US Army Corps of Engineers®
Galveston District

Gulf Intracoastal Waterway, Texas
Sabine River to High Island

Dredged Material Management Plan

Final Preliminary Assessment

U.S. Army Engineer District, Galveston
Southwestern Division

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Acronyms and Abbreviations

BU	Beneficial Use
CEQ	Council on Environmental Quality
CZMA	Coastal Zone Management Act
DMMP	Dredged Material Management Plan
EA	Environmental Assessment
EPA	Environmental Protection Agency
EO	Executive Order
ER	Engineering Regulation
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GIWW	Gulf Intracoastal Waterway
HGNC	Houston-Galveston Navigation Channels, Texas
MOA	Memorandum of Agreement
NED	National Economic Development
NEPA	National Environmental Policy Act
NWR	National Wildlife Refuge
PA	Placement Area
PPA	Project Partnership Agreement
TxDOT	Texas Department of Transportation
1975 FES	Final Environmental Statement, Maintenance Dredging Gulf Intracoastal Waterway Texas Section, Main Channel and Tributary Channels, October 1975.

Gulf Intracoastal Waterway, Texas
Sabine River to High Island Preliminary Assessment

STUDY AUTHORITY AND PURPOSE

This Preliminary Assessment pursued under the authority of Section 216 of the Flood Control Act of 1970 complies with Engineer Regulation (ER) 1105-2-100; page G-2 of the Planning Guidance Notebook, dated April 22, 2000. The purpose of this assessment is to establish whether a more detailed Dredged Material Management Plan (DMMP) study is required, and if so, to provide information necessary to recommend its prioritization in the District's budgetary process.

PROJECT INFORMATION

General Description

The Gulf Intracoastal Waterway (GIWW) is an inland waterway system that stretches from Brownsville, Texas, along the entire Gulf of Mexico to St. Marks, Florida. The GIWW provides over 1,300 miles of protected waterway for all types of shallow-draft vessels. The Texas section of the GIWW is a 12-foot deep by 125-foot wide channel that spans 423 miles along the Texas coast (Figure 1) from Brownsville to the Texas-Louisiana border and ties Texas ports to the national waterway network. The study area (Figure 2) involves about 30 miles of the GIWW in Chambers, Jefferson, and Orange Counties. Between the Sabine River and the Texas border with Louisiana, the GIWW co-exists with the Sabine-Neches Waterway and the Project Partnership Agreement (PPA) for that section is addressed in the Sabine-Neches Waterway PPA.

