Sabine Pass to Galveston Bay, Texas
Coastal Storm Risk Management and Ecosystem Restoration
Final Integrated Feasibility Report and Environmental Impact Study

APPENDIX G

AGENCY AND TRIBAL COORDINATION

May 2017

Table of Contents page

PART I
RESOURCE AGENCY COORDINATION

Resource Agency Cooperating Agency Requests

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300
November 19, 2014

REPLY TO
ATTENTION OF

NEPA/Cultural Resources Section

Edith Erfling
Field Supervisor
Clear Lake Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Ms. Erfling:

The Galveston District, Corps of Engineers, and the non-federal sponsor, the Texas General Land Office, would like to invite your agency to participate as a cooperating agency in the development of an Environmental Impact Statement (EIS) for the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Feasibility Study. The Integrated Feasibility Report and Environmental Impact Statement (IFR-EIS) will evaluate structural and non-structural alternatives which address coastal storm risk management (CSRM) impacts and ecosystem restoration (ER) opportunities in Orange, Jefferson, Chambers, Harris, Galveston and Brazoria Counties. The Draft IFR-EIS is currently scheduled to be released for public review and comment in August 2015.

Structural alternatives that will be evaluated are: (1) new surge protection levees and small, navigable surge gates on Cow and Adams Bayous in Orange and Jefferson Counties; (2) a large navigable surge gate in the Neches River near the Rainbow Bridge (eliminated); and (3) reevaluation of the existing Port Arthur and Freeport Hurricane Flood Protection (HFP) systems in Jefferson and Brazoria Counties, respectively. Maps showing the location of the existing HPFs and the structural alternatives are enclosed. Non-structural measures such as targeted buy-outs will also be evaluated. Structural and non-structural alternatives to address storm surge impacts in the Galveston Bay system, as well as ER measures throughout the six-county study area will be evaluated programmatically, with recommendations being made for detailed analyses of feasible alternatives in future studies.

We are inviting your participation as a cooperating agency pursuant to Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR Part 1501.6). Furthermore, we would like to coordinate with you our schedule for study completion so that all reviews and approvals will, to the maximum extent practicable, be conducted concurrently. This concurrent coordination is required by Section 2045 of the Water Resources Development Act of 2007. The following review periods for the Biological Opinion (if needed) and the IFR-EIS have been established in accordance with the current project schedule:

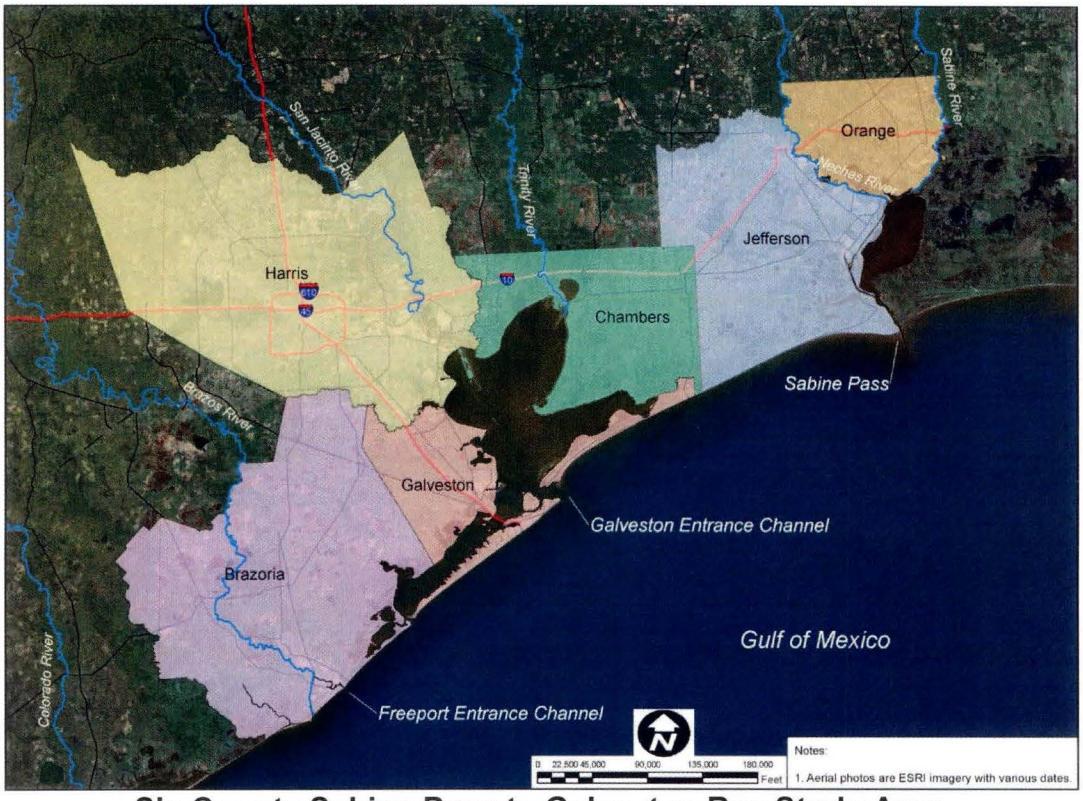
Draft Biological Opinion – 120-day preparation period (January 5 through May 7, 2015)
Final Biological Opinion – 45-day review period (May 26 through July 13, 2015)
Draft Coordination Act Report – due March 31, 2015
Final Coordination Act Report – due April 17, 2015
Review of Draft IFR-EIS –45-day review period (August 29 through October 12, 2015)
State and Agency Review of Final IFR-EIS – 30-day review (July 15 through August 14, 2016)

We appreciate this opportunity to invite your agency's participation as a cooperating agency and request that you advise us as to whether the review periods are acceptable to your agency. If you should have any questions regarding this request, please contact Janelle Stokes of my staff at (409) 766-3039.

Sincerely,

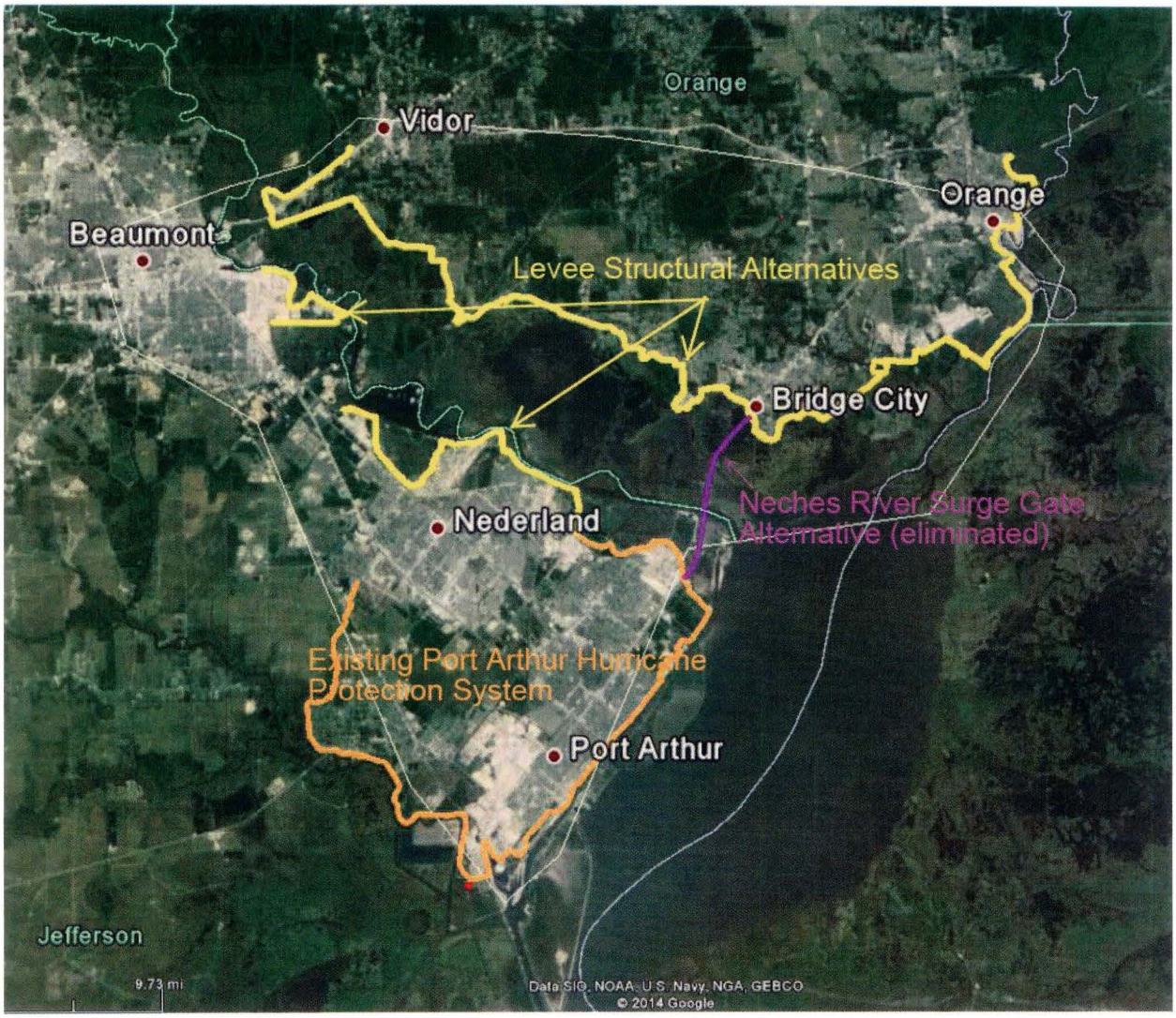
Carolyn Murphy
Chief, Unit A, NEPA/Cultural
Resources Section

Enclosures



Six County Sabine Pass to Galveston Bay Study Area

Existing Freeport Hurricane Flood Protection System



Existing Port Arthur Hurricane Flood Protection System, Levee Structural Alternatives and Neches River Surge Gate Alternative

Identical Cooperating Agency Letters Also Sent To:

Rusty Swafford
National Marine Fisheries Service
4700 Avenue U
Galveston, Texas 77551

Rebecca Hensley
Ecosystem Resources Program Regional Director
Texas Parks and Wildlife Department
1502 FM 517 East
Dickinson, Texas 77539

Greg Easley
Texas Commission on Environmental Quality
P.O. Box 13087, MC-150
Austin, Texas 78711-3087

Matthew Mahoney
Waterways Program Coordinator
Texas Department of Transportation
Maritime Division
118 E. Riverside Drive
Austin, Texas 78704

Ray Newby
Coastal Resources Division
Texas General Land Office
P.O. Box 12873
Austin, Texas 78711-2873

Phil Kelley
Manager
Jefferson County Drainage District No. 7
P.O. Box 3244
Port Arthur, Texas 77643

Brent Peveto
Director-At-Large
Orange County Drainage District
8081 Old Highway 90
Orange, Texas 77630

George Kidwell
Chairman
Velasco Drainage District
915 Stratton Ridge Road
Clute, Texas 77531

One agency (NOAA-NMFS) responded with an acceptance of this request. No agencies declined.

November 25, 2014 F/SER46: HY

Ms. Carolyn Murphy
Chief, Unit A, NEPA/Cultural Resources Section
Galveston District
Department of the Army, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Ms. Murphy:

The NOAA's National Marine Fisheries Service Habitat Conservation Division (NMFS HCD) has received your letter dated November 19, 2014, inviting NMFS HCD to participate as a cooperating agency in the development of an Environmental Impact Statement (EIS) for the Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration Feasibility Study. The EIS and Integrated Feasibility Report to be prepared by the U.S. Army Corps of Engineers Galveston District and the non-federal sponsor, the Texas General Land Office, will evaluate structural and non-structural alternatives which address coastal storm risk management impacts and ecosystem restoration opportunities in Orange, Jefferson, Chambers, Harris, Galveston and Brazoria Counties.

The NMFS HCD will accept your invitation to be a cooperating agency for the preparation of the EIS. However due to our very limited staff resources and a heavy regulatory review workload, we will have to restrict our participation to activities such as: (1) review of relevant sections of draft documents, (2) participation in meetings and teleconferences, and (3) occasional field inspections to portions of the project that may adversely affect Essential Fish Habitat.

We appreciate your invitation to participate in this study and look forward to working with the Galveston District. If we may be of further assistance, please contact Ms. Heather Young of our Galveston Facility at (409) 766-3699.

Sincerely,

Virginia M. Fay

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

cc:
USACE, Galveston, Stokes
F/SER4, Dale, Rolfes

Resource Agency Coordination

U.S. Environmental Protection Agency Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

Mr. Michael Jansky
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Mail Code 6 ENXP
Dallas, Texas 75202-2733

Dear Mr. Jansky:

Enclosed please find five compact disks of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement. This draft report is provided for your review in conformance with the National Environmental Policy Act.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@ usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosure

CF w/o encl:
Tirpak, CWSWG-PM-J

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

October 21, 2015

Carolyn Murphy
Acting Chief
Plan Formulation Section
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553-1229

RE: Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report (DIFR)-Draft Environmental Impact Statement (DEIS)

Dear Ms. Murphy:

Pursuant to National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and the Section 309 of the Clean Clear Act, and Section 404 of the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, is reviewing the proposed Galveston District, U.S. Army Corps of Engineers Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report (FIFR)-Draft Environmental Impact Statement (DEIS).

We understand that the DEIS review and comment period ends on Monday, October 26, 2015. However, due to the complexity of the project, and the associated environment impacts; EPA does not have sufficient time to develop a complete, thorough, and coordinated review within the time constraints allowed. Additional review time is needed to assure EPA's concerns are fully identified and coordinated for consistency within our Agency. As we discussed with Janelle Stokes of your staff, on October 20th, the additional time is warranted to facilitate additional discussion and coordination with your agency, if needed. EPA is seeking a fourteen (14) consecutive day extension of the *EPA's review and comment period* ending on Monday, November 09, 2015. We plan to have our comments to you on or before this date.

We hope this additional time has not inconvenienced you; however, this extension is necessary to assure that EPA's concerns are complete and consistent for the EIS being developed. If you have any questions, please contact me at 214-665-7451 or by e-mail at jansky.michael@epa.gov respectively, for assistance.

Sincerely,

Michael Jansky (6ENXP)
Regional EIS Coordinator/R6
Office of Planning and Coordination

ITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

October 30, 2015

Carolyn Murphy
Acting Chief
Plan Formulation Section
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553-1229

RE: Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report (DIFR) and Draft Environmental Impact Statement (DEIS)

Dear Ms. Murphy:

In accordance with our responsibilities under Section 309 of the Clean Air Act (CAA), the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) regulations for implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office, Dallas, Texas has completed its review of the proposed Sabine Pass to Galveston Bay, Texas, Coastal Strom Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report (DIFR) and Draft Environmental Impact Statement (DEIS) prepared by the Galveston District, U.S. Army Corps of Engineers (COE) and Texas General Land Office.

The DIFR and DEIS examines coastal storm risk management (CSRM) and ecosystem restoration (ER) opportunities within six counties of the upper Texas coast (Orange, Jefferson, Chambers, Harris, Galveston, and Brazoria Counties). Currently, the study has identified and screened alternatives to address CSRM and ER, and is presenting a Tentatively Selected Plan (TSP). This DIFR and DEIS will undergo public review, policy review, Agency Technical Review (ATR), and Independent External Peer Review (IEPR). The COE study team will respond to review comments, then present a recommended plan and develop a Final Integrated Feasibility Report and Final Environmental Impact Statement.

EPA has rated the DEIS as **EC-2**, i.e.; (**Environmental Concerns and Request Additional Information**). The EPA's Rating System Criteria can be found at http://www.epa.gov/compliance/nepa/comments/ratings.html. We have enclosed detailed comments that identify our concerns and recommendations for additional analysis in the Final EIS (FEIS).

EPA appreciates the opportunity to review the DIFR and DEIS. Please note that a copy of this letter will be published on our website, http://www.epa.gov/compliance/nepa/eisdata.html, in order to fulfill our responsibility under Section 309 of the CAA to inform the public of our views on the proposed Federal action. Please send our office one copy of the FEIS when it is filed using our *e-NEPA Electronic Filing System* at http://www.epa.gov/compliance/nepa/submiteis/index.html. If you have any questions or concerns, please contact me at (214) 665-7451or jansky.michael@epa.gov for assistance.

Sincerely,

Michael Jansky, P.E, Acting Chief
Office of Planning and Coordination (6ENXP)
Compliance Assurance and Enforcement Division

Enclosure

DETAILED COMMENTS
ON THE
U.S. ARMY CORPS OF ENGINEERS (COE)
AND
TEXAS GENERAL LAND OFFICE (TGLO)
DRAFT INTERGRATED FEASIBILITY REPORT AND
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE
SABINE PASS TO GALVESTON BAY, TEXAS,
COASTAL STORM RISK MANAGEMENT (CSRM) AND
ECOSYSTEM RESTORATION (ER) PROJECT

Background

General Authority

Authorization for the this study is derived from a resolution from the United States Congressional Committee on Environmental and Public Works dated June 23, 2004, entitled "Coastal Texas Protection and Restoration Study".

By resolution dated June 23, 2004 entitled "Coastal Texas Protection and Restoration Study", the Committee on Environment and Public Works, U.S. Senate has requested that in accordance with Section 110 of the Rivers and Harbors Act of 1962 the Secretary of the Army develop a comprehensive plan for severe erosion along coastal Texas for the purposes of shoreline erosion and coastal storm damages, providing for environmental restoration and protection, increasing natural sediment supply to coast, restoring and preserving marshes and wetlands, improving water quality, and other related purposes to the interrelated ecosystem along the coastal Texas area.

The study fits into the overall concept of the authorization to conduct an integrated and coordinated approach to locating and implementing opportunities for CSRM and ER. The purpose of the study is to recommend for Congressional approval a regional CSRM and ER project that encompasses the six coastal counties of the upper Texas coast between Sabine Pass and Galveston Bay.

Study Purpose and Scope

The purpose of this report and DEIS is to present the findings of the feasibility investigations and analyses conducted to determine if there is a Federal interest in potential CSRM and ER projects within the coastal areas of the six-county study area. This study is an interim response to the "Coastal Texas Protection and Restoration Study," authority. Originally, the study was intended to develop recommendations for regional CSRM and ER projects for Congressional approval across a study area encompassing six counties along the upper Texas coast between Sabine Pass and Galveston Bay. Because of a 3x3x3 Rule exemption approved February 25, 2014, the study scope was revised to focus full feasibility planning efforts on CSMR projects in the northern (Orange and Jefferson) and southern (Brazoria County) parts of the study area. Accordingly, the feasibility study effort described here has focused on CSRM

recommendations for the Sabine Region (Orange and Jefferson Counties) and the Brazoria Region (the Freeport metropolitan area in southern Brazoria County). It was agreed that this report would present a programmatic overview of CSRM problems and opportunities in the central Galveston region (Galveston, Harris, and Chambers Counties) and a programmatic assessment of ER opportunities for the entire six-county study area.

The DEIS describes and illustrates measures that were evaluated, combined into potential alternatives, and screened. The alternatives evaluated include an extensive list of CSRM alternatives for Galveston Bay and ER alternatives for the entire six-county area. Reducing life-safety risk is a primary objective of the study; however, careful evaluation of alternatives is required to ensure that structural plans do not increase risk.

Study Area

The study area encompasses six coastal counties of the upper Texas coast (Figure 1-1). Over five million people reside in the six counties, which includes the fourth largest U.S. city (Houston), and three other metropolitan areas (Beaumont/Port Arthur/Orange, Galveston/Texas City, and Freeport/Surfside). Approximately 2.26 million people across the study area live within storm-surge inundation zones, and estimates for a one-month closure of the Houston Ship Channel (HSC) alone are upwards of $60 billion in damages to the national economy.

Non-Federal Sponsor

The Galveston District COE is responsible for the overall management of the study and the report preparation. As the non-Federal sponsor of the study, the TGLO was actively involved throughout the study process. The existing Port Arthur and the Freeport HFPPs local sponsors have expressed interest in cost sharing for the Tentatively Selected Plan (TSP) identified for the Port Arthur and Vicinity CSRM and the Freeport and Vicinity CSRM. The local sponsors responsible for operation and maintenance are the Jefferson Country Drainage District No. 7 and the Velasco Drainage District (VDD), respectively. The local sponsor for Orange-Jefferson CSRM would be Orange and Jefferson Counties. They have also expressed interest in cost share for construction.

COMMENTS

The following comments are offered for COE and TGLO consideration in preparation of the FIFR and FEIS:

Wetlands/Section 404 CWA/Mitigation

The Clean Water Act (CWA) Section 404 regulates the discharge of dredged or fill material into waters of the United States (WOUS), including wetlands and other *special aquatic sites*. Due to the nature of the proposed project, Section 404 will apply for the required dredging and construction of the CSRM alternatives for Galveston Bay and ER alternatives for the entire six-county area, and therefore the project sponsors and/or applicant should coordinate with the

COE.

EPA has developed comments and has identified environmental concerns regarding dredge and fill construction activities and their related impacts to aquatic resources for this project. The EPA Region 6 Section 404/Wetland Section (6WQ) staff developed a list of **General Comments** and **Specific Comments** for your consideration. EPA requests that the information, recommendations, and requested clarifications be incorporated and addressed within the FEIS. 1

These comments and concerns are included as **ATTACHMENT 1** to the Detailed Comments enclosed with our comment letter. Should you have any specific questions with regard to this attachment, please contact me or Ken Teague of the Region 6 Wetlands Section at 214-665-7451 or 214-665-6687, respectively, for assistance.

Air Quality

PM_{10} Emissions and Fugitive Dust Control:

The EPA appreciates the air quality assessment and analysis, including the estimation of emissions from non-road and on-road equipment using MOVES 2014, that was included in Appendix I of the DEIS. However, given that the scale and geographic scope of the Tentatively Selected Plan (TSP) area is quite large (Sabine Pass to Galveston Bay), EPA believes it is especially important that mitigation measures include the use of best management practices for PM_{10} and fugitive dust control (e.g., gravel roads, soil wetting practices, limiting access, traffic and speed reduction). In order to further reduce potential air quality impacts, the responsible parties should develop a more detailed Construction Emissions Mitigation Plan (Plan) – or modify Appendix I of the DEIS accordingly. 2

EPA recommends that, in addition to all applicable local, state, or federal requirements, the following mitigation measures be included (**as applicable and practicable**) in the Plan in order to reduce air quality impacts associated with emissions of NOx, CO, CO_2, PM, SO_2, and other pollutants from construction-related activities, any planned structural and non-structural activities (e.g., new levees, surge gates, pump stations, I-walls, railroad track closure structures), and possible future modifications to the roadway system:

Recommendations:

- *Construction Emissions Mitigation Plan* – we recommend the following control measures be included (**as applicable and practicable**) in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other pollutants from construction-related activities:
    - Fugitive Dust Source Controls: We recommend that the plan include these general commitments:

- Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts.
- During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes.
- Vehicle Speed
    - Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.
    - Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on un-stabilized (and unpaved) roads.
    - Post visible speed limit signs at construction site entrances.
- Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable.
- Provide gravel ramps of at least 20 feet in length at tire washing/cleaning stations, and ensure construction vehicles exit construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable.
- Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project.
- Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily (less during periods of precipitation).
- Stabilize disturbed soils (after active construction activities are completed) with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles (used to transport solid bulk material on public roadways and that have potential to cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.
- Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

o Mobile and Stationary Source Controls:
    - Plan construction scheduling to minimize vehicle trips.

- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.

o Administrative controls:
  - Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
  - Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and specify the means by which impacts to these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes).
  - Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust

Climate Change

The DEIS mentions Council on Environmental Quality's (CEQ) guidance entitled "Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions". It is unclear in the DEIS how the guidance was applied to the proposed project. Because any such emission contribute to climate change impacts in the U.S., it is appropriate to consider and disclose them in the EIS due to their reasonably close causal relationship to the project. 3

Recommendations:

EPA recommends that the FEIS describes measures to reduce GHG emissions associated with the project, including practicable mitigation opportunities and disclose the estimated GHG reductions associated with such measures. EPA further recommends that COE commit to implementation of reasonable mitigation measures that would reduce or eliminate project-related GHG emissions.

Environmental Justice

The DEIS states that based on the findings of an environmental justice review, presented earlier in the report, the Sabine and Brazoria TSPs would not significantly disproportionately affect low-income or minority populations. Data were compiled to help assess the potential impacts on minority and low-income populations within the study area. This information indicates that 10 of the 39 2010 Census tracts in the Brazoria County study area, 20 of the 33 tracts in the Jefferson County study area, and 7 of the 40 tracts in the Orange County study area have minority populations higher than 50 percent.

The potential for impacts from the TSP on protected populations exists primarily at the Orange-Jefferson CSRM since it encompasses the construction of new levees and floodwalls.

For the purposes of making a determination on the potential for impacts on potentially protected populations, the racial makeup of the Census block groups that intersect the footprint of the proposed features of the Orange-Jefferson portion of the TSP were examined. Of the eleven Census block groups, only one displayed a population where more than 50 percent of the population was non-white. Census block 202.1 has a white population of 44.1 percent with the remaining belonging to historically identified minority groups. There is no indication that populations may be protected on the basis of existing income among these Census block groups.

Census block 202.1, however, resides at the very end of the Orange 3 reach of the proposed TSP in Orange County where impacts would not be expected to be as great as the potential impacts in other areas. Public involvement will need to continue to ensure no disproportionate impacts occur for these residents.

Tribal Analysis:

The DEIS states that based on the current information for the proposed levee construction and improvements, there is a potential to affect historic properties and cemeteries. These effects consist of direct impacts from earth moving and excavation activities related to construction and potential indirect effects on historic structures such as diminished view shed from the raising of levees and floodwalls. The COE recommends intensive cultural resources investigations to identify and evaluate any historic properties within proposed construction areas. The scope of these investigations will be determined in concert with the Texas State Historic Preservation Officer (SHPO) and Native American Tribes and in accordance with the Programmatic Agreement for this project.

Prior to the initiation of construction, the DEIS indicates that the COE will make a reasonable and good faith effort to identify historic properties located within the Area of Potential Effects (APE). These steps may include, but are not limited to, background research, consultation, oral history interviews, sample field investigations, and field survey. The level of effort for these activities shall be determined in consultation with the SHPO and any Native American Indian Tribe or Tribes (Tribes) that attach religious and cultural significance to identified properties.

Tribal Cooperating Agency Request Letters were sent to invite tribes to participate as cooperating agencies in the development of the EIS. The letters offered tribes the opportunity to consult regarding any concerns they may have with potential project impacts or review periods. Tribes that were sent letters include the following.

Alabama-Coushatta Tribe of Texas
Comanche Nation of Oklahoma
Coushatta Tribe of Louisiana
Kiowa Indian Tribe of Oklahoma
Mescalero Apache Tribe (NM)
Tonkawa Tribe of Oklahoma.

It is unclear what the referenced "environmental justice review" consisted of and where the findings are summarized in the report. However, the Demographic Analysis in Appendix R provides data on minority and low-income populations within the study area. Assessment of project impacts on minority and low-income populations should involve coordination with those affected populations in some form. Additional outreach should be conducted beyond general public meetings, publication of the Notice of Intent in the Federal Register, and mailing of the notice of availability. The FEIS should describe the outreach conducted to minority and low-income populations.

Recommendation:

EPA believes expanded outreach to Native American Indian Tribes may need to be completed. It is unclear whether the six tribes that were invited to participate as cooperating agencies are the only tribes that attach religious and cultural significance to the Area of Potential Effects. The FEIS should provide a clear explanation of the effort to identify all Tribes, tribal citizens, and tribal resources that may potentially be interested or affected. There is also no information regarding whether any Tribes responded to the cooperating agency request letters or whether tribal consultation was conducted. Outreach and coordination with the appropriate environmental justice populations and Native American Indian Tribes should continue throughout all phases of the project. Collaboration with other federal agencies who work with environmental justice issues and groups is recommended. 4

ATTACHMENT 1

Sabine Pass to Galveston Bay, Texas
Coastal Storm Risk Management and Ecosystem Restoration
Draft Integrated Feasibility Report –Environmental Impact Statement
General and Specific Section 404 CWA Comments

GENERAL COMMENTS

Comment: The DEIS states that Authorization for the study is derived from a resolution from the Committee on Environmental and Public Works dated June 23, 2004, entitled "Coastal Texas Protection and Restoration Study". However, the proposed project, as described in this DEIS, does not appear to be consistent with the Senate resolution.

Recommendation: We recommend that the COE verify in the FEIS the actual authority for the proposed project. 1-1

Comment: The purpose of the project does not seem to have been clearly conveyed by the report. In a number of locations, and in a number of ways, the report seems unclear of whether or not it is actually the purpose of the proposed project to conduct ecosystem restoration activities. The title of the project itself is a source of the confusion. If ecosystem restoration is not actually a purpose of the proposed project, this raises questions regarding whether the project is consistent with the Senate resolution that is cited as a key driver of the project.

Recommendation: Please clarify whether ecosystem restoration is a purpose of the project, or not and revise the title of the project and at numerous locations within the report, accordingly. 1-2

Comment: The Draft EIS is not clear whether part of the purpose of the project is to provide additional coastal storm risk management in the Galveston Bay system. This is clearly discussed in the document, but then seems to have been deferred into the future, or some other program.

***Recommendation*:** Please clarify whether part of this project's purpose is to provide additional coastal storm risk management in the Galveston Bay system and clarify whether there will be opportunities in the future to review and comment on storm risk management features for the Galveston Bay system in the future. 1-3

Comment: It appears that the COE did not use "environmental impacts" or "environmental benefits" as criteria in their elaborate alternatives analysis.

Recommendation: We suggest revision of the alternatives analysis to include "environmental impacts" as an explicit criterion. 1-4

Comment: With regard to wetland impacts, we noted that efforts to avoid and minimize impacts to aquatic resources are only generally described.

> ***Recommendation***: The FEIS should describe efforts taken to avoid and minimize impacts to aquatic resources in detail. Please provide maps showing details of alternative levee segments that were revised to avoid and minimize impacts to aquatic resources. 1-5

Comment: While there is some discussion of the potential negative secondary impacts of the proposed gates on fisheries functions of tidal wetlands "inside" the proposed gates, there is no discussion regarding the potential for similar effects to other ecological functions of these wetlands. For example, what impacts would the gates have on the exchanges of sediment, nutrients, and organic matter between wetlands "inside" the gates and wetlands and estuaries "outside" the gates? The report explains that modeling indicates that the gates should not change the patterns of water exchange, so this might answer our question. However, there is no mention of this potential concern at all. Under the circumstances, the potential for such an effect must be acknowledged, and the results of a preliminary assessment of the risk of effects should be presented. We acknowledge that if water exchanges are not affected, that it is possible that exchanges of sediment, nutrients, and organic matter may not be affected either. If that is the case though, the report should also explain why there is a legitimate concern for fisheries access. Note that the WVA "Fish Access" variable is deemed to include not just fish access, but also effects on the exchanges of sediment, nutrients, and organic matter, so if there is a need to quantify effects of gates on the latter, the WVA analysis should already address this.

> ***Recommendation:*** Please include in the FEIS an analysis and discussion of the potential impacts of the gates on the exchange of sediment, nutrients, and organic matter, between wetlands "inside" the gates, and wetlands and estuaries "outside" the gates. 1-6

Comment: Similar to the comment above, there is little discussion of the potential for impacts to ecological functions of wetlands "inside", as well as "outside" the levees, due to the physical effects of the levees and culverts. Because of the spatial scale and locations of the proposed levees, there would appear to be potential effects of the levees on wetlands "inside" and "outside." The levees would seem to restrict or block water flow in either direction, altering wetland and coastal stream hydrology, and thus wetland and stream ecology, as well as other ecological functions related to connectivity with adjacent ecosystems, including fish access and sediment, nutrient, and organic matter exchanges. By committing to install culverts to facilitate continued channelized flows between wetlands and streams "inside" the levees, and wetlands, streams, and estuaries "outside" the levees, the COE may have reduced or eliminated these concerns. However, discussion of these issues, and presentation of evidence in support of a finding of no effect, is lacking.

> ***Recommendation:*** Please expand the discussion of these concerns and explain in detail why levees will not have these impacts. The FEIS should explain why the proposed culverts will be sufficient to maintain existing hydrology and ecological functions. 1-7

Please provided modeling results to support a conclusion of "no effect". The arguments to the contrary should be correspondingly robust. Provide a clear, enforceable commitment to keeping the gates open when they do not need to be closed to control storm surge. Provide a similar commitment to maintain flow through the many culverts that will be required through the levee to maintain drainage and ecological connectivity.

Comment: A draft wetland mitigation plan has not been provided for review and comment. The COE has apparently had discussions with some of the other agencies regarding potential mitigation, but discussions with EPA regarding mitigation have been limited. EPA is aware that the COE is considering mitigating for unavoidable project impacts by a combination of marsh creation and "preservation only" of forested wetlands. EPA generally does not support mitigation through "preservation only." While "preservation" is listed in the mitigation rule as an option, it is the lowest priority, and thus the least desirable option. Finally, while marsh creation may be an acceptable approach to providing required compensatory mitigation, there are a number of important issues associated with it, including:

- the source of the sediment
- the quality of the sediment
- land loss rates at the proposed mitigation site and at the impact sites
- marsh design criteria including target elevation, settlement rate, and containment

Recommendation: EPA asks that the COE provide opportunities for agencies, including EPA, to discuss potential mitigation. Following such discussions, we recommend the COE draft a mitigation plan and provide it for review and comment by EPA and other agencies, prior to release of a FEIS. 1-8

Comment: Due to the location of the proposed project, and its scale, the risk for the project to disturb contaminated soils may be greater than acknowledged in the DEIS.

Recommendation: The COE should provide in the FEIS a more detailed assessment of the risk of the proposed project to disturb contaminated soils, and provide the draft report to agencies for review and comment. 1-9

SPECIFIC COMMENTS

Executive Summary

p. ES-3; Planning Objectives; 1st bullet:
Comment: This planning objective was "to reduce economic damages to business, residents, and infrastructure for the Sabine and Brazoria region for the 50-year period of analysis". It doesn't limit consideration to economic damages due to storm surge.

Recommendation: EPA suggest the COE revise the planning objective to specify that it is limited to reducing economic damages due to storm surge 1-10

p. ES-4; Planning Objectives; 2nd to last paragraph; 1st sentence:
Comment: According to the DEIS, environmental policies require that fish and wildlife resource conservation be given equal consideration with other study purposes in the formulation and evaluation of alternative plans. However, it is not clear what environmental policies this refers to; nor is it clear that they explicitly require that fish and wildlife resource conservation be given equal consideration. Is the term "fish and wildlife resource conservation" explicitly used in these policies? "Fish and wildlife resource conservation" is a subset of more general environmental protection. Note also that neither "fish and wildlife resource conservation" or "environmental impacts" (see comment above) were apparently included as criteria in the alternatives analysis.

