



Revised POCCA

MITIGATION PLAN FOR ~~NUSTAR~~ OIL DOCK 17 PROJECT SWG-2015-00417

Nueces County, Texas

~~NuStar Energy, LP~~

I) Mitigation Goals and Objectives

Revised-The Port of Corpus Christi (POCCA)

~~NuStar Energy, LP. (NuStar)~~ is proposing to construct a new oil dock (Oil Dock No. 17) facility and dredge an associated basin along the northern shoreline of the Corpus Christi Ship Channel near the Corpus Christi Turning Basin in Nueces County, Texas (**Enclosure A - Permit Drawings**).

Revised
590,000

Dredging of the proposed 11.43-acre dredge basin will result in the removal of approximately ~~400,000~~ cubic yards (cy) of dredge material and the dredge basin will be constructed with a 3:1 slope. The proposed oil dock facility will include a pile-supported oil dock with breasting structures connected by catwalks, mooring structures connected by catwalks, an equipment support area, a parking lot, and a driveway accessing Navigation Boulevard. An existing stormwater outfall will be relocated along the western shoreline of the proposed project site. Articulated block mat shoreline revetment will also be placed on either side of the equipment support area to stabilize the shoreline.

See
Revisions
Below

Approximately ~~0.09 acres of oysters, 0.09 acres of tidal flat, 0.05 acres of estuarine wetland, 0.01 acres of mangroves, 3.36 acres of shallow open water,~~ and 6.13 acres of deep open water will be permanently impacted as a result of basin dredging (excavation). Approximately acres of estuarine wetlands, acres of mangroves, and acre of shallow open water (<6 feet) will be permanently impacted (filled) as a result of construction of the oil dock equipment support area and placement of articulated block mat shoreline revetment. Table 1 provides a summary of proposed impacts.

Table 1. Summary of Jurisdictional Impacts

Resource Type	Existing (Acres)	Permanent Impact (Acres)		Total Impacted (Ac)
		Impacted Excavation (Ac.)	Impacted Fill (Ac.)	
Oysters SAV	0.037	0.09	0.00	0.09
Tidal Flat	0.10	0.09	0.00	0.09
Estuarine Wetland	0.15	0.05	0.20	0.25
Mangroves	0.05	0.01	0.05	0.06
Shallow Water (0.0 ft to -6.0 ft)	3.68	3.36	0.75	4.11
Open Water (-6.0 ft to -47 ft)	6.13	6.13	0.00	6.13
TOTAL	11.61	9.73	1.00	10.74

Impact
Revisions

0.037

0.10

0.15

0.05

3.68

9.604

0.543

10.147



As compensatory mitigation for impacts from the proposed project, NuStar proposes two mitigation efforts: 1) wetland restoration and enhancement, and 2) ~~oyster reef creation and enhancement~~ (Enclosure B - Sheet 1, Mitigation Project Location Map). These mitigation efforts will occur at separate off-site locations and are described in further detail below.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

II) Site Selection Information

1) Wetland Restoration and Enhancement

The wetland mitigation site was selected based on the following criteria: location within the Corpus Christi Bay watershed, adequate size to compensate for impacts, and suitable habitat to compensate for tidal flat, estuarine wetland, and mangrove. The selected site is located within the Coastal Bend Bays and Estuaries Program (CBBEP) Nueces Delta Preserve and is part of the Corpus Christi Bay watershed in an area known as Rincon Bayou.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) ~~Oyster Reef Creation and Enhancement~~

~~The oyster mitigation site was selected based on the following criteria: location within the Corpus Christi Bay watershed, and proximity to existing living oyster reef. In order to provide oyster mitigation with greater likelihood of improved ecological function a site with existing oyster was selected. The selected site is located within Nueces Bay and is part of the Corpus Christi Bay watershed. It is located on the eastern side of Nueces Bay in close proximity to an existing marsh restoration project constructed and maintained by CBBEP.~~

III) Site Protection Instrument

1) Wetland Restoration and Enhancement

The wetland mitigation site is located within the CBBEP Nueces Delta Reserve and is protected from residential, commercial, or industrial development. In cooperation with CBBEP **POCCA** will implement a deed restriction, or similar protective instrument that limits uses of the mitigation site to those that are consistent with this mitigation plan.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) ~~Oyster Reef Creation and Enhancement~~

