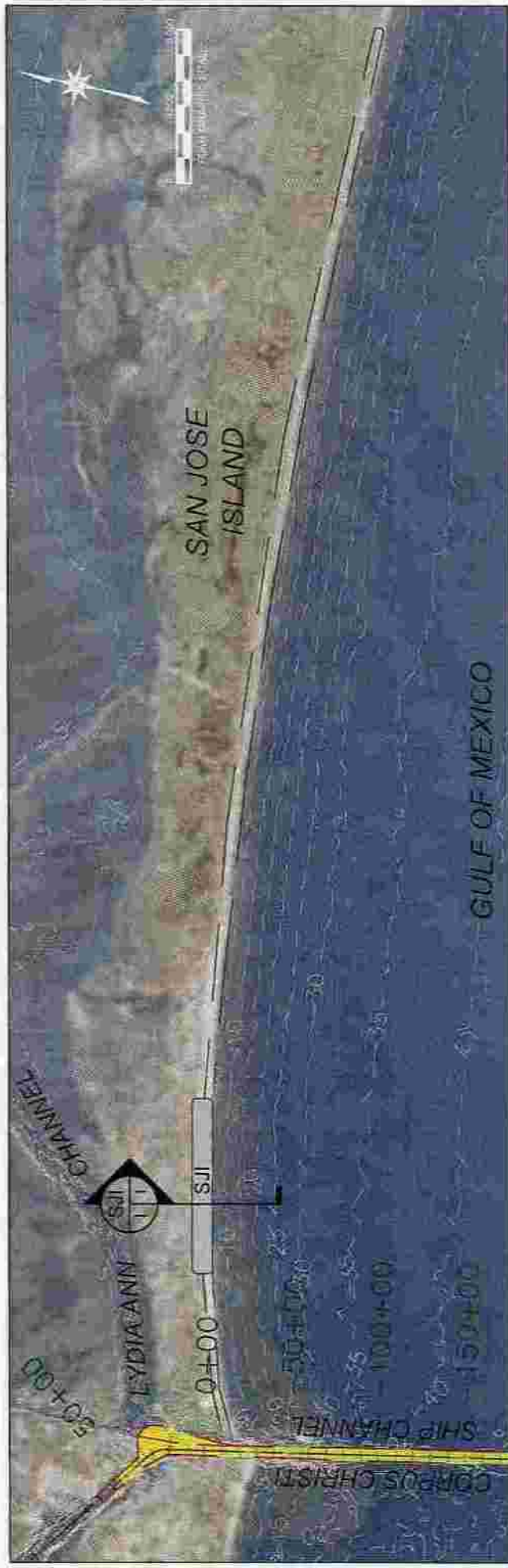
LEGEND

- EXISTING SHIP CHANNEL
- DREDGE MATERIAL PLACEMENT
- EXIST CONTOURS

GENERAL NOTES

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Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX
**DREDGE MATERIAL PLACEMENT
SITE AND SECTION VIEW - PA6
LEVEE RAISE & FILL**



SJI
11

PLAN
1" = 9,000'

100+ FT (VARIES)
75 FT
200 FT

EL +10 FT
EL +6 FT
EL +1 FT

FILL (SAND TO SILTY SAND TO MATCH PRE-STORM ELEVATIONS)
DUNE FILL (SAND)
BEACH FILL (SAND)

EXIST BEACH
EXIST BOTTOM

APPROX. 500 FT

SJI
11

SECTION
NOT TO SCALE

MLLW
MATCH EXIST

EXIST GRADE

1
3
1

Sheet 14 of 17

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

BENEFICIAL USE SITE AND
SECTION VIEW - SJI
DUNE AND FORESHORE
RESTORATION

State: Texas
Date: December 2018

County: Aransas and Nueces
Application By: Port of Corpus Christi Authority

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

BENEFICIAL USE SITE AND
SECTION VIEW - SJI
DUNE AND FORESHORE
RESTORATION

State: Texas
Date: December 2018

County: Aransas and Nueces
Application By: Port of Corpus Christi Authority

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

BENEFICIAL USE SITE AND
SECTION VIEW - SJI
DUNE AND FORESHORE
RESTORATION

State: Texas
Date: December 2018

County: Aransas and Nueces
Application By: Port of Corpus Christi Authority

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX

BENEFICIAL USE SITE AND
SECTION VIEW - SJI
DUNE AND FORESHORE
RESTORATION

State: Texas
Date: December 2018

County: Aransas and Nueces
Application By: Port of Corpus Christi Authority

Placement Site Neatline Quantity - San Jose Island (SJI)	
Feature Description	Construction Volume (CY)
Dune and Foreshore Restoration	7,000,000
Total	7,000,000