Recommendation: Please clarify what policies the DEIS refers to and whether the policies explicitly state "fish and wildlife resource conservation". The FEIS should clarify whether or not "fish and wildlife resource conservation" was a criterion in the alternatives analysis. 1-11

p. ES-4; Planning Objectives; 2nd to last paragraph; 2nd sentence:
Comment: The statement doesn't indicate what risks to what valued resources the EIS is referring to.

Recommendation: Please clarify what resources are of concern. Human infrastructure? Wetlands? 1-12

p. ES-4; Planning Objectives; 2nd to last paragraph; 3rd sentence:
Comment: EPA has not seen a mitigation plan nor have we been consulted with on mitigation.

Recommendation: See previous related general comment. If a draft mitigation plan exists, as stated, please provide EPA an opportunity to review and comment prior to the release of the FEIS. 1-13

p. ES-4; Planning Objectives; 2nd to last paragraph; 4th sentence:
Comment: No mitigation cost estimate has been provided. If mitigation plans are not yet available it would be difficult to estimate their cost. Mitigation cost could be a significant factor in the project cost estimate, and therefore, in the project decision.

Recommendation: Please provide the mitigation cost estimate that was used in the project cost estimate, and provide a detailed explanation of the basis for it. 1-14

p. ES-4; Formulation of Alternative Plans; 1st paragraph; 2nd sentence:
Comment: What is meant by the reference to "conservation areas"? What are these in relation to this proposed project?

Recommendation: Please clarify what is meant by "conservation areas" in this statement. 1-15

p. ES-5; Formulation of Alternative Plans; 2nd complete paragraph; 3rd sentence:
Comment: Why was the criterion "environmental impacts" only used qualitatively? The lack of detailed description of how this criterion was used, and what its effects were, makes it difficult to tell if environmental impacts were fully considered as part of the alternatives analysis.

Recommendation: Please explain why the criterion was only used qualitatively. Describe in detail how the criterion was used and what its effects where on the alternatives analysis. 1-16

p. ES-5; Formulation of Alternative Plans; 3rd complete paragraph; 2nd sentence:
Comment: It is unclear how the "Gate" and "No Gate" alternatives in the Sabine Region did not provide different degrees of environmental impacts. Intuitively, it would seem obvious that the "Gate" alternative would produce more environmental impacts than the "No Gate" alternative. Other than this paragraph, we did not find detailed discussion of this question.

Recommendation: We recommend the COE discuss in detail the environmental effects of the "Gate" alternative, and compare them to those of the "No Gate" alternative. As part of this, the specific details of what "the gate" would consist of, and where it would be located, should be provided. 1-17

p. ES-7; Final Array Evaluation Results; 1st paragraph; 2nd to last sentence:
Comment: The COE states that the only criterion used in the final selection of the tentatively selected plan (TSP) is economics. We assume that means cost. So, environmental impacts are not a criterion in the selection? How does this allow compliance with the 404(b)(1) Guidelines? How is avoidance and minimization of impacts to wetlands assured? How does this approach ensure that unavoidable impacts to wetlands are fully compensated?

Recommendation: Discuss the process used to select the TSP in greater detail in the FEIS. Address the questions and comments above, particularly the possibility that this approach may not be consistent with the 404(b)(1) Guidelines. 1-18

p. ES-8; Final Array Evaluation Results; 1st incomplete paragraph; last sentence:
Comment: Does the Fish and Wildlife Coordination Act require coordination with EPA? Doesn't NEPA require it? Will coordination be limited to fish and wildlife agencies?

Recommendation: Please revise this statement based on answers to the above questions. 1-19

p. 1-1; 1.2.1 General Authority:
Comment: The DEIS states that Authorization for the study is derived from a resolution from the Committee on Environmental and Public Works dated June 23, 2004, entitled "Coastal Texas

Protection and Restoration Study". However, the proposed project, as described in this DEIS, does not appear consistent with the Senate resolution.

Recommendation: We recommend that the COE cite the actual authority for the proposed project. 1-20

p.1-2; 1.3 Study Purpose and Scope; 2nd paragraph:
Comment: The DEIS states that in the exemption approval, it was agreed that this report would present a programmatic overview of coastal storm risk management problems and opportunities and a programmatic assessment of ecosystem restoration opportunities for the entire six county study area.

Recommendation: Please clarify in the FEIS the actual authorities and approvals that support and guided this project. 1-21

p.1-3, 1-4, 1-5; 1.5 Study Area & 1.6 Project Area:
Comment: Similar to the situation with the project purpose, the DEIS describes "study area" and "project area" in a confusing manner. The explanation given is extremely difficult to follow. First, the document should be very clear regarding the difference between "study area" and "project area." Similar to project purpose, apparently the project has evolved from one that applied in a six county area, to one that applies to only a three county area. The reasons that three counties were eliminated is not clear. So, the project evolved from one that addressed both storm impacts and ecosystem restoration in a six county area, to one that addresses only storm impacts in a three county area. The exact alternative evaluation process that resulted in this needs to be clearly explained.

Recommendation: Please explain the difference between study area and project area. Simplify and clarify that the project really only addresses three counties. Explain in detail clearly how the project evolved from one that addresses six counties, to one that addresses three counties. 1-22

p. 1-5; 1.8 Major Historical Surge Events in the Study Area; 3rd paragraph; 1st sentence:
Comment: We are not aware of a Morgan City, Texas.

Recommendation: Please confirm this is not an error. 1-23

p. 1-8, 1-9; 1.10.2 Navigation Projects in the Study Area:
Comment: Given the likely relationship between the navigation channels and storm surge, it would seem to be necessary to discuss this.

Recommendation: Please explain the impacts of the enlargements in the geometry of the connection between Sabine Lake and the Gulf of Mexico and the storm surge. 1-24

p. 2-1; Physical Description of the Existing Area:

Comment: Is the "existing area" the "study area", or the "project area" or both? 1-25

Recommendation: Please change the title to be consistent with the EIS's other uses of the terms "study area" and "project area".

p. 2-1; Table 2-1:
Comment: Rather than "tide ranges" do you mean "water surface elevation ranges"? Changes in water surface elevation along the Gulf coast are not all due to tides.

Recommendation: Please revise the title of the table to clarify what it represents. 1-26

p. 2-1; last paragraph:
Comment: See above comment. This discussion appears to use various forms of the term "tide" when discussing variations in water level.

Recommendation: Please revise this paragraph to clarify the discussion is about "water surface elevation" or "water level" rather than "tide" explicitly. 1-27

p. 2-5; 2.2.2 Currents and Circulation; 1st sentence:
Comment: This statement appears to be inaccurate. There are two estuaries in this project area: Sabine Lake and Galveston Bay. The Sabine and Neches Rivers discharge into Sabine Lake. The Trinity and San Jacinto Rivers discharge into Galveston Bay. The Brazos River discharges directly to the Gulf of Mexico near Freeport.

Recommendation: Please edit the statement similar to clarify. 1-28

p. 2-5; 2.2.1 Sabine Lake System; 1st paragraph; 1st sentence:
Comment: This section is entitled "Sabine Lake System," but the first thing that is stated is something about "the Sabine Region". "Sabine Lake System" seems more appropriate than "Sabine Region," but "Sabine Lake Estuary" would be more accurate.

Recommendation: Please change the section title to "Sabine Lake Estuary". Change 1st sentence to refer to "Sabine Lake Estuary". 1-29

p. 2-5; 2.2.2.2 The Galveston Bay System:
Comment: Similar to above, the term "Galveston Bay Estuary" would seem to be a more precise term.

Recommendation: Please change the section title to "Galveston Bay Estuary". 1-30

p. 2-5; 2.2.2.2 The Galveston Bay System; 1st paragraph; 1st sentence:
Comment: The San Jacinto actually runs from its headwaters in Montgomery, Grimes, Waller, Harris, and Liberty Counties, to Lake Conroe, then to Lake Houston, and from Lake Houston to Galveston Bay.

Recommendation: Revise the statement to acknowledge that the San Jacinto River begins upstream of Lake Houston. 1-31

p. 2-6; 2nd paragraph; last sentence:
Comment: It isn't clear why this statement was provided.

Recommendation: We suggest you either remove the statement or explain in the EIS, why it is included. 1-32

p. 2-6; 2.2.3 Brazos River System; 2nd sentence:
Comment: While this statement may be technically correct, depending on which statistic you use to define "the river with the greatest discharge", on the face of it, it doesn't appear to be correct. The Sabine River has the highest median discharge of any river in Texas. Based on median discharge, the Brazos River has the third largest discharge of all Texas rivers.

Recommendation: Please clarify the comparison being made among Texas rivers. Specify which flow statistic the statement is based on. Intuitively, we would not tend to agree that the Brazos River has the greatest discharge of any river in Texas. 1-33

p. 2-6; 2.2.2.4 GIWW:
Comment: Using this acronym as a title does not seem like the best approach. In addition, the GIWW is significant to this project, so this section should have much more information about it.

***Recommendation*:** Spell out the acronym in the title. Add more basic information regarding the GIWW to this section. What are the dimensions of the channel? How much water moves through it? Note also that the GIWW intercepts some of the freshwater flow and runoff from uplands towards the coast, leaving wetlands and estuaries on the seaward side of the GIWW cut off from freshwater input. Comment on the potential for the GIWW to convey storm surge. 1-34

p. 2-7; 2.3.1 Description of the Ecological Region:
Comment: This section needs more discussion of the ecological differences between the Sabine Lake ecosystem and the Brazos River Delta ecosystem. For starters, there should be a mention that the coastal ecosystem from Bolivar to Sabine Pass is part of the Chenier Plain, and there needs to be a discussion of what the Chenier Plain is. There needs to be a discussion of how these ecosystems have been changed already by man- especially the effects of the removal of the bar at Sabine Pass (oyster reef?) and the rerouting of the Brazos River, which was a huge change to the Brazos River Delta area.

Recommendation: Please revise this section to address the above comments. 1-35

p. 2-7; 2.3.1 Description of the Ecological Region; 1st paragraph; 1st sentence:
Comment: This appears to be based on an older ecological landscape classification.

Recommendation: Use a more modern classification. EPA suggests the classification in Griffith et al. 2004 which is the classification that is used by Galveston District Interagency Review Team (IRT). The appropriate ecoregion for this area based on that classification is Western Gulf Coastal Plain. 1-36

p. 2-7; 2.3.1 Description of the Ecological Region; 1st paragraph; 2nd sentence:
Comment: This discussion of coastal wetlands needs some revision:1) tidal and fresh are not mutually exclusive; 2) tidal influence here is small, and diminishes inland; 3) we recommend not classifying Texas wetlands based on tide; 4) we recommend classifying wetlands based on marsh type: salt marsh, brackish marsh, intermediate marsh, fresh marsh, cypress-tupelo swamp, etc. "Forest riparian" may not be the best term to use in this case. We question the appropriateness of the term "woodlot" as an ecological term in the project area.

***Recommendation*:** Please revise this section to address comments above. Consider changing "forest riparian" to "riparian forest". Change "woodlot" to an ecologically appropriate term. 1-37

p. 2-7; 2.3.1 Description of the Ecological Region; 1st paragraph; 3rd sentence:
Comment: This is not the only function of these wetlands, nor even necessarily the most important. Why was this function singled out for discussion?

Recommendation: Please discuss other functions of these wetlands including flood storage, water quality maintenance, other wildlife, and fisheries benefits. 1-38

p. 2-7; 2.3.1 Description of the Ecological Region; 2nd paragraph; 1st sentence:
Comment: While this rainfall amount may be possible for a small area very near Sabine Lake, it does not seem accurate for most of the study area. The office of state climatologist recently published a precipitation map showing precipitation ranging from >54 in/yr near Beaumont-Port Arthur to 46-50 near Freeport.

Recommendation: Please revise the statement to be consistent with the data. 1-39

p. 2-7; 2.3.1 Description of the Ecological Region; 3rd paragraph; 1st sentence:
Comment: The Brazos Delta region is not defined.

***Recommendation*:** Please define and describe what is being referred to as the "Brazos delta region". 1-40

p. 2-7; 2.3.1 Description of the Ecological Region; 3rd paragraph; 2nd sentence:
Comment: What are the "rice prairies?" Is this an ecological term that has been used before?

Recommendation: It would seem more appropriate to refer to them as agricultural croplands that were converted from the coastal prairie ecosystem. It would probably be 1-41

appropriate to mention that rice is cultivated on them, and that rice fields are a type of artificial wetlands that are attractive to waterfowl.

p. 2-7; 2.3.1 Description of the Ecological Region; 3rd paragraph; 4th sentence:
Comment: What area does this refer to? The entire Texas coast? The project area?

Recommendation: Please clarify the area referred to. 1-42

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 1st paragraph; 6th sentence:
Comment: Is there a reference or other support for this conclusion?

Recommendation: Provide a reference or other evidence in support of this conclusion. 1-43

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 2nd paragraph; 1st sentence:
Comment: Has consideration been given to whether this could be attributed to wetland impoundments trapping saltwater?

Recommendation: Please consider the question and revise the FEIS accordingly. 1-44

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 2nd paragraph; 4th sentence:
Comment: Is there data to support this?

Recommendation: Please provide elevation data to support the conclusion that these marshes are concave in shape. 1-45

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 2nd paragraph; 5th sentence:
Comment: In addition to this list of drainage impairments, was there consideration to the likely effects of intentional and accidental marsh impoundments in slowing drainage of saline water after hurricanes?

Recommendation: Add impoundments to the list of drainage impairments. 1-46

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 2nd paragraph; 6th sentence:
Comment: See above comment. This observation may well be due at least in part, to the existence of large wetland impoundments.

***Recommendation*:** Revise the report to acknowledge the possible role of impoundments in slowing drainage of saltwater after hurricanes. 1-47

p. 2-8; 2.3.2 Storm surge effects on the Study Area; 2nd paragraph; last sentence:
Comment: Were studies documenting these effects actually conducted, or are these hypotheses? Admittedly, these would seem to be plausible potential effects of extended exposure of brackish or less saline wetlands to high salinity water. It would seem important to note however, that the

extended exposure seems likely to be due to drainage impairments, such as impoundments, rather than the hurricane per se.

Recommendations: Please address the above questions and comments in the FEIS. 1-48

p. 2-9; 2.3.3 Attenuation of Storm Surge Impacts by Coastal Wetlands:
Comment: Although the conclusion may seem plausible the discussion is reliant on just two papers.

Recommendation: Use the findings of additional papers to support the argument. There are several other significant papers on the subject: Costanza et al. 2008, Wamsley et al. 2010, Gedan et al. 2011, Barbier et al. 2013. 1-49

Comment: Subsidence is the reason for the loss of these wetlands White et al. (1987). Saltwater intrusion was really not a problem until after the wetland system had been highly degraded.

Recommendation: Use the description regarding wetland loss in this area from White et al. (1987): Submerged Lands of Texas, Beaumont-Port Arthur Area: Sediments, Geochemistry, Benthic Macroinvertebrates, and Associated Wetlands, by W. A. White, T. R. Calnan, R. A. Morton, R. S. Kimble, T. G. Littleton, J. H. McGowen, H. S. Nance, and others. 110 p., 67 figs., 16 tables, 6 oversize color plates, 3 appendices, 1987. Historic wetland loss here has been attributed primarily to factors other than saltwater intrusion. 1-50

p. 2-11; 4th complete paragraph; 2nd sentence:
Comment: It is not clear what the significance of the boardwalk is to this DEIS.

Recommendation: Please clarify the intent or remove the comment regarding the boardwalk. 1-51

p. 2-14; 2.3.5 Physical and Hydrological Characteristics of the Study Area:
Comment: There is a similar section with a similar title earlier in the report.

Recommendation: Please review the organization of the document and ensure there is not redundant sections. 1-52

p. 2-14; 2.3.5 Physical and Hydrological Characteristics of the Study Area; 1st paragraph; 1st sentence:
Comment: This appears to be based on an older ecological landscape classification.

Recommendation: Use a more modern classification. We suggest Griffith et al. 2004. This is the classification that is used by the Galveston IRT. The appropriate ecoregion for this area based on that classification is Western Gulf Coastal Plain. 1-53

p. 2-15; 1st incomplete paragraph; last sentence:
Comment: These coastal streams are not tributaries to the water bodies discussed immediately prior to this. They are tributaries to the bay however.

Recommendation: Please clarify what these streams are tributaries to. 1-54

p. 2-15; 3rd paragraph; 1st sentence:
Comment: This sentence refers to the "intercontinental shelf." We assume it should refer to the "continental shelf".

Recommendation: Please change "intercontinental" to "continental". 1-55

p. 2-15; 2.3.6 Biological Communities in the Study Area:
Comment: Was it actually intended to specifically refer to the "study area," rather than the "project area"? See earlier comment on this subject. This section is in need of maps to show where the communities discussed are located.

Recommendation: Please review the title of this section to ensure that "study area" is actually intended rather than "project area." Add maps to the section. 1-56

p. 2-16; 2.3.6.2; Coastal Marshes; 1st sentence:
Comment: Clarify what is meant by "Gulf shoreline." Few, if any locations along the actual Gulf shoreline on the upper Texas coast are vegetated. These shorelines typically include a beach and small dunes, with brackish marsh behind them.

Recommendation: Please clarify, or correct this statement. 1-57

p. 2-16; 2.3.6.2; Coastal Marshes; 6th sentence:
Comment: Intermediate marsh optimum salinity is 0.5-2.5 parts per thousand (ppt), so if these marshes are actually experiencing these salinities they are stressed. What is the basis for this statement? Is the COE sure these are intermediate marshes rather than brackish?

Recommendation: Please clarify whether these wetlands are actually intermediate marsh and whether the stated salinities are based on actual data. After this, if the statements are deemed to be correct, one must conclude that these marshes are experiencing significant salt stress. 1-58

p. 2-17; 1st complete paragraph:
Comment: Is the term "woodlot" an ecologically appropriate term? Isn't there some more correct ecological term for these habitats?

Recommendation: Confirm that "woodlot" is an ecologically appropriate term for the habitats it is used to identify. If not, replace the term with an appropriate term. 1-59

p. 2-17; 2.3.6.4 Aquatic Habitats:
Comment: Wetlands are aquatic habitats. So is open water and so are beaches and tidal flats and submerged aquatic vegetation (SAV). If the intent was to talk about open water here, why did it include beaches and tidal flats? We recommend the discussion of each aquatic habitat type separately, and make this section about open water habitat only. Alternately, this could be referred to "Other aquatic habitats" and add SAVs to the discussion.

Recommendation: Please revise the FEIS to address the above comment. 1-60

p. 2-17; 2.3.6.4 Aquatic Habitats; 1st paragraph; 2nd sentence:
Comment: While not insignificant, we would not consider these areas "large estuarine aquatic habitats".

Recommendation: Remove the reference to Chocolate Bayou and the San Bernard River Delta from this statement. A separate statement could be included that more accurately characterizes the limited extent of estuarine ecosystems associated with these two streams. 1-61

p. 2-19; 2.3.9 Water and Sediment Quality:
Comment: EPA does not agree with the overall characterization of water and sediment quality in the project area. The discussion is also overly brief.

Recommendation: We believe revisions to this section are needed. Include all 303(d) listings. There are numerous segments in the study area that are not meeting water quality standards. Fifty-five segments in the project area are listed on the draft 2014 303(d) list as not meeting water quality standards. There are several Superfund sites, a number of fish consumption advisories, etc. The National Estuary Program Coastal Condition Report (2007) considered Galveston Bay water and sediment quality to be fair to poor. Acknowledge that some dredged material testing and other sediment testing, has shown that some sediment contains significant contamination. 1-62

p. 3-7; 3.2 Economic Conditions; 3rd sentence:
Comment: Where are these ecosystem restoration measures?

Recommendation: Please revise the EIS so that it isn't so difficult to locate information about the ecosystem restoration measures. It doesn't appear that there is any ecosystem restoration. If that is the case, explain that clearly and revise the document, including the title to make that clear. 1-63

p. 3-13, 3-14; Environmental Conditions; 1st – 2nd paragraph;
Comment: Although EPA is in agreement on the general point being made we do disagree with some of the specifics of the argument. First, Williams et al. (2009) state that "salt stress from interference with freshwater flows has put in jeopardy the process by which marsh sediment accretion and land accumulation occurs". While upstream reservoirs have undoubtedly reduced

sediment input into Sabine Lake and Galveston Bay, and to some of their wetlands, the amount of freshwater input has not declined. The seasonality of freshwater inflows has been shifted by reservoir operations, however.

While the reduced sediment supply is clearly a concern for wetlands, we would argue that alteration of freshwater inflows has not caused any increases in salinity in *these* systems *yet*, except perhaps seasonal shifts. On the other hand, the Sabine-Neches Waterway has had a major effect on salinity in the Sabine Lake system, and the Houston Ship Channel has had a major effect on salinity in Galveston Bay. Salinity increases due to these channels may have affected accretion by decreasing plant production of organic matter.

However, we feel that factors other than salinity increases, have also been important as causes of loss of wetlands in these estuaries in the past. Some of the wetland loss here has clearly been explained as perhaps having been due to subsidence and faulting due to subsurface fluid withdrawal. It is also highly likely that impoundment of coastal wetlands has been a more important factor in reducing sediment inputs to these wetlands, than has the decrease in sediment input to Sabine Lake due to reservoir effects. Impoundment of wetlands severely reduces opportunities for external sediment input to the wetlands. It also reduces nutrient inputs, which affects plant growth and organic matter production, which may in turn reduce accretion. Wetland impoundments may also serve to trap high salinity water on the marshes after hurricanes, for longer periods of time than would be the case without impoundment. This may result in extended periods of marsh exposure to high salinity water, decreased vegetative productivity, and in some cases, death of marsh plants.

> ***Recommendation***: Please revise this section to either reduce the impact of Williams et al. (2009), or better put their conclusions and recommendations into context. Please eliminate suggestions that altered freshwater inflow has, as of yet, been a major factor in wetland changes, loss, or reduced productivity. There should be acknowledgement of the role that the Sabine-Neches Waterway and the Houston Ship Channel, have played in increasing salinity in Sabine Lake and Galveston Bay, and acknowledgement that these changes have affected the types of wetlands in the Sabine Lake area, and possibly the Galveston Bay area as well, and that these changes probably have reduced plant productivity in the Sabine Lake area, and possibly Galveston Bay as well. Acknowledgement should also be made to the likelihood that wetland impoundment has probably had on marsh accretion than has altered freshwater inflow, at least so far. And finally, acknowledge the role of subsurface fluid withdrawal-specifically oil and gas and groundwater have had on wetland losses in the Sabine Lake and Galveston Bay area. 1-64

p. 3-14; Environmental Conditions; last paragraph:
Comment: Where is "along the Gulf shoreline?" If what is meant is directly on the Gulf, they are mostly being lost due to erosion, which is normally a natural process. In this area though it is expected that it is mostly due to sand deprivation due to the effects of the Sabine jetties. Subsidence and sea level rise play roles generally, and in specific hot spots, but on the Gulf shore wetland loss is mainly due to erosion. Saltwater did not come "from the beach." It came from

the Gulf of Mexico. The wetlands that were, and are, affected by Hurricane Ike along the Gulf shoreline are probably not freshwater marshes. Some are salt marsh, most are brackish. Those behind them may be affected too though, these are intermediate. Fresh marsh was historically found landward of the GIWW, but much of this has probably converted to brackish marsh. The pathway for saltwater intrusion on the landward side of the GIWW, may not be directly from the gulf however.

Recommendation: Please revise statements on Bessie Heights to acknowledge that the actual future wetland losses here are limited due to the fact that there are few wetlands left. Also clarify the comments about wetlands "along the Gulf shoreline." Describe the process of marsh loss here more accurately, and acknowledge the major role played by the Sabine jetties. Clarify that saltwater didn't come from the beach. Clarify that it wasn't freshwater marshes that were impacted by the impacts of Ike on the beach. 1-65

p. 3-14, 3-15; 3.4 Life Safety; 5th sentence:
Comment: Why wasn't a risk assessment done? It appears that threats posed by storm surge due to tropical storms, to human life and safety, are one of the two primary purposes for proposing this project.

Recommendation: Perform the risk assessment, or explain in detail why it isn't necessary, keeping in mind that these risks are a primary reason for this project. 1-66

p. 4-1; 4.1 Problems and Opportunities; 3rd paragraph:
Comment: This paragraph attempts to explain the most confusing aspect of this project, i.e., why no ecosystem restoration is discussed, and why Galveston Bay is not discussed. However, it is still unclear why this is the case. Section 1.3 does not explain this well either.

Recommendation: The source of authority for the project is still unclear. The fact that there is no ecosystem restoration is unclear. The fact that Galveston Bay was part of it, and then was not, also is unclear. 1-67

p. 4-2; P3:
Comment: It is not clear how the proposed project would address this. 1-68

Recommendation: Please explain how the proposed project might help with this risk.

p. 4-2; P4; last sentence:
Comment: This appears to be circular reasoning: If the…marshes disappear, saltwater inundation will result in the death of marsh vegetation and the conversion of marsh to open water, eliminating the protective buffer.

Recommendation: Please clarify or delete this statement. 1-69

p. 4-2; P6:
Comment: Human modifications have affected the sand supply, including construction of jetties at the passes, deep navigation channels that become sand traps, and reservoirs in the watersheds.

Recommendation: There appears to be the need to acknowledge that the sand deficit is partly due to human modifications, specifically jetties, navigation channels, and reservoirs (Anderson 2007). 1-70

p. 4-2; 4.1.2 Opportunity Statements:
Comment: The only environmental protection or restoration statements are:

- Enhance or restore endangered species habitat;
- Reduce environmental damage associated with storm damage to refinery infrastructure;
- Avoid or mitigate adverse natural resource impacts;

Part of the purpose of the project is to include environmental restoration.

Recommendation: If it is part of the purpose of the project to include environmental restoration, we would recommend consideration of the following opportunity statements (or replace the 3rd one above): 1-71

- Restore wetlands
- Restore barrier shoreline habitats (beach, dune, subpratidal)

Restore cheniers (ridges)

p. 4-4; 2nd paragraph; 1st sentence:
Comment: What environmental policies require this? Do they specifically require "fish and wildlife resource conservation" or are the requirements for more broadly environmental?

Recommendation: Please revise the DEIS accordingly. 1-72

p. 4-4; 2nd paragraph; 4th sentence:
Comment: What were the potential ER projects, where were they, and why were they eliminated?

Recommendation: Address the above questions in the FEIS. 1-73

p. 5-2; 5.2 Management Measures; 2nd paragraph; 1st sentence:
Comment: This list doesn't address the problem of interruption of longshore transport of sediment by jetties and navigation channels. What specifically does "sediment management mean"?

Recommendation: We would recommend adding to this list: "Bypassing sediment around jetties and navigation channels." Define "sediment management". 1-74

p. 5-2; 5.2 Management Measures; 2nd paragraph; 4th sentence:
Comment: Why was such a small area of this shoreline identified? Virtually the entire shoreline from Sabine Pass to the western tip of the Bolivar Peninsula, would be expected to be in need of Gulf shoreline restoration.

Recommendation: If there is no opportunity to do this work, then please explain why a larger shoreline restoration wasn't contemplated. If there is an opportunity to do this work, then add a much larger shoreline restoration project for consideration. 1-75

p. 5-2; 5.2 Management Measures; 2nd paragraph; 5th sentence:
Comment: We thought that a sediment management plan for Galveston Bay already existed.

Recommendation: If a plan already exists, acknowledge that in the FEIS. If so, is there a need to update it? If a plan doesn't exist, please respond accordingly. 1-76

p. 5-2; 5.2 Management Measures; 2nd paragraph; 7th sentence:
Comment: This list doesn't include anything to try to address the problem of interruption of longshore transport of sediment by jetties and navigation channels.

Recommendation: We would recommend adding to this list: "Bypassing sediment around jetties and navigation channels." 1-77

p. 5-3; 1st complete paragraph; 6th sentence:
Comment: It is not clear that any of these measures have been carried forward, but note that we have significant concerns for many uses of water control structures in coastal wetlands and estuaries. Specific proposed projects need to be evaluated on a case-by-case basis, but in general we are unclear of their benefits and have concerns regarding possible negative impacts.

Recommendation: Clarify whether these measures were carried forward. If they were, acknowledge the expressed concerns and provide detailed information and evaluation of any such projects, for our review and comment. 1-78

p. 5-4; 5.3.1 Initial Array of Alternatives; 1st paragraph; 1st sentence:
Comment: EPA has not seen any comprehensive alternative plans for ecosystem restoration.

Recommendation: Please provide these comprehensive alternative plans for review and comment. 1-79

p. 5-4; 5.3.1 Initial Array of Alternatives; last paragraph; 2nd sentence:
Comment: It is not clear what is meant by "coastal barrier".

Recommendation:
Define what is meant by "coastal barrier".

1-80

p. 5-5; Table 5.2 Criteria for Screening Initial Array of Alternatives:
Comment: EPA would like to see the environmental benefits for the various alternatives.

Recommendation: Please provide EPA with this information, and provide us an opportunity to review and comment. 1-81

p. 5-4; 5.3.1 Initial Array of Alternatives; 2nd paragraph; 3rd sentence:
Comment: Why weren't environmental impacts considered? If they were only considered as costs, based on mitigation cost, this would not seem to be compliant with the 404(b)(1) Guidelines, since avoidance and minimization of impacts to wetlands would not appear to have been taken into consideration.

Recommendation: Consider the comment and respond, including modification of the FEIS. 1-82

p. 5-6; Table 5-3: Evaluation Array of Alternatives; S8:
Comment: In the development of alternatives, why was the Sabine gate alternative the only one combined with ecosystem restoration? Why wasn't an alternative included that combined the inland barrier with ecosystem restoration?

Recommendation: Please reply to the questions in the FEIS. 1-83

p. 5-6; Table 5-3: Evaluation Array of Alternatives; S11:
Comment: What is a lone star type conservation plan?

Recommendation: Please explain in the FEIS what a lone star type conservation plan is. 1-84

p. 5-11; Economic Evaluation; 2nd, 4th sentences:
Comment: Mitigation requirements seem to have been limited to fish and wildlife mitigation only? What about other wetland functions? How were these costs estimated? What was the estimate? What were the conceptual mitigation plans? Note that EPA considers "preservation only" to be the least desirable form of mitigation. EPA has not reviewed any mitigation plans, including conceptual.

1-85

Recommendation: Please address the questions/comments by revising the FEIS, and by providing EPA a draft mitigation plan for review and comment prior to issuance of a FEIS.

p. 5-15; Economic Evaluation; 1st paragraph; 2nd sentence:
Comment: Why weren't environmental impacts and associated mitigation costs needed?

***Recommendation*:** Please address the question in the FEIS. 1-86

p. 5-19; Economic Evaluation; 1st paragraph; 2nd sentence:
Comment: See comment immediately above.

Recommendation: See recommendation immediately above. 1-87

p. 5-19, 5-20; 5.4.2.5 Brazoria and Sabine Nonstructural:
Comment: This provided little detail regarding the argument that there are few buyout opportunities available. Expand on this argument. What is that conclusion based on?

Recommendation: Address the comment question in the FEIS. 1-88

p. 5-22; 2nd paragraph 4th sentence:
Comment: What is planning objective 3? Why was it eliminated? It is unclear why all ecosystem restoration was eliminated when the basis for authorization for the study is primarily about ecosystem restoration. How is this elimination consistent with arguments presented elsewhere in the document that environmental benefits must be considered? Note that avoidance, minimization and mitigation don't produce net environmental benefits.

Recommendation: Please respond to the questions and comments by revising the FEIS. 1-89

p. 5-25; 5.4.5 Selection of the Recommended Plan; 2nd paragraph; 1st sentence:
Comment: We recommend that this review include one or more expert, independent coastal geologists, wetland ecologists, estuarine ecologists, and an ecological economist.

1-90

Recommendation: Provide EPA with the findings of the external independent peer review.

p. 5-26; 1st complete paragraph; 1st sentence:
Comment: These don't appear to be net benefits because the analysis does not appear to include consideration of environmental costs, except as possibly identified through mitigation cost. EPA has not seen a mitigation cost estimate, nor a mitigation plan.

Recommendation: Please clarify whether this analysis includes consideration of environmental costs, if so, their basis. EPA would appreciate a draft mitigation plan for review and comment prior to issuance of the FEIS. 1-91

p. 5-27; 1st paragraph; last sentence:
Comment: Why didn't the cost/benefit analysis and the alternatives analysis identify this compelling argument then? This is an important point. If the argument is so compelling, the cost/benefit analysis and the alternatives analysis should have identified these as part of the preferred alternative. Please explain, in detail, why that is not the case in the FEIS.

***Recommendation*:** Please address the question by FEIS. 1-92

p. 5-27; 2nd paragraph; last sentence:
Comment: See above.

Recommendation: See above. 1-93

p. 5-30; 5.4.5.1 Selection of the Recommended Plan Summary:
Comment: Environmental impacts are not included.

Recommendation: Please discuss in this section the environmental impacts and what role they played in selection of the recommended plan. 1-94

p. 6-7; 4th sentence:
Comment: Indirect impacts are not limited to impacts to fish access. These impacts may also include impacts to other ecological functions related to ecological connectivity, including sediment, nutrient, and organic matter exchanges between wetlands inside the levee, and waters and wetlands outside the levee. The WVA variable that addresses fish access is described as accounting for all of these potential concerns.

Recommendation: Please clarify as per the above comment. Add a discussion of the other connectivity issues mentioned above. 1-95

p. 6-9; 3rd complete sentence:
Comment: We agree that there is reason to be concerned for potential risks of disturbance of contaminated soil. It is not clear that the draft HTRW report is sufficient to ensure that these risks are insignificant. EPA remains concerned that these risks have not been estimated with sufficient rigor to match the apparent potential risk. In at least one location, EPA is aware that risks have not been accurately identified: Star Lake Canal Superfund Site straddles the hurricane levee in Port Neches, TX. There is contamination in the Jefferson Canal adjacent to and south of the levee at the water control structure. EPA does acknowledge however, that the proposed protection would reduce the risk of hazardous spills from industrial and other facilities during and after storm surge events.

1-96

Recommendation: We recommend these risks be re-evaluated using a more robust approach, prior to the FEIS. The FEIS should acknowledge the existence of at least this one problem area, and commit to take the necessary steps to avoid disturbing it, or if unavoidable, propose acceptable means of dealing with it.

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan:
Comment: Is this just a "fish and wildlife mitigation plan," or is it a conceptual draft plan for mitigation of unavoidable wetlands functional losses? Note that wetlands functional losses include considerably more than just fish and wildlife functions. If it is just a fish and wildlife mitigation plan, where is the wetlands mitigation plan?