Figure 1 – Texas Section of Gulf Intracoastal Waterway

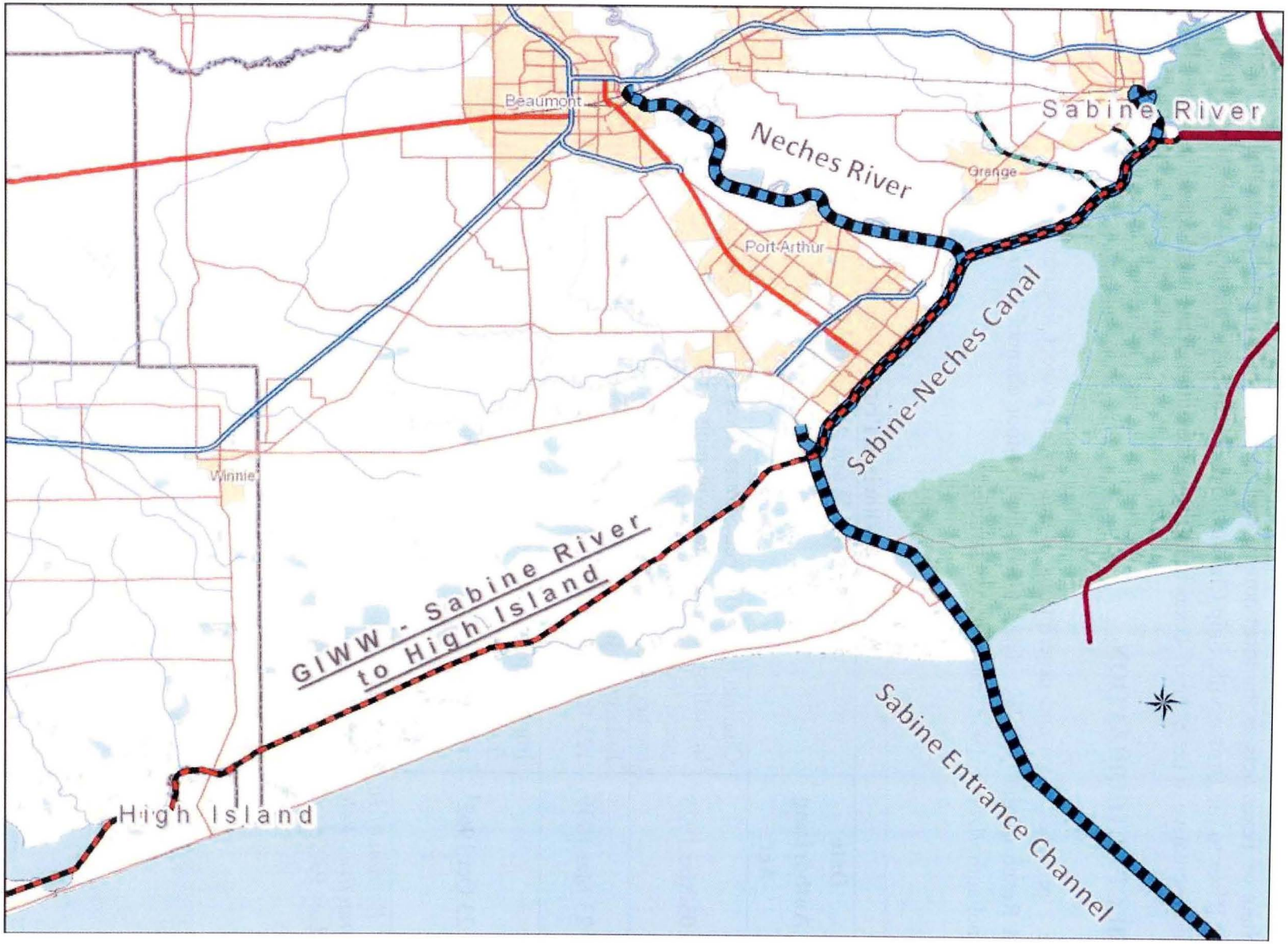

Figure 2 - Map Overview of GIWW, Sabine River to High Island Reach

Non-Federal Sponsor

The State of Texas acts as the local non-Federal sponsor for the main channel of the GIWW from the Sabine River to the Brownsville Ship Channel. The Texas Department of Transportation (TxDOT) acts as a representative to the State of Texas in fulfilling the duties of the non Federal sponsor.

PROJECT AUTHORIZATION

Table 1 provides dates and descriptions of authorized project features for the Sabine River to High Island Reach of the GIWW. The 16-foot by 150-foot channel from Sabine River to Houston Ship Channel authorized in 1962 was never constructed.

Table 1 -Authorized Project Features

Date Authorizing Act	Project and Work Authorized	Documents
03 Mar 1925	Channel 9 by 100 feet, Sabine River to Galveston Bay. Including passing lanes, widening at bends, locks or guard locks, and railway bridges over artificial cuts, as are necessary.	House Document 238, 68th Congress, 1st Session.
23 Mar 1939	Enlarge waterway to a depth of 12 feet and a width of 125 feet from Sabine River to Corpus Christi	House Document 230, 76th Congress, 1st Session.
23 Oct 1962[1]	Improve main channel 16 feet deep and 150 feet wide from Sabine River to Houston Ship Channel; with two relocations; relocate main channel in Matagorda Bay and Corpus Christi Bay; and maintaining existing Lydia Ann Channel.	House Document 556, 87th Congress, 2nd Session.

[1] *Portion of 16-foot by 150-foot channel from Sabine River to Houston Ship Channel is inactive. Relocation of channel in Matagorda Bay deauthorized under Section 12 of Public Law 93-251 (1986 Deauthorization list).*

PLACEMENT AREAS AND DREDGING

Placement Areas

Of the 27 placement areas (PA) designated for use along the Sabine River to High Island Reach of the GIWW, 22 are confined upland and 5 are partially confined upland. See Figure 3 and Figure 4 for approximate locations of the PAs in this reach. These PAs were coordinated in the Final Environmental Statement, Maintenance Dredging Gulf Intracoastal Waterway Texas Section, Main Channel and Tributary Channels, October 1975 (1975 FES). Based on historic dredging volumes and PA usage, and projected dredging estimates and dredge material placement, 19 confined upland and 4 partially confined upland PAs will be used over the 20-year period of analysis. PAs 1, 2, and 3 were not used for capacity calculations for the purposes of this preliminary assessment because the reach these PAs serve does not historically shoal and current operating practices do not utilize them for other reaches. The exclusion of PAs 1, 2, and 3 from capacity calculations herein does not mean that they will not be available should other-than-typical conditions present themselves during the period of analysis considered for operation of the GIWW for this preliminary assessment. PA 14 is not available because of the recent construction of flood control gates and canal within the PA. Projects that have been completed, but are not included in the National Economic Development (NED) plan such as two beneficial use (BU) sites within the McFadden National Wildlife Reserve (NWR) were not included in maintenance material placement capacity calculations because there is no long-term plan to continue their use. Descriptions of the PAs located in this reach are shown in Table 2.

Table 2 includes data for each PA including PA type, approximate reach served, size, and estimated maximum capacity for dredged maintenance material. Also included in Table 2 are projected dredged material volume estimates for each PA including volume per dredging cycle, cycle length, and total projected volume over the 20-year period of analysis considered for this study. Remaining usable life was calculated for each PA by dividing the estimated maximum PA capacity by the volume of maintenance material per dredging cycle and then rounding the result down to the nearest whole number. The rounded result was then multiplied by the length in years of each dredging cycle. This method eliminates partial dredging cycle maintenance volume that would not be placed into the PA until after the completion of the 20-year period of analysis. For the purposes of this calculation the maintenance material volume was reduced by a factor of 0.80 to account for estimated consolidation within the PAs following placement and prior to the next dredging cycle. Capacities of the upland partially confined PAs were assumed to have no engineering limitation for this study.

A review of the PA capacities relative to projected dredging volumes indicates there are no capacity limitations on the Sabine River to High Island Reach over the next 20 years. Although PA 14 is not available, the dredging volume assigned to that PA can easily be diverted to the immediately adjacent PA 13 and/or PA 15 with minimal additional pumping distance required.