~~The oyster mitigation site is located within public submerged lands and no protective instrument can be applied however, a coastal surface lease will be obtained from the Texas General Land Office (TGLO) and CBBEP in cooperation with NuStar, commits to conserving the proposed oyster mitigation site in perpetuity.~~

IV) Baseline Information

1) Wetland Restoration and Enhancement

The wetland mitigation site was historically an area of tidally influenced wetlands situated between tributary branches of Rincon Bayou. Based on historical aerial imagery the previous land owner

placed culverts and fill within the proposed mitigation site in order to construct a road across the tributary in the early 1990's. Between 1995 and 2002 the roadway significantly eroded and no longer crossed the tributary. The area is currently comprised of an upland area with several corrugated steel pipes surrounded by estuarine emergent wetland and tidal flat, and a dilapidated concrete culvert and other concrete debris below Mean High Water (MHW) of the tributary (**Enclosure C, Wetland Mitigation Site Photographic Log**).

The wetland mitigation site is composed of an upland area and surrounding estuarine emergent wetland and tidal flat. The vegetation community within the upland area includes King Ranch Bluestem (*Bothriochloa ischaemum*), western ragweed (*Ambrosia psilostachya*), and honey mesquite (*Prosopis glandulosa*). The vegetation community within the surrounding wetland area includes gulf cordgrass (*Spartina spartinae*), sea ox-eye daisy (*Borrchia frutescens*), shoregrass (*Distichlis littoralis*), and saltwort (*Batis maritima*). A wetland delineation report for the proposed mitigation site can be found in **Enclosure D**.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) ~~Oyster Reef Creation and Enhancement~~

~~The oyster mitigation site is located on the eastern side of Nueces Bay. The site is approximately 0.10 acre and includes consolidated oyster reef, scattered oyster reef, and mud/soft bottom habitats. An oyster and seagrass survey for the proposed oyster mitigation site can be found in **Enclosure E**. Negative impacts to existing living oyster reef will be avoided during placement of oyster culch proposed for oyster reef creation and enhancement.~~

V) Number of Credits to be Provided

1) Wetland Restoration and Enhancement

Removal of fill and excavation to reference elevations of surrounding estuarine wetlands and tidal flat will result in the restoration of approximately 0.21 acres of estuarine wetland and 0.10 acres of tidal flat. Based on the surrounding habitat types, and active hydrology of the area, it is anticipated that a portion of this restored estuarine wetland will naturally re-vegetate and form estuarine wetland and mangrove habitat.

A dilapidated concrete culvert and associated debris (0.01 acre) will also be removed from below the MHW of a tributary branch of Rincon Bayou. Following removal of the dilapidated culvert and debris, it is expected that the area downstream will have enhanced water flow and circulation. Although benefits of improved circulation and flow will likely extend through much of the project area, direct benefit of this enhanced flow is anticipated to occur in the wetlands near the existing dilapidated culvert. It is anticipated that wetlands will be enhanced within the area of low elevation bordering the tributary and downstream for approximately 50 feet, which is twice the length of the culvert and debris that will be removed.

Removal of the dilapidated culvert and debris as well as removal of portions of fencing within the mitigation site will result in enhancement of approximately 0.22 acre of estuarine emergent wetland. The proposed oil dock facility project will result in permanent impacts to approximately 0.09 acre of tidal flat, 0.26 acre of estuarine wetland, and 0.06 acre of mangrove for a total of 0.41 acre of



impacts. The wetland mitigation project will include 0.21 acres of restoration at a ratio of 0.51 to 1 (created to impacted) and 0.22 acres of enhancement at a ratio of 0.54 to 1. The combination of restoration and enhancement will include 0.43 acres at a ratio of 1.05 to 1 (Table 2) (**Enclosure B - Sheet 2, Wetland Mitigation Site Plan**).

Table 2 Summary of Wetland Mitigation Credits to be Provided

Natural Resource	Project Impacts	Restored (Acres)	Enhanced (Acres)	Total Compensatory Mitigation	Mitigation Ratio (Created: Impacted)
Estuarine Wetland ¹	0.15	0.11	0.22	0.33	1.03: 1
Mangrove	0.05				
Tidal Flat	0.10	0.10		0.10	1.11: 1
TOTAL	0.3	0.21	0.22	0.43	1.05 : 1

¹ it is anticipated that a portion of this restored wetland will naturally re-vegetate and form estuarine wetland and mangrove habitat.