Recommendation: Change the title and all language from "fish and wildlife mitigation plan" to "compensatory wetland mitigation plan." Ensure that all aspects of the required compensatory wetland mitigation plan reflect the need to compensate for lost wetland functions, rather than fish and wildlife only. 1-97

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 1st paragraph; last sentence:
Comment: Where in the report are the discussions of avoidance and minimization measures? 1-98

Recommendation: Please ensure that there is actually a robust discussion of efforts undertaken to avoid and minimize impacts to wetlands.

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 2nd paragraph; 1st sentence:
Comment: The forested wetlands that would be impacted are likely coastal forested wetlands. The other wetlands that would be impacted are coastal wetlands, but so are the forested wetlands. In addition, these other wetlands are "marsh," but EPA would not support aggregating them under this classification either. We recommend separating the impacts to cypress-tupelo swamp forest, bottomland hardwood swamp forest, brackish marsh, intermediate marsh, and fresh marsh, if any. Mitigation should be in-kind. Mitigation of one habitat type cannot compensate for loss of another. 1-99

Recommendation: The approach to classifying wetland impacts and wetland mitigation needs to maintain the distinctions between the various habitat types as mentioned above. Please revise the FEIS accordingly.

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 2nd paragraph; 2nd sentence:
Comment: As previously mentioned, there doesn't appear to be any discussion of the efforts that were made to avoid and minimize impacts to wetlands.

Recommendation: Please add a discussion of efforts made to avoid and minimize impacts to wetlands. 1-100

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 2nd paragraph; 8th sentence:
Comment: As previously mentioned, EPA does not support aggregating all marsh impacts under the classification of "coastal marsh." Impacts should be described by marsh type, and mitigation should be in-kind. As per the mitigation rule, acquisition and long term conservation are considered the lowest priority for mitigation. Thus, EPA does not support this approach to wetland mitigation except in rare cases, and as the rule mentions, then only with large ratio multipliers.

Recommendation: Please clarify the actual types of marsh that are impacted and to be mitigated for. The general proposal to mitigate via acquisition and long term conservation needs to be revisited. Please provide EPA a draft mitigation plan for review and comment prior to issuance of a FEIS. 1-101

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 2nd paragraph; 9th, 10th sentences:
Comment: When will these mitigation discussion occur? EPA requests that they occur as soon as possible, and prior to issuance of the FEIS.

Recommendation: Begin mitigation discussions with the agencies, including EPA, soon. We request that the Corps not issue the FEIS until this coordination occurs, and until EPA has been provided a draft mitigation plan for review and comment. 1-102

p. 6-9; 6.1.3.2 Summary of Conceptual Fish and Wildlife Mitigation Plan; 2nd paragraph; last sentence:
Comment: Elsewhere in the document it says that a mitigation cost estimate had already been developed, although it is not clear what it would be based on.

Recommendation: Clarify whether a mitigation cost estimate already exists and was used in the cost/benefit analysis. If one doesn't exist explain how the cost/benefit analysis was conducted without it. If one does exist, explain why this sentence calls for one to be developed. 1-103

p. 6-10; 1st sentence:
Comment: Since it will likely take this project time to be implemented, it would seem to be desirable to maintain a future possibility of mitigating using mitigation banks, should any appropriate new banks become available prior to completion of the project.

Recommendation: EPA recommends that the mitigation bank option not be eliminated until much later in the project design/construction process. 1-104

p. 6-15 6.6.2 Environmental Quality (EQ):
Comment: It is not clear that the work done to assess the potential risk of disturbance of contaminated soils or hazardous materials, was sufficient, given the apparent potential risk.

Recommendation: We recommend these risks be re-evaluated using a more robust approach, prior to the issuance of the FEIS. 1-105

p. 6-19; 6.7.4 Environmental Data and Analyses; 1st paragraph; 2nd sentence:
Comment: While this may be a technically correct statement, it could be misleading in the Wetland Value Assessment "modeling" is a very simplistic wetland assessment "tool." The modeling is not simulation modeling. It is not based on much data. Further, it does not simulate

ecological processes. However, it does derive a "score".

Recommendation: Please replace the term "ecological modeling" with Wetland Value Assessment. 1-106

p. 6-19; 6.7.4 Environmental Data and Analyses; 1st paragraph; last sentence:
Comment: This should be discussed in some detail.

Recommendation: Please add a discussion of how engineering models were used to support part of the ecological analysis. 1-107

p. 6-19; 6.7.4 Environmental Data and Analyses; 2nd paragraph; last sentence:
Comment: Will there be an opportunity at that point to change designs (avoidance, minimization) or increase mitigation? Will other agencies have the opportunity to review?

Recommendation: Please address the above questions/comments in the FEIS. 1-108

p. 6-19; 6.7.4 Environmental Data and Analyses; 3rd paragraph; 2nd sentence:
Comment: It is not clear that the work done to assess the potential risk of disturbance of contaminated soils or hazardous materials, was sufficient, given the apparent potential risk. In at least one location, it appears that risks have not been accurately identified: Star Lake Canal Superfund Site straddles the hurricane levee in Port Neches, TX. EPA is aware that there is contamination in the Jefferson Canal adjacent to and south of the levee at the water control structure.

Recommendation: We recommend these risks be re-evaluated using a more robust approach, prior to the FEIS. The FEIS should acknowledge the existence of at least this one problem area, and commit to take the necessary steps to avoid disturbing it, or if unavoidable, propose acceptable means of dealing with it. 1-109

p. 6-21; 6.8.2 Clean Water Act; 2nd sentence:
Comment: EPA would like to review the details of the Corps' determination.

Recommendation: Provide the Corps' determination that the proposed project would not result in water quality standards being violated, for review and comment. 1-110

p. 6-21; 6.8.2 Clean Water Act; 3rd sentence:
Comment: We recommend the details of how impacts to wetlands were avoided and minimized, be discussed in the FEIS.

Recommendation: Please revise the DEIS to include discussion of efforts undertaken to avoid and minimize impacts to wetlands. 1-111

p. 6-21; 6.8.2 Clean Water Act; 4th sentence:

Comment: The 404(b)(1) Guidelines do not limit the requirement for mitigation to those that are deemed by the project sponsor to be "significant."

Recommendation: Please remove the term "significant." Please provide to the EPA a draft mitigation plan for review and comment. 1-112

p. 6-21; 6.8.2 Clean Water Act; 2nd to last sentence:
Comment: While the least environmentally damaging practicable alternative may be identified, compliance with the 404(b)(1) Guidelines cannot yet be determined, since a draft mitigation plan has not been provided.

Recommendation: Provide a draft mitigation plan for review and comment prior to issuance of the FEIS. 1-113

p. 6-24; 6.8.12 Executive Order 11990, Protection of Wetlands; 3rd sentence:
Comment: As previously mentioned, the DEIS should include discussion of efforts made to avoid and minimize impacts to wetlands.

Recommendation: Please add a discussion of efforts made to avoid and minimize impacts to wetlands. 1-114

p. 7-5; 7.2.1.1 Design Accommodations to Minimize Impacts; 1st paragraph; last sentence:
Comment: How is the COE sure that this incorporates all the needs without altering hydrology? In Figure 7-1, there appear to be far more than 13 culverts indicated, and this is just one part of the system.

Recommendation: Please add additional explanation for the conclusion that only 13 culverts are needed to protect existing drainage, as well as associated coastal streams and wetlands, across the proposed levee system. Alternatively, propose additional culverts to more fully avoid impacts to drainage, coastal streams, and wetlands. 1-115

p. 7-5; 7.2.1.1 Design Accommodations to Minimize Impacts; 2nd paragraph; 1st sentence:
Comment: This design criterion does not seem to be particularly protective, either of drainage, or environmental functions.

Recommendation: We recommend that a similar degree of conservatism be assumed in the design of these culverts, as is assumed for other aspects of the proposed project. 1-116

p. 7-5; 7.2.1.1 Design Accommodations to Minimize Impacts; 2nd paragraph; 3rd sentence:
Comment: Have environmental impacts been acknowledged and accounted for, for the effects of one-way flapgates? These will of course, impact fishery access, as well as impact any import of sediment to wetlands on the "inside" of the levee/flapgate.

Recommendation: Please review the DEIS to determine whether these impacts were accounted for. If not, revise the WVA to account for it. 1-117

p. 7-5; 7.2.1.1 Design Accommodations to Minimize Impacts; 3rd paragraph:
Comment: The proposal to create an artificial drainage system that fully replicates environmental functions, is interesting. EPA cannot determine whether this is realistic or not since no details have been provided.

Recommendation: Please provide details of this proposed artificial drainage network. At this stage of planning, even a conceptual diagram/explanation, would be useful. Please also provide opportunity for agency review/comment. 1-118

p. 7-6; 1st paragraph; last sentence:
Comment: In addition to monitoring wetland "extent and quality", wetland flooding duration and frequency should be monitored. In addition, the proposal to monitor wetland "extent and quality" is vague.

Recommendation: Please identify what indicators would be measured to monitor wetland "extent and quality." Add wetland hydrologic monitoring. Consult with the agencies, including EPA, regarding recommended monitoring. Develop a draft monitoring plan and provide opportunity for agency review and comment. 1-119

p. 7-6; 2nd paragraph; last sentence:
Comment: For this to be the case, wouldn't velocities have to increase? If so, wouldn't this affect fishery access?

Recommendation: Please clarify. Assuming that current velocities would increase, evaluate the potential impacts to fishery organisms that use these marshes. 1-120

p. 7-7; 7.2.1.2 Unavoidable Indirect Impacts; 1st paragraph; 1st sentence:
Comment: These efforts undertaken to minimize impacts need to be described in detail.

Recommendation: Describe, in detail, efforts to avoid and minimize impacts to wetlands. 1-121

p. 7-7; 7.2.1.2 Unavoidable Indirect Impacts; 2nd paragraph; 3rd sentence:
Comment: Does the anticipated lack of effect of the proposed project on water surface elevation, include no effect on variations in water surface elevation? In other words, is the determination just that the average water surface elevation won't change, or is it that there should be no differences with versus without the project, taking into account the full scope of water surface elevation variability? In addition to potential affects to vegetation, and since the document acknowledges some potential impacts to fish access, was any consideration given to potential effects on exchanges of sediment, nutrients, and organic matter? Presumably, if the

volumes of water that are expected to pass by the gates, and their directions, have not changed, then neither would the exchanges of sediment, nutrients, and organic matter.

Recommendation: Please address the above comments in the FEIS. 1-122

p. 7-7, 7-8; last incomplete paragraph on p. 7-7, 1st incomplete paragraph on p. 7-8:
Comment: Why couldn't minor adjustments of the proposed levee alignment be accomplished in order to avoid these losses?

Recommendation: Address the above question in the FEIS. Include a map showing these areas in the FEIS. 1-123

p. 7-8; 1st complete sentence:
Comment: EPA would like to see what areas these are.

Recommendation: Include a map in the FEIS that shows these areas. Explain why these impacts are not avoidable. 1-124

p. 7-8; 2nd complete sentence:
Comment: EPA would like to see what area this is. EPA would also like to review a more detailed explanation of why these impacts are unavoidable.

Recommendation: Include a map in the FEIS that shows these areas. Explain why these impacts are not avoidable. 1-125

p. 7-9; 1st complete paragraph; last sentence:
Comment: Why didn't the analysis use rates of relative sea level change from Freeport or vicinity?

1-126

Recommendation: Explain in the FEIS, why rates of relative sea level change for Freeport weren't used.

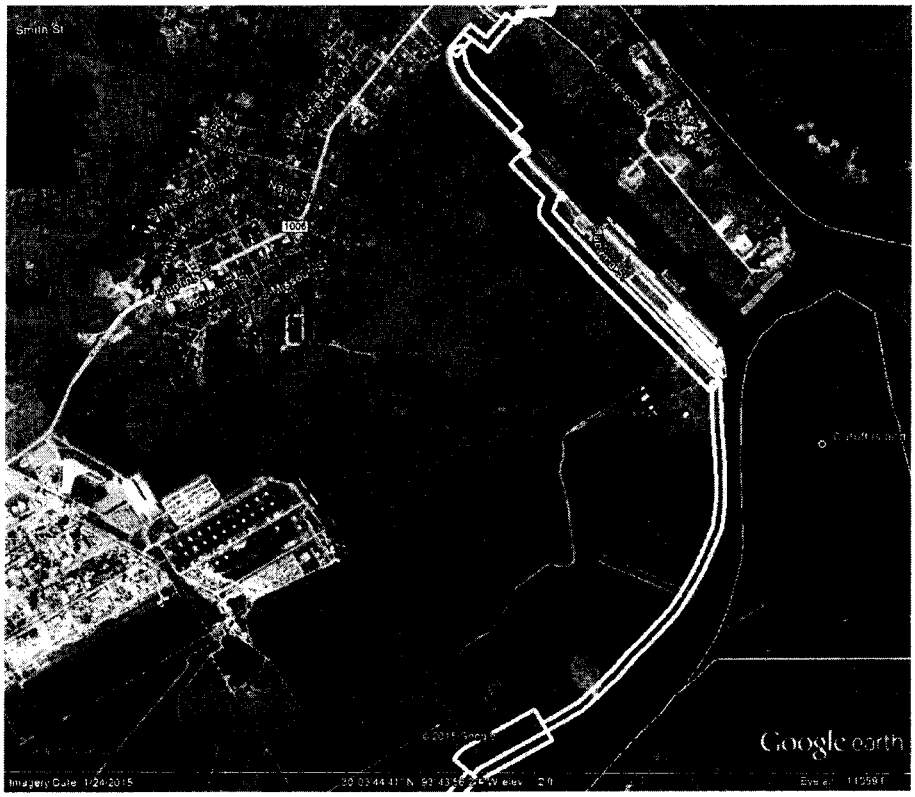
p. 7-10; 7.4.1 Orange-Jefferson CSRM Plan; 1st paragraph; 2nd sentence:
Comment: This seems not to acknowledge that losses in this area are now very low, since most of the wetlands have already been impacted. Subsidence and faulting may still be affecting the few remaining wetlands, and they may affect any created wetlands here in the future.

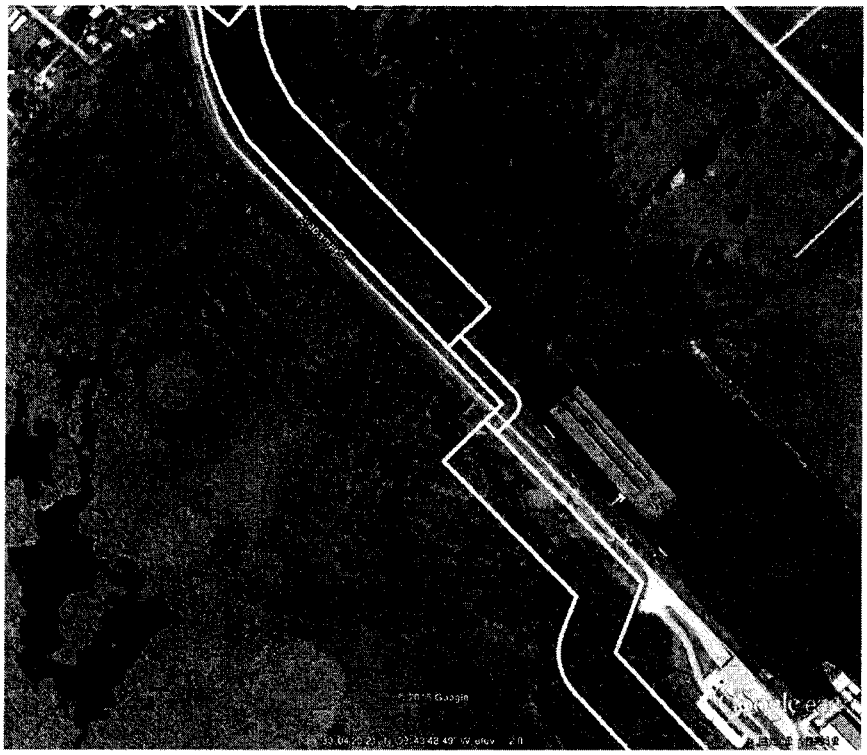
Recommendation: Include the above considerations in the discussion in the DEIS. 1-127

p. 7-10, 7-11; 7.4.1 Orange-Jefferson CSRM Plan:
Comment: While in general, the preferred alternative avoids and minimizes impacts to wetlands, there is one location where additional avoidance and minimization appears to be possible and desirable (see map below). This marsh is currently largely impounded by the existing dredged material placement area, a levee, a road, and upland/development. However, there is at least one

significant connection to the adjacent water via a canal on the northeast side where the road crosses over a bridge. It is not clear, but it appears the plans do not include provisions for a gate at this location. This would have the effect of impounding the northeast half of this marsh, in combination with existing internal spoil banks. The half of the marsh to the southwest of the internal spoil banks would appear to remain open to the channelized lower reach of Adams Bayou, which is proposed to be gated. Since the gate is proposed to remain open most of the time, this section of the marsh should not actually be impounded by the proposed project. However, there low spoil banks along the marsh's shoreline on Adams Bayou, which may serve to partly impound this section of the marsh. In addition to the "external" impounding features, the entire marsh appears to be internally impounded by a low levee. There is also a rectangular, open water impoundment in the center, and a road and other features associated with historic oil and gas activity. While this marsh is clearly degraded, it still has significant ecological value, and could be enhanced/restored.

Recommendation: Consider revisions to the proposed project features surrounding this marsh, as well as potential ecological enhancement/restoration, which would offset some of the project's required compensatory mitigation. 1-128





p. 7-12; 7.5.1 Orange-Jefferson CSRM Plan; 1st paragraph; last two sentences:
Comment: If the document is going to use this as an argument, provide specific examples and specific arguments. The argument presented is too general to base decisions on.

1-129

Recommendation: We suggest that you either delete the discussion about unregulated losses, or provide a much more detailed discussion, including an evaluation of the actual potential for such unregulated losses in these areas.

p. 7-12; 7.5.1 Orange-Jefferson CSRM Plan; 3rd paragraph; 2nd sentence:
Comment: Why couldn't minor adjustments of the proposed levee alignment be accomplished in order to avoid these losses?

1-130

Recommendation: Please address the above question in the FEIS. Include a map showing these areas in the FEIS.

p. 7-15; 1st complete paragraph; 3rd sentence:
Comment: EPA is not in agreement with this argument. This is true for most wetland losses and proposed development projects. Cumulative impacts often result in significant losses of wetlands.

Recommendation: While the statement is accurate, the apparent implication is that the impacts are not significant. is not. Please add a statement that acknowledges that just

1-131

because the impacts are a small percentage of the total wetland area, does not indicate that the impacts are not significant.

p. 7-15; 1st complete paragraph; 4th sentence:
Comment: While it is correct that wildlife may be able to try to move into adjacent habitats, it is not a given that they will be able to do so. It is likely that adjacent habitats are already utilized by wildlife. Additional competition for the remaining habitat may result in a reduction in wildlife productivity. In addition, disturbance caused by project construction may reduce wildlife productivity temporarily.

1-132

Recommendation: The statement needs to recognize the potential impacts.

p. 7-15; 1st complete paragraph; 7th sentence:
Comment: Are bald eagles known to use these areas? In addition to the construction right of way, additional protective buffers surrounding it should be surveyed.

1-133

Recommendation: Address the above question in the FEIS. Commit to surveying, at a minimum, the additional buffer required by U.S. Fish and Wildlife Service, in addition to the construction right of way.

p. 7-15; 1st complete paragraph; last sentence:
Comment: This EIS acknowledges that fisheries access will be negatively impacted in some locations. See below. This statement should be consistent with the acknowledgments below. This statement is not consistent with the project's impacts on fisheries access. While these impacts are limited, they are not zero.

1-134

Recommendation: Ensure that the FEIS is consistent with respect to its acknowledgement of project impacts on fisheries access.

p. 7-15; 2nd complete paragraph; 1st sentence:
Comment: In addition to fisheries access, these gates might potentially impact the exchange of sediment, nutrients, and organic matter, with streams, wetlands, and estuaries "outside" the levees/gates. See other related comments on this subject.

Recommendation: Consider the above. Discuss analysis and conclusions of addressing this question, in appropriate locations in the FEIS. 1-135

p. 7-17; 1st paragraph:
Comment: A similar discussion is needed on the question of whether or not the proposed levee/gates may affect exchanges of sediment, nutrients, and organic matter. See above.

Recommendation: Add a discussion of these potential impacts to the FEIS, in appropriate locations. 1-136

p. 7-17; 7.6.1.2 Freeport and Vicinity CSRM Plan; 1st paragraph; 2nd sentence:
Comment: These terms usually don't apply to fish.

Recommendation: Please delete the word "fish" from this sentence. 1-137

p. 7-18; 7.6.2.1 Sabine Region CSRM Plans; 3rd paragraph; last sentence:
Comment: What is "CE/ICA Incremental Analysis"?

Recommendation: Please explain in the text what the above is. 1-138

p. 7-18; 7.6.2.1 Sabine Region CSRM Plans; 4th paragraph:
Comment: While it is the responsibility of NMFS to determine whether the COE's argument is valid, this does not appear to be a valid argument. First, how large is the area of hard bottom habitat? We would guess it is small. So, there's probably 8-10 ac of loss. Shouldn't this be mitigated? Note also that the COE is suggesting that hard-bottom habitat can replace soft-bottom habitat functions. EPA would not agree with that either. Finally, EPA is not sure that hard-bottom habitat is natural at this location.

Recommendation: Please delete the argument that hard-bottom habitat is a valid replacement for lost soft-bottom habitat. 1-139

p. 7-19; 1st complete paragraph; 3rd sentence:
Comment: Will the fish access loss specifically be fully replaced? This may require more acres of restored wetland than it takes just to produce the required number of AAHUs in general.

Recommendation: Please provide a draft mitigation plan for review and comment prior to issuance of a FEIS. Consider mitigation required to fully mitigate for the lost fish access function specifically, which may require more mitigation than if based solely on AAHUs in general. 1-140

p. 7-20; 7.6.3 Threatened and Endangered Species Impacts; 3rd paragraph; 1st sentence:
Comment: While it is the responsibility of the U.S. Fish and Wildlife Service, EPA ask that the COE accurately estimate the potential impact of the proposed project on the West Indian manatee.

Recommendation: Please consult with U.S. Fish and Wildlife Service and document this effort in the FEIS. 1-141

p. 7-21; 2nd complete paragraph; 1st sentence:
Comment: EPA would probably not agree that sediments in the "Sabine and Brazoria regions" are of good quality. While sediments from Sabine Lake generally are not as contaminated as one might expect based on the degree of industrialization there, they are contaminated to some extent. Generally though, these sediments do not exceed contaminant concentrations, i.e., benchmarks that are used to flag possible problems. That said however, there are some locations

where moderately or highly contaminated sediments have been found. In the "Brazoria Region" the quality of sediments are not well known. The potential for contaminated sediments would appear to be significant, given the degree of industrialization here, and the limited water volume for dilution. Little sediment data is available for this area. Also note that the mouth of the San Bernard River is outside the study area.

Recommendation: Aggregate all relevant sediment data and analyze data to determine: 1-142

- Whether or not any of the sediment is contaminated;
- If sediments are contaminated:
- What are the contaminants?
- What are the concentrations? What benchmarks do they exceed?
- What percentage of the data indicate contamination above benchmarks?
- Remove the reference to data from the mouth of the San Bernard River.

p. 7-21; 2nd complete paragraph; 6th sentence:
Comment: EPA does not agree that this argument justifies the conclusion that there is a low risk of encountering contaminated sediments in the Freeport area.

Recommendation: EPA recommends deleting this statement. EPA recommends assembling all available sediment data and analyzing it for contaminant concentrations and exceedances of benchmarks used to flag possible problems. In addition, due to the extensive industry in the area, EPA recommends sampling and analysis of sediments likely to be disturbed by the proposed project. Results should be provided to the agencies for review and comment, prior to construction. 1-143

p. 7-22; 7.7.2 FWP Alternatives for Sabine Region CSRM Plans; 1st paragraph; 5th sentence:
Comment: As repeatedly mentioned elsewhere in these comments, the DEIS includes little documentation of efforts taken to avoid and minimize impacts to wetlands.

Recommendation: As repeatedly recommended elsewhere in these comments, document efforts taken to avoid and minimize impacts to wetlands, in detail, somewhere in the FEIS. 1-144

P. 7-30; 7.10.1.1 No Action Alternative; 3rd paragraph; 3rd sentence:
Comment: As mentioned elsewhere in these comments, Star Lake Canal Superfund Site straddles the hurricane levee in Port Neches, TX. There is contamination in the Jefferson Canal adjacent to and south of the levee at the water control structure.

Recommendation: The FEIS should acknowledge the existence of at least this one problem area, and commit to take the necessary steps to avoid disturbing it, or if unavoidable, propose acceptable means of dealing with it. 1-145

p. 7-31; 7.10.1.2 FWP Alternative; 1st sentence:
Comment: EPA may not agree with this conclusion. Given the known concerns associated with the Star Lake Canal Superfund Site, as well as the apparent risks due to the intensive and extensive use of the landscape by the petrochemical industry, the risk of this project potentially disturbing contaminated soils would seem to be higher than this.

1-146

Recommendation: Undertake a more robust assessment of the risks of potentially disturbing contaminated sediment or make more conservative assumptions.

p. 7-32; 7.10.2.2 FWP Alternative; 3rd sentence:
Comment: Again, EPA may not agree with this conclusion. Given the known concerns associated with the Star Lake Canal Superfund Site, as well as the apparent risks due to the intensive and extensive use of the landscape by the petrochemical industry, the risk of this project potentially disturbing contaminated soils would seem to be higher than this.

1-147

Recommendation: Please undertake a more robust assessment of the risks of potentially disturbing contaminated sediment or make more conservative assumptions.

p. 7-33; 7.10.3.2 FWP Alternative; 1st sentence:
Comment: Again, EPA may not agree with this conclusion. Given the known concerns associated with the Star Lake Canal Superfund Site, as well as the apparent risks due to the intensive and extensive use of the landscape by the petrochemical industry, the risk of this project potentially disturbing contaminated soils would seem to be higher than this.

Recommendation: Undertake a more robust assessment of the risks of potentially disturbing contaminated sediment or make more conservative assumptions. 1-148

p. 7-41; #6:
Comment: Regarding the following statement: There are no remaining unmitigated adverse effects on natural and beneficial floodplain due to implementation of the Proposed Action.

Recommendation: Since EPA has not yet seen a draft mitigation plan, we cannot verify the above statement as accurate. EPA asks that a draft mitigation plan be included in the FEIS and be provided for review and comment prior to issuance of a FEIS. 1-149

p. 7-46; 7.16.1.3 Sabine Region Resource Impact Evaluation; 3rd paragraph; 1st sentence:
Comment: How has the navigation channel affected salinity through its effects on density currents?

Recommendation: Please discuss the role of the navigation channel in increasing the importance of density currents in Sabine Lake. 1-150

p. 7-46; 7.16.1.3 Sabine Region Resource Impact Evaluation; 3rd paragraph; 2nd sentence:
Comment: Subsidence is not responsible for just lost of forested wetlands, but for loss of marshes as well. Access canals may cause wetland loss not only by increasing saltwater intrusion but by also altering wetland hydrology.

Recommendation: We suggest you acknowledge that subsidence has caused loss of marsh in addition to loss of forested wetlands. 1-151

p. 7-46, 7-47; 1st incomplete sentence:
Comment: The term "freshwater recharge" is probably not appropriate in this context. The term recharge is usually used in the context of groundwater. In this case the document is discussing the likely effects of confined disposal facilities on wetland hydrology. The confined disposal facilities are serving to partially impound the wetlands behind them, and restricting flooding from the adjacent water body, in this case, probably Sabine Lake and the Neches River.

Recommendation: We suggest you replace the term "freshwater recharge" with a more accurate discussion of the likely effects of the confined disposal areas on adjacent wetland hydrology. 1-152

p. 7-46, 7-47; 2nd complete paragraph; 1st sentence:
Comment: The Sabine Lake estuary/wetland system is degraded, and the proposed project would further impact the system, albeit not as much as one might think such a large project would.

Recommendation: Please revise the statement to acknowledge that the ecosystem has been degraded and the proposed project would further impact it by some increment. 1-153

p. 7-46, 7-47; 2nd complete paragraph; 3rd sentence:
Comment: EPA has not seen a draft mitigation plan.

Recommendation: Please provide a draft mitigation plan for review and comment prior to issuance of the FEIS. 1-154

p. 7-46, 7-47; 2nd complete paragraph; 4th sentence:
Comment: As previously mentioned, this has not been demonstrated in the DEIS. Maps in the EIS seem to suggest that the number of culverts may not be adequate to maintain drainage and connectivity.

Recommendation: Please demonstrate that levee and culvert design would maintain future tidal connectivity, resulting in negligible impacts on floodplains both inside and 1-155

outside of the levee system. Please explain why culverts are not proposed for all existing coastal streams located along the proposed levee.

p. 7-50; 7.16.2.3 Brazoria Region Resource Impact Evaluation; 2nd paragraph; last sentence:
Comment: It is not clear this is an accurate statement since limited water quality sampling and analysis have been conducted in this area.

Recommendation: We suggest the COE aggregate the available water quality data and review. Discuss data limitations including number of samples, analyses, etc. and discuss conclusions. Specifically comment on analysis for contaminants. 1-156

p. 7-51; 7.17 ANY ADVERSE ENVIRONMENTAL IMPACTS THAT CANNOT BE AVOIDED SHOULD THE TSP BE IMPLEMENTED; 3rd sentence:
Comment: It appears that this estimate may not be consistent with others provided elsewhere in the document.

Recommendation: Please review the FEIS to ensure that wetland acreage impacts are reported consistently throughout the document. 1-157

p. 7-52; 7.18 ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES INVOLVED IN THE IMPLEMENTATION OF THE TSP; 2nd sentence:
Comment: It appears that this estimate may not be consistent with others provided elsewhere in the document.

Recommendation: Please review the FEIS to ensure that wetland acreage impacts are reported consistently throughout the document. 1-158

p. 7-52; 7.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY; 1st sentence:
Comment: It appears that this estimate may not be consistent with others provided elsewhere in the document.

Recommendation: Please review the FEIS to ensure that wetland acreage impacts are reported consistently throughout the document. 1-159

p. 7-52; 7.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY; 2nd sentence:
Comment: EPA has not seen a draft mitigation plan.

Recommendation: Please provide a draft mitigation plan for review and comment prior to issuance of the FEIS. 1-160

p. 8-4; 8.2 COST FOR THE RECOMMENDED PLAN;
Comment: EPA has not seen mitigation costs here.

Recommendation: Please add compensatory wetland mitigation costs, revise the analysis, and discuss the conclusions in the FEIS. 1-161

p. 8-5; 8.5.2 Environmental Operating Principles; 1st sentence:
Comment: The DEIS does not include much detail regarding efforts taken to avoid and minimize impacts to aquatic resources. A draft mitigation plan has not been provided to EPA for review and comment.

Recommendation: Please revise the FEIS to document efforts taken to avoid and minimize impacts to aquatic resources, in detail. Provide the agencies, including EPA, a draft compensatory wetland mitigation plan for review and comment prior to issuance of a FEIS. 1-162

p. 8-5; 8.5.2 Environmental Operating Principles; 2nd sentence:
Comment: Sustainability is not defined.

Recommendation: Define sustainability in the FEIS and specify what it is being applied to. 1-163

p. 9-2; 1st complete paragraph; last sentence:
Comment: It is not clear what study is referred to here.

1-164

Recommendation: Please clarify what study is referred to. Provide enough detail that the reader has an idea what it is. Discuss when it will be available. EPA would appreciate the opportunity for early involvement.

p. 9-3; 1st complete sentence:
Comment: What study is the Texas Coastal Study? Is it already underway? Will EPA be provided an opportunity to provide input?

Recommendations: Please explain what this study is and when it will be conducted and completed. Will EPA have an opportunity for input? 1-165

p. 1-8; 1.10.1.3Freeport HFPP, Texas; 3rd sentence:
Comment: "planes" should be "plains". 1-166

p. 7-22; 7.7.2 FWP Alternatives for Sabine Region CSRM Plans; 3rd paragraph; last sentence:
Comment: Please change Total Daily Maximum Loads to Total Maximum Daily Loads. 1-167

Michael Jansky
Acting Chief
Office of Planning and Coordination
Compliance Assurance and Enforcement Division
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RESPONSE TO COMMENTS

Comment No.	Response
1	**Wetland/Section 404 CWA/Mitigation**. Comments are provided as Attachment 1 – General and Specific Comments. These are addressed individually below, denoted by numbers beginning with "1-#".
2	**Air Quality – PM_{10} Emissions and Fugitive Dust Control.** The following text has been added to Section 6.8.1, paragraph 1: In order to reduce impacts associated with emissions or particulate matter and other pollutants, the control measures specified in Section 7.8.2.1 would be implemented. The following text has been added to Section 7.8.2.1 of the Final Integrated Feasibility Report-Environmental Impact Statement (FIFR-EIS): In order to reduce impacts associated with emissions of particulate matter and other pollutants, the following control measures would be included in construction contracts, as applicable and practicable. Fugitive Dust Source Controls: • Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent. This agent cannot result in the loss of vegetation or increase other environmental impacts. • During grading, use water as necessary on disturbed areas in construction sites to control visible plumes. • Vehicle Speed o Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. o Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on un-stabilized (and unpaved) roads. o Post visible speed limit signs at construction site entrances • Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable. • Provide gravel ramps of at least 20 feet in length at tire washing/cleaning stations, and ensure construction vehicles exit construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable. • Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. For those contracts in which one is required, ensure consistency with the Storm Water Pollution Prevention Plan.

- Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily or less during period of precipitation.
- Stabilize disturbed soils after active construction activities are completed with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles, which are used to transport solid bulk material on public roadways and that have potential to cause visible emissions, with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.
- Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.

Mobile and Stationary Source Controls

- Plan construction scheduling to minimize vehicle trips.
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.

Administrative Controls

- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
- Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and locate construction equipment and staging zones away from sensitive receptors and building air intakes.

Climate Change

The following text has been added to Section 6.8.1, paragraph 2: In order to reduce GHG emissions, emission reduction methods described in 7.8.2.2 would be implemented.

The following text has been added to Section 7.8.2.2 of the Final Integrated Feasibility Report-Environmental Impact Statement (FIFR-EIS):

Although GHG emissions were not estimated for the S2G projects, GHG emission levels are expected to be well below the 25,000 metric ton/year (27,557 tons/year) threshold for significance. Based on comparison to a similar waterfront construction project,
3 temporary GHG emissions from construction and commuting vehicles are expected to vary between 4,500 and 14,000 tons of CO^2 and CO^2 equivalents per year in the Sabine airshed and approximately 3,200 tons of CO^2 and CO^2 equivalent per year in the Brazoria airshed. Although these emissions do not approach the significance threshold, emissions reduction practices could be implemented.