LEGEND

PROPOSED SHIP CHANNEL DEEPENING

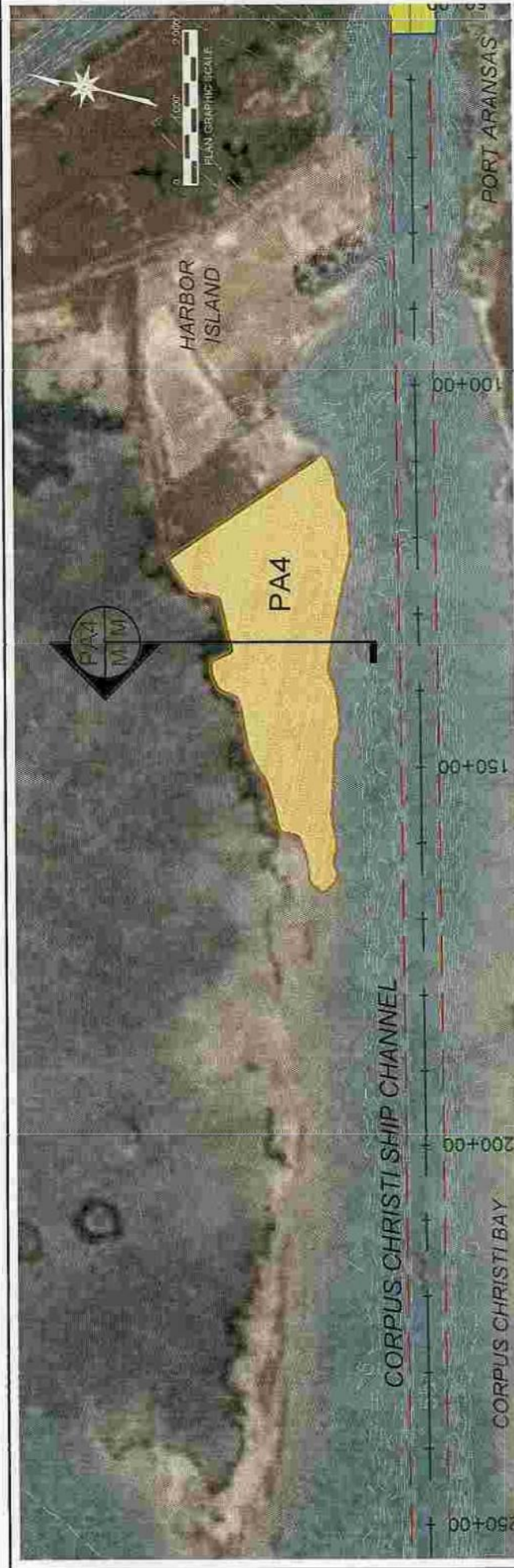
EXIST CONTOURS

DUNE RESTORATION

FORESHORE RESTORATION

GENERAL NOTES

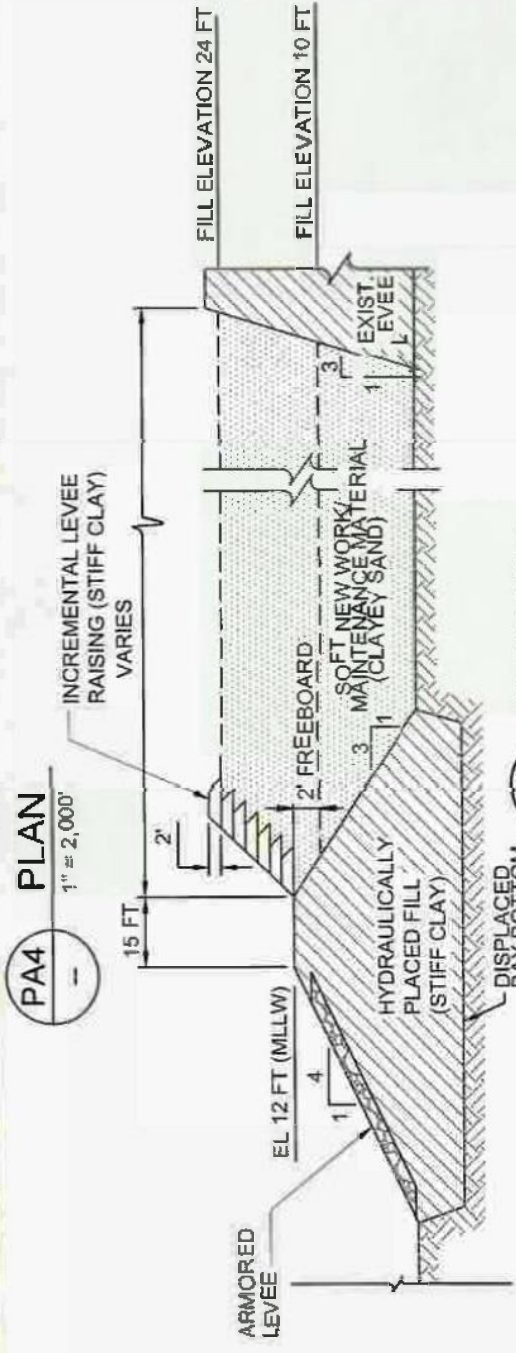
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PA4 PLAN
1" = 2,000'