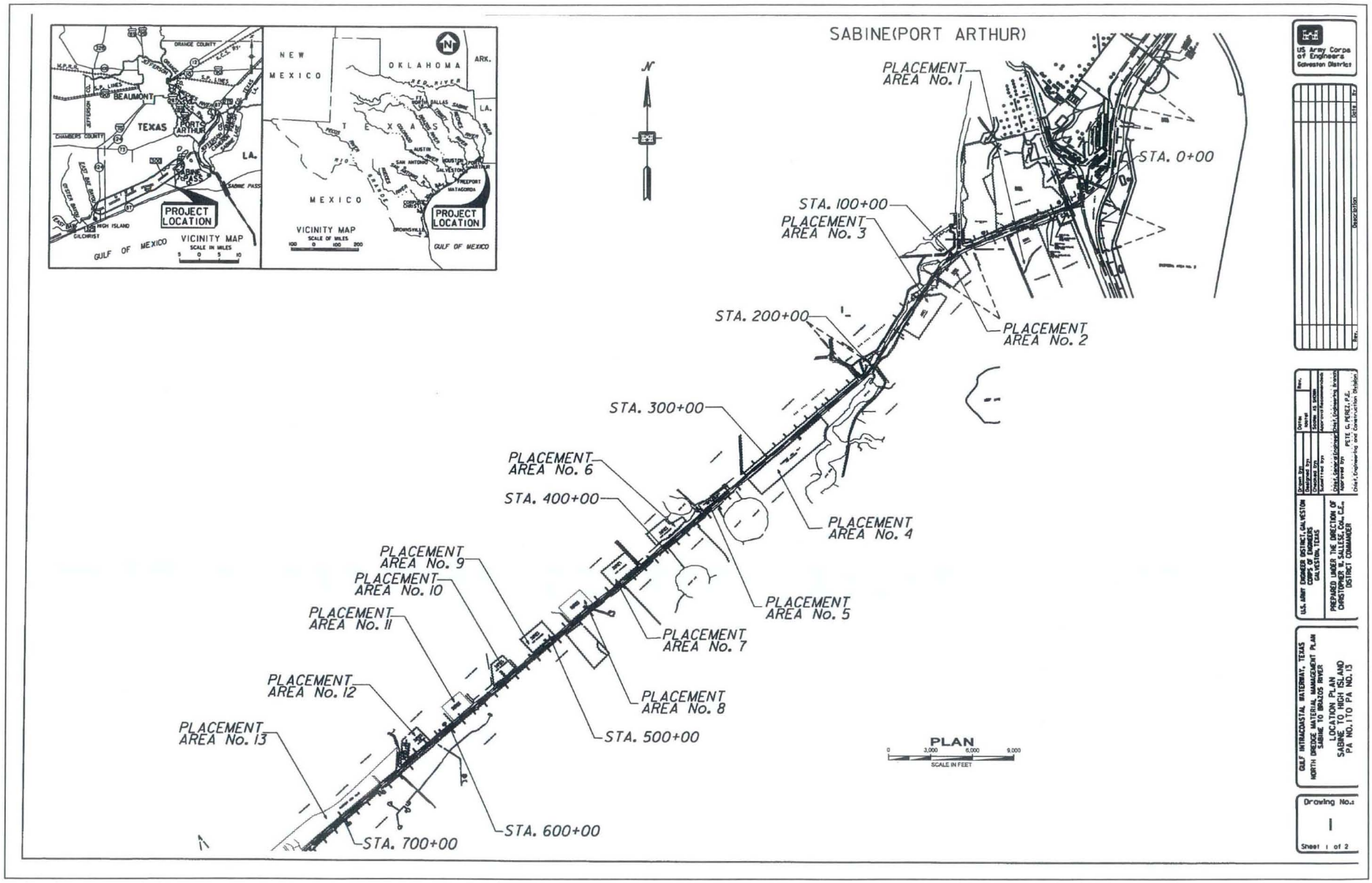

Figure 3 – Placement Areas 1 through 13 designated for use for the Sabine River to High Island Texas Reach of the GIWW