The wetlands proposed to be impacted are adjacent to the Corpus Christi Inner Harbor but otherwise isolated from other waters of the U.S. including wetlands. Land use within the area of the project is primarily industrial and commercial use. Additionally less than 0.5 acre of wetland is proposed to be impacted. Based on the size and location of wetlands present within the project review area, the proposed restoration and enhancement performed as compensatory mitigation for the proposed project will sufficiently offset the proposed project impacts.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

~~2) Oyster Reef Creation and Enhancement~~

~~Approximately 0.10 acre (162 cubic yards) of oyster shell culch will be placed in an area adjacent to an existing marsh restoration site with existing oyster reef complex in Nueces Bay. Approximately 0.5 acres (81 cubic yards) will be placed within existing oyster reef to act as enhancement and 0.5 acres (81 cubic yards) will be placed adjacent to existing oyster reef to create additional oyster reef habitat. The proposed oil dock facility project will result in permanent impacts to approximately 0.09 acres of oyster reef. The oyster mitigation project will include enhancement and creation of 0.10 acres of oyster reef at a ratio of 1.11 to 1 (created to impacted) (Table 3) (**Enclosure B - Sheet 3, Oyster Mitigation Site Plan**). The oyster proposed to be impacted is adjacent to the Corpus Christi Inner Harbor in an industrial area and less than 0.10 acre of oyster is proposed to be impacted. Based on the size and location of oyster present within the project review area, the proposed enhancement and creation performed as compensatory mitigation for the proposed project will sufficiently offset proposed project impacts.~~



Table 3 Summary of Oyster Mitigation Credits to be Provided

Natural Resource	Project Impacts	Restored (Acres)	Created (Acres)	Total Compensatory Mitigation	Mitigation Ratio (Created: Impacted)
Oyster	0.09	0.05	0.05	0.10	1.11: 1

VI) Mitigation Work Plan

1) Wetland Restoration and Enhancement

A wetland delineation of the wetland mitigation site was completed on March 22, 2016. The wetland delineation report for the proposed wetland mitigation site can be found in **Enclosure D**. The delineation was conducted in accordance with the USACE Wetland Delineation Manual (1987) and the latest guidelines set forth in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Plan Region (Version 2.0) (2010). The existing estuarine emergent wetland and tidal flat adjacent to upland areas to be excavated will be used as reference elevations for restoration.

Approximately 0.21 acres of uplands will be excavated and graded to reference elevations to restore approximately 0.10 acres of tidal flat and 0.11 acres of estuarine marsh. The dilapidated culvert and debris and fencing within the mitigation site will be removed to enhance approximately 0.22 acre of estuarine emergent marsh. A temporary work corridor will be marked with construction fencing so that construction vehicles are able to safely access the site. The temporary work corridor will be approximately 40-foot wide by 750-foot long and will result in 0.32 acres of temporary wetland impacts. Timber boards or other matting will be utilized to minimize impacts to wetlands in the temporary work corridor. Excavated material will be hauled off-site for storage and disposal. Following wetland mitigation site construction the temporary impact area (temporary work corridor) will be returned to pre-construction elevation and grade. A post-construction survey of the wetland mitigation site will be conducted and submitted to the USACE within 60 days of mitigation project completion.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) Oyster Reef Creation and Enhancement

The oyster mitigation site is located on the eastern side of Nueces Bay. The oyster and seagrass survey for the proposed oyster mitigation site can be found in **Enclosure E**. In order to provide oyster mitigation with greater likelihood of improved ecological function an approximately 0.10 acre site with existing oyster was selected. Approximately 0.05 acres (81 cubic yards) of oyster cultch will be placed within existing scattered oyster reef to act as enhancement and 0.05 acres (81 cubic yards) will be placed in an area of mud/soft bottom adjacent to existing scattered oyster reef to create additional oyster reef. Oyster cultch will be placed so that at least 6 inches of vertical relief is obtained within enhanced and created oyster reef. Oyster cultch will be obtained from wholesale seafood houses and allowed to weather according to Texas Parks and Wildlife Department (TPWD) policies for the placement of shell in bay systems from which the shell did not originate. A TGLO coastal surface lease will be obtained prior to placement of oyster cultch.