Placement Site Neatline Quantity - Site PA 4	Construction Volume (CY)
Armoring*	4,667
Levee	158,600
PA fill	2,861,400
Total	3,020,000

*Note: Quantity not included in CY total



PA4 SECTION
NOT TO SCALE

GENERAL NOTES

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LEGEND

- EXISTING / PROPOSED SHIP CHANNEL DEEPENING
- DREDGE MATERIAL PLACEMENT
- EXIST CONTOURS

Corpus Christi Ship Channel Deepening Project
Individual Permit Application SWG-XXXX-XXXX
**DREDGE MATERIAL PLACEMENT
SITE AND SECTION VIEW - PA4
LEVEE CONSTRUCTION & FILL**

Block 25 Addresses of Adjoining Property Owners (from Nueces and San Patricio Counties 2018)

Owner	Mailing Address	City	State	Zip
San Patricio County				
FLINT HILLS RESOURCES CORPUS CHRISTI LLC ATTN PROPERTY TAX DEPT	PO BOX 3755	WICHITA	KS	67201-2917
G&H TOWING COMPANY	PO DRAWER 2270	GALVESTON	TX	77553
GULF MARINE FABRICATORS L P	16225 PARK TEN PLACE, SUITE 280	HOUSTON	TX	77084
PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY	PO BOX 1541	CORPUS CHRISTI	TX	78403
Nueces County				
12 BANYAN LLC	3200 Bryker Dr	Austin	TX	78703-1330
231 PORT A LLC	203 Humble Ave	San Antonio	TX	78225-1317
5D PROPERTIES LLC	107 Five Oaks Dr	San Antonio	TX	78209-2405
6221 STATE HIGHWAY 361 LLC	PO Box 781348	San Antonio	TX	78278-1348
663 ANCHOR DR., A SERIES OF GRIZZO'S INVESTMENTS, LLC	12 Park Mtn	San Antonio	TX	78255-2104
ABELL REALTY LMTD PARTNERSHIP	4608 CRESTWAY DR	AUSTIN	TX	78731-5204
ALLEN BRUCE D TRUSTEE	61 Lincoln Dr	New Boston	NH	03070-4304
ANDERSON EVAN D & WF ANEESA W	503 Hummingbird Ln	Austin	TX	78734-4791
ARANSAS FIRST	81 GRIFFITH DR	ROCKPORT	TX	78382
ARNOLD HAYS L III & KRISTEN PLASTINO-ARNOLD	154 Country Ln	San Antonio	TX	78209-2228
ARNOLD MICHAEL J & WF SHERYLL	PO BOX 1118	PORT ARANSAS	TX	78373-1118
ARNOLD MICHAEL J ET UX	SHERYLL	PORTARANSAS	TX	78373-1118