Non-road diesel and gasoline engines can contribute significantly to many pollutant loads, including GHGs. In recent years, EPA has set standards for engines used in most new construction equipment. However, because construction equipment can last 25-30 years, it will take many years before existing equipment is fully replaced by newer, cleaner-burning equipment. With this in mind, EPA developed the Clean Construction USA

program to assist operators of heavy non-road, diesel-powered equipment to reduce emissions from older engines that are in operation today. Emission reduction methods include:

- Idle-reduction practices that save money, reduce emissions, add fuel savings, extend engine life, and provide a safer and better work environment for equipment operators;
- Switching to ultra-low-sulfur fuel, which in addition to reducing sulfur (non-GHG) emissions, improves engine efficiency by reducing wear, deposits, and oil degradation;
- Retrofitting equipment to reduce emissions; and
- Installing catalysts and filters verified by EPA to ensure emissions reduction and durability of retrofit technologies. Engine upgrade kits are also available and can be installed during routinely scheduled engine rebuilds.

To support these reduction initiatives, the USACE can request that newer Tier 2 or Tier 3 engines be prioritized for use, and can place that stipulation in construction proposals.

Roughly one-third of the temporary annual GHG emission impacts are estimated to come from delivery vehicles and worker commuter vehicles. As an additional mitigation measure, construction contractors, the USACE can encourage alternate transportation means. The encouragement of alternative transportation methods, including carpooling, public transportation, and use of local labor could potentially reduce these GHG emissions by as much as 40 percent. Incentives for these initiatives can include preferred parking for carpoolers.

With implementation of these reduction measures, total GHG emissions may reasonably be reduced by up to 25 percent over the lifespan of the projects, resulting in emission rates as low as between 3,375 and 10,500 tons of CO^2 and CO^2 equivalents per year in the Sabine airshed and approximately 2,400 tons of CO^2 and CO^2 equivalent per year in the Brazoria airshed.

4	**Environmental Justice** Public meetings on the DIFR-EIS were held on October 6 and 8, 2015, in Beaumont at Lamar University and Freeport, Texas at the Freeport Community Center. Prior to these public meeting four scoping meetings were held in early 2012 aiding in the development of over 250 ideas addressing coastal storm risk problems and ecosystem restoration opportunities in the initial six-county study area. Comments from the public, stakeholders, and agencies are currently being addressed. Coordination will continue for those potentially protected populations should changes arise in the design of the project that may change the impacts or that could potentially impact other populations not yet identified as potentially experiencing impacts from the project. This will be addressed prior to signing the Record of Decision.
5	**Tribal Analysis** In accordance with the USACE Tribal Policy Principles, Presidential Memorandum (April 29, 1994) Government to Government Relations with Native American Tribal Governments, Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments (November 06, 2000), and President Obama's Memorandum of November 5, 2009 – Tribal Consultation, USACE has contacted and coordinated with Federally-recognized Indian Tribes throughout the study to obtain their views and assess the impact of the proposed CSRM plans on tribal lands, resources and concerns. The Alabama

	Coushatta Tribe of Texas, the Comanche Nation of Oklahoma, the Coushatta Tribe of Louisiana, the Kiowa Indian Tribe of Oklahoma, the Mescalero Apache Tribe, and the Tonkawa Tribe of Oklahoma were contacted by letter in November, 2014, to inform them of the upcoming S2G study, invite them to participate as a cooperating agency, coordinate the study schedule, and initiate consultation regarding any concerns the tribes may have regarding potential project impacts to sites, areas or resources of religious, cultural or other tribal interest. No responses were received from the tribes and no concerns or potential impacts were identified. The DIFR-EIS was provided to the same tribes in September 2015, and the tribes were notified that USACE intended to execute a Programmatic Agreement to govern the scope of cultural resource investigations, to be determined in concert with the Texas SHPO and Indian tribes. No comments on the DIFR-EIS or the Draft Programmatic Agreement were received from the tribes. These tribes were contacted by telephone in August, 2016, to inquire if they would like any additional information on the study, provide details of the Recommended Plan, and identify any tribal concerns with the proposed CSRM plans. No tribal concerns with the Recommended Plan were identified. The FIFR-EIS will be provided to the tribes during State and Agency Review.
	Wetland/Section 404 CWA/Mitigation Attachment 1 Responses:
1-1	The project is consistent with the authorization. The cited authorization is correct. This feasibility report presents a programmatic overview of CSRM problems and opportunities in the central Galveston region (Galveston, Harris, and Chambers Counties) and a programmatic assessment of ER opportunities for the entire six-county study area. The programmatic assessment is a listing and screening of measures identified as having high potential to demonstrate Federal interest and result in successful CSRM and ER projects. The list of measures is provided in Appendix A. The only measures and alternatives fully evaluated by this feasibility study, with the intent of recommending a plan for Congressional review and authorization, are those associated with a new storm surge risk reduction system for the Orange-Northeast Jefferson County area, and improvements to the existing Port Arthur and Freeport Hurricane Flood Protection projects. No recommendations regarding the feasibility or impacts of the remaining measures are included in this feasibility report; thus detailed analysis of their impacts in this NEPA document is not required. These measures could be fully analyzed in future, separate feasibility studies.
1-2	Refer to Response 1-1.
1-3	Refer to Response 1-1.
1-4	Environmental benefits were used to screen the initial array of measures; environmental impacts were used as criteria in all subsequent screenings of alternatives. These screenings are described in Appendix B of FIFR-EIS. The detailed screening is not presented in the Main Report because of length constraints established by SMART Planning Guidelines.
1-5	Efforts to avoid and minimize impacts to aquatic resources were undertaken in all study phases. Documentation of these efforts in detail would be extensive. These efforts were presented to and discussed in detail with all resource agencies, including USEPA during multiple meetings on project impacts and mitigation modeling. The alignment changed between the early screening and the TSP presented in the Draft Integrated Feasibility Report, and was optimized again to minimize wetland impacts in the Recommended Plan presented in the FIFR-EIS. Maps of alignments for each of these phases are shown in Appendix O, Section 2.0 of the FIFR-EIS.
1-6	A discussion of the significance of marsh landforms, organics and nutrients to aquatic species is presented in Appendix O, Section 7.1.3. Further discussion on the potential

	impact of the gates on the exchange of sediment, nutrients and organic matter between wetlands upstream of the gates and wetlands/estuary downstream of the gate has been added to Appendix O, Section 7.2.
1-7	Section 7.2 of Appendix O provides a detailed discussion of the potential for the levee system to affect wetlands upstream and downstream of the system. An extensive culvert system is planned to minimize wetland effects. The FIFR-EIS includes a commitment to keep the culverts open and operable, except when closed to prevent storm surge.
1-8	Six USACE/resource agency meetings and a two-day field trip were held to develop a mitigation plan for the Recommended Plan. This mitigation plan was coordinated with the agencies in a meeting on June 15, 2016, where modeling assumptions and results were presented in tables and discussed, and the proposed mitigation plan was presented in maps and tables. Subsequent to these meetings and prior to completion of the final report, the draft WVA modeling appendix was provided to the resource agencies for review.
1-9	Additional discussion of the potential to disturb contaminated soils has been added to the FIFR-EIS Main Report, and the HTRW appendix. The FIFR-EIS will be provided to the agencies for State and Agency Review.
1-10	The planning objective is written broadly; however, the Table 4-1 of the main report specifies the benefits result from Coastal Storm Surge damage reduction.
1-11	The Federal objective, as established by Section 2031 of the Water Resources Development Act of 2007, specifies that Federal water resources investments shall reflect national priorities, encourage economic development, and protect the environment by: 1) seeking to maximize sustainable economic development; 2) seeking to avoid unwise use of floodplains and flood-prone areas and minimizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and 3) protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems. Alternative plans were formulated to reduce the risk of damages from coastal storms, minimize impacts to floodplains, and avoid environmentally significant resources. Where impacts could not be avoided, environmental impacts were quantified and a mitigation plan was formulated.
1-12	See response to 1-11.
1-13	The final mitigation plan was developed in coordination with EPA and other resource agencies. The mitigation plan was provided to EPA for review and comment prior to release of the FIFR-EIS.
1-14	Preliminary estimates of mitigation costs were included with the mitigation plan that was provided to EPA for review.
1-15	The term “conservation plans” referred to plans similar to the Lone Star Coastal National Recreation Area that has been proposed by the SSPEED Center.
1-16	The Initial Array of Alternatives was the evaluated during the first screening. Quantitative environmental impacts evaluations are not conducted this early in the planning process. The qualitative impact analysis identified whether the plans had a low, medium or high risk of significant impacts to wetlands, endangered species, and hydrology.
1-17	A description and location of the Neches River gate and its potential environmental impacts is provided in Appendix B, Section 6.2.1 through 6.2.9.
1-18	This section of the FIFR-EIS has been revised. The decision criteria for selecting a TSP were based on building a plan for each project area that reasonably maximized net benefits consistent with the Federal objective of protecting the Nation’s environment.
1-19	The FIFR-EIS Environmental Compliance Section of the Executive Summary has been revised to indicate that coordination with Federal and state resource agencies will continue throughout the study process as required by the NEPA and Fish and Wildlife Coordination Act.

1-20	Refer to Response 1-1.
1-21	The actual authority for this study is the same as that stated in the DIFR-EIS. Refer to Response 1-1.
1-22	Section 1.9 provides an explanation of how the study evolved to the current scope. Section 3.1 provides a definition of "project area." Study area refers to the general area under study.
1-23	Morgan City has been corrected to Morgan Point in the FIFR-EIS.
1-24	SMART Planning requires a brief main report that includes only information required to make this planning decision. Supporting information is provided in appendices. The storm surge analysis for the Sabine Region is presented in the Engineering Appendix Section 2.0.
1-25	The referenced section states the "existing area" described in this chapter covers the entire six county area, and then explains that the "study" scope is limited to the three counties of Orange, Jefferson and Brazoria.
1-26	This table refers to Diurnal Tide Ranges as specified in the title.
1-27	The FIFR-EIS text has been revised as requested.
1-28	This sentence has been revised to refer to two major estuarine systems (Sabine Lake and Galveston Bay) and the Brazos River system.
1-29	The FIFR-EIS section heading has been revised as requested.
1-30	The FIFR-EIS section heading has been revised as requested.
1-31	The FIFR-EIS text has been revised as requested.
1-32	The FIFR-EIS text has been revised as requested.
1-33	The FIFR-EIS text has been revised as requested.
1-34	The additional information requested has not been added. The FIFR-EIS has an adequate level of detail required by law and regulation, but the level of detail, data collection and modeling is only that necessary to confirm the final recommended plan and complete the study. This results in documents with less detail than have been produced in the past. In addition, the SMART Planning emphasis on limiting the length of main report means that much of the supporting analysis is presented in appendices and information is presented once, rather than being repeated in numerous sections as was often done in the past.
1-35	Refer to response 1-34. Information requested is provided in the cumulative impacts analysis of the main report, and in Appendix O.
1-36	The FIFR-EIS text has been revised as requested.
1-37	The FIFR-EIS text has been revised as requested.
1-38	The FIFR-EIS text has been revised as requested.
1-39	The FIFR-EIS text has been revised as requested.
1-40	The FIFR-EIS text has been revised as requested.
1-41	The FIFR-EIS text has been revised as requested.
1-42	The referenced sentence has been deleted.
1-43	The requested citation is presented later in the same paragraph.
1-44	The effects of impoundments are discussed later in the same paragraph.
1-45	This information was provided by TPWD biologists as reported in FEMA's (2008) Hurricane Ike Impact Report.
1-46	The FIFR-EIS text has been revised as requested.

1-47	The FIFR-EIS text has been revised as requested.
1-48	This information was provided by TPWD biologists as reported in FEMA's (2008) Hurricane Ike Impact Report.
1-49	The citations were added as suggested.
1-50	Revised to reverse the order of subsidence and saltwater intrusion.
1-51	This is merely a description of the WMA; the boardwalk is a significant public education feature. No revision was made.
1-52	These sections were provided for different purposes. No revision was made.
1-53	The FIFR-EIS text has been revised as requested.
1-54	The bayous are tributaries to the referenced watersheds. No revision was made.
1-55	The FIFR-EIS text has been revised as requested.
1-56	Refer to response 1-34. The title refers to the study areas in the Sabine and Brazoria Regions. No maps have been added to the main report.
1-57	The FIFR-EIS text has been revised as requested.
1-58	The FIFR-EIS text has been revised. TPWD salinity data in the Sabine Region support the 4 ppt upper range.
1-59	Woodlot is a term used frequently by TPWD and USFWS. No revision was made.
1-60	The FIFR-EIS section heading has been revised as requested.
1-61	The FIFR-EIS text has been revised as requested.
1-62	This section is intended to be a brief, general summary. More detailed water quality information is provided in Section 7.7. Revisions have been made to address some of the comments.
1-63	ER measures are presented in Appendix A of the DIFR-EIS, as stated as Section 1.3
1-64	The FIFR-EIS text has been revised as requested.
1-65	The FIFR-EIS text has been revised as requested.
1-66	The scope of the life-safety risk assessment was determined in coordination with the USACE vertical team, which determined the level of analysis provided in the report.
1-67	Refer to Response 1-1
1-68	Section 4.1 explains that the Problem Statements were developed for the entire six-county area, but this study will result in project recommendations for the Sabine and Brazoria regions, only.
1-69	The FIFR-EIS text has been revised as requested.
1-70	The FIFR-EIS text has been revised as requested.
1-71	Op 11 – establish more resilient communities is a broad opportunity that includes ecosystem restoration. Restoring wetlands, barrier islands, etc. are considered measures which could be used to develop alternatives to address opportunities.
1-72	The FIFR-EIS text has been revised as requested.
1-73	Refer to Responses 1-9 and 1-63.
1-74	Sediment management is an inclusive term that includes all measures that facilitate beneficial use of dredged material.
1-75	This paragraph is not intended to include all potential measures. It is a brief summary of the measures that are presented in Appendix A and discussed in Appendix B.

1-76	The reference to the Galveston Bay regional sediment plan has been removed.
1-77	Refer to Response 1-75.
1-78	The results of the screening process are presented in Appendix B. Those that were carried forward for full feasibility analysis are presented and analyzed in this feasibility report. The DIFR-EIS was provided to EPA for review and comment.
1-79	Refer to Response 1-1.
1-80	The term "coastal barrier" is explained in Appendices A and B; it was not addressed by this study.
1-81	As noted in Section 5.3.1, a detailed description of the alternatives and the screening criteria is presented in Appendix B.
1-82	Assume this comment actually refers to Section 5.3.2. Environmental impacts were considered and displayed in Appendix B. This discussion is a simplified explanation of the screening process.
1-83	For a full understanding of the alternatives, refer to Appendix B. The surge barrier referenced for Sabine ER (S8) was specifically included to block surge from extending north of Interstate 10 into the Sabine Island WMA.
1-84	Refer to Response 1-15.
1-85	Refer to Response 1-13.
1-86	The text was revised to state: "No environmental impacts were identified for this element and therefore no mitigation costs were included in the cost estimate."
1-87	Refer to Response 1-86.
1-88	Refer to Response 1-34.
1-89	Planning Objective 3 is presented in Table 4-1: *Maintain and/or restore coastal habitat that contributes to storm surge attenuation where feasible for the 50-year period of analysis.* Even under a scenario with the greatest potential beneficial effects on surge heights, it is estimated that maximum inland attenuation rates would range from 1 foot per 2.1 miles to 1 foot per 3.6 miles of inland penetration with intact marshes. In order to provide a significant reduction in the risk of storm surge impacts, the Recommended Plan includes levee/floodwall system elevations of 15-17 feet NAVD88, far exceeding the small amount of attenuation that might be provided by the existing or restored marsh systems. Therefore, marsh or other wetland restoration alternatives were not practicable alternatives for significantly reducing the risk of storm surge impacts. Refer to Response 1-1 for the reason ER was eliminated from full feasibility analysis in this study.
1-90	The Independent External Peer Review comments and USACE responses are available on the Galveston District website.
1-91	Net benefits were developed in accordance with USACE policy. A mitigation plan has been provided to EPA – refer to Response 1-13.
1-92	This analysis was included in the DIFR-EIS to support selection of a higher level of storm surge risk reduction for the Recommended Plan if it was determined to reasonably maximize net benefits in conformance with USACE policy.
1-93	Refer to response 1-93.
1-94	The FIFR-EIS text has been revised as requested. Because it is generally the lowest height of all action alternatives that were evaluated, the Recommended Plan would result in the narrowest footprint and the fewest environmental impacts, while reasonably maximizing coastal storm risk reduction to the affected communities. The No Action Alternative would provide no coastal storm risk reduction to the vulnerable populations and infrastructure of the study area

1-95	The FIFR-EIS text has been revised as requested.
1-96	Section 7.10 has been revised to commit to conducting Phase I HTRW investigations during the Preconstruction, Engineering and Design (PED) Phase for areas of the Recommended Plan alignments located in or adjacent to industrial areas which may have a higher risk of encountering previously unknown contaminated soils or groundwater during construction. The Recommended Plan does not propose any levee system construction in the vicinity of Star Lake Canal.
1-97	USACE policy utilizes the phrase "fish and wildlife mitigation" to refer to mitigation for impacts to all significant ecological resources, including wetlands, from Federal projects.
1-98	The discussion of avoidance and minimization of environmental impacts is in Section 8 of the Appendix O.
1-99	The final mitigation plan fully compensates for impacts to coastal wetland types "in-kind."
1-100	Refer to Response 1-98.
1-101	Refer to Responses 1-13 and 1-99. Proposed "preservation only" mitigation plans for forested wetlands do provide high ratios of compensation.
1-102	Extensive coordination on the mitigation plan was conducted with EPA and other Federal and state resource agencies. Refer to Response 1-13.
1-103	A screening-level mitigation cost estimate was developed based on the conceptual mitigation to support selection of the TSP. The cost estimate referenced here is the preliminary cost estimate that was developed to select the mitigation plan and support selection of the Recommended Plan. The mitigation cost estimate for the selected mitigation plan was further refined for the final Total Project Cost Estimate and presented in the FIFR-EIS.
1-104	Changes to the mitigation can be made during PED, if coordinated with and approved by Federal and state resource agencies.
1-105	Refer to Response 1-96
1-106	The Wetland Value Assessment is an ecological model.
1-107	Refer to Response 1-34
1-108	Yes, coordination with resource agencies would continue in the PED and Construction phases. If impacts increase, mitigation could be increased. This information is presented in Section 6.1.3.1 of the Main Report.
1-109	Refer to Response 1-96.
1-110	The FIFR-EIS will include the State Water Quality Coordination. When completed and approved by HQUSACE, the FIFR-EIS will be provided to all resource agencies during State and Agency Review.
1-111	Refer to Response 1-98.
1-112	The project sponsor does not determine whether impacts are significant. Refer to Response 1-13.
1-113	Refer to Response 1-13.
1-114	Refer to Response 1-98.
1-115	The first sentence of Section 7.2.1.1 states that gated culverts would be placed everywhere drainages (shown in Figure 7.1) intersect the alignment. Thirteen additional culverts will be incorporated into the design based upon a further analysis that checked for smaller, secondary drainages where culverts would be needed.
1-116	The engineering analysis was conducted with the same degree of conservatism that was assumed for the environmental analysis.

1-117	All gated structures will remain open except during surge events. Given that the entire Recommended Plan alignment is located in the tidally affected coastal zone, use of flapgates gates at any location is unlikely.
1-118	Refer to Response 1-34. Designs would be developed during the PED phase. Coordination with resource agencies would continue in the PED and Construction phases.
1-119	A mitigation monitoring and adaptive management plan has been included in the FIFR-EIS as Attachment P.
1-120	The DOWSMM modeling determined that velocity would increase temporarily with high water flows during large storm or surge events in the vicinity of the structure. Impacts to fishery access has already been addressed with the WVA modeling.
1-121	Refer to Response 1-98.
1-122	Revisions to this effect have been made to Sections 6.1.3.1 and 7.2.1 of the FIFR-EIS.
1-123	Maps showing the locations where forested wetlands are impounded between are presented in Appendix O. The project impacts have been minimized as described in Response 1-98.
1-124	Refer to Response 1-123.
1-125	Refer to Response 1-123.
1-126	Rates of relative sea level change for the Freeport Region are reported in the FIFR-IES (Tables 3-5 through 3-7); the rates for each region were used in the analyses for each region. Salinities in the vicinity of the Freeport CSRM plan are already essentially equivalent to the Gulf of Mexico. RSLC would therefore have no effect on salinity; this is explained in the FIFR-EIS.
1-127	Future rates of land loss calculated by USGS for the WVA modeling of impacts include the effects of subsidence associated with any cause. This has been considered in the analysis presented in Appendix O.
1-128	This area is discussed in detail in Section 7.1.3 of Appendix O. Primary access is provided by Adams Bayou on its southwestern side, although up to an estimated 40 percent of the flows enter the area near its northernmost point through a bridge-culvert under the road leading into the Port of Orange. A large culvert is planned for this location for the Orange CSRM Plan. TPWD reports than an old levee, which bisects the area from northwest to southeast, is degraded in many areas, allowing flows to pass unencumbered to both sides of the levee. TPWD is very familiar with this area and agreed that no impediments to access are known.
1-129	This argument is supported by an analysis presented in Appendix O (Section 8.3.1) of the FIFR-EIS.
1-130	Refer to Response 1-123.
1-131	The referenced sentence has been removed from the FIFR-EIS.
1-132	The FIFR-EIS text has been revised as requested.
1-133	The FIFR-EIS text has been revised as requested.
1-134	The FIFR-EIS text has been revised as requested.
1-135	The FIFR-EIS text has been revised as requested.
1-136	The referenced discussion has been added in other areas where appropriate. This section is limited to fisheries access impacts.
1-137	The FIFR-EIS text has been revised as requested.
1-138	CE/ICA Incremental Analysis is described in Appendix O, Section 8.4.2.
1-139	The FIFR-EIS text has been revised as requested. P

1-140	Refer to Response 1-13. NMFS and USACE have concluded Essential Fish Habitat consultation, and NMFS has concurred that the proposed mitigation appropriately compensates for all EFH impacts.
1-141	Consultation with the USFWS regarding potential impacts of the S2G project to threatened and endangered impacts has been concluded. The Biological Assessment and USFWS correspondence is provided in Appendix J of the FIFR-EIS.
1-142	The referenced sentence has been revised in the FIFR-EIS to reference shoaled sediments. The sediment analysis requested by this comment was performed for and presented in the each of cited public documents. It is not necessary to repeat that information in this report
1-143	Refer to Response 1-96.
1-144	Refer to Response 1-98.
1-145	Section 7.10.2 of the FIFR-EIS has been revised to report the Star Canal NPS site. No CSRM Plan construction activities are proposed for the alignment in the vicinity of this NPL site.
1-146	Section 7.10 has been revised to commit to conducting Phase I HTRW investigations during the Preconstruction, Engineering and Design (PED) Phase for areas of the Recommended Plan alignments located in or adjacent to industrial areas which may have a higher risk of encountering previously unknown contaminated soils or groundwater during construction.
1-147	Refer to Response 1-96.
1-148	Refer to Response 1-146.
1-149	Refer to Response 1-13.
1-150	Refer to Response 1-34.
1-151	The FIFR-EIS text has been revised as requested.
1-152	The FIFR-EIS text has been revised as requested.
1-153	Degradation of the Sabine Region has been acknowledged in prior paragraphs, and this report and this paragraph acknowledge that the proposed project would impact the area.
1-154	Refer to Response 1-13.
1-155	Refer to Response 1-115.
1-156	Refer to Response 1-142.
1-157	Wetland impact acreages have been reviewed for consistency throughout the FIFR-EIS.
1-158	Refer to Response 1-157.
1-159	Refer to Response 1-157.
1-160	Refer to Response 1-13.
1-161	Refer to Response 1-103.
1-162	Refer to Responses 1-13 and 1-98.
1-163	The meaning of the word in question can be found in the dictionary.
1-164	The Jefferson County Ecosystem Restoration Study was initiated in August, 2016. This study will be coordinated with Federal and state agencies in accordance with USACE policy and Galveston District practice. The FIFR-EIS text has been revised as requested.
1-165	The Coastal Texas Coastal Storm Risk Management and Ecosystem Restoration Feasibility Study is underway at this time. This study is being coordinated with Federal and state agencies in accordance with USACE policy and Galveston District practice. The FIFR-EIS text has been revised as requested.

1-166	The FIFR-EIS text has been revised as requested.
1-167	The FIFR-EIS text has been revised as requested.

U.S. Fish and Wildlife Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

David Hoth
Acting Field Supervisor
U.S. Fish and Wildlife Service
Texas Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Mr. Hoth:

Enclosed please find a compact disk of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement . This draft report is provided for your review pursuant to the Fish and Wildlife Coordination Act (16 USC §§661-666c), requiring coordination with USFWS and TPWD to prevent loss of and damage to wildlife resources.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@ usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosure

CF w/o encls:
Tirpak, CWSWG-PM-J

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

ER 15/0508
File 9043.1

October 26, 2015

Janelle Stokes
U. S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX 77553-1229

Dear Ms. Stokes:

The U.S. Department of the Interior has reviewed the Draft Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement. In this regard, we have no comment.

Thank you for the opportunity to review this document.

Sincerely,

Stephen R. Spencer, Ph.D.
Regional Environmental Officer

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

August 26, 2015

Regional Planning and Environmental Center
Unit A

David Hoth
Acting Field Supervisor
U.S. Fish and Wildlife Service
Texas Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Mr. Hoth:

This letter is in regard to a proposed Federal action for a coastal storm risk management project in Orange, Jefferson, and Brazoria Counties, Texas. The proposed action was identified during the Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration Study. The Galveston District is currently preparing a Draft Integrated Feasibility Report and Environmental Impact Statement which recommends improvements to the existing Port Arthur and Vicinity Hurricane Flood Protection Project (HFPP) and the Freeport and Vicinity HFPP, and construction of new Orange-Jefferson Coastal Storm Risk Management project (CSRM). The Tentatively Selected Plan (TSP) proposes: a new CSRM levee/floodwall system for Orange and Northeast Jefferson County (including navigable surge gates on Cow and Adams Bayous), and upgrades to the levee/floodwall systems of the existing Port Arthur and Vicinity and Freeport and Vicinity HFPPs. A description of the TSP, as well as the USACE assessment of effects on listed species as required under Section 7(a)(2) of the ESA, is provided in the attached Biological Assessment (BA).

We have prepared a BA for the proposed project as listed species could potentially occur within the affected area. The TSP would have no effect on the federally-listed piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), whooping crane (*Grus Americana*), West Indian manatee (*Trichechus manatus*), any of the four whale species [fin (*Balaenoptera physalus*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), and sperm (*Physeter macrocephalus*)] or the five sea turtle species [green (*Chelonia midas*), Hawksbill (*Eretmochelys imbricata*), Kemp's ridley (*Lepidochelys kempii*) leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*)] listed as possibly occurring in the area. The TSP would also have no effect on any of the four coral species (lobed star *Orbicella annularis*, mountainous star *Orbicella faveolata*, boulder star *Orbicella franksi* and elkhorn *Acropera palmata*) that occur in offshore waters of the region. We have also concluded that the project would have no effect on candidate species, consisting of wintering Sprague's pipits (*Anthus spragueii*) or freshwater mussels (smooth pimpleback, *Quadrula houstonensis*, and Texas fawnsfoot, *Truncilla macrodon*). Designated Critical Habitat does not exist in the project areas.

We are hereby requesting your written concurrence, pursuant to the informal consultation procedures prescribed in 50 CFR 402.13, that the proposed action would have no effect on federally-listed species or designated critical habitat under your agency's jurisdiction. We appreciate your continued cooperation in allowing us to fulfill our responsibilities under the Endangered Species Act. Should you require any additional information during review of the enclosed BA, please call Ms. Janelle Stokes at 409-766-3039.

Sincerely,

Carolyn Murphy

Carolyn Murphy
Acting Chief, Plan Formulation Section

Enclosure

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
281-286-8282

January 6, 2016

Colonel Richard P. Pannell
Galveston District, Corps of Engineers
Attn: Janelle Stokes
PO Box 1229
Galveston, Texas 77553-1229

Consultation Number: 02ETTXX0-2016-I-0301

Dear Colonel Pannell:

Thank you for your letter of August 26, 2015 regarding the Biological Assessment (BA) prepared for the proposed Sabine Pass to Galveston Coastal Storm Risk Management and Ecosystem Restoration Study located in Orange, Jefferson, Chambers, Galveston, Harris, and Brazoria counties, Texas. The U.S. Army Corps of Engineers (Corps) is requesting concurrence from the U.S. Fish and Wildlife Service (Service) that the proposed project would have "no effect" on the federally listed piping plover (*Charadrius melodus*), Rufa red knot (*Calidris canatus rufa*), West Indian manatee (*Trichechus manatus*), whooping crane (*Grus americana*), five sea turtle species, including; Kemp's ridley sea turtle (*Lepidochelys kempii*), hawksbill sea turtle (*Eretmochyles imbricata*), leatherback sea turtle (*Dermochelys coriacea*), green sea turtle (*Chelonia mydas*), and loggerhead sea turtle (*Caretta caretta*). All of these species have been listed pursuant to the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). The Corps also determined that the project would have "no effect" on several candidate species; two freshwater mussels, the smooth pimpleback (Quadrula houstonensis) and the Texas fawnsfoot (*Truncilla macrodon*), and wintering Sprague's pipet (*Anthus spragueii*). There is no designated critical habitat within the project areas. In addition, all consultation procedures regarding the four whale species listed in your letter are the responsibility of the National Marine Fisheries Service and will not be addressed in this consultation.

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that the actions authorized, funded, or carried out by such agencies do not jeopardize the continued existence of any threatened or endangered species or adversely modify or destroy designated critical habitat of such species. The Service's comments are provided in accordance with the Endangered Species Act, the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) and the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667(e)).

The proposed project was identified during the Coastal Storm Risk Management and Ecosystem Restoration Study. The study was initiated by the Galveston District Corps to address storm risk

problems in the Galveston Region and ecological restoration opportunities for the entire six county study area. The study recommended improvements to the Port Arthur and Vicinity Hurricane Flood Protection Project (HFPP) and the Freeport and Vicinity HFPP, and construction of a new Orange-Jefferson Coastal Storm Risk Management project. The tentatively selected plan would include a new CSRM levee/floodwall system for Orange and North Jefferson County, including navigable surge gates at Cow and Adams Bayous, and upgrades to the existing levee/floodwall systems of the Port Arthur and Vicinity and the Freeport and Vicinity HFPPs.

Based on the information provided in the BA regarding the location of the project and its proximity to suitable habitat, the aforementioned listed species would not be affected by the project actions. Therefore, the Service concurs with the Corps "no effect" determinations. No further endangered species consultation would be required for this project unless: 1) the identified action is subsequently modified in a manner that causes an effect on listed species or designated critical habitat; 2) new information reveals the identified action may affect federally protected species or designated critical habitat in a manner or to an extent not previously considered; or 3) a new species is listed or critical habitat is designated under the Act that may be affected by the identified action. Additional information on the projects potential effects on other Service trust resources and mitigation actions to compensate for lost ecological function will be provided at a later date in the Service's FWCA report.

Thank you for the opportunity to review and provide comments on this project. We appreciate your efforts to conserve these sensitive species. If you have any questions or comments, please contact Donna Anderson at 281-286-8282 (ext. 225).

Sincerely,

David Hoth
Acting Field Supervisor

National Marine Fisheries Service Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

August 26, 2015

Regional Planning and Environmental Center
Unit A

David Bernhart
Assistant Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
Protected Resources Division
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Dear Mr. Bernhart:

This letter is in regard to a proposed Federal action for a coastal storm risk management project in Orange, Jefferson, and Brazoria Counties, Texas. The proposed action was identified during the Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration Study. The Galveston District is currently preparing a Draft Integrated Feasibility Report and Environmental Impact Statement which recommends both improvements to existing and construction of new hurricane flood protection (HFP) systems. The Tentatively Selected Plan (TSP) proposes: a new levee/floodwall system for Orange and Northeast Jefferson County (including navigable surge gates on Cow and Adams Bayous); upgrades to the levee/floodwall systems of the existing Port Arthur and Vicinity HFP project; and upgrades to the levee/floodwall system in the Freeport and Vicinity HFP project. A description of the TSP is provided in the attached Biological Assessment (BA).

We have prepared a BA for the proposed project as listed species could potentially occur within the affected area. The TSP would have no effect on the federally-listed piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), whooping crane (*Grus Americana*), West Indian manatee (*Trichechus manatus*), any of the four whale species [fin (*Balaenoptera physalus*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), and sperm (*Physeter macrocephalus*)] or the five sea turtle species [green (*Chelonia midas*), Hawksbill (*Eretmochelys imbricata*), Kemp's ridley (*Lepidochelys kempii*) leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta*)] listed as possibly occurring in the area. The TSP would also have no effect on any of the four coral species (lobed star *Orbicella annularis*, mountainous star *Orbicella faveolata*, boulder star *Orbicella franksi* and elkhorn *Acropera palmata*) that occur in offshore waters of the region. We have also concluded that the project would have no effect on candidate species, consisting of wintering Sprague's pipits (*Anthus spragueii*) or freshwater mussels (smooth pimpleback, *Quadrula houstonensis*, and Texas fawnsfoot, *Truncilla macrodon*). Designated Critical Habitat does not exist in the project areas.

We are hereby requesting your written concurrence, pursuant to the informal consultation procedures prescribed in 50 CFR 402.13, that the proposed action will have no effect on federally-listed species or designated critical habitat under your agency's jurisdiction. We appreciate your continued cooperation in allowing us to fulfill our responsibilities under the Endangered Species Act. Should you require any additional information during review of the enclosed BA, please call Ms. Janelle Stokes at 409-766-3039.

Sincerely,

Carolyn Murphy

Carolyn Murphy
Acting Chief, Plan Formulation Section

Enclosure

From: Teletha Mincey - NOAA Federal
To: Stokes, Janelle S SWF @SWG
Cc: Kelly Shotts - NOAA Federal; Rachel Sweeney - NOAA Federal
Subject: [EXTERNAL] Sabine Pass to Galveston Bay, Texas, Biological Assessment Coordination
Date: Wednesday, September 09, 2015 8:44:44 AM

Pursuant to section 7(a)(2) of the Endangered Species Act (ESA), the Protected Resources Division (PRD) of NOAA's National Marine Fisheries Service (NMFS) has reviewed your letter dated August 26, 2015, concerning the above-mentioned subject.

USACE concludes that the proposed action will have "no-effect" on listed species or critical habitat designated under the ESA under NMFS's purview. Given this, that concludes ESA Section 7 consultation responsibilities. USACE does not need to seek NMFS's comments or concurrence on their "no-effect" determination(s). It is our policy not to respond to "no effect" determinations.