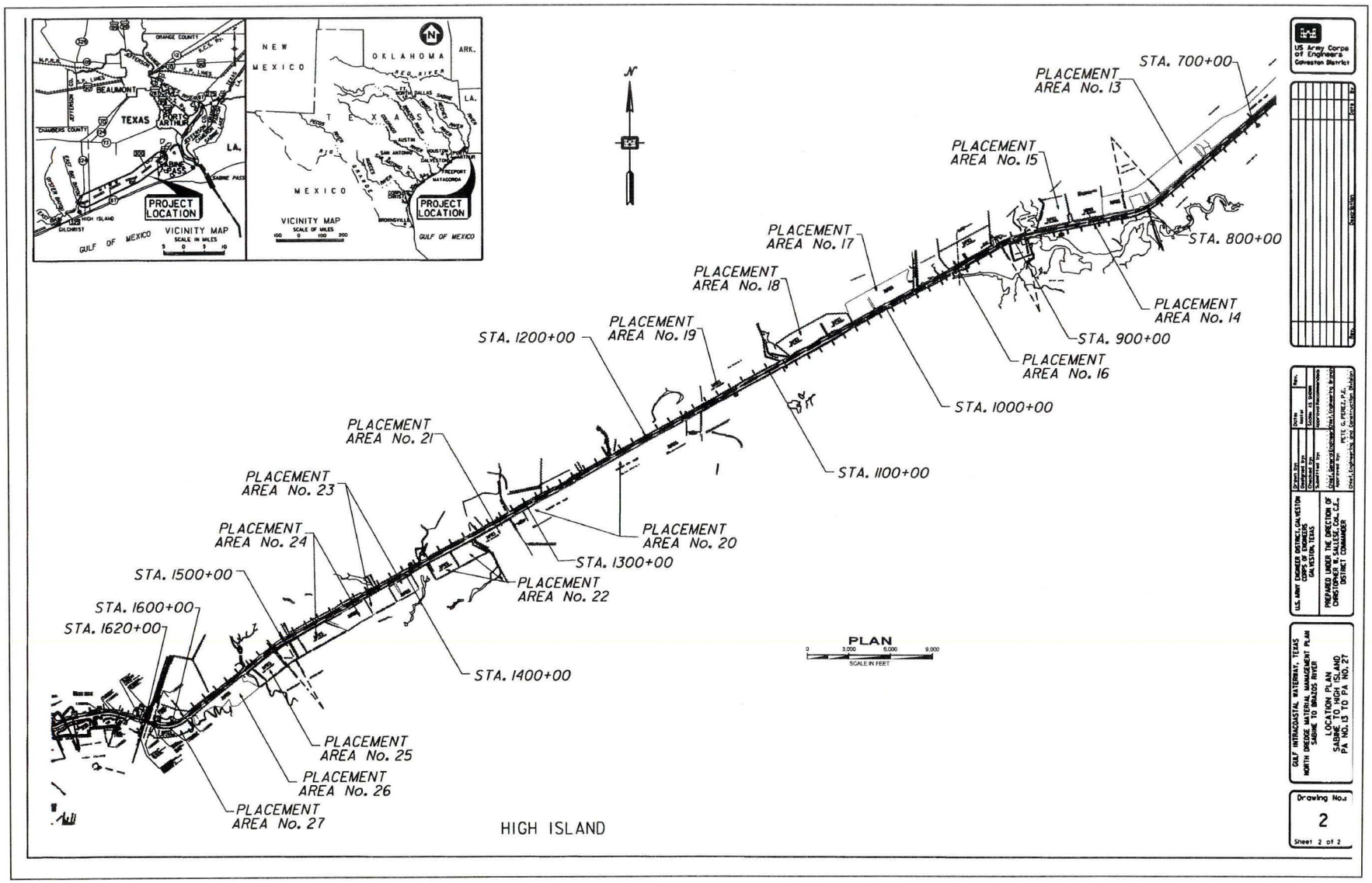

Figure 4 – Placement Areas 13 through 27 designated for use for the Sabine River to High Island Texas Reach of the GIWW

Dredging Reaches

Sabine River to High Island is a reach that historically covers Stations 0+00 through 1620+00 of the GIWW. The dredged material from this reach is placed in PAs 1 through 27. The reach from Stations 0+00 to 220+00 has not been dredged since 1973. Material from Stations 220+00 to 450+00 is dredged on an average of every twenty years. Material from Stations 450+00 through 650+00 is dredged on an average of every seven years. Material from Stations 650+00 through 1620+000 is dredged on an average of every five years. Between 1990 and 2010, the channel has been dredged and maintained 4 times. The amount of material dredged from these reaches during this period is approximately 4,570,879 cubic yards. The historical dredged material quantity by year and reach is shown in Table 3. The majority of the material dredged was pumped to the designated PAs located adjacent to the reaches. Historical dredging records were analyzed from the Galveston District Dredging History Database and used to establish maintenance quantities, shoaling rates and future project dredging quantities for the channel reaches.

Table 2 - Placement Area Usage and Capacities											
PA	Type[1]	Reach	PA Size[2] (ac)	Levee Height (ft)	Max Levee Height[3] (ft)	PA Capacity[3] (cy)	Historic Dredge Cycle (yr)	Historic Dredge Quantity/ Cycle (cy)	Future Dredge Quantity[4] (cy)	Remaining PA Life[5] (yr)	Comments
1	CU	0+00 - 80+00	233	9	12	1,204,460	NA	NA	0	NA	Available but not used
2	CU	80+00 - 120+00	55	9	12	305,477	NA	NA	0	NA	Available but not used
3	CU	120+00 - 220+00	98	9	12	527,730	NA	NA	0	NA	Available but not used
4	CU	220+00 - 330+00	200	8	12	1,240,346	20	17,880	17,880	1720	
5	CU	330+00 - 370+00	16	9	12	111,289	20	33,880	33,880	80	
6	CU	370+00 - 410+00	70	8	12	585,183	20	37,300	37,300	380	
7	CU	410+00 - 450+00	61	9	12	333,512	20	44,520	44,520	180	
8	CU	450+00 - 490+00	55	10	12	328,240	7	46,242	92,484	56	
9	CU	490+00 - 530+00	52	10	12	200,229	7	51,751	103,502	28	
10	CU	530+00 - 570+00	40	10	12	148,716	7	26,026	52,052	49	
11	CU	570+00 - 610+00	44	13	13	296,107	7	38,717	77,434	63	
12	CU	610+00 - 650+00	56	10	12	206,697	7	60,690	121,380	28	
13	CU	650+00 - 830+00	465	10	12	3,955,528	5	102,965	411,860	240	
14	UPC	830+00 - 860+00	NA	NA	NA	0	5	54,090	216,360	0	Not Available
15	UPC	860+00 - 900+00	60	NA	NA	See Comments	5	45,890	183,560	See Comments	No Engineering Limit
16	CU	900+00 - 960+00	110	5	14	1,420,669	5	42,000	168,000	210	
17	CU	960+00 - 1030+00	161	11	12	1,291,324	5	80,815	323,260	95	
18	CU	1030+00 - 1090+00	145	8	12	1,025,451	5	75,755	303,020	80	
19	UPC	1090+00 - 1160+00	134	NA	NA	See Comments	5	81,055	324,220	See Comments	No Engineering Limit
20	UPC	1160+00 - 1310+00	300	NA	NA	See Comments	5	156,880	627,520	See Comments	No Engineering Limit