BADALICH CARL AND SHERRY BADALICH	P O BOX 18150	CORPUS CHRISTI	TX	78480
BANYAN BEACH PROPERTY OWNERS ASSOCIATION INC	14613 S Padre Island Dr	Corpus Christi	TX	78418-6037
BEACH VIEW ESTATES OWNERS ASSN	211 COSTA BELLA DR	AUSTIN	TX	78734-2662
BENTON ELAINE ROBINSON EXEMPT APPT TRUST# 1	2403 Rockmoor Ave	Austin	TX	78703-1516
BERNSEN COASTAL BUILDERS LLC	722 Tarpon Unit J	Port Aransas	TX	78373-5182
BES INVESTMENTS LLC	502 E Center Ave	Carlsbad	NM	88220-6106
BIEDENHARN ALBERT M III	1250 NE LOOP 410	SANANTONIO	TX	78209-1525
BIEHN DAVID P	9319 Waterview Rd	Dallas	TX	75218-2745
BIG SAND HILL DEVELOPMENT LP	19802 Messina	San Antonio	TX	78258-3192
BLACKERT JOSEPH	12607 Silver Creek Dr	Austin	TX	78727-2808
BLISS JIMMY AND MARCI BLISS	1016 BLUFF	PORTLAND	TX	78374
BODE BILLY WADE AND WF	5409 Northwest Tri	Corpus Christi	TX	78410-4814
BOGO/ORTIZ LTD	13817 Captains Row	Corpus Christi	TX	78418-6807
BRAMAN RANCHES LLC	PO Box 400	Victoria	TX	77902-0400
BREADY MARK AND STEVE BREADY	1142 Rip Jay Cir	Canyon Lake	TX	78133-4000
BREWSTER REVOCABLE TRUST	PO Box 368	Marietta	OK	73448-0368
BUECHEL FREDERICK MD TR	61 FIRST ST	SOUTH ORANGE	NJ	07079
C & F WEIL TRUST ETAL	500 N Shoreline Blvd Ste 1118	Corpus Christi	TX	78401-0359
C02 INC	110 Allen Ln	Center Point	TX	78010-5494
CABELA JOSEPH & JENNIFER CABELA	220 Roy Creek Tri	Dripping Springs	TX	78620-4197
CALDWELL DOLORES M	6403 LOCHMOOR DR	SAN DIEGO	CA	92120
CAMPBELL CHARLES H FAMILY PARTNERSHIP LTD	5540 Saratoga Blvd	Corpus Christi	TX	78413-2999
CARLISLE THOMAS L	500 N WATER ST STE 900	CORPUS CHRISTI	TX	78471-0019
CASA OCEANSIDE LLC	3303 Rivercrest Dr	Austin	TX	78746-1718
CASERTA DIANE	1009 REDDING RD	FAIRFIELD	CT	06430
CHEEMA JASBIR S	4053 E. MORADA LANE	STOCKTON	CA	95212
CHOKO CANYON MOTEL, INC	PO Box 2181	Port Aransas	TX	78373-2181