Thank you.

--

Teletha Mincey
Program Analyst
NOAA Fisheries
Southeast Region
263 13th Ave S
St. Petersburg, FL 33701-5505
(727) 824-5312 - Main Line
(727) 551-5772 - Direct Line
(727) 824-5309 - Fax
Blockedhttp://sero.nmfs.noaa.gov/pr/pr.htm

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 10, 2015

Regional Planning and Environmental Center
Unit A

Heather Young
NOAA National Marine Fisheries Service
Habitat Conservation Division, Southeast Region
4700 Avenue U
Galveston, Texas 77551

Dear Ms. Young:

This letter is in regard to a proposed Federal action developed for the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Study. The Galveston District has prepared a Draft Integrated Feasibility Report and Environmental Impact Statement (DIFR-EIS) which recommends improvements to existing Hurricane Flood Protection Projects (HFPPs) and construction of a new coastal storm risk management (CSRM) system. The Tentatively Selected Plan (TSP) proposes: a new levee/floodwall system for Orange and Northeast Jefferson County (including navigable surge gates on Cow and Adams Bayous), called the Orange-Jefferson CSRM Plan; improvements to the existing levee/floodwall system of the Port Arthur and Vicinity HFPP; and improvements to the existing levee/floodwall system in the Freeport and Vicinity HFPP. Detailed descriptions and maps of these plans are provided in the DIFR-EIS. We would like to coordinate essential fish habitat (EFH) impacts of this project with your agency in accordance with requirements of the Magnuson-Stevens Reauthorization Act of 1996 (MSRA). Information regarding the proposed project and potential EFH impacts are provided below. A compact disk with the DIFR-EIS is enclosed for your review.

We have reviewed the proposed project for impacts to categories of EFH and managed species. The categories of EFH that occur within the study area include estuarine emergent marsh, estuarine submerged aquatic vegetation (SAV), estuarine hard bottom, and estuarine mud/soft bottoms. The study area contains EFH for larval, juvenile and adult brown and white shrimp (*Penaeus aztecus* and *Penaeus setiferus*); juvenile king mackerel (*Scomberomorus cavalla*), vermillion snapper (*Rhomboplites aurorubens*), Warsaw grouper (*Epinephelus nigritus*), and Wenchman snapper (*Pristipomoides aquilonaris)*; juvenile and adult red drum (*Sciaenops ocellatus*), Almaco jack (*Seriola rivoliana*), and gray triggerfish (*Balistes capriscus*); adult gag grouper (*Mycteroperca microlepis*) and gray snapper (*Lutjanus griseus*); larval, juvenile and adult red snapper (*Lutjanus campechanus*), lane snapper (*Lutjanus synagris*), greater amberjack (*Seriola dumerili*), and cobia (*Rachycentron canadum*).

No EFH or managed species impacts are anticipated with construction of improvements to the Port Arthur and Vicinity and Freeport and Vicinity CSRM Plans. For the Port Arthur and

Vicinity CSRM Plan, construction impacts would be confined primarily to the existing project rights-of-way, and work would be conducted from barges in the adjacent waterways. Small areas where additional rights-of-way may be required are located within industrial upland areas. Similarly, construction of the Freeport and Vicinity CSRM Plan would be confined primarily to existing project rights-of-way. A small area of additional right-of-way in the Oyster Creek area would impact an upland area only. Construction of a new surge gate at the mouth of the existing DOW Barge Canal would permanently affect up to 3 acres of soft bottom. There are no other types of EFH in this industrial canal; tidal energy and flushing is low, and the canal provides little benefit to shell or finfish that may enter it. Therefore, impacts on EFH with this loss of soft bottom would be negligible. The displacement of finfish and shrimp species that might enter it during gate construction would be temporary and individuals should move back into these specific areas once the project is completed. Tidal flow around the gate construction zone would be maintained at all times. The potential harm of some individual finfish and shellfish from temporary turbidity-related impacts would be minimal and would not reduce any populations of federally managed species or their prey.

Direct and indirect impacts associated with construction of the Orange-Jefferson CSRM Plan would result in the loss of about 274.4 acres of estuarine emergent marsh over the period of analysis. Marsh acres include water within the marsh and small drainages; some SAV in the estuarine marsh areas would also be lost. This number includes the loss of marsh due to the direct impacts of construction (173.3 acres) and the loss of marsh due to indirect impacts of the new levee system such as impoundment and disruptions in hydrologic flow (101.1 acres). Losses of 86.9 average annual habitat units (AAHUs) and 44 AAHUs, respectively, have been calculated with the Wetlands Value Assessment (WVA) model. Remaining indirect impacts to 2,137 acres would be associated with fisheries access impacts of the proposed Cow and Adams Bayou surge gate structures. All of these impacts are described in detail in Appendix O of the DIFR-EIS.

Construction of the Cow and Adams Bayou surge gates would result in the loss of approximately 11 acres of estuarine soft bottom EFH in the bayous themselves. This is the area estimated for the footings of the gate structures. The structures themselves would provide artificial hard bottom habitat in the same area, increasing the diversity of EFH bottom types in the area. Shellfish such as oyster or rangia would utilize the new vertical hard-bottom habitat provided by the concrete and steel structures, and finfish could utilize the structures as cover. The net long-term loss to EFH bottom habitat from the Cow and Adams gate structures would therefore be negligible. Construction would result in the temporary burial of benthic organisms and temporary increases in water column turbidity in the vicinity of the surge gates. Recovery of benthic macroinvertebrates is expected to be rapid with no long-term effects expected. The displacement of finfish and shrimp species (including estuarine dependent organisms that serve as prey for federally managed species) during surge gate construction would be temporary and individuals should move back into these specific areas once the project is completed. Tidal flow around the gate construction zones would be maintained at all times. Once in place, the Cow and Adam Bayous surge gate structures would constrict flows in these bayous while in their normal open condition. This would result in fisheries access impacts to a total of about 2,137 acres (approximately 1,235 and 902 acres, respectively for Cow and Adams Bayous) of estuarine emergent marsh in the bayou floodplains upstream of the gated structures. A loss of 50.5 AAHUs

as a result of fisheries access impacts over the period of analysis has been calculated with the WVA Model.

All EFH impacts identified for the TSP are associated with the Orange-Jefferson CSRM Plan. A total of approximately 2,411.4 acres of estuarine emergent marsh EFH would be impacted, resulting in a loss of 181.7 AAHUs; 274.4 acres would be lost due to direct and indirect impacts of the new levee system; the functionality of 2,137 acres would be reduced as a result of fisheries access impacts of the Cow and Adams Bayou surge gates. USACE recognizes the need to conserve EFH and its associated fisheries resources. Planning for the alignment of the TSP minimized impacts to the greatest extent possible by locating the new levee/floodwall system as close to the upland-wetland margin as possible. Mitigation would be needed to compensate for remaining unavoidable impacts to 181.7 AAHUs.

Conceptual mitigation plans to compensate for impacts to estuarine emergent marsh are presented in Appendix O of the DIFR-EIS. It is anticipated that mitigation would consist of marsh restoration in the lower Neches River and Old River marsh areas. A final mitigation plan will be developed during preparation of final feasibility report. Direct and indirect impacts will be fully compensated with the restoration of estuarine emergent marsh and shallow water in the amount determined using the WVA model and Cost-Effectiveness-Incremental Cost Analysis (CE/ICA). Selection of potential mitigation sites and modeling of mitigation measures will be conducted in coordination with your agency and others. All impacts will be fully compensated.

We would appreciate your evaluation of the EFH assessment, presented here and in the DIFR-EIS. The public comment period for the DIFR-EIS closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@ usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosure

CF w/o encl:
Tirpak, SWG-PM-J

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

October 26, 2015 F/SER46: HY/RS

Ms. Janelle Stokes
Galveston District
Department of the Army, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Ms. Stokes:

The NOAA's National Marine Fisheries Service Habitat Conservation Division (NMFS HCD) has received the Draft Integrated Feasibility Report and Environmental Impact Statement dated September 2015 for the Sabine Pass to Galveston Bay, Texas (S2G) Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Study. The U.S. Army Corps of Engineers (USACE) Regional Planning and Environmental Center also provided a letter dated September 10, 2015. This letter and the Draft Integrated Feasibility Report and Environmental Impact Statement are intended to formally initiate Essential Fish Habitat (EFH) consultation with the NMFS HCD and include an assessment of the impacts of the proposed tentatively selected plan (TSP) on EFH.

The S2G feasibility study examines CSRM and ER problems and opportunities within six counties of the upper Texas coast (Orange, Jefferson, Chambers, Harris, Galveston, and Brazoria Counties). Due to study costs, complexity, and schedule requirements, the USACE decided to include only a programmatic assessment of potential CSRM projects in the Galveston region (Galveston, Harris, and Chambers Counties) and potential ER projects throughout the six county study area. Future studies will focus on CSRM for the Galveston region and ER opportunities for all six counties. This refocused S2G feasibility study proposes a TSP for the Sabine and Brazoria regions that includes: (1) the Orange-Jefferson CSRM Plan, which is a new levee/floodwall system for Orange and Northeast Jefferson Counties that includes navigable surge gates on Cow and Adams Bayous, (2) improvements to the existing levee/floodwall system of the Port Arthur and Vicinity Hurricane Flood Protection Project, and (3) improvements to the existing levee/floodwall system in the Freeport and Vicinity Hurricane Flood Protection Project.

As described in the Draft Integrated Feasibility Report and Environmental Impact Statement, the TSP would result in adverse impacts to EFH through both direct and indirect impacts associated with construction of the Orange-Jefferson CSRM Plan. These impacts would include the loss of about 274.4 acres of estuarine emergent marsh over the 50 year period of analysis. This number includes the loss of marsh due to the direct impacts of levee and gate construction (173.3 acres) and the loss of marsh due to indirect impacts of the new levee system, such as impoundment and disruptions in hydrologic flow (101.1 acres). Losses of 86.9 average annual habitat units (AAHUs) and 44 AAHUs, respectively, have been calculated with the Wetlands Value Assessment (WVA) model. An additional 2,137 acres of indirect EFH impacts would result

from reduced/altered fisheries access as a result of the proposed Cow and Adams Bayou surge gate structures. A loss of 50.5 AAHUs due to fisheries access impacts over the period of analysis has also been calculated with the WVA Model.

The NMFS HCD believes the USACE has adequately described the majority of the anticipated adverse EFH impacts given the incomplete and preliminary design information currently available at this stage of early feasibility planning. We offer the following comments and recommendations regarding three primary issues: (1) uncertainties of the impacts (direct, indirect, and cumulative) to EFH and federally managed fisheries, (2) incomplete mitigation plans, and (3) identification of Gulf Council managed species with EFH present within the project area.

Uncertainty of Impacts to EFH and Federally Managed Fish Species

A feasibility-level engineering design for the TSP is not complete at this time. In the Executive Summary and in various sections throughout the Draft Integrated Feasibility Report and Environmental Impact Statement, the USACE acknowledges this risk and states the TSP may require revisions and additional subsequent environmental analysis because of technical, policy, and public comments. The EFH assessment sections of the Final Integrated Feasibility Report and Environmental Impact Statement would benefit from a comprehensive list of the assumptions underlying the USACE's analysis of the TSP's proposed direct and indirect effects on EFH.

The operational plans for the gates and water control structures have not been developed. It is NMFS HCD's understanding these operational plans will be developed by the USACE during preliminary engineering design. The current WVA analysis assumes a worst case scenario closure time of five to seven days, every ten to fifteen years based on predicted storm surge return intervals high enough to threaten areas targeted for protection. Therefore, the USACE concluded closure of the surge gates, sluice gates, and culverts would cause only minor and temporary impacts to fish access and coastal marsh, requiring no additional mitigation to offset operational impacts. The NMFS HCD requests the EFH assessment sections of the Final Integrated Feasibility Report and Environmental Impact Statement clearly articulate the USACE's anticipated closure criteria for all proposed structures within the Orange-Jefferson CSRM Plan. The EFH assessment should also clearly state that if more frequent closure of these structures occur as a result of unanticipated sea level rise or by requests of the local sponsor, EFH impacts and mitigation requirements will need to be reassessed.

Mitigation

The Draft Integrated Feasibility Report and Environmental Impact Statement currently does not include a complete EFH mitigation plan. Draft Appendix O includes a description of potential mitigation evaluation areas within the lower Neches River and Old River Cove marsh complexes. The USACE's draft EFH assessment states direct and indirect EFH impacts will be fully compensated for with the restoration of emergent marsh and shallow water habitat in an amount determined using the WVA model and cost-effective incremental cost analysis. It is anticipated mitigation would include in-kind marsh restoration within the lower Neches River

and Old River Cove areas, possibly through utilization of sediments from regular maintenance dredging of the Sabine-Neches Waterway.

The NMFS HCD is supportive of this mitigation concept and these two potential mitigation areas. We strongly recommend the Final Integrated Feasibility Report and Environmental Impact Statement include a complete detailed mitigation plan to compensate for all direct and indirect habitat impacts. This plan should be developed in close coordination with the NMFS HCD and the other state and federal natural resource agencies prior to release of the Final Integrated Feasibility Report and Environmental Impact Statement and should include specifics on all 12 required components of a complete mitigation plan consistent with the USACE's 2008 final mitigation rule. Of the twelve components, we specifically request the mitigation plan in the Final Integrated Feasibility Report and Environmental Impact Statement include detailed work plans and locations, mitigation performance standards, monitoring requirements, long-term management plans, site protection instruments and financial assurances committed to by the USACE for all mitigation sites.

Timely implementation of mitigation is recommended, because potential delays from the time levee impacts occur until functional mitigation is attained could cause substantial temporal loss of EFH functions. The Final Integrated Feasibility Report and Environmental Impact Statement should specify the mitigation plan will be implemented concurrently with project construction. The NMFS HCD recommends initial construction of the mitigation for each leave reach be completed (intertidal tidal elevation established and mitigation areas planted) no later than 18 months from the initiation of levee construction for that reach.

Identification of Gulf Council Managed Species with EFH Present Within the Project Area

The USACE's EFH consultation initiation letter dated September 10, 2015 identifies categories of EFH occurring within the study area to include estuarine emergent marsh, submerged aquatic vegetation (SAV), hard bottom, mud/soft bottoms. We are not aware of any estuarine hard bottom habitat within the project area. Therefore, we recommend hard bottom be removed from the list of EFH categories affected by the project. The USACE's letter also lists federally managed fish species and their life stages with EFH present in the study area. This list includes several species of reef fish not commonly found in estuarine marsh, SAV, or soft mud bottom habitats in this ecoregion. To assist the USACE in more accurately identifying EFH and federally managed fish species commonly found in the project area, we have provided a table as an enclosure to this letter.

Section 305(b)(4)(A) of the Magnuson-Stevens Act requires NMFS to provide EFH conservation recommendations for any federal action or permit which may result in adverse impacts to EFH. Therefore, the NMFS HCD recommends the following to ensure the conservation of EFH and associated marine fishery resources:

EFH Conservation Recommendations

1. A complete mitigation plan to compensate for direct and indirect EFH impacts should be developed in consultation with the NMFS HCD and other state and federal natural resource agencies and presented in the Final Integrated Feasibility Report and

Environmental Impact Statement. This plan should include specifics on all 12 required components of a complete mitigation plan consistent with the USACE's 2008 final mitigation rule.

2. To minimize temporal EFH losses, the Final Integrated Feasibility Report and Environmental Impact Statement should specify initial construction of the mitigation for each leave reach will be completed (intertidal tidal elevations established and mitigation areas planted) no later than 18 months from the initiation of levee construction for that reach.

3. If the final surge gate designs reduce the cross sections of Adams or Cow Bayous more than 50 percent, additional modeling and environmental analysis should be performed in consultation with NMFS HCD to characterize potential hydrologic and fish passage impacts and determine potential additional EFH mitigation requirements.

4. Flood protection surge gates, sluice gates, culverts, and any other water control structures should remain completely open except during storm events. Operational, maintenance, and management plans for structures should be developed in coordination with NMFS HCD and the other state and federal resource agencies.

5. If gates or water control structures are to be closed more frequently than the assumed worst case scenario (once every ten to fifteen years for a duration not to exceed two weeks), then additional hydrologic and fish passage modeling may be warranted to more quantitatively assess EFH impacts, and additional compensatory EFH mitigation may be necessary.

6. Fill material used during the construction of the levees and its associated features should come from approved upland borrow sources.

Please be advised that Section 305(b)(4)(B) of the Magnuson-Stevens Act and NMFS's implementing regulation at 50 CFR Section 600.920(k) require the USACE to provide a written response to all EFH recommendations within 30 days of receipt. The USACE's response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If this response is inconsistent with our EFH conservation recommendations, the USACE must provide a substantive discussion justifying the reasons for not implementing our recommendations. If it is not possible to provide a substantive response within 30 days, the USACE should provide an interim response to NMFS, to be followed by the detailed response at least 10 days prior to final approval of the action.

We appreciate the USACE's extensive coordination while performing the WVA used to quantify the TSP's proposed EFH impacts during preparation of the Draft Integrated Feasibility Report and Environmental Impact Statement. Continued coordination with the NMFS HCD will be necessary during preparation of the Final Integrated Feasibility Report and Environmental Impact Statement, preliminary engineering design, development of operational plan, and implementation to satisfy the consultation requirements of the Magnuson-Stevens Act and the

Fish and Wildlife Coordination Act. Please continue to work with Ms. Heather Young of our Galveston Facility at (409) 766-3699.

Sincerely,

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

Enclosure

cc:
EPA, Dallas, Teague
FWS, Clear Lake, Anderson, Hoth
TPWD, Dickinson, Denton, Morgan
USDA, Alford
F/SER4, Dale, Rolfes
PPI, Krasna

Enclosure 1. Estuarine EFH for Gulf Council Managed Species Present Within S2G Project Area (● indicates habitat type designated as EFH for species' life stage)

Estuarine Emergent Marsh						
Species Common Name	Eggs	Larvae	Post Larvae	Early Juvenile	Late Juvenile	Adult
Red Drum			●	●		●
Gray Snapper						●
Brown Shrimp				●		
White Shrimp				●		
Estuarine Submerged Aquatic Vegetation						
Species Common Name	Eggs	Larvae	Post Larvae	Early Juvenile	Late Juvenile	Adult
Red Drum		●	●		●	●
Lane Snapper			●	●	●	
Brown Shrimp				●		
Estuarine Mud/Soft Bottom						
Species Common Name	Eggs	Larvae	Post Larvae	Early Juvenile	Late Juvenile	Adult
Red Drum		●	●	●		●
Gray Snapper						●
Lane Snapper				●	●	
Brown Shrimp				●		
White Shrimp				●		

Regional Planning and Environmental Center

Ms. Virginia M. Fay
Assistant Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Reference: F/SER46: HY/RS

Dear Ms. Fay,

Reference is made to your letter dated October 26, 2015 providing comments on the Draft Integrated Feasibility Report and Environmental Impact Assessment (DIFR-EIS) for the Sabine Pass to Galveston Bay, Texas (S2G) Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Study. We have reviewed your comments and Essential Fish Habitat (EFH) Conservation Recommendations and offer the following response.

The Galveston District, Corps of Engineers (USACE) is currently reviewing all resource agency, technical, policy and public reviews on the Tentatively Selected Plan (TSP) presented in the DIFR-EIS. The TSP is being revised in response to these comments, and it is probable that the impacts analysis will need to be revised to reflect changes to the direct impacts from the Orange-Jefferson CSRM Plan component.

USACE plans to revise the impact analysis in coordination with your agency and others. The revised construction right-of-way alignment, located at the upland//floodplain transition, will avoid and minimize impacts to the greatest extent possible. In some areas, however, this will not be possible because a sinuous alignment would increase storm surge impacts by focusing and increasing the height of the surge. In others, the alignment must avoid existing infrastructure, such as pipeline corridors, industrial facilities, and existing residential or commercial developments.

In order to ensure the conservation of EFH and associated marine fishery resources, USACE concurs with the conservation recommendations to the degree that is possible at this time, as explained below.

Conservation Recommendations

1) A complete mitigation plan to compensate for direct and indirect EFH impacts should be developed in consultation with the National Marine Fisheries Service (NMFS) Habitat Conservation Division (HCD) and other state and federal natural resource agencies and presented in the Final Integrated Feasibility Report and Environmental Impact Statement

(FIFR-EIS). This plan should include specifics on all 12 required components of a complete mitigation plan consistent with the USACE's 2008 final mitigation rule.

USACE response: A detailed mitigation plan will be developed in consultation with your agency and others that compensates for direct and indirect EFH impacts. This plan will be presented in the FIFR-EIS. The mitigation plan will conform to requirements of Section 906 of the Water Resources Development Act (WRDA) of 1986 (33 USC 2283), as amended by Section 2036 of WRDA 2007 and Section 1040 of the Water Resources Reform and Development Act of 2014, the Council on Environmental Quality's National Environmental Policy Act regulations (40 CFR Sections 1502.14(f), 1502.16(h), and 1508.20), and Section C-3 of Engineer Regulation 1105-2-100. The S2G project would be a Congressionally-authorized Federal project and thus, the USACE 2008 final mitigation rule developed for the USACE Regulatory program referenced in your recommendation would not apply.

While your agency has indicated support for the conceptual mitigation plan and proposed mitigation locations identified in the DIFR-EIS, more specific details on measures to avoid, mitigate, or offset the adverse impacts of this project cannot be identified at this time. The mitigation plan will be developed and coordinated with your office prior to completion of the FIFR-EIS. USACE will ensure that damages to all significant ecological resources have been avoided and minimized to the extent practicable, and that any remaining unavoidable damages have been compensated to the extent possible. The mitigation plan will include 1) a detailed mitigation plan and location(s) of mitigation areas; 2) mitigation performance standards and criteria; 3) a monitoring and adaptive management plan to determine and assure success of the mitigation efforts; and 4) identification of non-Federal implementation sponsors and their responsibilities for monitoring, acquisition and management of the mitigation areas.

2) To minimize temporal EFH losses, the FIFR-EIS should specify initial construction of the mitigation for each leave reach will be completed (intertidal tidal elevations established and mitigation areas planted) no later than 18 months from the initiation of levee construction for that reach.

USACE response: Generally, USACE regulations require that the construction of mitigation measures be completed concurrent with or prior to construction of other project features. The construction contract schedule will be developed during the final feasibility analysis. Timing of the mitigation construction contracts will be evaluated at that time to determine if it will be possible to complete dredged material placement, settlement, and planting within the stipulated timeframe.

3) If the final surge gate designs reduce the cross sections of Adams or Cow Bayous more than 50 percent, additional modeling and environmental analysis should be performed in consultation with NMFS HCD to characterize potential hydrologic and fish passage impacts and determine potential additional EFH mitigation requirements.

USACE response: Concur. If the final surge gate designs reduce the cross sections of Adams or Cow Bayous more than 50 percent, additional modeling and environmental analysis will be performed in consultation with NMFS HCD to characterize potential hydrologic and fish passage impacts and determine potential additional EFH mitigation requirements.

4) Flood protection surge gates, sluice gates, culverts, and any other water control structures should remain completely open except during storm events. Operational, maintenance, and management plans for structures should be developed in coordination with NMFS HCD and the other state and Federal resource agencies.

USACE response: Concur. Operations Plans will be developed after project authorization during the Pre-construction, Engineering and Design (PED) phase. The Operations Plans will be developed in coordination with NMFS HCD and the other state and federal resource agencies.

5) If gates or water control structures are to be closed more frequently than the assumed worst case scenario (once every ten to fifteen years for a duration not to exceed two weeks), then additional hydrologic and fish passage modeling may be warranted to more quantitatively assess EFH impacts, and additional compensatory EFH mitigation may be necessary.

USACE response: Concur. At this time, it is assumed that gates or water control structures would not be closed more frequently than the assumed worst case scenario (once every ten to fifteen years for a duration not to exceed two weeks). The details and schedule of these closures will be determined during preparation of the Operations Plan. The Operation Plan will be developed in coordination with NMFS HCD and the other state and federal resource agencies.

6) Fill material used during the construction of the levees and its associated features should come from approved upland borrow sources.

USACE response: Concur. At this time, it is assumed that fill material for construction of the levee system and associated features will be obtained from upland, commercial borrow sources. If plans change to include identification and excavation of new borrow areas, consultation with NMFS HCD and the other state and Federal resource agencies would be initiated, and a separate NEPA review document would be prepared.

Since it is not possible to provide a complete response to your recommended conservation measures at this time, please consider this an interim response, which will be followed by a detailed final response "at least 10 days prior to final approval of the action." According to the current study schedule, the FIFR-EIS will be completed in September 2016. If you have any additional questions or concerns, please contact Janelle Stokes at 409/766-3039 or at janelle.s.stokes@usace.army.mil for assistance.

Sincerely,

Carolyn Murphy
Chief, Unit A, NEPA & Cultural Resources Section

CF:

Ms. Heather Young
National Marine Fisheries Service
Habitat Conservation Division
4700 Avenue U, Bldg 307
Galveston, Texas 77551

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

AUG 05 2016

Regional Planning and Environmental Center
Environmental Compliance Branch, Coastal Section

Ms. Virginia M. Fay
Assistant Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Reference: F/SER46: HY/RS

Dear Ms. Fay,

Reference is made to your letter dated October 26, 2015 formally initiating Essential Fish Habitat (EFH) consultation and providing comments on the Draft Integrated Feasibility Report and Environmental Impact Assessment (DIFR-EIS) for the Sabine Pass to Galveston Bay, Texas (S2G) Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Study. The US Army Corps of Engineers, Galveston District (District) reviewed your comments and EFH Conservation Recommendations and provided an interim response dated November 24, 2015, noting that revisions to the impact analysis might be necessary as the final Recommended Plan was developed.

The District is in the process of preparing a Final Integrated Feasibility Report – Environmental Impact Statement (FIFR-EIS) for the study. During the final feasibility phase, revisions were made to the Tentatively Selected Plan (TSP) which resulted in a significant reduction in wetland impacts associated with the new levee system proposed for Orange County. The Recommended Plan now consists only of the Orange 3 CSRM Plan. The Beaumont A and the Jefferson Main elements are not included in the Recommended Plan. One short levee reach (approximately 1,900 feet) in the Jefferson Main area is still recommended, but it can now be combined with the Port Arthur CSRM Plan since it is located within the jurisdiction of the non-Federal sponsor for the existing Port Arthur and Vicinity Hurricane Flood Protection (HFP) project. The locations of these features and a summary of the Recommended Plan are presented in the preliminary final Wetlands Value Assessment (WVA) Modeling Report (Appendix O of FIFR-EIS) which has been provided to your agency as part of our ongoing resource agency coordination of this study.

Revisions have also been made to proposed Port Arthur and Freeport CSRM elements of the Recommended Plan. No wetland impacts have been identified for proposed improvements of either plan, as modifications would be constructed largely within the existing project rights-of-way. The final construction and permanent rights-of-way for both elements were coordinated with your agency under separate cover.

The Recommended Orange CSRM Plan is generally the same plan referenced as Orange 3 in the DIFR-EIS. A final elevation of about 15-17 feet NAVD88 is proposed for the Recommended Plan's levee system. The length of the system remains approximately 27 miles in total, the same length as the TSP. The overall percentage of floodwalls has increased from about 20 percent of the overall system to about 40 percent. This was necessary to avoid impacts to residences and pipelines, and to minimize impacts to wetlands. The alignment has been relocated in several short segments, but overall remains similar to that presented in the DIFR-EIS.

Direct wetland impacts modeled for the TSP assumed a conservatively wide construction right-of-way which would have resulted in the loss of about 274.4 acres of estuarine emergent marsh, and indirect, functional fisheries access impacts to an additional 2,137 acres of estuarine marsh. The final construction and permanent rights-of-way for the Recommended Plan levee system are much narrower in most areas, resulting in a significant reduction in direct impacts. Direct and indirect impacts would result in the loss of about 203.0 acres of estuarine emergent marsh over the 50-year period of analysis. This includes the loss of marsh due to direct impacts of levee and surge gate construction (105.3 acres), and the loss of marsh due to indirect impacts of the new levee system, such as impoundment and disruptions in hydrologic flow (97.7 acres). An additional 2,137 acres of indirect EFH impacts would result from reduced or altered fisheries access as a result of the proposed Cow and Adam Bayou surge gate structures. These indirect, functional impacts are the same as those described in the DIFR-EIS.

The WVA modeling was revised to evaluate the Recommended Plan's direct and indirect impacts, which were determined to total a loss of -186.0 AAHUs over the period of analysis. A comprehensive list of assumptions underlying our analysis of the Recommended Plan's direct and indirect effects on EFH will be provided in the FIFR-EIS. These assumptions include:

- Impact assessment is dependent upon the exact location of the levee system features; changes in the footprint of the levee system, or identification of new access routes/work areas/system features during the PED and Construction Phases could increase project impacts and trigger additional agency consultation.
- Fill material for levee system construction is assumed to come from approved commercial borrow sources.
- Assessment of indirect EFH fisheries access impacts assumed that the proposed surge gates in Cow and Adams Bayous would constrict flow in the waterways by no more than 50 percent.
- Construction of culverts and the Cow and Adams Bayou surge gates would follow NMFS 2008 Fisheries Friendly Design and Operation Considerations for Hurricane Flood Protection Water Control Structures (provided by the Baton Rouge field office) to the greatest extent practicable.
- Construction of mitigation areas is assumed to start concurrently with new levee system construction.

- The Operation Plan for the new Orange system would require that culverts/gates remain open during normal operations, closing for no longer than two weeks at a time during surge and maintenance events.
- Coordination with resource agencies would continue through the PED, Construction and Operations Phases to ensure appropriate consideration of project changes, implementation of mitigation, and completion of the monitoring/adaptive management plan.

A detailed mitigation plan was developed in consultation with your resource agency that compensates for all impacts that could not be avoided or minimized by Recommended Plan. The mitigation plan would restore 452.8 acres of emergent marsh, providing 194.2 AAHUs to fully compensate for losses of -143.3 AAHUs resulting from EFH impacts. This plan was developed in coordination with resource agencies; details of the plan are included in the preliminary final WVA Modeling Report provided under separate cover.

The Recommended Plan's impact analysis and mitigation plan will be fully described in the FIFR-EIS. In preparing this document, the District has considered, and incorporated additional information as needed to respond to the six Conservation Recommendations provided by your agency's letter dated October 26, 2015. USACE fully concurs with the Conservation Recommendations with the exception of some aspects of Recommendations 2 and 5, as explained fully in the enclosure.

The District is moving forward with preparation of the FIFR-EIS, which is currently scheduled for release for State and Agency Review in May 2017. We would like to conclude EFH consultation prior to HQUSACE review which is scheduled for the January – April 2017 timeframe. We are available at any time for discussion or to provide additional information as needed. If you have any questions or concerns, please contact Janelle Stokes at 409/766-3039 or at janelle.s.stokes@usace.army.mil for assistance.

Sincerely,

Kelly Burks-Copes
Acting Chief, Environmental Compliance Branch
Coastal Section

CF with encl:
Mr. Rusty Swafford
National Marine Fisheries Service
Habitat Conservation Division
4700 Avenue U, Bldg 307
Galveston, Texas 77551

USACE-Galveston District Responses
To National Marine Fisheries Service Recommendations dated October 26, 2015.

In preparing the Final Integrated Feasibility Report and Environmental Impact Statement (FIFR-EIS) for the Sabine Pass to Galveston Bay Feasibility Study, Galveston District has considered and incorporated additional information as needed to respond to the six Conservation Recommendations provided by your agency's letter dated October 26, 2015. USACE fully concurs with the conservation recommendations with the exception of two (Recommendations 2 and 5), as explained further below.

Conservation Recommendations:

1) A complete mitigation plan to compensate for direct and indirect EFH impacts should be developed in consultation with the National Marine Fisheries Service (NMFS) Habitat Conservation Division (HCD) and other state and federal natural resource agencies and presented in the Final Integrated Feasibility Report and Environmental Impact Statement (FIFR-EIS). This plan should include specifics on all 12 required components of a complete mitigation plan consistent with the USACE's 2008 final mitigation rule.

USACE response: A detailed mitigation plan has been developed in consultation with your agency and others that compensates for all direct and indirect EFH impacts. The preliminary final Appendix O (Wetlands Value Assessment Modeling Report) and Appendix P (Mitigation Monitoring and Adaptive Management Plan) have been coordinated with your agency under separate cover. The mitigation plan conforms to requirements of Section 906 of the Water Resources Development Act (WRDA) of 1986 (33 USC 2283), as amended by Section 2036 of WRDA 2007 and Section 1040 of the Water Resources Reform and Development Act of 2014, the Council on Environmental Quality's National Environmental Policy Act regulations (40 CFR Sections 1502.14(f), 1502.16(h), and 1508.20), and Section C-3 of Engineer Regulation 1105-2-100.

USACE has determined that Civil Works guidance on mitigation planning is consistent with the standards and policies of the Corps Regulatory Program for wetlands mitigation, including USACE's 2008 Final Mitigation Rule. Specifically, USACE guidance for Civil Works projects requires that any report submitted to Congress for authorization not select a project alternative unless the report contains a specific plan to mitigate fish and wildlife losses, compensating for lost non-negligible resources through in-kind mitigation to the extent incrementally justified. The plan detailed in Appendices O and P includes: 1) a detailed mitigation plan and locations of proposed mitigation areas; 2) mitigation performance standards and criteria; 3) a monitoring and adaptive management plan to determine and assure success of the mitigation efforts; and 4) identification of non-Federal implementation sponsors and their responsibilities for monitoring, acquisition and management of the mitigation areas.

2) To minimize temporal EFH losses, the FIFR-EIS should specify initial construction of the mitigation for each leave reach will be completed (intertidal tidal elevations established and mitigation areas planted) no later than 18 months from the initiation of levee construction for that reach.

USACE response: Due the scale of the mitigation features and use of dredged material from the adjacent Sabine-Neches Waterway (SNWW), it would not be possible to establish tidal elevations and plant wetland vegetation within 18 months of the initiation of levee construction. Four marsh mitigation areas are proposed that would restore approximately 452.8 acres of emergent marsh, shallow ponds and channels using shoaled material from the SNWW. Construction of the mitigation areas would begin as soon as possible after levee system construction is initiated. Construction would need to proceed on several areas concurrently because it is estimated that the total construction period for each area, from initiation through establishment of marsh vegetation and removal of invasive species would be 8 years. Initial construction of each area is estimated to take 2 years; settlement and consolidation of the material would take up to 3 years; and channels and ponds would be created in within 4-5 years of beginning construction. Marsh vegetation would be planted in years six and seven, and invasive and nuisance vegetation would be removed the year following vegetation plantings. These timing assumptions were developed in consultation with resource agencies during WVA modeling of the mitigation areas.