[1]CU - Confined Upland; UPC - Upland Partially Confined
[2]PA size based on a horizontal plane bounded by the estimated levee centerline alignment.
[3]PA capacity based on maximum levee height determined for the 2000 Preliminary Project Assessment.
[4] Quantity is only that identified for the 20-year period of analysis.
[5]Remaining PA life determined using the following formula: [PA capacity divided by dredging quantity per cycle x 0.80 (rounded down to the nearest whole number)] times the dredging cycle length. The dredging quantity is reduced by a factor of 0.8 to account for shrinkage of dredged material in the PA. Partial maintenance cycles are discounted in the calculation.

Table 2 - Placement Area Usage and Capacities (Continued)											
PA	Type[1]	Reach	PA Size[2] (ac)	Levee Height (ft)	Max Levee Height[3] (ft)	PA Capacity[3] (cy)	Historic Dredge Cycle (yr)	Historic Dredge Quantity/ Cycle (cy)	Future Dredge Quantity[4] (cy)	Remaining PA Life[5] (yr)	Comments
22	CU	1350+00 - 1390+00	102	10	12	364,913	5	39,380	157,520	55	
23	CU	1390+00 - 1420+00	54	11	12	364,179	5	38,370	153,480	55	
24	CU	1420+00 - 1490+00	71	13	13	378,978	5	48,155	192,620	45	
25	CU	1490+00 - 1530+00	192	8	10	669,821	5	52,750	211,000	75	
26	CU	1530+00 - 1590+00	88	12	12	267,510	5	47,610	190,440	35	
27	CU	1590+00 - 1620+00	36	8	12	284,040	5	30,435	121,740	55	
BU1	BU	220+00 - 830+00	NA	NA	NA	See Comments	Unknown	Unknown	0	See Comments	McFaddin NWR / No Engineering Limit
BU2	BU	960+00 - 1160+00	NA	NA	NA	See Comments	Unknown	Unknown	0	See Comments	McFaddin NWR / No Engineering Limit

[1]CU - Confined Upland; UPC - Upland Partially Confined
[2]PA size based on a horizontal plane bounded by the estimated levee centerline alignment.
[3]PA capacity based on maximum levee height determined for the 2000 Preliminary Project Assessment.
[4] Quantity is only that identified for the 20-year period of analysis.
[5]Remaining PA life determined using the following formula: [PA capacity divided by dredging quantity per cycle x 0.80 (rounded down to the nearest whole number)] times the dredging cycle length. The dredging quantity is reduced by a factor of 0.8 to account for shrinkage of dredged material in the PA. Partial maintenance cycles are discounted in the calculation.

Table 3 - Historical Dredged Material Quantity by Year and Reach				
Year	**Beginning Section (Station)**	**End Section (Station)**	**Total (cy)**	**Reach Total (cy)**
2010	450+00	490+00	25,000	
	490+00	530+00	25,000	
	530+00	570+00	28,000	
	570+00	610+00	37,000	
	610+00	650+00	38,000	
	650+00	830+00	124,000	
	830+00	860+00	40,000	
	860+00	900+00	26,000	
	900+00	960+00	29,000	
	960+00	1030+00	38,000	
	1030+00	1090+00	58,000	
	1090+00	1160+00	130,000	
	1160+00	1310+00	151,000	
	1310+00	1350+00	56,000	
	1350+00	1390+00	25,000	
	1390+00	1420+00	25,000	
	1420+00	1490+00	54,000	
	1490+00	1530+00	61,000	
	1530+00	1590+00	61,000	
	1590+00	1620+00	36,000	**1,067,000**
2007	450+00	490+00	50,000	
	490+00	530+00	97,000	
	530+00	570+00	20,500	
	570+00	610+00	20,500	
	610+00	650+00	86,000	
	650+00	830+00	76,000	
	830+00	860+00	76,000	
	860+00	900+00	75,000	
	900+00	960+00	60,000	
	960+00	1030+00	187,000	
	1030+00	1090+00	128,000	
	1090+00	1160+00	78,000	
	1160+00	1310+00	276,000	
	1310+00	1350+00	47,000	
	1350+00	1390+00	29,000	
	1390+00	1420+00	26,000	
	1420+00	1490+00	37,000	
	1490+00	1530+00	40,000	
	1530+00	1590+00	22,800	
	1590+00	1620+00	15,200	**1,447,000**