Block 25 Addresses of Adjoining Property Owners (from Nueces and San Patricio Counties 2018)

Owner	Mailing Address	City	State	Zip
CINNAMON SHORE COMMUNITY ASSOCIATION INC	PO Box 342585	Austin	TX	78734-0044
CITY OF CORPUS CHRISTI	PO BOX 9277	CORPUS CHRISTI	TX	78469-9277
CITY OF PORT ARANSAS	710 W AVENUE A	PORT ARANSAS	TX	78373-4128
COBBS JEFFREY DAN AND WF	11 HEWIT DR	CORPUS CHRISTI	TX	78404-1609
COCHRAN IRENE TR OF THE	GULF REALTY TRUST	APALACHICOLA	FL	32329-0400
COUNCIL OF CO-OWNERS OF	14493 S Padre Island Dr	Corpus Christi	TX	78418-9997
CRANDALLS COTTAGE LLC	1511 Blackbird Ln	San Antonio	TX	78248-1743
CRENWELGE DALE A	PO Box 717	Comfort	TX	78013-0717
CUTLER HAYDN H JR	3825 Camp Bowie Blvd	Fort Worth	TX	76107-3355
DANGER SIX REVOCABLE MANAGEMENT TRUST	34 Royal Gardens Dr	San Antonio	TX	78248-1574
DENMAN BRYANS	P O BOX 775	GONZALES	TX	78629
DOYLE DAVID G & WF AMYL	318 Blue Bonnet Blvd	San Antonio	TX	78209-4633
DTB INVESTMENTS LP	28615 Interstate 10 W	Boerne	TX	78006-9126
DULCE DOG FAMILY LIMITED PARTNERSHIP	PO Box 1111	Leakey	TX	78873-1111
EASON KENNETH D AND SHIRLEY A WFE	4717 Miron Dr	Dallas	TX	75220-2018
EPISCOPAL CHURCH CORP IN	WEST TEXAS	SANANTONIO	TX	78209
ERF PORT ARANSAS INC	555 N Carancahua St #700	Corpus Christi	TX	78401-0800
ERWIN JOHN W & WF AMY D	13647 TREASURE TRAIL DR	SANANTONIO	TX	78232-3508
ESTRELLA BEACH LLC	5009 State Highway 361	Port Aransas	TX	78373-4833
EVANS JOHN RAND PATRICIA A EVANS WF	21 Inverness Blvd	San Antonio	TX	78230-5652
FACEY ENTERPRISES NVLTD.	A DELAWARE CORP	SAN MARINO	CA	91108
FCI-JJC LP A TEXAS LIMITED PARTNERSHIP	P O BOX 366698	BONITA SPRINGS	FL	34136-6698
FISCHER JERRY E	P O BOX 2464	CORPUS CHRISTI	TX	78403
FOREMAN SCOTT LAND WF	PO BOX 576	COLLEYVILLE	TX	76034-0576
FREEBORG GREGORY J AND CAROL A	1290 Gasparilla Dr NE	Saint Petersburg	FL	33702-2752
FRIESENHAHN DEVELOPMENT PROPERTIES LP	1204 Zanderson Ave	Jourdanton	TX	78026-3512
FRISHMAN BENJAMIN AND	4403 BALCONES DR	AUSTIN	TX	78731-5709
GARCIA HILARIO JR AND	PO Box 855	Pleasanton	TX	78064-0855
GARNER JEFF A AND WF CYNTHIA W	15513 Palmira Ave Apt A	Corpus Christi	TX	78418-6788
GATES THOMAS A	500 N Shoreline Blvd	Corpus Christi	TX	78401-0356
GATES THOMAS ALBERT JR AND WF	338 CATALINA PL	CORPUS CHRISTI	TX	78411-1602
GER PORT ARANSAS HOUSE LTD	P O BOX 9556	AUSTIN	TX	78766
GHADIMI RAMIN G AND DONA	E GHADIMI WFE	AUSTIN	TX	78746-6303
GINGRICH KATIE EILEEN	18214 Crystal Ridge Dr	San Antonio	TX	78259-3613
GOLDEN STEPHEN LAND WF	300 Convent St	San Antonio	TX	78205-3710
GONZALEZ ARNULFO JR ET UX	1510 CALLE DEL NORTE	LAREDO	TX	78401
GORCZYCA KIMBER LEI	520 Ocean Ww	Port Aransas	TX	78373-5711
GREEN WING INVESTMENTS LLC AVENUE G SERIES	101 W Goodwin Ave Ste 410	Victoria	TX	77901-6550
GRODSKY DAVID N AND JUNE PEARSON	P O BOX 864	PORT ARANSAS	TX	78373
GROSSE RICHARD M ET UX	BOX 872	PORT ARANSAS	TX	78373
GUENTHER LIFE INSURANCE TRUST	153 TREELINE PARK	SANANTONIO	TX	78209
GULF REALTY TRUST	P O BOX 400	APALACHICOLA	FL	32329-0400
GULFWIND DEVELOPERS LTD	120 GULF WIND DR	PORT ARANSAS	TX	78373
HAGER CECILIA	3121 White Oak Rd	Fredericksburg	TX	78624-7894
HANMORE EROL R	P O BOX 1541	PORT ARANSAS	TX	78373