3) If the final surge gate designs reduce the cross sections of Adams or Cow Bayous more than 50 percent, additional modeling and environmental analysis should be performed in consultation with NMFS HCD to characterize potential hydrologic and fish passage impacts and determine potential additional EFH mitigation requirements.

USACE response: If the final surge gate designs reduce the cross sections of Adams or Cow Bayous more than 50 percent, additional modeling and environmental analysis would be performed in consultation with NMFS HCD to characterize potential hydrologic and fish passage impacts and determine potential additional EFH mitigation requirements. The final design of these gates would be developed during the Pre-Construction and Design Phase (PED).

4) Flood protection surge gates, sluice gates, culverts, and any other water control structures should remain completely open except during storm events. Operational, maintenance, and management plans for structures should be developed in coordination with NMFS HCD and the other state and Federal resource agencies.

USACE response: The Operation Plan would be developed after project authorization during the PED phase, in coordination with NMFS HCD and the other state and federal resource agencies. It is intended that the culverts and gates would remain completely open except during storm events and maintenance activities.

5) If gates or water control structures are to be closed more frequently than the assumed worst case scenario (once every ten to fifteen years for a duration not to exceed two weeks), then additional hydrologic and fish passage modeling may be warranted to more quantitatively assess EFH impacts, and additional compensatory EFH mitigation may be necessary.

USACE response: At this time, it is assumed that the return interval for storm surges high enough to threaten the project area would be 10 to 15 years. Gates or water control structures would need to be closed for large storm events, even if the storms occur more frequently than this predicted return period. The operating plan for the gates has not yet been developed, but an estimated closure time (one week for each storm event closure or up to two weeks for periodic maintenance) would result in only minor and temporary impacts to fisheries access. The details and schedule of these

closures would be determined during preparation of the Operation Plan. The Operation Plan would be developed in coordination with NMFS HCD and the other state and federal resource agencies.

6) Fill material used during the construction of the levees and its associated features should come from approved upland borrow sources.

USACE response: At this time, it is assumed that fill material for construction of the levee system and associated features would be obtained from approved upland, commercial borrow sources. If plans change to include identification and excavation of new borrow areas, consultation with NMFS HCD and the other state and Federal resource agencies would be initiated, and a separate NEPA review document would be prepared if required.

August 10, 2016 F/SER46: AC/RS

Colonel Lars N. Zetterstrom
District Engineer, Galveston District
Department of the Army, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Colonel Zetterstrom:

The NOAA's National Marine Fisheries Service Habitat Conservation Division (NMFS HCD) has reviewed the August 5, 2016 USACE response to Essential Fish Habitat Conservation Recommendations (EFH CRs) for the Sabine Pass to Galveston Bay, Texas (S2G) Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Study. This response letter addresses the EFH CRs submitted by NMFS HCD on October 26, 2015 in reference to the Draft Integrated Feasibility Report and Environmental Impact Statement dated September 2015. We consider our EFH CRs satisfactorily addressed and no further EFH consultation is required. The NMFS HCD looks forward to working with the USACE as the project further develops during the Preliminary Engineering and Design phase.

If we may be of further assistance, please contact Mr. Aaron Chastain of our Galveston Facility at (409) 766-3699.

Sincerely,

Virginia M. Fay

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

Natural Resource Conservation Service Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 10, 2015

Regional Planning and Environmental Center
Unit A

Salvador Salinas
State Conservationist
Natural Resources Conservation Service
101 S. Main
Temple, Texas 76501

Dear Mr. Salinas:

This letter is in regard to a proposed Federal action developed for the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Study. The Galveston District has prepared a Draft Integrated Feasibility Report and Environmental Impact Statement (DIFR-EIS) which recommends improvements to existing Hurricane Flood Protection Projects (HFPPs) and construction of a new coastal storm risk management (CSRM) system. The Tentatively Selected Plan (TSP) proposes: a new levee/floodwall system for Orange and Northeast Jefferson County, Texas called the Orange-Jefferson CSRM Plan; improvements to the existing levee/floodwall system of the Port Arthur and Vicinity HFPP in Jefferson County, Texas, called the Port Arthur and Vicinity CSRM Plan; and improvements to the existing levee/floodwall system in the Freeport and Vicinity HFPP in Brazoria County, Texas, called the Freeport and Vicinity CSRM Plan. Detailed descriptions and maps of the TSP are provided in the DIFR-EIS; a compact disk copy of the DIFR-EIS is enclosed.

We would like to coordinate potential prime farmland impacts of the proposed new Orange-Jefferson CSRM Plan in accordance with the Farmland Protection Policy Act. The Port Arthur and Vicinity and Freeport and Vicinity CSRM Plans are located in urban areas and would result in no farmland impacts. However, the TSP alignment of the Orange-Jefferson CSRM Plan contains soils units mapped as prime farmland by the Natural Resource Conservation Service (NRCS) Web Soil Survey. Segments of this proposed levee corridor in Orange and Jefferson Counties, Texas, that are so designated as prime farmland, are shown on the maps provided as Enclosures 1 and 2. The total project area is too large to allow generation of a custom soil resource report using the NRCS web-based system.

We have completed Form CPA 106 for the corridor segments in Orange and Jefferson Counties; one form for each county is provided as Enclosures 3 and 4, respectively. Approximately 380 acres of the alignment in Orange County are currently classified as prime farmland by the 2015 NRCS Web Soil Survey. Recent aerial photographs of the area were reviewed to determine the current status of mapped units, and more than half were found to be developed or in use as residential backyards, dredged material placement areas, and pipeline rights-of-way. Approximately 160 acres of the prime farmland acres remain undeveloped and would be converted to a non-agricultural use. This represents about 0.3 percent of the total "land in farms" reported by the Orange County 2012 agriculture census. The undeveloped prime farmland areas that would be impacted are fragmented, surrounded by development, and not

currently used for agriculture. Almost all of the lands north of the alignment are developed urban, suburban, and industrial areas. Almost all of the lands south of the alignment are bottomland wetlands, which are not farmed; other areas are industrial cooling ponds or placement areas. The westernmost 2.3 miles of the alignment extends inland away from the upland/wetland margin, with a few tracts south of the alignment which appear to be used for pasture. Only one small area of the construction right-of-way itself (about 6 acres in size) appears to have been farmed recently; levees for rice farming are present in that area. USACE evaluation of the prime farmland in the Orange County project area in Part VI "Corridor Assessment" of Form CPA 106 yielded a score of 20 points.

Approximately 113 acres of the alignment in Jefferson County are currently classified as prime farmland by the 2015 NRCS Web Soil Survey. Recent aerial photographs of the area were reviewed to determine the current status of mapped units, all but about 18 acres are currently developed and thus would be exempt from consideration. This represents about 0.005 percent of the total "land in farms" reported by the Jefferson County 2012 agriculture census. On the north, the alignment would be bordered primarily by the Neches River, but industrial ponds or dredged material placement areas occur in some areas. The vast majority of the area south of the levee system is dense urban and industrial development. None of the area within or adjacent to the alignment appears to be used for crop agriculture; use as pasture is possible in a few small areas. USACE evaluation of the prime farmland in the Jefferson County project area in Part VI "Corridor Assessment" of Form CPA 106 yielded a score of 2 points.

The proposed alignment in both counties has been designed to follow the upland/wetland margin to the greatest extent possible. Construction of the Orange-Jefferson CSRM Plan would not make areas outside of the alignment unfarmable; interior drainage patterns would be maintained at future without-project conditions and ready access across the levee system would be maintained. Any areas compatible with agricultural use that occur in the vicinity of the proposed alignment would remain fully compatible with agricultural use after project construction. Impacts on prime and otherwise important farmlands have been minimized to the greatest extent practicable.

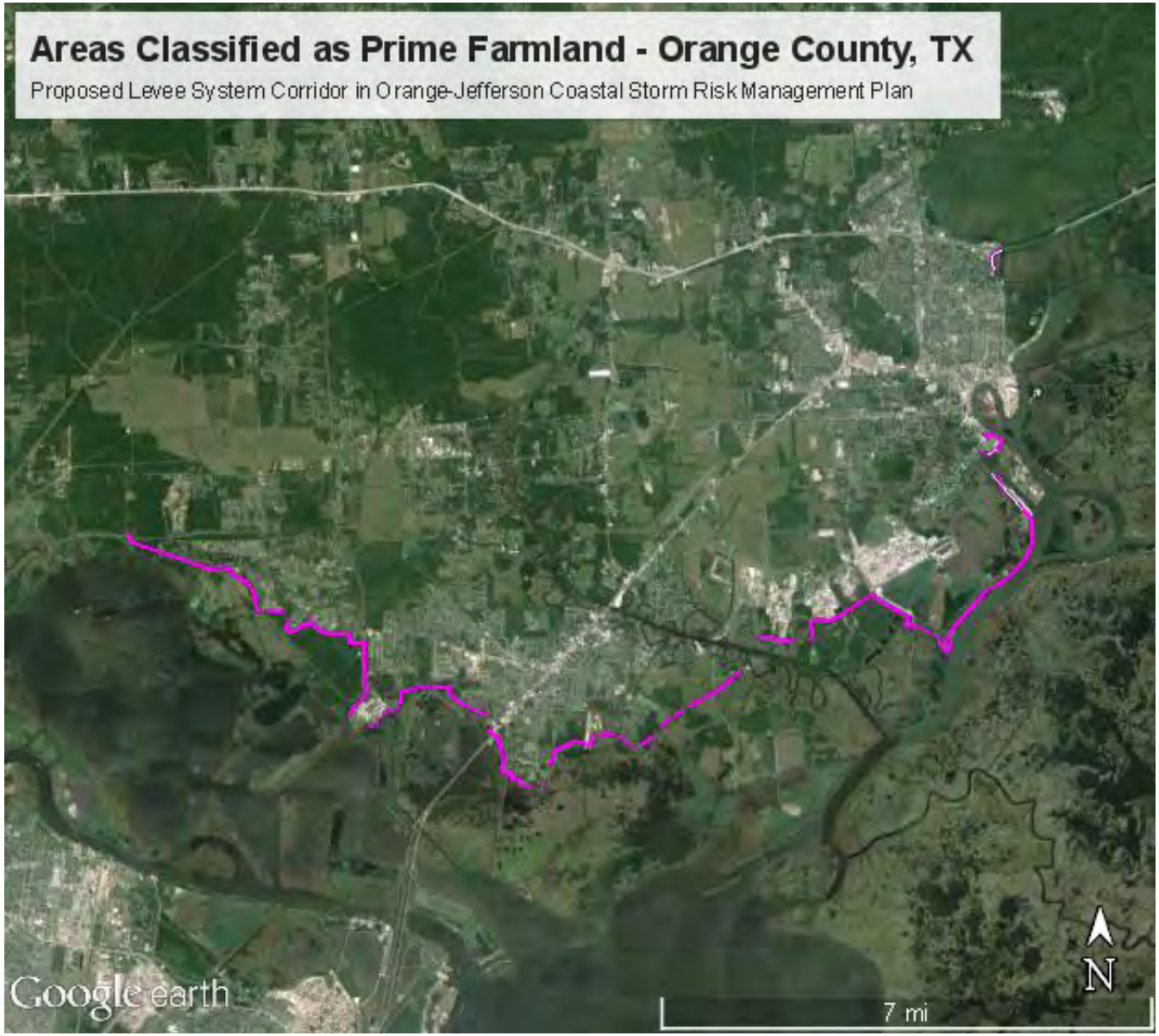
We request your evaluation of the Orange-Jefferson CSRM's effect on prime farmland based on the information presented here and in the DIFR-EIS. Should you require any additional information during this review, please call Ms. Janelle Stokes at 409-766-3039.

Sincerely,

Carolyn Murphy
Acting Chief, Plan Formulation Section

Enclosures

CF w/o encls:
Tirpak, CESWG-PM-J


Areas Classified as Prime Farmland - Orange County, TX
Proposed Levee System Corridor in Orange-Jefferson Coastal Storm Risk Management Plan
Google earth
7 mi
N

Enclosure 1


Areas Classified as Prime Farmland - Jefferson County, TX
Proposed Levee System Corridor in Orange-Jefferson Coastal Storm Risk Management Plan
Google earth
3 mi
N

Enclosure 2

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **9/10/15**	4. Sheet 1 of **1**
1. Name of Project **Sabine Pass to Galveston Bay, Texas**	5. Federal Agency Involved **US Army Corps of Engineers**	
2. Type of Project **Coastal Storm Risk Management Levee System**	6. County and State **Orange, Texas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment ____			
	Corridor A	**Corridor B**	**Corridor C**	**Corridor D**
A. Total Acres To Be Converted Directly	**160**			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	**0**			
C. Total Acres In Corridor	**160**			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	**160**			
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — **Maximum Points**				
1. Area in Nonurban Use — 15	**7**			
2. Perimeter in Nonurban Use — 10	**5**			
3. Percent Of Corridor Being Farmed — 20	**1**			
4. Protection Provided By State And Local Government — 20	**0**			
5. Size of Present Farm Unit Compared To Average — 10	**3**			
6. Creation Of Nonfarmable Farmland — 25	**0**			
7. Availablility Of Farm Support Services — 5	**2**			
8. On-Farm Investments — 20	**2**			
9. Effects Of Conversion On Farm Support Services — 25	**0**			
10. Compatibility With Existing Agricultural Use — 10	**0**			
TOTAL CORRIDOR ASSESSMENT POINTS — 160	**20**	**0**	**0**	**0**
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	**0**	**0**	**0**	**0**
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	**20**	**0**	**0**	**0**
TOTAL POINTS *(Total of above 2 lines)* — 260	**20**	**0**	**0**	**0**

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corridor A	**160 acres**	**9/10/15**	YES ☐ NO ☑

5. Reason For Selection:

Impacts on prime and important farmlands have been minimized to the greatest extent possible by locating the proposed alignment along the upland-floodplain transition. The undeveloped prime farmland areas that will be impacted are fragmented, surrounded by development, and not currently used for agriculture. Almost all of the lands north of the alignment are developed urban, suburban and industrial areas. Existing drainage patterns would be maintained, and surrounding land uses would remain compatible with agriculture in so much as they are today.

Signature of Person Completing this Part: DATE **9/9/15**

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **9/10/15**	4. Sheet 1 of **1**
1. Name of Project **Sabine Pass to Galveston Bay, Texas**	5. Federal Agency Involved **US Army Corps of Engineers**	
2. Type of Project **Coastal Storm Risk Management Levee System**	6. County and State **Orange, Texas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☐ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment ____			
	Corridor A	**Corridor B**	**Corridor C**	**Corridor D**
A. Total Acres To Be Converted Directly	**160**			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	**0**			
C. Total Acres In Corridor	**160**			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	**160**			
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — **Maximum Points**				
1. Area in Nonurban Use — 15	**7**			
2. Perimeter in Nonurban Use — 10	**5**			
3. Percent Of Corridor Being Farmed — 20	**1**			
4. Protection Provided By State And Local Government — 20	**0**			
5. Size of Present Farm Unit Compared To Average — 10	**3**			
6. Creation Of Nonfarmable Farmland — 25	**0**			
7. Availablility Of Farm Support Services — 5	**2**			
8. On-Farm Investments — 20	**2**			
9. Effects Of Conversion On Farm Support Services — 25	**0**			
10. Compatibility With Existing Agricultural Use — 10	**0**			
TOTAL CORRIDOR ASSESSMENT POINTS — 160	**20**	**0**	**0**	**0**
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	**0**	**0**	**0**	**0**
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	**20**	**0**	**0**	**0**
TOTAL POINTS *(Total of above 2 lines)* — 260	**20**	**0**	**0**	**0**

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corridor A	**160 acres**	**9/10/15**	YES ☐ NO ☑

5. Reason For Selection:

Impacts on prime and important farmlands have been minimized to the greatest extent possible by locating the proposed alignment along the upland-floodplain transition. The undeveloped prime farmland areas that will be impacted are fragmented, surrounded by development, and not currently used for agriculture. Almost all of the lands north of the alignment are developed urban, suburban and industrial areas. Existing drainage patterns would be maintained, and surrounding land uses would remain compatible with agriculture in so much as they are today.

Signature of Person Completing this Part: DATE **9/9/15**

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points

USDA

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

October 7, 2015

Department of the Army
Galveston District, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Attention: Carolyn Murphy

Subject: LNU-Farmland Protection
Proposed New Levee/Floodwall System
Orange and Jefferson Counties, Texas

We have reviewed the information provided in your correspondence dated September 10, 2015 concerning the proposed new levee/floodwall system in Orange and Jefferson Counties, Texas. This review is part of the National Environmental Policy Act (NEPA) evaluation for the Corps of Engineers. We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed project does contain soils that are classified as Prime Farmland. FPPA guidelines state, " Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated", 7CFR Part 658.4 (c) 2. We know of no adverse environmental impact from this project.

I have attached the completed Farmland Conversion Impact Rating for Corridor Type Projects (Form CPA-106) notating the site score is less than 160.

If you have any questions, please contact me at (254) 742-9826 or by email at micki.yoder@tx.usda.gov.

Sincerely,

JO YODER Digitally signed by JO YODER
DN: c=US, o=U.S. Government, ou=Department of Agriculture, cn=JO YODER, 0.9.2342.19200300.100.1.1=12001000351761
Date: 2015.10.07 10:18:37 -05'00'

Micki Yoder
NRCS Soil Conservationist

Attachment

719,547

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 9/10/15	4. Sheet 1 of 1
1. Name of Project **Sabine Pass to Galveston Bay, Texas**	5. Federal Agency Involved **US Army Corps of Engineers**	
2. Type of Project **Coastal Storm Risk Management Levee System**	6. County and State **Orange, Texas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 9/18/2015	2. Person Completing Form Micki Yoder
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated 3889 / 23,389 | Average Farm Size 79
5. Major Crop(s) rice	6. Farmable Land in Government Jurisdiction Acres: 120,158 17%	7. Amount of Farmland As Defined in FPPA Acres: 120,158 17%
8. Name Of Land Evaluation System Used NRCS LESA	9. Name of Local Site Assessment System NA	10. Date Land Evaluation Returned by NRCS October 7, 2015

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	160			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	160			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	160			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.03			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	10%			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	80			
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — Maximum Points				
1. Area in Nonurban Use — 15	7			
2. Perimeter in Nonurban Use — 10	5			
3. Percent Of Corridor Being Farmed — 20	1			
4. Protection Provided By State And Local Government — 20	0			
5. Size of Present Farm Unit Compared To Average — 10	3			
6. Creation Of Nonfarmable Farmland — 25	0			
7. Availablility Of Farm Support Services — 5	2			
8. On-Farm Investments — 20	2			
9. Effects Of Conversion On Farm Support Services — 25	0			
10. Compatibility With Existing Agricultural Use — 10	0			
TOTAL CORRIDOR ASSESSMENT POINTS — 160	20	0	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	80	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	20	0	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	100	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corridor A	**160 acres**	**9/10/15**	YES ☐ NO ☑

5. Reason For Selection:

Impacts on prime and important farmlands have been minimized to the greatest extent possible by locating the proposed alignment along the upland-floodplain transition. The undeveloped prime farmland areas that will be impacted are fragmented, surrounded by development, and not currently used for agriculture. Almost all of the lands north of the alignment are developed urban, suburban and industrial areas. Existing drainage patterns would be maintained, and surrounding land uses would remain compatible with agriculture in so much as they are today.

Signature of Person Completing this Part: STOKES.JANELLE.S.1230710593 Digitally signed by STOKES.JANELLE.S.1230710593 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=STOKES.JANELLE.S.1230710593 Date: 2015.09.09 17:04:42 -05'00' DATE 9/9/15

NOTE: Complete a form for each segment with more than one Alternate Corridor

Encl 3

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 9/10/15	4. Sheet 1 of 1
1. Name of Project **Sabine Pass to Galveston Bay Study**	5. Federal Agency Involved **US Army Corps of Engineers**	
2. Type of Project **Storm Surge Protection Levee System**	6. County and State **Jefferson, Texas**	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 9/18/2015	2. Person Completing Form Micki Yoder
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated 22,387 | Average Farm Size 463
5. Major Crop(s) rice	6. Farmable Land in Government Jurisdiction Acres: 288,198 45%	7. Amount of Farmland As Defined in FPPA Acres: 274,746 43%
8. Name Of Land Evaluation System Used NRCS LESA	9. Name of Local Site Assessment System NA	10. Date Land Evaluation Returned by NRCS October 7, 2015

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	18			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	18			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	18			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.001			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	11%			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	80			

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	1			
2. Perimeter in Nonurban Use	10	1			
3. Percent Of Corridor Being Farmed	20	0			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	0			
6. Creation Of Nonfarmable Farmland	25	0			
7. Availablility Of Farm Support Services	5	0			
8. On-Farm Investments	20	0			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	0			
TOTAL CORRIDOR ASSESSMENT POINTS	160	2	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	80	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	2	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	82	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Corridor A	18	9/10/15	YES ☐ NO ☑

5. Reason For Selection:

Impacts on prime and important farmlands have been minimized to the greatest extent possible by locating the proposed alignment along the upland-floodplain transition. The undeveloped prime farmland areas that will be impacted are fragmented, surrounded by development, and not recently used for agriculture. All of the lands south of the alignment are developed urban, suburban and industrial areas; land north of the alignment is used for placement of dredged material. None of the area is has been farmed for 5 of the last 10 years.

Signature of Person Completing this Part: STOKES.JANELLE.S.1230710593 Digitally signed by STOKES.JANELLE.S.1230710593 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=STOKES.JANELLE.S.1230710593 Date: 2015.09.09 17:03:29 -05'00' DATE 9/9/15

NOTE: Complete a form for each segment with more than one Alternate Corridor

Encl 4

Federal Aviation Administration Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

November 1, 2016

Regional Planning and Environmental Center
Environmental Compliance Branch, Coastal Section

Mr. Kelvin L. Solco
Southwest Region Regional Administrator
Federal Aviation Administration
Southwest Region
10101 Hillwood Parkway
Fort Worth, TX 76177-1524

Dear Mr. Solco:

The US Army Corps of Engineers, Galveston District, and the Texas General Land Office (non-Federal sponsor) are conducting the Sabine Pass to Galveston Bay (S2G), Texas, Ecosystem Restoration and Coastal Storm Risk Management (CSRM) Feasibility Study. The Recommended Plan in the Sabine Region includes a new CSRM levee system in Orange County and CSRM improvements to the existing Port Arthur Hurricane Flood Protection Project in Jefferson County Texas. A vicinity map of the proposed improvements relative to nearby airports is provided in Figure 1. Mitigation for unavoidable project impacts includes marsh restoration in three existing degraded marsh areas and preservation of one existing bottomland hardwood area south of the Bridge City area.

In accordance with Federal Aviation Administration (FAA) AC 150/5200-33, we have mapped the locations of two local public use airports (the Southeast Texas Regional Airport and the Orange County Airport) in the study area to determine if project features meet or conflict with minimum separation criteria for potentially hazardous land use practices. Figures 2 and 3 show the 5,000-foot, 10,000-foot, and the 5-mile range perimeters around the Southeast Texas Regional Airport and the Orange County Airport, respectively. Based on this analysis, we have determined that none of the Recommended Plan mitigation areas are located within the largest separation perimeter (Perimeter C – 5 mile radius) of the Southeast Texas Regional Airport. However, two of the proposed marsh restoration mitigation areas are located within the 5-mile Perimeter C radius of the Orange County Airport.

We have evaluated the proposed mitigation areas to determine if restoration of these marshes would increase wildlife hazards onto, into or across the airport's approach or departure airspace. The lands proposed for Mitigation Areas 28 and 29 are located at the margin of the 5-mile Perimeter C. Almost all of the area is existing marsh and shallow water that is owned by Texas Parks and Wildlife and managed for fish and wildlife habitat. A small strip of land along the northern edge of Mitigation Area 29 is privately-owned, but it too is comprised of submerged lands and emergent estuarine marsh that also serve as fish and wildlife habitat. Marsh restoration in these areas would not change the land use of this area, and therefore land-use after construction would be compatible with airport operations.

Based upon the information presented above, we request your review and concurrence that marsh restoration at proposed Mitigation Areas 28 and 29 in conjunction with the proposed Orange CSRM plan would not constitute a change in land-use, and is compatible with operation of the Orange County Airport. In addition, we request your concurrence that the proposed Port Arthur CSRM plan would have no impacts on operation of the Southeast Texas Regional Airport. If you have any questions regarding the project, please contact Janelle Stokes at (409) 766-3039.

Sincerely,

BURKS-COPES.KELLY.A.1231450927

Digitally signed by BURKS-COPES.KELLY.A.1231450927
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=BURKS-COPES.KELLY.A.1231450927
Date: 2016.10.31 15:56:23 -05'00'

Kelly Burks-Copes
Chief, Coastal Section

Enclosures

CF with encls: Sharon Tirpak, PM-J

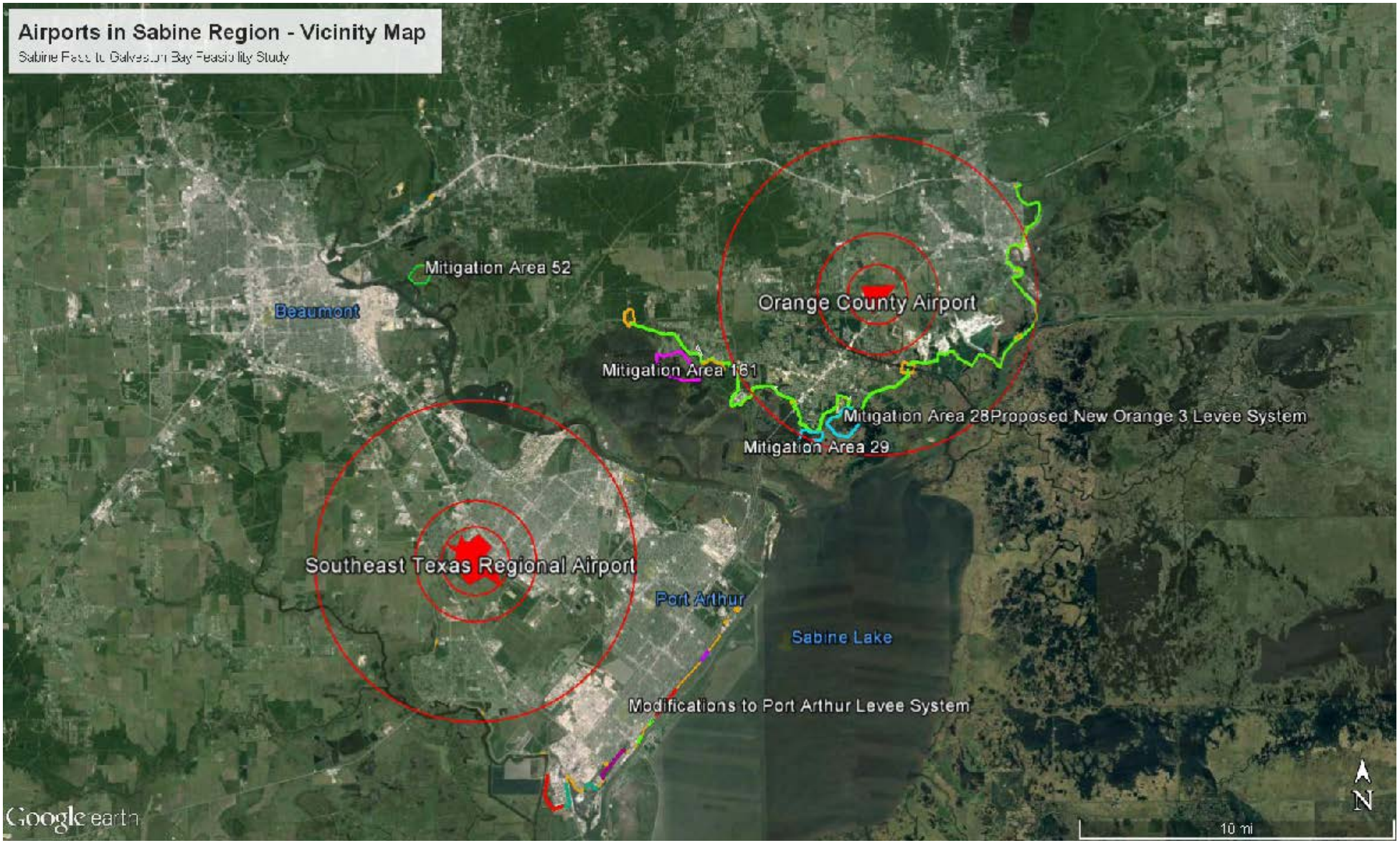


Figure 1: Vicinity Map for Airports in Sabine Region

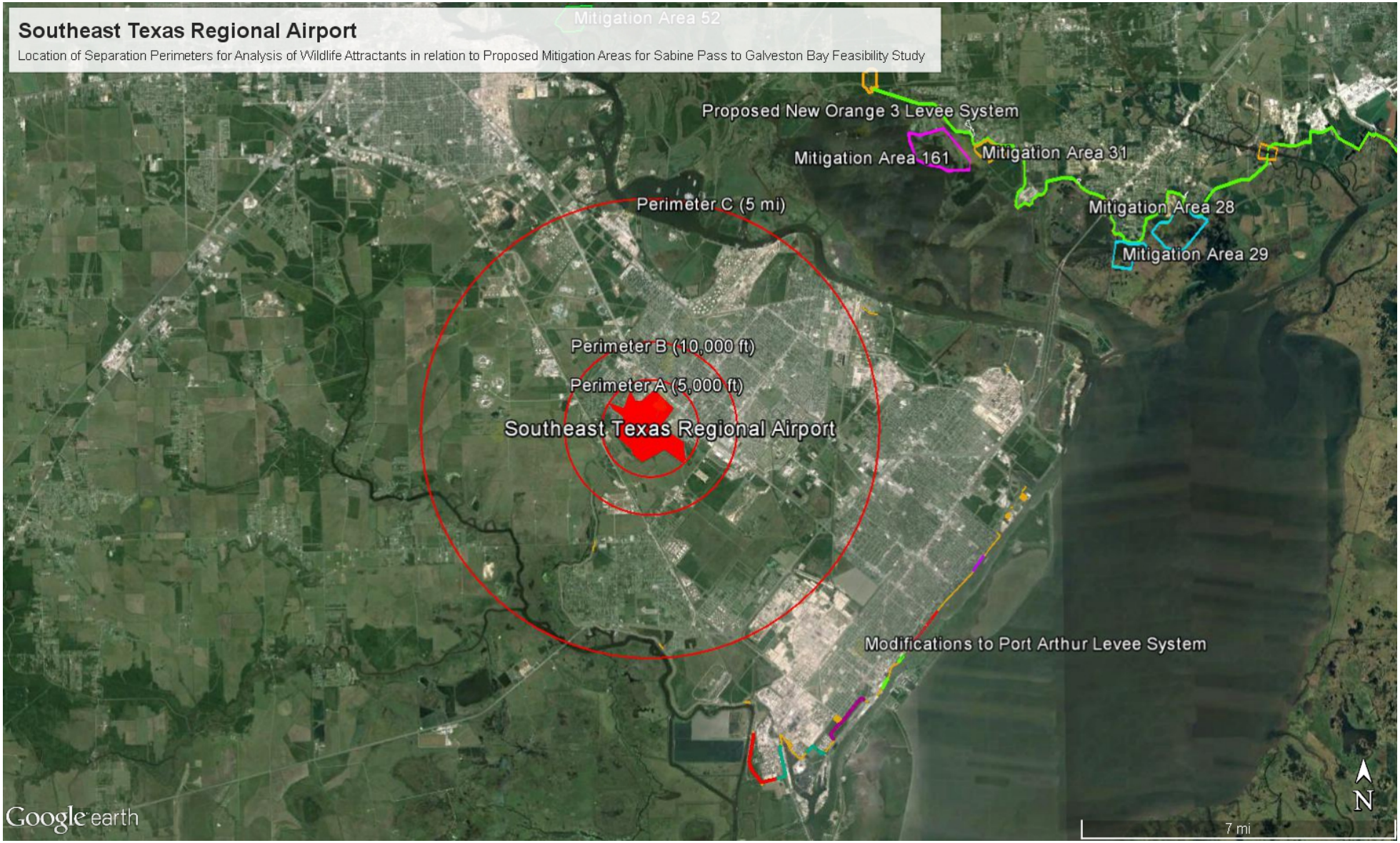


Figure 2: Southeast Texas Regional Airport Separation Perimeters

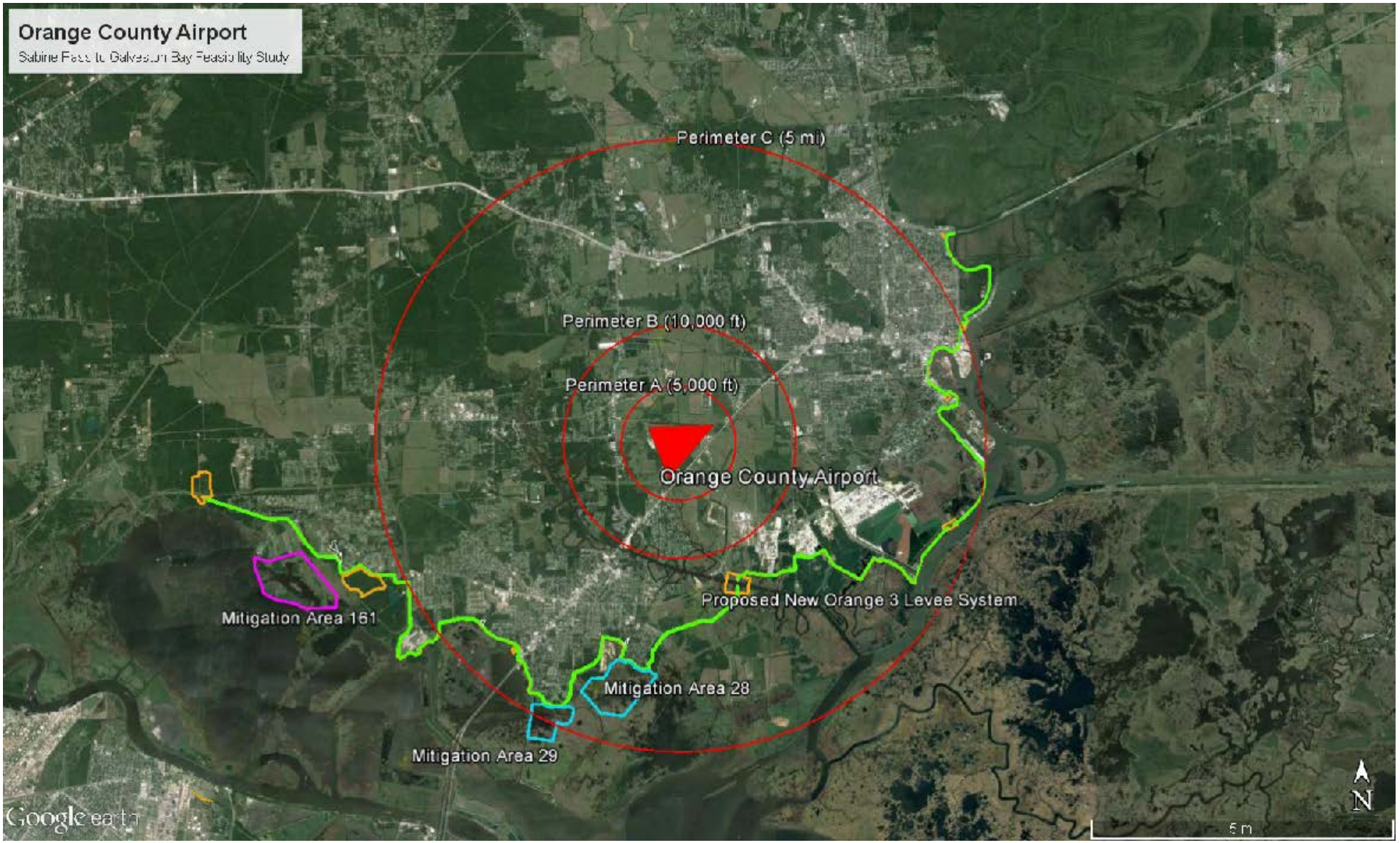


Figure 3: Orange County Airport Separation Perimeters

Texas Department of Transportation

AVIATION DIVISION
125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • 512/416-4500 • FAX 512/416-4510

November 15, 2016

Kelly Burks-Copes
Chief, Coastal Section
Department of the Army
Galveston District, Corps of Engineers
P.O. Box 1229
Galveston, TX 77553-1229

Ms. Burks-Copes:

The Texas Department of Transportation (TxDOT) Aviation Division (AVN) has reviewed a request from the Federal Aviation Administration (FAA), Southwest Region, to respond to your letter of November 1, 2016, to Mr. Kelvin L. Solco, Southwest Region Regional Administrator, regarding the Sabine Pass to Galveston Bay, Texas, Ecosystem Restoration and Coastal Storm Risk Management Feasibility Study. FAA made this request because evaluation of potential environmental impacts to the Orange County, Texas, airport is the responsibility of TxDOT AVN under terms of the FAA State Block Grant Program.