VII) Maintenance Plan

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~~No~~Star will be responsible for maintaining the wetland and oyster mitigation sites to remain in compliance with this mitigation plan during years project monitoring is required or other actions are required by the USACE for the site to meet target success criteria. Once the USACE has determined that success criteria have been met, maintenance of the wetland mitigation site will be the responsibility of CBBEP. Maintenance of the wetland mitigation site will also include removing trash and non-natural debris.

VIII) Ecological Performance Standards

1) Wetland Restoration and Enhancement

Success of the wetland restoration and enhancement mitigation effort will be evaluated using the following standards:

Year 1 – Vegetative percent cover of target wetland vegetation in restored areas shall be equal to or greater than 25% after one complete growing season or one year after construction, whichever is longer.

Year 2 – Vegetative percent cover of target wetland vegetation in restored areas shall be equal to or greater than 50% after two complete growing seasons or two years after construction, whichever is longer.

Year 3 – Vegetative percent cover of target wetland vegetation in restored areas shall be equal to or greater than 70% three growing seasons after construction or 3 years after construction, whichever is longer. If the site meets target success criteria after Year 3, USACE may determine that no additional monitoring is required.

Year 4 – Vegetative percent cover of target wetland vegetation in restored areas shall remain equal to or greater than 70% four growing seasons after construction or 4 years after construction, whichever is longer. If the site meets target success criteria after Year 4, USACE may determine that no additional monitoring is required.

Year 5 – Vegetative percent cover of target wetland vegetation in restored areas shall remain equal to or greater than 70% five growing seasons after construction or 5 years after construction, whichever is longer.

Target wetland vegetation may include, but is not limited to, sea ox-eye daisy (*Borrchia frutescens*), saltwort (*Batis maritima*), glasswort (*Salicornia bigelovii*), key grass (*Distichlis littoralis*), salt grass (*Distichlis spicata*), and sea purslane (*Sesuvium portulacastrum*).

No significant coverage of invasive species has been observed at the proposed wetland mitigation site and it is not anticipated that invasive species establishment at the site will be significantly greater than the surrounding habitats. Monitoring of the wetland mitigation site will be performed in



accordance with USACE Regulatory Guidance Letter 08-03 and if an invasive species becomes a dominant species within the mitigation site this will be indicated in the annual monitoring report.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) Oyster Reef Creation and Enhancement

The oyster mitigation site will be monitored annually for five years following the placement of oyster cultch. Transects will be established and random samples will be taken along each transect using 0.5 meter quadrats. The number of living oysters within each sample quadrat will be counted and measured for shell length. If spat are present these will also be counted and measured for shell length (spat/m²). The estimated density (oysters/m²) and average size of oysters and spat within the mitigation site will be included in annual monitoring reports and submitted to the USACE within 30 days of each annual monitoring event. The mitigation success criteria for the oyster mitigation site (including areas of creation and enhancement) will be ≥ 25 oysters/m². Once estimated oyster density within the mitigation site has reached the success criteria the USACE may determine that no additional monitoring is required. If after five years of monitoring the success criteria have not been met additional actions may be deemed necessary by the USACE to achieve success of the oyster mitigation project.

IX) Monitoring Requirements

1) Wetland Restoration and Enhancement

Annual monitoring will be conducted to document site performance in the context of the Ecological Performance Standards described above. Monitoring and reporting will be conducted annually for a period of five years in accordance with USACE Regulatory Guidance Letter 08-03. Annual monitoring reports will include a description of monitoring methodology, results, and photographic documentation of site conditions.

2) Oyster mitigation replaced with SAV mitigation (See Attachment B)

2) Oyster Reef Creation and Enhancement

Annual monitoring will be conducted to document site performance in the context of the Ecological Performance Standards described above. Monitoring and reporting will be conducted annually for a period of five years. Annual monitoring reports will include a description of monitoring methodology, results, and photographic documentation of site conditions.