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Owner	Mailing Address	City	State	Zip
HART JEFFERY LAND PATRICIA KILDAY HART	1504 Hardouin Ave	Austin	TX	78703-2519
HAUCK AMY KAND JOHN R HAUCK	11715 Spring Ridge Dr	San Antonio	TX	78249-2741
HAUSSER ROBERT JR ETALS	9901 Winterstate 10	San Antonio	TX	78230-2255
HAVERDA GARY CARLTON	PO Box 1411	Port Aransas	TX	78373-1411
HAVSAM PROPERTIES LLC	200 Patterson Ave	San Antonio	TX	78209-6284
HAWN EDWIN D	14222 Playa del Rey	Corpus Christi	TX	78418-7508
HEY PETER MALCHAM	121 Northoak Dr	San Antonio	TX	78232-1209
HH FAMILY INVESTMENTS I LTD	PO Box 207918	San Antonio	TX	78220-7918
HILL THOMAS W	PO BOX 3229	PORT ARANSAS	TX	78373
ILC REALTY LTD	TEXAS LIMITED PARTNERSHIP	SANANTONIO	TX	78258-7538
IMCO INDUSTRIES LTD	2801 - 5TH STREET NISKU			
ISLAND RETREAT II	CONDO COUNCIL OF CO-OWNERS	PORT ARANSAS	TX	78373-6012
JEAN KENNETH NORMAN & WF MICHELE	3606 W Deer Crossing Dr	Stillwater	OK	74074-7640
JENKINS CHARLES K ETUX	KATRINAC	HOUSTON	TX	77056-1414
JWW PROPERTIES LLC	615 N Upper Broadway St	Corpus Christi	TX	78401-0758
KINCAID JANET CAND	2009 Fringewood Dr	Midland	TX	79707-5051
KITEL WAYNE	PO Box 490	Port Aransas	TX	78373-0490
KJLSWS PROPERTIES LLC	145 Bluestem Ln	Boerne	TX	78008-7035
KLEBERG MARY LEWIS LTD	700 N Saint Marys St Ste 125	San Antonio	TX	78205-3538
KM BEACH, LLC	755 E Mulberry Ave Ste 600	San Antonio	TX	78212-6013
KM LINKS LLC	755 E Mulberry Ave Ste 800	San Antonio	TX	78212-6013
KNIETO PA LLC	700 N Saint Marys St Ste 125	San Antonio	TX	78205-3538
KNOPP GREGORY A & WF CAROL KNOPP	PO Box 1450	Port Aransas	TX	78373-1450
KOONTZ/MCCOMBS I LTD	755 E Mulberry Ave Ste 600	San Antonio	TX	78212-6013
KOXLIEN TIMOTHY J AND WF LISA L KOXLIEN	24715 Fairway Spgs	San Antonio	TX	78260-4800
LA CONCHA ESTATES OWNERS' ASSOCIATION INC	14493 S PADRE ISLAND DR	CORPUS CHRISTI	TX	78418
LA COSTA LAND DEVELOPMENT PARTNERS LP	288 Addie Roy Rd	Austin	TX	78748-4140
LABRUZZO DANNY ET UX	JEANNINE	PORT ARANSAS	TX	78373
LAYTON MATTHEWE & WF DEBORAH H	235 AMI STAD ST	CORPUS CHRISTI	TX	78404
LENNOX WILLIAM J JR AND ANNE M LENNOX	10521 Bermuda Isle Dr	Tampa	FL	33647-2721
LIKOVICH JOHN D AND SPSE	236 KING WILLIAM	SANANTONIO	TX	78204-1314
LINDNER DOROTHY NORTON	515 HOLIDAY RD	COMFORT	TX	78013-3107
LITTLETON MELVIN ET UX	DELANA	PORT ARANSAS	TX	78373
LOCO OCEAN LLC	PO Box 2290	Fort Worth	TX	76113-2290
MARSHIO BEVERLY AND DR P J MARSHIO	PO BOX 669	FULTON	TX	78358
MARTIN OPERATING PARTNERSHIP LP	% MARTIN MIDSTREAM PARTNERS LP	KILGORE	TX	75662
MAYAN PRINCESS COUNCIL OF CO-OWNERS INC	7537 STATE HIGHWAY 381	PORT ARANSAS	TX	78373
MCALLISTER TADDY JO ELLEN	203 Terral Rd	San Antonio	TX	78209-5915
MCALLISTER WALTER WIII	4940 BROADWAY STE 104	SANANTONIO	TX	78209
MCCANN CHERYL SUZANNE	236 Dolphin Ln	Port Aransas	TX	78373-5407
MCCARTY DAN E	117 Rockhil Dr	San Antonio	TX	78209-2219
MCDONNELL HENRY JR AND WF MARY ROGERS MCDONNELL	135 Wildrose Ave	San Antonio	TX	78209-3812
MCDONOUGH JOHN G AND	5025 N Central Expy Ste 3012	Dallas	TX	75205-3447
MCGINNIS CAMPBELL/JAYNE WIFE	1202 BELMONT PARKWAY	AUSTIN	TX	78703
MDW FINANCIAL LIMITED PARTNERSHIP	28255 Inlerstate 10 W	Boerne	TX	78006-8508