Table 3 - Historical Dredged Material Quantity by Year and Reach (continued)				
Year	**Beginning Section (Station)**	**End Section (Station)**	**Total (cy)**	**Reach Total (cy)**
2003	220+00	330+00	17,871	
	330+00	370+00	33,883	
	370+00	410+00	37,293	
	410+00	450+00	44,510	
	450+00	490+00	57,120	
	490+00	530+00	25,850	
	530+00	570+00	25,850	
	570+00	610+00	53,117	
	610+00	650+00	49,402	
	650+00	830+00	156,748	
	830+00	860+00	45,242	
	860+00	900+00	27,459	
	900+00	960+00	23,897	
	960+00	1030+00	43,144	
	1030+00	1090+00	61,910	
	1090+00	1160+00	61,110	
	1160+00	1310+00	145,413	
	1310+00	1350+00	56,267	
	1350+00	1390+00	48,419	
	1390+00	1420+00	47,373	
	1420+00	1490+00	46,520	
	1490+00	1530+00	54,895	
	1530+00	1590+00	51,529	
	1590+00	1620+00	15,422	**1,230,244**
1994	650+00	830+00	55,109	
	830+00	860+00	55,109	
	860+00	900+00	55,109	
	900+00	960+00	55,109	
	960+00	1030+00	55,109	
	1030+00	1090+00	55,109	
	1090+00	1160+00	55,109	
	1160+00	1310+00	55,109	
	1310+00	1350+00	55,109	
	1350+00	1390+00	55,109	
	1390+00	1420+00	55,109	
	1420+00	1490+00	55,109	
	1490+00	1530+00	55,109	
	1530+00	1590+00	55,109	
	1590+00	1620+00	55,109	**826,635**
Total Dredged from Reaches = 4,570,879 CY				**4,570,879**

REAL ESTATE EASEMENTS

For the placement of dredged material the following types of easements are utilized: 1) Perpetual; 2) Revocable; 3) Temporary; or 4) Navigation Servitude (in which the Government may utilize open water placement areas). These easements may or may not have conditions that go along with the easement. When there are conditions on the easement they are documented in the Real Estate instrument or Deeds. All easements are conveyed from the land owner(s) or the non-Federal sponsor to the Government. The costs for the easements are the fair market value at the time of conveyance. The Underlying Fee Owner(s) information is available from the respective County Appraisal Districts.

- A Perpetual Easement is an easement that is to last without any limitation of time; the easement holder has a right on the property of another person which to an extent is permanent.

- A Revokable Easement means that the Underlying Fee Owner(s) has the capability to revoke the Government's right to use the land; however, there is a process that must be followed in order to revoke the easement. As an example, the Underlying Fee Owner(s) would have to submit a letter to the District Engineer requesting the release of the easement. A minimum 30-day advanced notice is required and no release can happen during a dredging cycle.

- Temporary Easements are easements where the Government has the right to use the land, as described in the conveyance documentation, for a specific amount of time.

- Navigational Servitude is described in ER 405-1-12 (1 May 1998). "The navigation servitude is the dominant right of the Government under the Commerce Clause of the U.S. Constitution (U.S. Const. Article I, Section 8, Clause 3) to use, control and regulate the navigable waters of the United States and the submerged lands thereunder for various commerce-related purposes including navigation and flood control. In tidal areas, the servitude extends to all lands below the mean high water mark. In non-tidal areas, the servitude extends to all lands within the bed and banks of a navigable stream that lie below the ordinary high water mark."

Property owners and easements for each PA are identified in Table 4.

Table 4: Placement Area Real Estate Easements		
PA	[1]Owner *(currently owns the land the PA is located on)*	[2]Type of Easement: Perpetual, Revocable, or Navigational Servitude
1	Private Owners	Perpetual & [3]Revocable
2	Private Owner and TPWD	Perpetual
3	TPWD	Perpetual
4	USFWS and TPWD	Perpetual
5	Private Owner	Perpetual
6	Private Owner	Perpetual
7	USFWS	Perpetual
8	USFWS	Perpetual
9	USFWS	Perpetual
10	USFWS	Perpetual
11	USFWS	Perpetual
12	USFWS	Perpetual
13	Private Owner	Perpetual
14	Private Owner	Perpetual
15	Private Owner	Perpetual
16	Private Owners, USA	Perpetual
17	Private Owners	Perpetual
18	Private Owner	Perpetual
19	Private Owners	Perpetual
20	Private Owner	Perpetual
21	Private Owner	Perpetual
22	Private Owner	Perpetual
23	Private Owner	Perpetual
24	Private Owner	Perpetual
25	Private Owner	Perpetual
26	Private Owners and Jefferson County	Perpetual
27	Private Owner and USFWS	Perpetual

[1]TPWD – Texas Parks and Wildlife Department
USFWS – US Fish and Wildlife Service
USA – United States of America
[2]Perpetual: Perpetual Right-of-Way (ROW) and Spoil
Revocable: Revocable Easement
There are no Navigational Servitude easement types for this reach of the GIWW
[3]Revocable Easement dated 8-18-63; not revoked.

ECONOMIC ASSESSMENT

Prior Economic Conditions

The GIWW was originally constructed to provide a protected inland waterway connection between gulf ports; however, the GIWW ultimately enabled the gulf ports to be linked via the inland waterway system with the entire country. The segment from the Sabine River to High Island was proposed as a land locked reach, departing from the earlier principle of dredging through open bays. The authorization in 1925 provided for a channel nine feet deep and 100 feet wide. The channel was designed for shallow draft barges to transport commodities to and between the nation's major ports.

Current Economic Conditions

The economic analysis for determining the feasibility of continued maintenance of the waterway involved a comparison of transportation costs for commodities being shipped on the waterway now and those projected in the future, with the costs of shipping those same commodities by the least costly alternate transportation mode. Transportation costs were developed for each mode and the difference between each of the modes and the GIWW reflects the cost savings for each mode. The results showed the average annual transportation costs for the GIWW to be $308,531,000 and the next least costly alternative to be rail. Rail costs vary by distance traveled with higher costs per ton for shorter distances. By taking an average of the cost per ton-mile for trips less than 500 miles provided by the Department of Transportation, the break even miles equivalent to the cost transporting on the GIWW is 127 miles round trip. This distance is roughly equivalent to the distance from Houston ports to Beaumont ports. Also, a portion of the tonnage on this stretch of the GIWW travels distances farther than 127 miles round trip. Hence, transportation costs on the GIWW still remain the most economical mode.