X) Long-Term Management Plan

The wetland mitigation site is within the Nueces Delta Preserve which is managed by CBBEP. This site and the surrounding property will be managed in accordance with the conservation goals of the Nueces Delta Preserve. The oyster mitigation site is located with public submerged lands and CBBEP will be made the custodian of the TGLCO coastal surface lease. Nueces Bay is also currently closed to commercial oyster fishing. (See Attachment B)

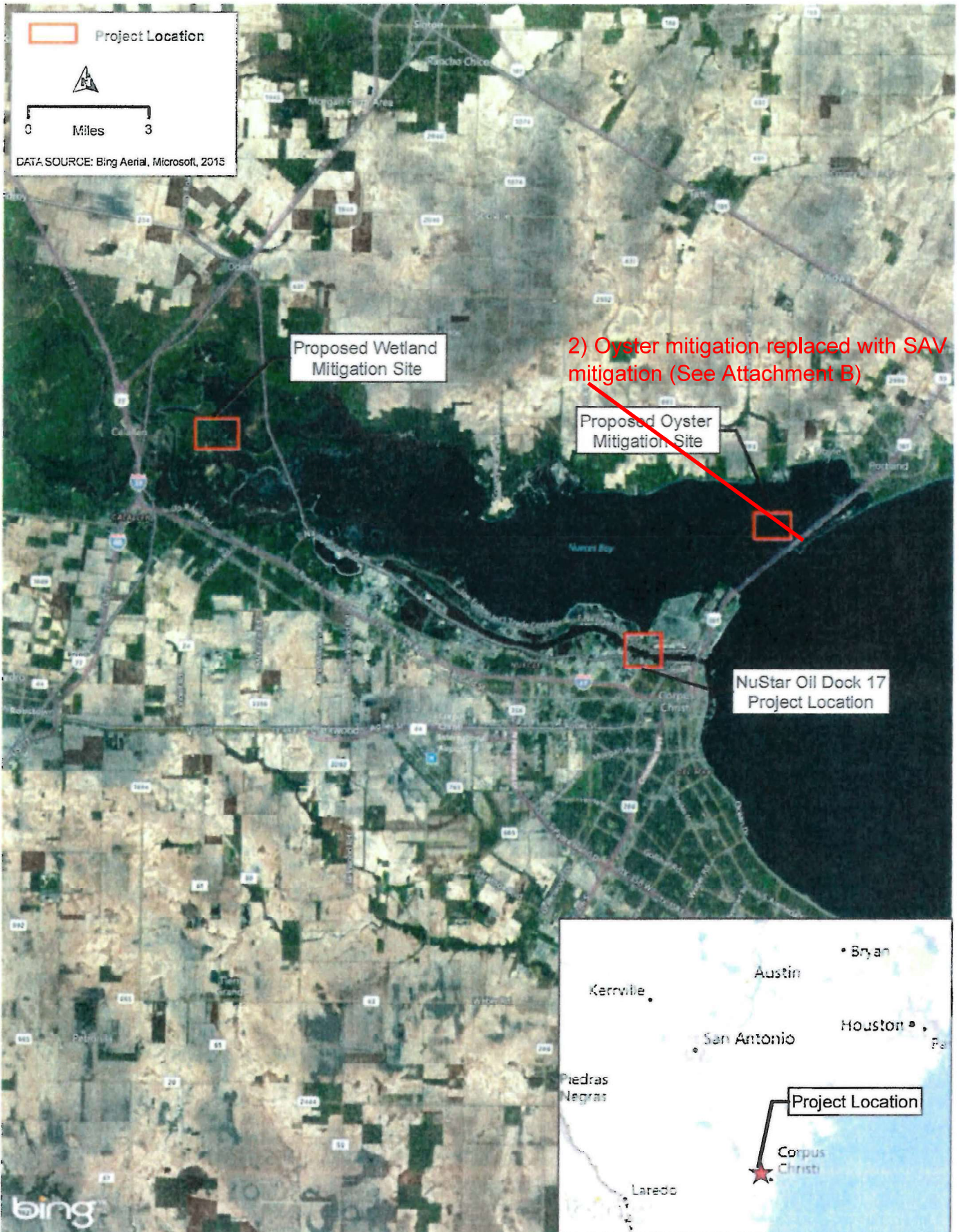
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XI) Adaptive Management Plan**Revised POCCA**

If results of the monitoring indicate that mitigation is not successful, ~~NuStar~~ will coordinate with USACE to discuss an appropriate course of action. Example remedies may include, but are not limited to planting efforts, alternative sites, or other remedies.