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Owner	Mailing Address	City	State	Zip
MEADOWS GILBERT RAND JAN B MEADOWS	807 CONTOUR DR	SANANTONIO	TX	78212
MEYERS WILLIAM D & WF TRACY LAND STEPHEN W FRANK & WF PATRICIA L	28255 Interstate 10 W, Ste 101	Boerne	TX	78006-6508
MHP TEXAS VENTURES LLC	1506 Hawks Mdw	San Antonio	TX	78248-1719
MILLS STEVE	18314 Emerald Oaks Dr	San Antonio	TX	78259-3637
MOKRY NANCY & WESLEY MOKRY	11223 BLOSSOM BELL DR	AUSTIN	TX	78758-4217
MOONEY RICHARD J TRUSTEE OF THE RJM TRUST	PO Box 1586	Frisco	TX	75034-0027
MOORE EDWARD ETUX TRUDY	1248 Austin Hwy 106-218	San Antonio	TX	78209-4867
MOORHOUSE BURTON LAND WF BEVERLY S BOLNER	684 Shoreline Cir	Port Aransas	TX	78373-4129
MUSTANG ISLAND DEVELOPMENT INC	120 Social Cir UNIT 4-101	Port Aransas	TX	78373-5091
MUSTANG ISLAND LLC	5916 Sterling Dr	Colleyville	TX	76034-7631
NEBLETT DUNCAN JR AND GEORGIA WFE	681 SHORELINE CIRCLE	PORT ARANSAS	TX	78373
NELLA GROUP LLC	427 N Broadway Blvd	Joshua	TX	76058-3413
NUECES CO NAVIGATION DIST				00000
NUECES COUNTY	901 LEOPARD ST	CORPUS CHRISTI	TX	78401-3606
OCEANSIDE ADDITION OWNERS	PO Box236	Port Aransas	TX	78373-0236
PA POINT LTD	4418 OCEAN DRIVE	CORPUS CHRISTI	TX	78412
PA WATERFRONT LP	3455 PEACHTREE RD NE STE 650	ATLANTA	GA	30326
PAISANO PARTNERS LTD	4040 BROADWAY STE 501	SANANTONIO	TX	78209
PANOS MANAGEMENT TRUST	3716 Lagood Dr	Austin	TX	78730-3501
PATE RICHIE	1800 Hughes Landing Blvd	Spring	TX	77380-1684
PAYNE DENNIS L & WF, DEBORAH J	5478 County Road 73	Robstown	TX	78380-9003
PERCOCO RICHARD A & THELMA A WFE	1011 Bayridge Rd	La Porte	TX	77571-3520
PHILLIPS BRICE	2004 PHILADELPHIA AVE	OCEAN CITY	MD	21842
PIONEER RV RESORT INC	120 GULF WIND DR	PORT ARANSAS	TX	78373
PITT STEPHEN MAND SARAH J	2929 Wesleyan St	Houston	TX	77027-2007
POMEROY ANNETTE	200 LEGACY DOWNS DR	FORT WORTH	TX	76126-5737
PORPOISE POINT HOMEOWNERS'	ASSOCIATION	PORT ARANSAS	TX	78373
PORT A MANAGEMENT CO	13647 Treasure Trail Dr	San Antonio	TX	78232-3508
PORT A SANDBOX LLC	17067 PO BOX	AUSTIN	TX	78760-7067
PORT ARANSAS MARICULTURE	CENTER - TEXAS A & M			
PORT ARANSAS MARINA ASSN	PO BOX 117	SAINT HEDWIG	TX	78152-0117
PORT ARANSAS RV PARK	907 ACCESS RD 1A	PORT ARANSAS	TX	78373
PORT OF CORPUS CHRISTI AUTH	P O BOX 1541	CORPUS CHRISTI	TX	78403
PORTA CORPORATION	PO Box 460968	San Antonio	TX	78246-0968
POSEIDON REALTY TRUST	C/O ABACUS REALTY	APALACHICOLA	FL	32329-0400
POWER LAND COMPANY LTD	5601 EDMOND STEM	WACO	TX	76710-4321
PRESTON WILLIAM J & MELISSA V PRESTON	PO Box 7520	Spring	TX	77387-7520
R & R ROYALTY LTD	500 N Shoreline Blvd Ste 322	Corpus Christi	TX	78401-0313
RACHAL ED FOUNDATION	555 N Carancahua St Ste 700	Corpus Christi	TX	78401-0861
RANDALL JAMES PRESTON & WF LAURILEE GRACE	10603 Sierra Oaks	Austin	TX	78759-5166
REDDYGEETA	PO Box 272000	Corpus Christi	TX	78427-2000
RHODES SUZANNE SA ND ALAN GARY THOMPSON	4511 Ridgehaven Rd	Fort Worth	TX	76116-7315
RIVERS WIL & JULIE V HUMBLE	610 Shoreline Cir	Port Aransas	TX	78373-4129
ROGERS WALLACE III1992 FAMILY TRUST	305 Geneseo Rd	San Antonio	TX	78209-6124
RUSSELL JOHN	31211 Silver Spur Tri	Boerne	TX	78015-4107