From 2000 to 2010, an average of 51 million tons was transported on this section of the waterway, with the tonnage steadily increasing 1.2 percent annually. Since 1960, the tonnage transported on this section of the waterway increased an average of 1.6 percent. Tonnage for petroleum and petroleum products has increased 3.9 percent annually from 2000 to 2010. Transportation costs on the GIWW are consistently cheaper than other modes of transport, so this trend is expected to continue. See Table 5 for tonnage forecasts and projected transportation costs throughout the period of analysis for both the GIWW and rail.

Table 5
GIWW, Texas, Sabine River to High Island
Transportation Cost Forecast

YEAR	TONNAGE FORECAST	TRANSPORTATION COST (GIWW)	TRANSPORTATION COST (RAIL- 100 MILES ONE WAY)
2012	59,104,000	$391,432,000	$683,426,000
2017	62,524,000	$469,830,000	$652,668,000
2022	66,142,000	$563,930,000	$783,389,000
2027	69,969,000	$676,877,000	$940,290,000
2032	74,017,000	$812,446,000	$1,128,617,000
Average Annual Transportation Cost (2012 to 2032)*		**$308,531,000**	**$443,911,000**

*Discount Rate of 4%

Maintenance Cost

The cost effectiveness of continued maintenance was evaluated based on an assessment of benefit indicators and a comparison of the average annual maintenance costs. The benefit indicators evaluated were overall tonnage and vessel fleet trends.

The present channel dimensions of the GIWW were authorized in 1939. At the time, much of the remaining Texas portion of the GIWW had not been completed. No separate maintenance forecasts were made for the study reach in the authorizing documents, but maintenance of the GIWW from the Sabine River to Corpus Christi was estimated at $637,500 in 1939 dollars. The average annual maintenance cost for the past 25 years, based on this same area of the GIWW, was $208,119 adjusted to 1939 dollars. In 2010 dollars, this equates to an average annual cost of $3,276,457 for Sabine River to Corpus Christi, and an average annual cost of $640,341 for Sabine River to High Island. The size of the barges has also increased in the GIWW since authorization.

In addition, the project was based on 45 feet wide barges with a maximum length of 750 feet, and present tow configurations often consist of two or three barges 54 feet by 298 feet. Thus the size of the tows has also increased since project authorization. The economic assessment worksheet is presented in Table 6.

Table 6
GIWW, Texas, Sabine River to High Island
Economic Assessment Worksheet for Continued Maintenance Dredging

	Economic Statistics	Authorizing Study	Current Conditions	Assessment	Summary
Benefit Indicators	Commodity Types	Crude petroleum, petroleum, sand and gravel	Petroleum and petroleum products, sand and gravel, agricultural products, sulfur, salt, shell	Steady/Up	Up
	Tonnage Estimates	None, study reach not yet constructed	53 million in 2008	Up	
	Growth Rates	1960-2015 petroleum tonnage was forecasted to increase at an annual rate of 1.0%	1960-2008 tonnage increased at an annual rate of 1.6%	Up	
	Vessel Types	Barges and fishing boats	Barges	Up	
	Vessel Sizes	Maximum width of 45 feet, Maximum length of 750 feet	108 Feet wide x 1,138 feet long	Up	
Cost Indicators*	Dredging Cycle	Not stated	2-5 years, longer in some reaches	N/A	Down
	Annualized Dredging Quantities	Not stated	1,303,607 cubic yards per year, 1994-2010	N/A	
	Average Annual Maintenance Cost	$637,500	$208,119	Down	
	Price Level	1939	1985-2010 adjusted to 1939 dollars	N/A	
Conclusion	**Justification of Continued Maintenance Dredging is Warranted**				

N/A = Not Applicable
*Cost Indicators reflect aggregate totals for the GIWW from Sabine River to Brazos River in order to compare to 1939 levels.

Conclusions

Analysis of the economic benefit and cost indicators shows that continued maintenance of the GIWW from Sabine River to High Island is warranted. This determination is based on overall increases in tonnage levels, tow sizes, and decreases in project maintenance costs. Additional economic analysis is not necessary.

ENVIRONMENTAL COMPLIANCE

NEPA Documents

The existing Environmental Compliance documents for the project are listed in Table 7.

Table 7 – NEPA Documents for Environmental Compliance		
Document	**[1]Issuing Agency**	**Date**
Final Environmental Statement, Maintenance Dredging, Gulf Intracoastal Waterway, Texas Section, Main Channel and Tributary Channels, U.S. Army Corps of Engineers, Galveston District (1975 FES) *(completed and filed with the U.S. Environmental Protection Agency (EPA), January 1976).*	USACE, Galveston	Oct 1975
State Water Quality Certification	TCEQ	Oct 1978
Coastal Consistency Determination	CCC	Dec 1999
Environmental Assessment, Gulf Intracoastal Waterway, Port Arthur to High Island, Texas, Beneficial Uses of Dredged Material for Marsh Preservation.	USACE, Galveston	Aug 2003

[1]USACE - U.S. Army Corps of Engineers
TCEQ - Texas Commission on Environmental Quality
CCC – Coastal Coordination Council