TxDOT AVN finds that marsh restoration at proposed Mitigation Areas 28 and 29 in conjunction with the proposed Orange CSRM plan would not constitute a change in land use, and is compatible with operation of the Orange County airport. Moreover, FAA has concurred in your finding that the proposed Port Arthur CSRM plan would have no impact on operation of Jack Brooks Regional airport (formerly Southeast Texas Regional airport). You will not be receiving a separate concurrence letter from FAA regarding this issue.

Regards,

Robert W. Jackson

Robert W. Jackson, PhD, AICP, C.M.
Environmental Specialist
TxDOT Aviation Division
512-416-4511

Texas Parks and Wildlife Department Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

Rebecca Hensley
Regional Director
Texas Parks & Wildlife Department
Dickinson Marine Laboratory
1502 FM 517 East
Dickinson, TX 77539

Dear Ms. Hensley:

Enclosed please find a compact disk of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement . This draft report is provided for your review pursuant to the Fish and Wildlife Coordination Act (16 USC §§661-666c), requiring coordination with USFWS and TPWD to prevent loss of and damage to wildlife resources.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@ usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosures

CF w/o encls:
Tirpak, CWSWG-PM-J

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Carter P. Smith
Executive Director

October 26, 2015

Ms. Janelle Stokes
U.S. Army Corps of Engineers, Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Draft Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement

Dear Ms. Stokes:

Texas Parks and Wildlife Department (TPWD) has reviewed the subject Draft Integrated Feasibility Report and Environmental Impact Statement (IFR-EIS), issued September 11, 2015, for coastal storm risk management (CSRM) projects in Orange, Jefferson and Brazoria counties, Texas. The tentatively selected plan (TSP) includes the following separable components: Freeport and Vicinity CSRM Plan, Port Arthur and Vicinity CSRM Plan, and Orange-Jefferson CSRM Plan. The first two components consist of improvements to existing hurricane flood protection projects at Port Arthur and Freeport. The Orange-Jefferson CSRM component would construct three new and separate levee/floodwall systems totaling 41.8 miles including the construction and installation of navigable surge gates and pump stations on Adams Bayou and Cow Bayou.

The Orange-Jefferson CSRM Plan will impact a significant amount of wetlands (Table 1). Direct impacts include complete wetland habitat loss. Indirect impacts primarily include a reduction in estuarine-dependent fish and shellfish access to the extensive marshes in the lower floodplains of Cow Bayou and Adams Bayou due to flow constriction from the surge gate structures.

Table 1. Wetland impacts.

Wetland Type	**Direct Impacts (acres)**	**Indirect Impacts (acres)**
Swamp	18.9	0.0
Bottomland hardwood	108.3	12.7
Forested wetland subtotal	127.2	12.7
Fresh marsh	50.4	785.2
Intermediate marsh	11.9	322.5
Brackish marsh	111.0	1,130.4
Emergent wetland subtotal	173.3	2,238.1
Total Impacts	**300.5**	**2,250.8**

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www.tpwd.texas.gov

TPWD is concerned that the Draft IFR-EIS only describes the following broadly conceptual mitigation measures for wetland impacts: coastal marsh restoration, the acquisition and long-term conservation of bottomland hardwoods and/or swamps, and possible improvements (e.g., hydrologic enhancement or control of invasive plant species) to forested wetland areas targeted for conservation. Without a specific and appropriate compensatory mitigation plan, there will be long-term adverse impacts to the Sabine Lake coastal ecosystem from the currently proposed Orange-Jefferson CSRM Plan. TPWD recommends the U.S. Army Corps of Engineers work with TPWD and the other resource agencies to develop and finalize compensatory mitigation before issuance of a Final IFR-EIS that includes the following: objectives, selection of sites, implementation details and timing, monitoring, and ecological success standards.

Construction of the Orange-Jefferson CSRM Plan would impact properties owned or managed by TPWD (Section 7.1.1). In the Lower Neches River Wildlife Management Area (WMA), 43.1 acres would be impacted (including 27 acres of coastal marsh and 9.6 acres of forested wetlands). In the Tony Houseman WMA, 4.4 acres would be impacted (including 2.1 acres of forested wetlands). Impacts to any natural resource (e.g., fish and wildlife, habitat, water, etc.), cultural resource, aesthetic resource, recreational values (i.e., public use opportunities), and/or operations (e.g., facilities, infrastructure, etc.) on lands owned or managed by TPWD must be consistent with state law (Chapter 26 of the Parks and Wildlife Code of Texas and Chapter 34 of the Texas Natural Resources Code) and Department policy.

TPWD appreciates the opportunity to review the Draft IFR-EIS and emphasizes the importance of continued coordination with our agency through the planning, engineering, design, construction, and maintenance phases of this project.

Questions can be directed to Mr. Mike Morgan at (281) 534-0146 or Winston Denton at 281-534-0138 in the Dickinson Marine Lab.

Sincerely,

Winston Denton
for

Rebecca Hensley
Regional Director, Ecosystem Resources Program
Coastal Fisheries Division

RH:WD:MNM

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Carter P. Smith
Executive Director

August 18, 2016

Mr. Timothy Nelson
Chief, Real Estate Division
Galveston District
U.S. Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Mr. Nelson:

Thank you for your letter of June 28, 2016 seeking Texas Parks & Wildlife Department's (TPWD) position on the project impacts to TPWD property from the currently proposed Sabine to Galveston Bay Coastal Storm Risk Reduction and Ecosystem Restoration Feasibility Study. We understand that this study report is being developed in coordination with the Texas General Land Office (TXGLO) and the U.S. Army Corps of Engineers (USACE).

We appreciate the opportunity to provide input during this planning phase of the project. We would like to offer our responses to the questions posed in your letter in the order in which they were presented.

1) Does TPWD acknowledge that impacts will occur on their property due to the construction of the subject project?

   Answer: Based on previous discussions, maps and presentations, it appears that some of the proposed actions associated with this project would result in negative impacts to TPWD wildlife management areas in Jefferson and Orange Counties. Please note that Chapter 26 of the Parks and Wildlife Code requires that before a state agency can approve any project that will result in the use or taking of public land designated and used as a park, public recreation area, scientific area, wildlife refuge, or historic site, that state agency must provide certain notices to the public, conduct a hearing, and render a finding that there is no feasible and prudent alternative and that the project includes all reasonable planning to minimize harm to the property. Any use or taking of TPWD property would require approval by the Texas Parks and Wildlife Commission and compliance with Chapter 26.

2) Does TPWD agree that the mitigation proposed is adequate and, if not, what more does TPWD require?

   Answer: Please first consider our concerns about the impacts of the proposed project actions on TPWD properties. TPWD is concerned about how the alteration of sheet flow from the uplands to coastal marshes may affect the hydrologic and ecological dynamics of coastal marshes

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managed by TPWD. It is our understanding that the proposed storm protection levee will have gates or other structures to allow flow of water through natural and man-made channels along its length to prevent pooling of water behind the levee or in the case of coastal flooding events, prevent the ingress of flood waters. Flow directed through these channels may not mimic the way nutrients and sediments are currently distributed throughout the marsh during overland sheet flow, and thus may have a negative impact on the long term health and function of the marsh. It is our understanding that hydrologic modeling is planned during a more in-depth study prior to construction of any storm protection levee system. TPWD suggests that this modeling also look at the potential for overbank flow within the natural channels and bayous that may occur when the water control structures are open to mimic the existing overland sheet flow patterns. The results of the modeling should be considered in any mitigation plans.

Lower Neches WMA: TPWD is willing to accept mitigation for the contemplated project impacts on the Lower Neches Wildlife Management Area (WMA) in Jefferson County, and to manage it in perpetuity, though it is unclear at this stage of project planning whether the proposed mitigation is adequate. We would do so with the understanding that the goals and benefits to be realized and attained from such mitigation must be consistent with our wetland, wildlife management and public use goals and that the total scope and extent of mitigation for such impacts be at least equal to or greater in offsetting the long term impacts from the proposed actions. Presumably, TPWD would be allowed to select the wetland plants used in mitigation in an effort to reflect the existing plant community on the wildlife management area at the time mitigation efforts begin. If mitigation occurs on lands outside of, but adjacent or in close proximity to the wildlife management area, TPWD is willing to consider adding those lands to the Lower Neches WMA contingent upon approval of the Texas Parks and Wildlife Commission.

Blue Elbow Swamp/Tony Houseman SP/WMA: Similarly, TPWD is willing to accept mitigation on the Blue Elbow Swamp/Tony Houseman Wildlife Management Area (WMA) in Orange County though it is unclear at this stage of project planning whether the proposed mitigation is adequate. We would prefer the USACE consider the value of certain restoration activities on this WMA as part of a mitigation plan. This WMA functions as one of the most frequently and intensively-visited natural sites in the State of Texas, accessed through the Texas Department

of Transportation (TxDot) visitor center on Interstate 10 at the WMA. A primary function of WMAs in Texas is to demonstrate the benefits of wetlands and the conservation values associated with certain management practices and conservation techniques employed on the WMAs. The Blue Elbow Swamp/Tony Houseman WMA serves as one of the finest examples of wildlife habitat demonstration and education in Texas. Tens of thousands of visitors frequent this site adjacent to the banks of the Sabine River on Interstate 10 every year, visiting the board walk, watching wildlife and reading interpretive messages to learn about the values of wetland habitats and marshes in this part of the state. We would request that the USACE consider these attributes as an important aspect of restoration and mitigation. One such restoration approach (following hydrologic study) that could be employed and demonstrated to the public would include removing strategic portions of spoil-bank along the main and historic logging canals in order to improve historic sheet-flow across the WMA. Additional mitigation projects could include long-term chemical control of non-native invasive plant species such as Chinese tallow trees and giant salvinia. And of course, TPWD would be willing to consider mitigation through acquisition of similar wetlands from willing sellers, adjacent-to or near the WMA, contingent upon approval of the Texas Parks and Wildlife Commission.

3) Would TPWD be interested in acquiring any/all of the private properties acquired for mitigation purposes?

   Answer: TPWD would certainly consider accepting any and possibly all of the private properties acquired for mitigation purposes, provided those properties are readily accessible to staff and the public, are practically manageable from an operations standpoint, and offer the same or greater ecological services as those being impacted by the project. Property acquisition must be approved by the Texas Parks and Wildlife Commission on a case-by-case basis.

4) Would TPWD want to keep the remnants of their property cut off by the levee or any project features?

   Answer: TPWD would be willing to divest the remnants cut off by the levee or other project features. Property divestitures must be approved by the Texas Parks and Wildlife Commission on a case-by-case basis.

TPWD greatly appreciates the efforts of the USACE to involve TPWD in the process of evaluating this flood control project and the associated mitigation. We would appreciate being involved in all aspects of project planning and associated mitigation. We would be willing to discuss potential mitigation actions resulting from direct impacts to our WMAs as well as lands outside our WMAs. TPWD received the Notice of Intent to prepare a Draft Integrated Feasibility Report and Environmental Impact Statement for the Coastal Texas Protection and Restoration Feasibility study. We would also welcome an opportunity to discuss those potential projects and associated strategies to address this broad-scale undertaking. Thank you again for the opportunity to work with the USACE during the early stages of this and other related projects. Should you have any questions or wish to follow up in more detail, please contact Dennis Gissell, Wildlife Management Area Facilities Coordinator at dennis.gissell@tpwd.texas.gov or 512-389-4407.

Sincerely,

Ross Melinchuk
Deputy Executive Director, Natural Resources

RM:DG:ng

cc: Clayton Wolf, Wildlife Division Director
Len Polasek, Wildlife Region 4 Director
Corey Mason, Wildlife Region 3 Director
Dennis Gissell, WMA Facilities Coordinator

Texas General Land Office Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

Mr. Ray Newby
Texas General Land Office
Coastal Resources Division
P.O. Box 12873
Austin, TX 78711-2873

Dear Mr. Newby:

Enclosed please find a compact disk of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement. This draft report is provided for your review of the Consistency Determination pursuant to Chapter 506 Rule §506.20, Consistency Determinations for Federal Agency Activities and Development Projects.

The proposed project is subject to the goals and priorities of the Coastal Management Program and will be undertaken in a manner consistent with the program policies. The Consistency Determination (Appendix M; Enclosure 1) addresses the policies for Major Actions (§501.15); development in critical areas (§501.23); Development in State Parks, Wildlife Management Areas or Preserves (§501.29); and Levee and Flood Control Projects § (501.34). The Consistency Determination concludes that the Tentatively Selected Plan is fully consistent to the maximum extent practicable with the Texas Coastal Management Program.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@ usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosures

CF w/o encls:
Tirpak, CESWG-PM-J

TEXAS GENERAL LAND OFFICE
GEORGE P. BUSH, COMMISSIONER

November 24, 2015

Col. Richard Pannell
District Commander
U.S. Army Corps of Engineers, Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Texas Coastal Management Program Federal Consistency Review of the Draft Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement
CMP#: 16-1034-F2

Dear Col. Pannell:

Pursuant to Title 31 Natural Resources and Conservation, Part 16 Coastal Coordination Council rules, Section 506.30, the project referenced above has been reviewed for consistency with the Texas Coastal Management Program (CMP).

It has been determined that there are no significant unresolved consistency issues with respect to the project. Therefore, this project is consistent with the CMP goals and policies.

Please note that this letter does not authorize the use of Coastal Public Land. No work may be conducted or structures placed on State-owned land until you have obtained all necessary authorizations, including any required by the General Land Office and the U.S. Army Corps of Engineers.

If you have any questions or concerns, please contact me at (512) 475-3624 or at ray.newby@glo.texas.gov

Sincerely,

Ray Newby, P.G.
Coastal Geologist
Coastal Resources
Texas General Land Office

email cc: Jannell Stokes, USACE

Texas Historical Commission Coordination

See Appendix L

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

September 18, 2015

SWF-PEC-TN

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

CONCUR
by _____
for Mark Wolfe
State Historic Preservation Officer
Date 10/15/15
Track#_____

Dear Mr. Wolfe:

The U.S. Army Corps of Engineers, Galveston District (USACE) has prepared a draft report on the feasibility and environmental suitability of Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) projects between Sabine Pass and the Brazos River in Orange, Jefferson, and Brazoria Counties, Texas. Authorization for this study is based on a resolution from the Committee on Environmental and Public Works dated June 23, 2004, entitled "Coastal Texas Protection and Restoration Study." The study identified several alternatives for CSRM and ER projects in the study area and, more specifically, a tentatively selected plan (TSP) with three components: 1) a new levee/floodwall system in Orange and Northeast Jefferson counties called the Orange-Jefferson CSRM Plan; 2) improvements to existing floodwalls in the Port Arthur and Vicinity Hurricane Flood Protection Project (HFPP) called the Port Arthur and Vicinity CSRM Plan; and 3) improvements to existing levees and floodwalls in the Freeport and Vicinity HFPP called the Freeport and Vicinity CSRM Plan. Maps of the three TSP project components are attached as Figures 1 through 13.

The Area of Potential Effect (APE) for this project will be the footprint of the TSP for direct impacts to archeological resources plus a 1,500-foot buffer for indirect impacts to standing structures or buildings. The Orange-Jefferson CSRM Plan (Figures 1 through 6) overlaps five archeological sites and two cemeteries. Additionally, there are four National Register Properties within 1,500 feet of the proposed levee system (Navy Park Historic District, W.H. Stark House, Sims House, and the Woodmen of the World Lodge), all of which would experience reduced risk of storm surge damages with construction of the new levee system. The five archeological sites in Orange County (41OR15, OR39, OR59, OR60, and OR70) are all prehistoric sites that have poorly delineated boundaries, insufficient documentation, and have not been evaluated for National Register of Historic Places (NRHP) eligibility. All of these sites have the potential to be directly impacted by construction activities. The two cemeteries (Thomas Cemetery and an unknown cemetery) also have a potential to be directly affected by levee construction as their recorded boundaries overlap with the proposed project area.

These cemeteries are not well documented and their locations may not be accurate within the existing state databases.

There are numerous cultural resources that occur near the APE for the Port Arthur (Figures 7 through 9) and Freeport CSRM Plans (Figures 10 through 13); however, all of these resources as currently mapped occur outside of the areas proposed for improvements. In Port Arthur, there are no cultural resources that overlap with the areas for proposed improvements along the existing HFPP. However, there are three archeological sites (41BO4, BO119, and BO121) that are within proximity to the proposed improvement areas along the Freeport HFPP. These three sites all occur along Oyster Creek (Figure 13), are poorly delineated, lack sufficient documentation, and have not been evaluated for NRHP eligibility.

Based on the current information for the proposed levee construction and improvements, there is a potential to affect historic properties and cemeteries. These effects consist of direct impacts from earth moving and excavation activities related to construction and potential indirect effects on historic structures such as diminished view shed from the raising of levees and floodwalls. The USACE recommends intensive cultural resources investigations to identify and evaluate any historic properties within proposed construction areas. The USACE intends to execute a Programmatic Agreement (PA) to govern the scope of investigations, which will be determined in concert with the Texas SHPO and Native American Tribes. A draft PA has been developed and provided for public and tribal review as Appendix L in the Draft Integrated Feasibility Report and Environmental Impact Statement. A compact disk of this report is enclosed.

We request your comments on the proposed undertaking and the potential to affect historic properties in compliance with Section 106 of the National Historic Preservation Act of 1966. Thank you for your cooperation in this review process. If you have any questions concerning the proposed project or if we can be of further assistance, please contact John A. Campbell at 409-766-3878.

Sincerely,

Carolyn Murphy

Carolyn Murphy
Chief, Unit A
NEPA & Cultural Resources Section
Environmental Technical Services Branch
Regional Planning & Environmental Center

Enclosures

Texas Commission on Environmental Quality Coordination

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

Mr. David Brymer
Assistant Direct, Air Quality Division
Texas Commission on Environmental Quality
P.O. Box 13087, Mail Code 206
Austin, Texas 78711-3087

Dear Mr. Brymer:

Enclosed please find a compact disk of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement (DIFR-EIS). This draft report is provided for your agency's review of projected air quality impacts of the Tentatively Selected Plan (TSP) in accordance with the Clean Air Act and the National Environmental Policy Act. The modeling determined that construction of the TSP would result in emissions below the *de minimis* threshold for nonattainment pollutants and thus a conformity determination was not prepared. The Air Emissions Modeling Report, provided in Appendix I of the DIFR-EIS, is enclosed.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosures

CF w/o encls:
Tirpak, CWSWG-PM-J

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 1, 2015

Janelle Stokes
Department of the Army
P.O. Box 1229
Galveston, Texas 77553
Via: Janelle.S.Stokes@usace.army.mil

Re: TCEQ NEPA Request #2015-247, Draft Feasibility Report-EIS: Coastal Storm Risk Management and Ecosystem Restoration-Sabine Pass to Galveston Bay, Orange, Jefferson and Brazoria County

Dear Ms. Stokes:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers the following comments:

A review of the project for general conformity impact in accordance with 40 CFR Part 93 indicates that the proposed action is located in Orange and Jefferson Counties, which are currently unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, general conformity rules do not apply.

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 indicates that the proposed project is located in Brazoria County, which is currently classified by the United States Environmental Protection Agency as marginal nonattainment for the 2008 ozone National Ambient Air Quality Standard. Therefore, general conformity rules apply.

The two primary precursors to ozone formation are volatile organic compounds (VOCs) and nitrogen oxides (NO_x). A general conformity analysis may be required when a project results in an emissions increase of 100 tons per year or greater for either VOCs or NO_x. Because the emissions from this proposed project are expected to be below these thresholds it is not anticipated to impact the state implementation plan; therefore a general conformity analysis is not required.

Any debris or waste disposal should be at an appropriately authorized disposal facility.

Thank you for the opportunity to review this project. If you have any questions, please contact the agency NEPA Coordinator, at (512) 239-3500 or NEPA@tceq.texas.gov.

Sincerely,

Mark Harmon

Mark Harmon
Division Director
Intergovernmental Relations

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF

September 9, 2015

Regional Planning and Environmental Center
Unit A

Mr. Gregg Easely
Water Quality Assessment Manager
Texas Commission on Environmental Quality
P.O. Box 13087, Mail Code 150
Austin, Texas 78711-3087

Dear Mr. Easely:

Enclosed please find a compact disk of the Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Draft Integrated Feasibility Report – Environmental Impact Statement (DIFR-EIS). This draft report is provided for your review under Section 401 of the Clean Water Act. The U.S. Army Corp of Engineers is requesting a §401 State Water Quality certification from Texas for this action. The §404(b)(1) Evaluation, provided in Appendix H of the DIFR-EIS and as Enclosure 1, concludes that proposed placement of fill material in conjunction with the Tentatively Selected Plan would comply with Section 404(b)(1) Guidelines.

The public comment period closes on October 26, 2015, and we would appreciate receipt of your comments by that date. If you have any questions, please contact Ms. Janelle Stokes at the letterhead address, by telephone at 409-766-3039, or by email at Janelle.S.Stokes@usace.army.mil.

Sincerely,

Carolyn Murphy
Acting Chief,
Plan Formulation Section

Enclosures

CF w/o encls:
Tirpak, CWSWG-PM-J

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 21, 2015

Ms. Janelle Stokes
Galveston District
U.S. Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Re: Draft Integrated Feasibility Report and Environmental Impact Statement for the Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration Project

Dear Ms. Stokes:

As described in the Joint Notice of Availability, dated September 11, 2015, the U.S. Army Corps of Engineers-Galveston District (Corps) announces the release of the Draft Integrated Feasibility Report and Environmental Impact Statement (Draft IFR-EIS) for the Tentatively Selected Plan (TSP) for the Sabine Pass to Galveston Bay Coast Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Project. The purpose of the TSP is to reduce the risk of storm surge impacts to residents, industry, and infrastructure in Orange, Jefferson, and Brazoria Counties, Texas. The TSP is comprised of three separable elements, one of which would entail construction of a new CSRM levee system in southern Orange County, and two of which consist of improvements to existing hurricane flood protection projects (HFPP) at Port Arthur and Freeport.

In addition to the information contained in the public notice, the following information is needed for review of the proposed project. Responses to this letter may raise other questions that will need to be addressed before a water quality certification determination can be made.

1. Title 30, Texas Administrative Code (TAC), Chapter 279.11(c)(1), states that "No discharge shall be certified if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, ..." Appendix B (Plan Formulations) of the Draft IFR-EIS indicates that storm surge attenuation, and thus economic impacts, could not be estimated for marsh restoration and other restoration alternatives. Please explain why the effects of these alternatives on storm surge attenuation could not be modeled or otherwise estimated. Practicable alternatives are preliminarily assumed to exist, but the project sponsor does have the opportunity to clearly demonstrate that no practicable alternatives exist.

2. If the aquatic resources cannot be avoided, appropriate and practicable steps should be taken to minimize potential adverse impacts (30 TAC §279.11(c)(2)). Please provide more information on modeling and assessment of potential indirect impacts of the proposed new levee system in southern Orange County on coastal marsh. The Draft IFR-EIS notes

that coastal wetland loss has been caused, in part, by decreased input of fluvial sediment and construction of artificial levees. Please explain if potential reductions in sediment supply and local changes to sedimentation and erosion regimes were assessed for coastal marsh downstream of the proposed levee.

3. The Texas Commission on Environmentally Quality (TCEQ) is concerned that the Draft IFR-EIS may underestimate the potential of the proposed new levee system to impound drainages during large storm events. The Draft IFR-EIS assumed minimal contribution of overland flow and shallow groundwater flows when assessing the indirect impacts of the proposed new levee system on flooding and increased stage upstream of the levee system; however, floodplains may carry a majority of flows during large storm events. Please provide additional justification for these assumptions. Also, please indicate if impounding effects of the new levee during a large storm event (100-year flood or larger) have been assessed and if these effects are expected to impacts forested wetlands, fluvial sediment regime, or other aquatic resources.

4. Please provide more information on what factors were used to determine the appropriate sizing and number of culverts needed for the proposed new levee system. Please explain what data or other criteria will be used to determine whether particular bayous, creeks, or other drainages are tidally influenced and would thus require a sluice gate culvert (versus a flap gate culvert).

5. The Draft IFR-EIS indicates that impacts of the Cow Bayou and Adam Bayou surge gates on fisheries access were assessed. Please explain if a similar assessment of potential fisheries impacts was done for smaller drainages, taking into account the effects of culverts crossing the proposed levee system.

6. The Draft IFR-EIS states that final levee structural designs will incorporate fisheries-friendly guidelines recommended by the National Oceanic and Atmospheric Administration. Additional information should be provided in the Final IFR-EIS detailing which fisheries-friendly recommendations will implemented.

7. As noted in the Draft IFR-EIS, there are concerns for water quality in several water bodies in Orange and Jefferson Counties due to depressed dissolved oxygen (DO) levels. Dissolved oxygen is often correlated with and affected by flow, and flow alterations are recognized as a potential source of depressed DO. The TCEQ recommends that the Corps consider potential impacts to DO levels in area bayous and creeks via reduction in tidal exchange and other changes in stream flow regime.

8. Mitigation of impacts is considered for ". . .all unavoidable adverse impacts that remain after all practicable avoidance and minimization has been completed . . ." (30 TAC §279.11(c)(3)). The construction of the levee system would directly impact approximately 300 acres of forested wetlands and coastal marsh. Indirect impacts to approximately 2,250 acres would be associated with fisheries access and hydrologic impacts. The conceptual mitigation plan provided with the Draft IFR-EIS contained only very general information on potential mitigation options, but it was noted that a more detailed final

mitigation plan will be prepared during the final feasibility planning for the Agency Decision Milestone. The TCEQ looks forward to reviewing the final mitigation plan, and in the interim, coordinating with the Corps and other resource agencies on potential mitigation options.

The TCEQ appreciates the opportunity to comment and looks forward to receiving and evaluating other agency or public comments. Please provide any agency comments, public comments, as well as the Corps comments, to Mr. C. Brad Caston of the Water Quality Division MC-150, P.O. Box 13087, Austin, Texas 78711-3087. Mr. Caston may also be contacted by e-mail at *Charles.Caston@tceq.texas.gov*, or by telephone at (512) 239-4711.

Sincerely,

David W Galindo

David W. Galindo, Director
Water Quality Division
Texas Commission on Environmental Quality

DWG/CBC /tc

cc: Mr. Ray Newby, Texas General Land Office, P. O. Box 12873, Austin, Texas 78711-2873

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

AUG 05 2016

Regional Planning and Environmental Center
Environmental Compliance Branch, Coastal Section

Mr. David Galindo
Director
Water Quality Division
Texas Commission on Environmental Quality
P.O. Box 13087, Mail Code 150
Austin, Texas 78711-3087

Dear Mr. Galindo:

Reference is made to your letter dated October 21, 2015, which submitted comments on the Draft Integrated Feasibility Report and Environmental Impact Assessment (DIFR-EIS) for the Sabine Pass to Galveston Bay, Texas (S2G) Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) Study. Due to their length, responses to the eight specific comments in your letter are provided in the enclosure.

The District is in the process of preparing a Final Integrated Feasibility Report – Environmental Impact Statement (FIFR-EIS) for the study. During the final feasibility phase, revisions were made to the Tentatively Selected Plan (TSP) which resulted in a significant reduction in wetland impacts associated with the new levee system proposed for Orange County. The Recommended Plan now consists only of the Orange 3 CSRM Plan. The Beaumont A and the Jefferson Main elements are not included in the Recommended Plan. One short levee reach (approximately 1,900 feet) in the Jefferson Main area is still recommended, but it can now be combined with the Port Arthur CSRM Plan since it is located within the jurisdiction of the non-Federal sponsor for the existing Port Arthur and Vicinity Hurricane Flood Protection (HFP) project. The locations of these features and a summary of the Recommended Plan are presented in the preliminary final Wetlands Value Assessment (WVA) Modeling Report (Appendix O of FIFR-EIS) and the Mitigation Monitoring and Adaptive Plan (Appendix P) which have been provided to your agency as part of our ongoing resource agency coordination of this study.

Revisions have also been made to the proposed Port Arthur and Freeport CSRM elements of the Recommended Plan. No wetland impacts have been identified for proposed improvements of either plan, as modifications would be constructed largely within the existing project rights-of-way and no wetlands would be impacted. The final construction and permanent rights-of-way for both elements were coordinated with your agency under separate cover.

The Recommended Orange CSRM Plan is generally the same plan referenced as Orange 3 in the DIFR-EIS. A final elevation of about 15-17 feet NAVD88 is proposed for the Recommended Plan's levee system. The length of the system remains approximately 27 miles in total, the same length as the TSP. The overall percentage of floodwalls has increased from about

20 percent of the overall system to about 40 percent. This was necessary to avoid impacts to residences and pipelines, and to minimize impacts to wetlands. The alignment has been relocated in several short segments, but overall remains similar to that presented in the DIFR-EIS.

Direct wetland impacts modeled for the TSP assumed a conservatively-wide construction right-of-way which would have resulted in the loss of about 274 acres of estuarine emergent marsh and 140 acres of forested wetlands, and indirect, functional fisheries access impacts to an additional 2,137 acres of estuarine marsh. The final construction and permanent rights-of-way for the Recommended Plan levee system are much narrower in most areas, resulting in a significant reduction in direct impacts. Direct and indirect impacts would result in the loss of about 203.0 acres of estuarine emergent marsh and 69.5 acres of forested wetlands over the 50-year period of analysis. This includes the loss of marsh due to direct impacts of levee and surge gate construction (105.3 acres), and the loss of marsh due to indirect impacts of the new levee system, such as impoundment and disruptions in hydrologic flow (97.7 acres). An additional 2,137 acres of indirect EFH impacts would result from reduced or altered fisheries access as a result of the proposed Cow and Adam Bayou surge gate structures. These indirect, functional impacts are the same as those described in the DIFR-EIS.

The WVA modeling was revised to evaluate the Recommended Plan's direct and indirect impacts, totaling a loss of -186.0 AAHUs over the period of analysis. A comprehensive list of assumptions underlying our analysis of the Recommended Plan's direct and indirect effects will be provided in the FIFR-EIS. These assumptions include:

- Impact assessment is dependent upon the exact location of the levee system features; changes in the footprint of the levee system, or identification of new access routes/work areas/system features during the PED and Construction Phases could increase project impacts and trigger additional agency consultation.
- Fill material for levee system construction is assumed to come from approved, commercial borrow sources.
- Assessment of indirect Essential Fish Habitat fisheries access impacts assumed that the proposed surge gates in Cow and Adams Bayous would constrict flow in the waterways by no more than 50 percent.
- Construction of culverts and the Cow and Adams Bayou surge gates would follow National Marine Fisheries Service's 2008 Fisheries Friendly Design and Operation Considerations for Hurricane Flood Protection Water Control Structures to the greatest extent practicable.
- Construction of mitigation areas is assumed to start concurrently with new levee system construction.
- The Operation Plan for the new Orange system would require that culverts/gates remain open during normal operations, closing for no longer than two weeks at a time during surge and maintenance events.
- Coordination with resource agencies would continue through the PED, Construction and Operations Phases to ensure appropriate consideration and coordination of project changes, implementation of mitigation, and completion of the monitoring/adaptive management plan.

A detailed mitigation plan was developed in consultation with your resource agency that compensates for all impacts that could not be avoided or minimized by Recommended Plan. The mitigation plan would restore 452.8 acres of emergent marsh and preserve in perpetuity 559.2 acres of forested wetlands, providing 262.9 AAHUs to fully compensate for total losses of -186.0 AAHUs. This plan was developed in coordination with the resource agencies; details of the plan are included in the preliminary final WVA Modeling Report provided under separate cover.

The District is moving forward with preparation of the FIFR-EIS, which is currently scheduled for release for State and Agency Review in May 2017. We would like to conclude consultation with your office on water quality concerns prior to HQUSACE review which is scheduled for the January – April 2017 timeframe. A revised 404(b)(1) Evaluation will be submitted in the next few weeks with a request for water quality certification. We are available at any time to discuss this request or to provide additional information as needed. If you have any questions or concerns, please contact Janelle Stokes at 409/766-3039 or at janelle.s.stokes@usace.army.mil for assistance.