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S & K FAMILY TRUST	24165 W Interstate 10 Ste 217-419	San Antonio	TX	78257-9997
SAND POINT N.U.D OWNER'S ASSOC INC	PO BOX 141	PORT ARANSAS	TX	78373-0141
SCHIRMER ROBERT G SR AND	324 DOLPHIN LN	PORT ARANSAS	TX	78373-5405
SCHOLL JACK W & SCHOLL HOLDINGS LTD	5740 Ocean Dr	Corpus Christi	TX	78412-2848
SCHRADER J ERIC ETUX DENISE A	6601 RIVER BEND DR	FT WORTH	TX	76132
SCHWEPPE HENRY IRVING JR TR	1752 NORTH BOULEVARD	HOUSTON	TX	77098
SCOTT MICHAEL D & WF CONNIE SCOTT	638 Shoreline Cir	Port Aransas	TX	78373-4129
SEA OATS INVESTMENTS II LLC	5009 State Highway 361	Port Aransas	TX	78373-4833
SEAS THE VIEW	PO Box 1627	Kyle	TX	78640-1627
SEUREAU GLENN	3214 INWOOD DR	HOUSTON	TX	77019-3228
SHUTTERS PORTA LLC	203 HUMBLE AVE	SANANTONIO	TX	78225
SIGMA OCEAN VIEW PROPERTIES LLC	310 Champion Fis	San Antonio	TX	78258-4876
SILVERCLOUD PROPERTIES LLC	221 E Guenther	San Antonio	TX	78204-1404
SNYDER BLAINE & KELLI SNYDER	673 Shoreline Cir	Port Aransas	TX	78373-4146
SPARR RICHARD A JR & WF JENNIFER	1313 NE LOOP 410 STE 100	SANANTONIO	TX	78209
SPEC-TACULAR INC	921 N Chaparral St Ste 103	Corpus Christi	TX	78401-2008
SPMP HOLDINGS LTD	115 Rio Cordillera	Boerne	TX	78006-5891
STAFFORD WESLEY W	AND JANE O STAFFORD WFE	CORPUS CHRISTI	TX	78411
STAHLMAN ALAN RAND SUZANNE MARTIN TRUSTEES OF THE	5691 FM 2722	NEW BRAUNFELS	TX	78132-2018
STATE OF TEXAS	PO Box 12608	Austin	TX	78711-2608
STERETT ROBERT HULINGS AND	409 Coral Pl	Corpus Christi	TX	78411-1530
STOVALL CHARLES WILLIAM AND WF	420 Ocean View Dr	Port Aransas	TX	78373-5711
SUNFLOWER BEACH DEVELOPMENT LTD	2215 Westlake Dr	Austin	TX	78746-2910
SWN LTD ET AL	2121 SAGE RD	HOUSTON	TX	77056-4341
TEMPLES RODGER D &	4701 Winthrop Ave W	Fort Worth	TX	76116-8239
TERRAMAR MI LTD	6315 Bandera Ave	Dallas	TX	75225-3621
TF JORGENSON BUSINESS	MANAGEMENT PARTNSHP LTD	NACOGDOCHES	TX	75961
THE WINAR GROUP LLC	C/O ROBBY ALLEN	JOSHUA	TX	76058
TURNER CHARLES R TRUSTEE	4201 Lomo Alto Dr Apt 109	Dallas	TX	75219-1511
UNITED STATES OF AMERICA	DEPT OF INTERIOR			
UNIVERSITY OF TEXAS	210 W7th St	Austin	TX	78701-2903
VAGSHENIAN ATHENA	114 CRESTVIEW DR	AUSTIN	TX	78734
VAUGHAN BEN F III TRUSTEE OF THE	PO Box 460968	San Antonio	TX	78246-0968
WALLACE JUDITH LYN	3016 Mid Ln Unit B	Houston	TX	77027-5638
WATSON JOHN DOBREE AND WF	8005 Hidden Creek Ct	Mansfield	TX	76063-2088
WESTPLAN RESIDENTIAL FUND III LP	ONE GLENLAKE PARKWAY STE 1275	ATLANTA	GA	30328
WMI PROPERTIES LLC	605 E Dewey Pl	San Antonio	TX	78212-4012
WMI2 LLC	PO Box 90624	San Antonio	TX	78209-9088
WOLFE RONALD T & WF PAMELA K BURDA-WOLFE	211 COSTA BELLA DR	AUSTIN	TX	78734
YELLOW SHACK INVESTMENTS LLC	302 Dolphin Ln	Port Aransas	TX	78373-5405
ZARS KEITH M	12818 COUNTRY CREST	SANANTONIO	TX	78216-0000