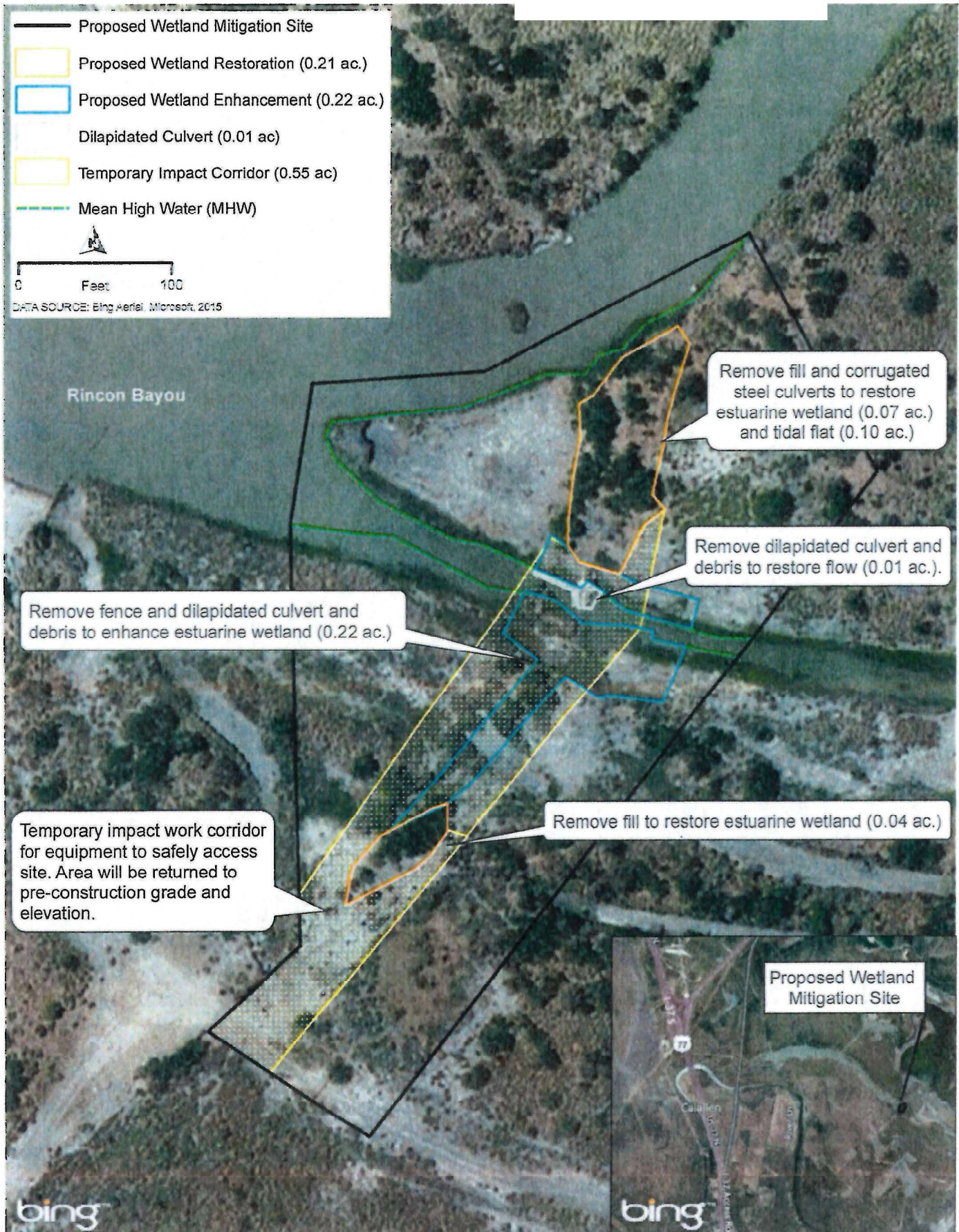
XII) Financial Assurances**Revised POCCA**

~~NuStar Energy, L.P.~~ is an established company which has demonstrated financial capability and reliability in the construction of other oil docks and facilities within the region.



~~NUSTAR OIL DOCK 17~~

MITIGATION PROJECT LOCATION MAP



~~NUSTAR OIL DOCK 17~~

WETLAND MITIGATION SITE PLAN