Sincerely,

Kelly Burks-Copes
Acting Chief, Environmental Compliance Branch
Coastal Section

Enclosure

CF with encl:
Tirpak, CWSWG-PM-J

USACE-Galveston District Responses
To Texas Commission on Environmental Quality comments dated October 21, 2015

1. Title 30, Texas Administrative Code (TAC), Chapter 279.11(c)(1), states that "No discharge shall be certified if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, ... "Appendix B (Plan Formulations) of the Draft IFR-EIS indicates that storm surge attenuation, and thus economic impacts, could not be estimated for marsh restoration and other restoration alternatives. Please explain why the effects of these alternatives on storm surge attenuation could not be modeled or otherwise estimated. Practicable alternatives are preliminarily assumed to exist, but the project sponsor does have the opportunity to clearly demonstrate that no practicable alternatives exist.

Section 2.3.3 of the DIFR-EIS (and also the FIFR-EIS) evaluates the potential for coastal wetlands to attenuate hurricane storm surges. Research into the impact of landscape features, including wetlands, on surge propagation is a relatively new application for surge models. No models were available for this study which could definitively determine the effects of the marsh restoration alternatives on storm surge attenuation. And no single marsh restoration alternative would provide positive benefits for a majority of storms because the effect of wetlands in attenuating storm surge is situationally dependent. Alternatives were evaluated using a wide array of storms, varying in direction, speed, and size. While wetlands might provide protection for a storm of a certain size coming come from one specific direction, wetlands could increase surge risk for another storm of a different size and duration arriving from another direction.

The southern part of the Orange County area is currently buffered from storm surge impacts by extensive marshes north of Sabine Lake. Significant storm surge impacts to the Bridge City area occurred during Hurricane Ike despite the presence of these largely intact marshes. There is no reason to believe that restoration of areas of open water in these marshes would have made a significant difference in these impacts. Even under a scenario with the greatest potential beneficial effects on surge heights, it is estimated that maximum inland attenuation rates would range from 1 foot per 2.1 miles to 1 foot per 3.6 miles of inland penetration with intact marshes. However, there is great uncertainty surrounding the ability of marsh accretion to keep up with relative sea level rise over the 50-year period of analysis. In order to provide a significant reduction in the risk of storm surge impacts, the Recommended Plan includes levee/floodwall system elevations of 15-17 feet NAVD88, far exceeding the small amount of attenuation that might be provided by the existing marsh systems. Therefore, marsh or other wetland restoration alternatives were not practicable alternatives for significantly reducing the risk of storm surge impacts.

While marsh restoration is not a practicable alternative to achieve objectives of significantly reducing economic damages and risk to human life and critical infrastructure from storm surge impacts, the Recommended Plan minimizes impacts to existing marshes and forested wetlands from construction of the levee system. Through several iterations of revisions to the levee system footprint, impacts to wetlands were minimized to the greatest extent practicable. The plan meets Objective 3 of the screening criteria for the final alternative array, which seeks to preserve existing wetlands and their potential to attenuate minor levels of storm surge. The Recommended Plan meets this objective, ensuring that there is no practicable alternative that would have less adverse impact on the aquatic ecosystem.

2. If the aquatic resources cannot be avoided, appropriate and practicable steps should be taken to minimize potential adverse impacts (30 TAC §279.11(c)(2)). Please provide more information on modeling and assessment of potential indirect impacts of the proposed new levee system in southern Orange County on coastal marsh. The Draft IFR-EIS notes that coastal wetland loss has been caused, in part, by decreased input of fluvial sediment and construction of artificial levees. Please explain if potential reductions in sediment supply and local changes to sedimentation and erosion regimes were assessed for coastal marsh downstream of the proposed levee.

Potential reductions in sediment supply and local changes in sedimentation/erosion regimes were assessed for the coastal marshes downstream of the proposed levee system. Engineering Appendix D (Section 2.17) evaluates the effect of the new Orange levee system on sediment transport and deposition, and Section 7.2 of Appendix O (WVA Modeling Appendix) evaluates the indirect impacts of the levee system on wetlands both upstream and downstream of the new levee system. No significant effect on fluvial sediment is expected from construction of the Recommended Plan. Sediment flows to the floodplain downstream of the new levee system are expected to remain similar to the future without-project condition.

A desktop analysis of interior drainage requirements has been performed by Galveston District as required using current USACE guidance. This analysis identified all of the sub-drainage basins behind the proposed new levee alignment and the primary small drainage in each sub-basin for which existing flow will need to be maintained. A detailed description of this analysis is provided in Section 2.15 through 2.17 of Appendix D (Engineering). The analysis calculated the amount of both overland and channelized flow from each basin. The levee system would have negligible impacts on flow, stage, velocity and other factors as determined by HEC-RAS analysis. Because there is little effect on flow, there is expected to be a negligible impact on the exchange of sediment, nutrients and organic matter between wetlands upstream of the levee system and the wetlands and Sabine estuarine downstream of the system. The Cow and Adams Bayou surge gates would result in higher water velocities in the immediate vicinity of the structures, and this may cause a minor increase in shoaling near the gates. Gated culverts would be placed everywhere existing drainages intersect the new levee system, and additional culverts would be placed in areas where they are needed to ensure adequate flows to adjacent wetlands. The sluice gates would remain open except when surge protection is needed; they would be closed temporarily for a short period before and after a storm occurs.

In the existing condition, marshes in the floodplain rely primarily on rainfall and tidal push for inundation. The new levee system has been located at the upland/floodplain interface, and floodplain impacts have been minimized to the greatest extent practicable. The Neches and Sabine River floodplains and sediment transport in the floodplains are thus largely untouched by the Recommended Plan and would remain effectively the same as the future without-project condition. Freshwater and sediment inflows from the upland areas to marshes and forested wetlands in the floodplain are being conveyed primarily through existing stream channels. Water and sediment flows through these channels into minor drainages with incised beds, and in some cases flows spread out directly into wetland areas. The culvert system would replicate these flows. Overland sheet flow is temporary, occurring during intense or long duration rain events, as the majority of the area upstream of the levee is unpaved and permeable. As part of the Recommended Plan, a channel would be constructed along the inside of the levee system to collect flows and direct them

into the existing stream channels, replicating the flow pattern of the majority of flows entering the floodplain. Therefore, during normal operations (no surge event), sediment transport inside the levee system is expected to remain the same as the future without-project condition.

3. The Texas Commission on Environmentally Quality (TCEQ) is concerned that the Draft IFR-EIS may underestimate the potential of the proposed new levee system to impound drainages during large storm events. The Draft IFR-EIS assumed minimal contribution of overland flow and shallow groundwater flows when assessing the indirect impacts of the proposed new levee system on flooding and increased stage upstream of the levee system; however, floodplains may carry a majority of flows during large storm events. Please provide additional justification for these assumptions. Also, please indicate if impounding effects of the new levee during a large storm event (100-year flood or larger) have been assessed and if these effects are expected to impacts forested wetlands, fluvial sediment regime, or other aquatic resources.

It is assumed that the question relates to large rainfall events, as during a surge event, all the culverts would be shut, as well as the gates, and the pumps would be engaged. Drainage areas for the interior of the levees were delineated using a combination of LiDAR, USGS maps, aerial maps, and documents gathered from the county and cities in the area. Two different methods were used to check runoff estimates, as measured data are not available for calibration/verification/validation. Methodology for these estimates is based on equations and guidance outlined by the U.S. Department of Interior and U.S. Geological Survey (USGS) Water-Resources Investigations Report 96-4307. Results of the two methods compared well. The difference in flow estimates fit within the expected error of the previously used method, increasing confidence in the flow estimates.

The preliminary design of the levee system minimizes impacts on all existing floodplains and adjacent waterbodies. Potential impounding effects during a large storm event were assessed and no impacts to forested wetlands, fluvial sediment regime or aquatic resources within the levee system are anticipated. Outfalls for interior drainage were sized to pass the 100-year rainfall event plus at least a 10 percent increase in flow accounting for increasing rainfall predicted with climate change. The culvert outfalls were aligned and sized in a manner that mimics the existing waterways. Culvert spans and heights were chosen to provide widths that would prevent head build-up on the upstream side of the culverts. The Cow and Adams Bayou gate structures were configured to allow a 100-year flood event to be discharged without impacting their respective floodplains. Since the system has been designed to result in no impounding within the levee system, no impacts to biological or physical aquatic resources are expected.

4. Please provide more information on what factors were used to determine the appropriate sizing and number of culverts needed for the proposed new levee system. Please explain what data or other criteria will be used to determine whether particular bayous, creeks, or other drainages are tidally influenced and would thus require a sluice gate culvert (versus a flap gate culvert).

Details on the process used to size the culverts was provided in responses to Questions 2 and 3 above. The locations and numbers of culverts were determined through a thorough review of maps, satellite and LIDAR imagery which identified all major and minor drainages crossed by the proposed levee system. In addition, the proposed levee alignment was reviewed by resource agencies during coordination meetings, and additional culvert locations recommended by the

agencies were incorporated. Sluice gates are intended to provide open ingress/egress through the levee system wherever there is tidal influence. All of the new levee system is in the tidally influenced area, and therefore all culverts would likely contain sluice gates.

5. The Draft IFR-EIS indicates that impacts of the Cow Bayou and Adam Bayou surge gates on fisheries access were accessed. Please explain if a similar assessment of potential fisheries impacts was done for smaller drainages, taking into account the effects of culverts crossing the proposed levee system.

The potential for fisheries impacts to marsh systems in smaller drainages was evaluated. The alignment of the Recommended Plan crosses three small drainages in the Bridge City vicinity which have small marshes totaling 18.4 acres inside the levee system. Since the culverts would be designed to provide the same cross section, slope and flow as the original drainages, and the operating plan would require that the culverts remain open except for surge events or maintenance, impacts to fishery access would be minimal. The design, to be completed in the Pre-Construction Engineering and Design (PED) phase, would utilize NOAA-NMFS fishery friendly design recommendations. The culverts have low flowlines for environmental reasons, in order to maintain environmental connectivity (species passage) between inside and outside the levee. Even if impacts were assumed for are three areas, the estimated AAHU impacts would be less than 0.5 AAHU and thus would be considered a negligible impact.

6. The Draft IFR-EIS states that final levee structural designs will incorporate fisheries friendly guidelines recommended by the National Oceanic and Atmospheric Administration. Additional information should be provided in the Final IFR-EIS detailing which fisheries-friendly recommendations will implemented.

The Engineering Appendix of the FIFR-EIS recognizes that final design of the culvert and gate structures would incorporate elements of the NOAA recommendations wherever possible. The USACE will continue to consult with NOAA during the detailed design and construction phase of the project if authorized. The full text of the NOAA recommendations will be included in Appendix O of the FIFR-EIS, and will be referenced in the Engineering Appendix. The culvert descriptions in responses 3-5 above reflect many of the NOAA recommendations.

7. As noted in the Draft IFR-EIS, there are concerns for water quality in several water bodies in Orange and Jefferson Counties due to depressed dissolved oxygen (DO) levels. Dissolved oxygen is often correlated with and affected by flow, and flow alterations are recognized as a potential source of depressed DO. The TCEQ recommends that the Corps consider potential impacts to DO levels in area bayous and creeks via reduction in tidal exchange and other changes in stream flow regime.

Potential changes in flow were evaluated for all of the waterbodies affected by the proposed new levee system, as described in responses to questions above. In these analyses, it was determined that potential impacts to flows were possible only for Adams and Cow Bayous, because surge gates are proposed in the lower watershed of each bayou that may restrict flows. The 2014 Texas Water Body Assessment for both basins reports that there is no concern with dissolved oxygen (DO) in Cow Bayou Tidal, but that Adams Bayou Tidal has screening level concerns and a non-supporting DO rating for aquatic life. In 2015, USACE's Engineering Research and Design Center conducted desktop modeling to determine the potential impacts of constrictions created by

the proposed surge gates on both bayous. The Desktop Off-Channel Wetland Salinity Mitigation Model evaluated effects on salinity, water surface elevation and velocities. In the analysis, bayou cross-sections were reduced by a wide range of estimated parameters, up to a maximum 75 percent constriction. There were essentially no impacts on water surface elevation and salinity because baseline tidal velocities are so low that even large constrictions have very little effect. The constriction would likely result in minimally higher velocities through the structures, and this might improve DO levels in the immediate area around the gates, but in general, there is high confidence that constriction of the inlets, even significant constriction, results in minimal impacts on water surface elevation, salinity and flows within the bayous. Therefore, the structures are not expected to adversely affect depressed DO in the bayous.

8. Mitigation of impacts is considered for" ... all unavoidable adverse impacts that remain after all practicable avoidance and minimization has been completed ... " (30 TAC §279.11(c)(3)). The construction of the levee system would directly impact approximately 300 acres of forested wetlands and coastal marsh. Indirect impacts to approximately 2,250 acres would be associated with fisheries access and hydrologic impacts. The conceptual mitigation plan provided with the Draft IFR-EIS contained only very general information on potential mitigation options, but it was noted that a more detailed final mitigation plan will be prepared during the final feasibility planning for the Agency Decision Milestone. The TCEQ looks forward to reviewing the final mitigation plan, and in the interim, coordinating with the Corps and other resource agencies on potential mitigation options.

A mitigation plan that fully compensates for all impacts of the Recommended Plan has been developed in consultation with all of the state and Federal resource agencies on the study team, including TCEQ. A thorough review of mitigation options was conducted and is presented in Appendix O of the FIFR-EIS. A draft of Appendix O and Appendix P with full details of the mitigation and monitoring plans have been provided to TCEQ under separate cover. The mitigation plan fully compensates for all impacts (-186.0 AAHUs) with swamp, bottomland hardwood and marsh mitigation features that would provide 262.9 AAHUs.

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

November 1, 2016

Regional Planning and Environmental Center
Environmental Compliance Branch, Coastal Section

Mr. David Galindo
Director
Water Quality Division
Texas Commission on Water Quality
P.O. Box 13087, Mail Code 150
Austin, Texas 78711-3087

Dear Mr. Galindo:

The US Army Corps of Engineers, Galveston District, and the Texas General Land Office (non-Federal sponsor) are preparing a Final Integrated Feasibility Report and Environmental Impact Statement (FIFR-EIS) for the Sabine Pass to Galveston Bay (S2G), Texas, Ecosystem Restoration and Coastal Storm Risk Management (CSRM) Feasibility Study. The Recommended Plan proposes to reduce the risks of tropical storm surge impacts by constructing a new CSRM system in Orange County, and increase the level of risk reduction and resiliency of the existing Port Arthur and Vicinity and Freeport and Vicinity Hurricane Flood Protection (HFP) systems in Jefferson and Brazoria Counties, Texas, respectively. The Orange 3 CSRM Recommended Plan would consist of a 27-mile long levee and floodwall system along the edge of the Sabine and Neches River floodplains from the City of Orange to the vicinity of Orangefield, Texas. The Port Arthur and Freeport CSRM Recommended Plans would raise existing levees, construct and reconstruct floodwalls, replace vehicular closure structures and increase resiliency by installing erosion protection. The Port Arthur and Vicinity and Freeport and Vicinity CSRM Plans would result in only negligible impacts and no mitigation is needed. All environmental impacts of the Recommended Plan are associated with the Orange 3 CSRM plan, and these impacts are restricted to wetland impacts.

The Draft IFR-EIS (DIFR-EIS) presented a Tentatively Selected Plan (TSP) that was coordinated with your office by letter dated September 9, 2015, and released for public review on September 11, 2015. Subsequently, the TSP was optimized to incorporate levee/floodwall heights needed to accommodate intermediate sea level rise. Minor elements of the Orange 3 TSP plan (Beaumont A and Jefferson Main) were removed from the plan due to limited net benefits and new information indicating that these elements were not needed. Environmental and socioeconomic impacts disclosed in the DIFR-EIS were conservatively high, and impacts of the Recommended Plan have been reduced significantly when compared to the TSP. Thus, impacts were fully disclosed and evaluated by the DIFR-EIS.

Subsequent to release of the DIFR-EIS, USACE conducted eight meetings with Federal and state resource agencies, including the Texas Commission on Environmental Quality (TCEQ), from January through March, 2016. During these meetings, revisions to the TSP were discussed, and final mitigation measures were identified and modeled. The final mitigation plan was presented

and discussed in an interagency meeting on June 15, 2016. Appendices O and P of the FIFR-EIS were provided to all the resources agencies for review at that time. Appendix O includes a description of revisions made to the Orange 3 alignment to avoid and minimize impacts to floodplains, wetlands and water quality to the greatest extent practicable. Appendix P presents the monitoring and adaptive management plan. The monitoring plan identifies the ecological success criteria for the mitigation, describes the cost and duration of the monitoring, and identifies the entities responsible for the monitoring. It also contains an adaptive management plan for taking corrective actions in case monitoring demonstrates that mitigation measures are not achieving ecological success.

Ecological modeling of impacts of the final Orange 3 CSRM Plan determined that 143 average annual habitat units (AAHUs) would be lost due to direct and indirect impacts to fresh, intermediate and brackish marsh, and 43 AAHUs would be lost due to direct and indirect impacts to cypress-tupelo swamp and bottomland hardwood forests, over the 50-year period of analysis (Appendix O). The final mitigation plan would provide a total of 263 AAHUs to compensate for the total loss of 186 AAHUs by restoring coastal marsh and preserving forested wetlands in perpetuity.

TCEQ provided comments to USACE on the TSP by letter dated October 21, 2015. A response from USACE was provided by letter dated August 5, 2016. USACE is hereby requesting §401 State Water Quality certification from Texas for this action. The §404(b)(1) Evaluation, which will be included as Appendix H of the FIFR-EIS, is provided for your review. It concludes that proposed placement of fill material in conjunction with the Recommended Plan would comply with Section 404(b)(1) Guidelines. If you have any questions regarding the project, please contact me at the letterhead address or contact my staff, Ms. Janelle Stokes, at Janelle.S.Stokes@usace.army.mil.

Sincerely,

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Kelly Burks-Copes
Chief, Coastal Section

Enclosure

EVALUATION OF SECTION 404(b)(1) GUIDELINES (SHORT FORM)

PROPOSED PROJECT: Sabine Pass to Galveston Bay, Texas, Coastal Storm Risk Management and Ecosystem Restoration Final Integrated Feasibility Report and Environmental Impact Statement (covering 3 separate project elements: Orange 3 CSRM Recommended Plan, Port Arthur and Vicinity CSRM TSP Recommended Plan, and Freeport and Vicinity CSRM Recommended Plan)

	Yes	No*
1. Review of Compliance (230.10(a)-(d))		
A review of the proposed project indicates that:		
a. The placement represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the placement must have direct access or proximity to, or be located in the aquatic ecosystem, to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative).	X	
b. The activity does not appear to:		
1) Violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act;	X	
2) Jeopardize the existence of Federally-listed endangered or threatened species or their habitat; and	X	
3) Violate requirements of any Federally-designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies).	X	
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, an economic values (if no, see values, Section 2)	X	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see Section 5)	X	

	Not Applicable	Not Significant	Significant*
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
1) Substrate impacts		X	
2) Suspended particulates/turbidity impacts		X	
3) Water column impacts		X	
4) Alteration of current patterns and water circulation		X	
5) Alteration of normal water fluctuation/hydroperiod		X	
6) Alteration of salinity gradients		X	
b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)			
1) Effect on threatened/endangered species and their habitat		X	

2) Effect on the aquatic food web		X	
3) Effect on other wildlife (mammals, birds, reptiles and amphibians)		X	
	Not Applicable	**Not Significant**	**Significant***
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
c. Special Aquatic Sites (Subpart E)			
1) Sanctuaries and refuges No wetland or other special aquatic site impacts are anticipated in conjunction with the Port Arthur and Vicinity or Freeport and Vicinity CSRM Plans. Wetland impacts of the Orange 3 CSRM plan were avoided and minimized to the greatest extent practicable by modifying the new levee system's alignment location. Remaining unavoidable impacts of the Orange 3 CSRM plan to "Sanctuaries and Refuges" would occur to approximately 45.0 acres as shown in the FIFR-EIS. Approximately 28.8 acres would be directly impacted by construction within the right-of-way, while approximately 16.2 acres are remnants that would be not affected by construction, but cut-off from the rest of TPWD property in the area. In the Tony Houseman Wildlife Management Area (WMA), approximately 1.4 acres of the right-of-way impacts are forested wetlands and adjacent waters. In the Lower Neches WMA, approximately 18.9 acres of the right-of-way are wetlands, with the majority of impacts occurring to coastal marsh. The TPWD wetland impacts have been evaluated and quantified with the Wetland Value Assessment model along with all wetland impacts of the Orange 3 CSRM plan. The plan would not impact any TPWD structures. All impacts are fully compensated by the overall mitigation plan described for the Orange 3 CSRM plan. TPWD has accepted the feasibility-level impact and mitigation analysis, but wants coordination to continue into the PED phase when further hydraulics and hydrology analysis would be conducted. Final approval or concurrence by TPWD cannot occur until requirements of Chapter 26 of the Parks and Wildlife Code are met, and that would occur after the project is authorized. At this time, no obstacles to this approval have been identified.			X

2) Wetlands No wetland or other special aquatic site impacts are anticipated in conjunction with the Port Arthur and Vicinity or Freeport and Vicinity CSRM Plans. Direct wetland impacts to approximately 160.2 acres, would result from construction of the Orange 3 CSRM plan. Indirect impacts on about 2,249.5 acres would be associated with functional impacts to fisheries access and sediment, nutrient and organic matter exchange in the extensive marshes in the lower Cow and Adams Bayous floodplains. These indirect impacts also include limited indirect hydrologic impacts from construction of the levee and surge gates in a few locations. Ecological modeling of impacts of the Orange 3 CSRM plan has determined that about 143 average annual habitat units (AAHUs) would be lost due to direct and indirect impacts to fresh, intermediate and brackish marsh, and about 43 AAHUs would be lost due to direct and indirect impacts to cypress-tupelo swamp and bottomland hardwood forests, over the 50-year period of analysis (see FIFR-EIS Appendix O). A mitigation plan has been proposed that would provide a total of about 263 AAHUs to fully compensate for the total loss of 186 AAHUs by restoring coastal marsh and preserving forested wetlands in perpetuity.			X
3) Mud flats	X		
4) Vegetated shallows	X		
5) Coral reefs	X		
6) Riffle and pool complexes	X		
d. Human Use Characteristics (Subpart F)			
1) Effects on municipal and private water supplies	X		
2) Recreational and Commercial fisheries impacts	X		
3) Effects on water-related recreation	X		
4) Aesthetic impacts		X	
5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	X		

	Yes
3. Evaluation of Dredged or Fill Material (Subpart G)	
a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material (check only those appropriate)	
1) Physical characteristics	X
2) Hydrography in relation to known or anticipated sources of contaminants	X
3) Results from previous testing of the material or similar material in the vicinity of the project	X
4) Known, significant sources of persistent pesticides from land runoff or percolation	
5) Spill records for petroleum products or designated (Section 311 of Clean Water Act) hazardous substances	X

6) Other public records of significant introduction of contaminants from industries, municipalities or other sources	X
7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

List appropriate references:

1) USACE. 2008. Final Environmental Assessment – Restoration of the Mouth of the San Bernard River to the Gulf of Mexico, Brazoria County, Texas. Galveston District, Galveston, Texas.

2) USACE. 2011. Final Environmental Impact Statement for Sabine-Neches Waterway Channel Improvement Project, Southeast Texas and Southwest Louisiana. Galveston District, Galveston, Texas.

3) USACE. 2012. Final Environmental Impact Statement for Freeport Harbor Channel Improvement Project, Brazoria County, Texas. Galveston District, Galveston, Texas.

4) USACE. 2015. Appendix N, Hazardous, Toxic and Radioactive Waste Assessment for Sabine Pass to Galveston Bay Integrated Feasibility Report and EIS.

5) SOL Engineering Services, LLC. 2012. Letter Report of Results of Sediment and Elutriate Testing and Analysis for Maintenance Dredging of the Sabine-Neches Waterway.

	Yes	No
b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and placement sites and not likely to degrade the placement sites, or the material meets the testing exclusion criteria.	X	

	Yes
4. Placement Site Delineation (230.11(f))	
a. The following factors as appropriate, have been considered in evaluating the placement site:	N/A
1) Depth of water at placement site	
2) Current velocity, direction, and variability at placement site	
3) Degree of turbulence	
4) Water column stratification	
5) Discharge vessel speed and direction	
6) Rate of discharge	
7) Fill material characteristics (constituents, amount, and type of material, settling velocities)	
8) Number of discharges per unit of time	

9) Other factors affecting rates and patterns of mixing (specify)	

List appropriate references:

	Yes	No
b. An evaluation of the appropriate factors in 4a above indicates that the placement site and/or size of mixing zone are acceptable.	N/A	

	Yes	No
5. Actions to Minimize Adverse Effects (Subpart H)		
All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.	X	

List actions taken:

1) Silt curtains will be utilized to prevent inadvertent discharge of fill material into adjacent wetlands or waterbodies. Forestry BMPs will be utilized to prevent disturbance of forest floors.

	Yes	No*
6. Factual Determination (230.11)		
A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:		
a. Physical substrate at the placement site (review Sections 2a. 3, 4, and 5 above)	X	
b. Water circulation, fluctuation and salinity (review Sections 2a. 3, 4, and 5)	X	
c. Suspended particulates/turbidity (review Sections 2a. 3, 4, and 5)	X	
d. Contaminant availability (review Sections 2a. 3, and 4)	X	
e. Aquatic ecosystem structure and function (review Sections 2b and c, 3, and 5)	X	
f. Placement site (review Sections 2, 4, and 5)	X	
g. Cumulative impacts on the aquatic ecosystem	X	
h. Secondary impacts on the aquatic ecosystem	X	

7. Evaluation Responsibility	
a. This evaluation was prepared by:	**Janelle Stokes**
Position:	**Regional Technical Specialist, Unit A, CESWF-PEC-CC**

8. Findings	Yes

a. The proposed placement site for discharge of or fill material complies with the Section 404(b)(1) Guidelines.	X
b. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the following conditions:	

List of conditions:

c. The proposed placement site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reason(s):	
1) There is a less damaging practicable alternative	
2) The proposed discharge will result in significant degradation of the aquatic ecosystem	
3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem	

1 November 2016	BURKS-COPES.KELLY.A.1231450927 Digitally signed by BURKS-COPES.KELLY.A.1231450927 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=BURKS-COPES.KELLY.A.1231450927 Date: 2016.11.01 10:27:33 -05'00'
Date	KELLY BURKS-COPES Chief, Coastal Section, CESWF-PEC-CC

NOTES:

* A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

Negative responses to three or more of the compliance criteria at the preliminary stage indicate that the proposed projects may not be evaluated using this "short form" procedure. Care should be used in assessing pertinent portions of the technical information of items 2a-e before completing the final review of compliance.

Negative response to one of the compliance criteria at the final stage indicates that the proposed project does not comply with the Guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 17, 2016

Ms. Kelly Burkes-Copes
Galveston District
U.S. Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Attention: Ms. Janelle Stokes

Re: Sabine Pass to Galveston Bay Coastal Storm Risk Management and Ecosystem Restoration

Dear Ms. Burkes-Copes:

This letter is in response to your letter dated November 1, 2016, requesting state water quality certification for the US Army Corps of Engineers (Corps), Galveston District and the Texas General Land Office (GLO) proposed Sabine Pass to Galveston Bay, Texas, Ecosystem Restoration (ER) and Coastal Storm Risk Management (CSRM) project. The Recommended Plan proposes to reduce risks of tropical storm surge impacts by constructing a new CSRM system in Orange County, and increase the level of risk reduction and resiliency of the existing Port Arthur and Vicinity and Freeport and Vicinity Hurricane Flood Protection (HFP) systems in Jefferson and Brazoria Counties, Texas, respectively.

The Texas Commission on Environmental Quality (TCEQ) has reviewed the Draft Integrated Feasibility Report and Environmental Impact Statement (Draft IFR-EIS) for the Sabine Pass to Galveston Bay CSRM and ER dated September 2015, the Corps' response to TCEQ comments in a letter dated August 5, 2016, Appendices O and P dated September 2016 of the forthcoming Final IFR-EIS, and related information along with your letter. Although the TCEQ does not typically make a water quality certification decision for an EIS prior to review of the Final IFR-EIS and the Record of Decision (ROD), TCEQ has has determined it appropriate to make a decision in this case based on the available information, including the documents noted above. On behalf of the Executive Director and based on our evaluation of the information contained in these documents, the TCEQ certifies that there is reasonable assurance that the project will be conducted in a way that will not violate water quality standards. General information regarding this water quality certification, including standard provisions of the certification, is included as an attachment to this letter.

The Orange 3 CSRM Recommended Plan would consist of a 27-mile long levee and floodwall system along the edge of the Sabine and Neches River floodplains from the City of Orange to the vicinity of Orangefield, Texas. Ecological modeling of impacts of the final

Orange 3 CSRM Plan determined that 143 average annual habitat units (AAHUs) would be lost due to direct and indirect impacts to fresh, intermediate, and brackish marsh, and 43 AAHUs would be lost due to direct and indirect impacts to cypress-tupelo swamp and bottomland hardwood forests. The Port Arthur and Freeport CSRM Recommended Plans would raise existing levees, construct and reconstruct floodwalls, replace vehicular closure structures and increase resiliency by installing erosion protection. The Port Arthur and Freeport Plans would result in only negligible impacts.

The proposed mitigation plan would provide a total of 263 AAHUs to compensate for the total loss 186 AAHUs by restoring coastal marsh and preserving forested wetlands in perpetuity.

No review of property rights, location of property lines, nor the distinction between public and private ownership has been made, and this certification may not be used in any way with regard to questions of ownership.

If you require additional information or further assistance, please contact Mr. C. Brad Caston, Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-4711 or by email at Charles.Caston@tceq.texas.gov.

Sincerely,

David W. Galindo, Director
Water Quality Division
Texas Commission on Environmental Quality

DWG/CBC/tc

Attachment

cc: Mr. Ray Newby, Texas General Land Office, P. O. Box 12873, Austin, Texas 78711-2873

WORK DESCRIPTION: As described in Draft Integrated Feasibility Report and Environmental Impact Statement (Draft IFR-EIS) for the Sabine Pass to Galveston Bay Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) dated September 2015 and Appendices O and P dated September 2016 of the forthcoming Final IFR-EIS.

SPECIAL CONDITIONS: None

GENERAL: This certification, issued pursuant to the requirements of Title 30, Texas Administrative Code, Chapter 279, is restricted to the work described in Draft IFR-EIS for the Sabine Pass to Galveston Bay CSRM and ER dated September 2015 and Appendices O and P dated September 2016 of the forthcoming Final IFR-EIS. This certification may be extended to any minor revision of the project when such change(s) would not result in an impact on water quality. The Texas Commission on Environmental Quality (TCEQ) reserves the right to require full joint public notice on a request for minor revision.

STANDARD PROVISIONS: These following provisions attach to any permit issued by the COE and shall be followed by the permittee or any employee, agent, contractor, or subcontractor of the permittee during any phase of work authorized by a COE permit.

1. The water quality of wetlands shall be maintained in accordance with all applicable provisions of the Texas Surface Water Quality Standards including the General, Narrative, and Numerical Criteria.

2. The applicant shall not engage in any activity which will cause surface waters to be toxic to man, aquatic life, or terrestrial life.

3. Permittee shall employ measures to control spills of fuels, lubricants, or any other materials to prevent them from entering a watercourse. All spills shall be promptly reported to the TCEQ by calling the State of Texas Environmental Hotline at 1-800-832-8224.

4. Sanitary wastes shall be retained for disposal in some legal manner. Marinas and similar operations which harbor boats equipped with marine sanitation devices shall provide state/federal permitted treatment facilities or pump out facilities for ultimate transfer to a permitted treatment facility. Additionally, marinas shall display signs in appropriate locations advising boat owners that the discharge of sewage from a marine sanitation device to waters in the state is a violation of state and federal law.

5. Materials resulting from the destruction of existing structures shall be removed from the water or areas adjacent to the water and disposed of in some legal manner.

6. A discharge shall not cause substantial and persistent changes from ambient conditions of turbidity or color. The use of silt screens or other appropriate methods is encouraged to confine suspended particulates.

7. The placement of any material in a watercourse or wetlands shall be avoided and placed there only with the approval of the Corps when no other reasonable alternative is available. If work within a wetland is unavoidable, gouging or rutting of the substrate is prohibited. Heavy equipment shall be placed on mats to protect the substrate from gouging and rutting if necessary.

8. Dredged Material Placement: Dredged sediments shall be placed in such a manner as to prevent any sediment runoff onto any adjacent property not owned by the applicant. Liquid runoff from the disposal area shall be retained on-site or shall be filtered and returned to the watercourse from which the dredged materials were removed. Except for material placement authorized by this permit, sediments from the project shall be placed in such a manner as to prevent any sediment runoff into waters in the state, including wetlands.

9. If contaminated spoil that was not anticipated or provided for in the permit application is encountered during dredging, dredging operations shall be immediately terminated and the TCEQ shall be contacted by calling the State of Texas Environmental Hotline at 1-800-832-8224. Dredging activities shall not be resumed until authorized by the Commission.

10. Contaminated water, soil, or any other material shall not be allowed to enter a watercourse. Noncontaminated storm water from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.

11. Storm water runoff from construction activities that result in a disturbance of one or more acres, or are a part of a common plan of development that will result in the disturbance of one or more acres, must be controlled and authorized under Texas Pollutant Discharge Elimination System (TPDES) general permit TXR150000. A copy of the general permit, application (notice of intent), and additional information is available at:
http://www.tceq.texas.gov/permitting/stormwater/wq_construction.html or by contacting the TCEQ Storm Water & Pretreatment Team at (512) 239-4671.

12. Upon completion of earthwork operations, all temporary fills shall be removed from the watercourse/wetland, and areas disturbed during construction shall be seeded, riprapped, or given some other type of protection to minimize subsequent soil erosion. Any fill material shall be clean and of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters.

13. Disturbance to vegetation will be limited to only what is absolutely necessary. After construction, all disturbed areas will be revegetated to approximate the pre-disturbance native plant assemblage.

14. Where the control of weeds, insects, and other undesirable species is deemed necessary by the permittee, control methods which are nontoxic to aquatic life or human health shall be employed when the activity is located in or in close proximity to water, including wetlands.

15. Concentrations of taste and odor producing substances shall not interfere with the production of potable water by reasonable water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the water, or otherwise interfere with reasonable use of the water in the state.

16. Surface water shall be essentially free of floating debris and suspended solids that are conducive to producing adverse responses in aquatic organisms, putrescible sludge deposits, or sediment layers which adversely affect benthic biota or any lawful uses.

17. Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of reservoirs, lakes, and bays.

18. The work of the applicant shall be conducted such that surface waters are maintained in an aesthetically attractive condition and foaming or frothing of a persistent nature is avoided. Surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.

19. This certification shall not be deemed as fulfilling the applicant's/permittee's responsibility to obtain additional authorization/approval from other local, state, or federal regulatory agencies having special/specific authority to preserve and/or protect resources within the area where the work will occur.