Status of Compliance

PAs 4, 6, 8, 11, 13, 17, 20, 23, 24, and 26 are active placement areas that have been last used between 2003 and 2011. All of these PAs are confined upland PAs, except for PA 20 which does not include a back levee at the landowner's request and is better described as a partially-confined PA. These PAs have been fully coordinated (1975 FES) and there are no environmental or cultural resource limitations concerning their current use. Levees surrounding these PAs could be raised without additional coordination if the levees are raised by borrowing from within the interior of the PAs and provided the overall footprint of the PAs is not expanded outward. This practice is routinely performed on many of the active PAs along the GIWW. However, if future usage of these PAs warrants physical modifications that result in expansion beyond their authorized existing footprints, then these PAs would need to be reevaluated for environmental impacts and/or recoordinated. Lateral expansion of these PAs would be constrained by the adjacent tidal marsh. Use of many of these PAs requires coordination with the owners including the USFWS (PAs 4, 8 and 11), TPWD (PA 4) or private owners (e.g. White Ranch) prior to use.

PAs 1, 2, 3, 5, 7, 9, 10, 12, 14, 15, 16, 18, 19, 21, 22, 25, and 27 were coordinated for use as PAs for the GIWW in 1975, but they have not been used in more than 15 years even though the GIWW was last dredged in 2003. All of these PAs are confined upland sites, except for PAs 14, 15, 19, and 21 which are better described as partially-confined PAs as they were not constructed with back levees at the landowners' requests. These PAs are located in an area of the GIWW that is rather deep and/or experiences high scouring, thus they are rarely used. Such infrequent or lack of use has resulted in degradation of levees and naturalization of wetland vegetation and ponds within the PAs, and many of the PAs now have established tidal connections. Use of many of these PAs requires coordination with the owners including the USFWS (PAs 7, 9, 20, 23, and 27), TPWD (PA 2 and 3) or private owners (e.g. White Ranch) prior to use. Expansion for additional capacity for these PAs is constrained by the adjacent tidal marsh. Should a recommendation be made to use these PAs in the future, additional environmental resources information would need to be gathered and reevaluated to determine environmental impacts, which may result from future use or modification of these PAs. These PAs are not needed for dredge capacities in our period of analysis used for this evaluation.

Two BU sites totaling approximately 760 acres (referred to herein as BU1 and BU2) located within the McFaddin NWR were coordinated in 2003 for periodic placement of dredged material from the GIWW. BU1 is a narrow discharge corridor located on south bank of GIWW generally from PA 4 to PA 13. This BU site includes modifications to PA 4 which was previously coordinated and used as a confined upland placement area. The PA would be modified to operate as a partially confined area by removing or plugging water control structures and allowing material and water to sheet flow over the back levee into the adjacent marsh. BU2 is a narrow discharge corridor located on south bank of GIWW generally from PA 17 to PA 19. Material from the GIWW may be periodically placed along shoreline behind the existing berm (or a berm to be created if none exists at the time of discharge) to block material from returning into the GIWW. Energy dissipaters are required on the end of discharge pipes to spread material to no more than two feet above the existing elevation and to minimize scour. No discharge operations by others are allowed within these sites. Coordination with McFaddin NWR personnel is required to evaluate whether dredged material placement would be effective, partially effective or ineffective. In addition, consultation with the USFWS, TPWD and landowners is required to determine if subsequent placement is desired.

Requirements for Future Compliance

Ten of the 27 PAs coordinated for use in this reach are active confined upland PAs that continue to be available for use and require no additional NEPA coordination. These ten PAs are identified as PAs 4, 6, 8, 11, 13, 17, 20, 23, 24, and 26. In addition, two BU sites are also

available for periodic use determined through consultation with the USFWS, TPWD, and landowners. The remaining 17 PAs (i.e.. PAs 1, 2, 3, 5, 7, 9, 10, 12, 14, 15, 16, 18, 21, 22, 25, and 27) have not been used in more than 15 years as they are located adjacent to a stretch that experiences high scour and as such has not required maintenance dredging. Many of these inactive PAs have established tidal connections due to the degradation of levees resulting in naturalization of wetland vegetation and ponds within the PAs.

Any newly proposed dredged placement for maintenance of the GIWW would require environmental coordination prior to potential future use. This coordination would involve public interest review and NEPA documentation in coordination with State and Federal regulatory and resource agencies. At a minimum, each new alternative would require environmental documentation under an Environmental Assessment/Finding of No Significant Impact (EA/FONSI). NEPA compliance will require coordination under the Fish and Wildlife Coordination Act; Clean Water Act; Endangered Species Act; Clean Air Act; Magnuson-Stevens Fishery Conservation and Management Act; National Historic Preservation Act; EO 11990, Protection of Wetlands; CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands; EO 12898, Environmental Justice; Memorandum of Agreement (MOA) with the FAA to Address Aircraft-Wildlife Strikes; and Coastal Zone Management Act (CZMA), as well as other laws, executive orders, and regulations.

CONCLUSIONS

Analysis of the economic benefit and cost indicators show that continued maintenance of the GIWW from Sabine River to High Island is warranted.

Although some of the authorized PAs are no longer available for use without additional environmental coordination there are 10 remaining PAs (PAs 4, 6, 8, 11, 13, 17, 20, 23, 24, and 26) that currently provide sufficient capacity for the continued operation of the Sabine River to High Island Reach of the GIWW over the next 20 years as indicated in Table 8.

TABLE 8 - Future Maintenance Limitations	
The Ability to Maintain this Project for the Next 20 Years is Limited by:	
Placement Area Capacity	No
Economic Viability	No
Environmental Compliance	No

RECOMMENDATIONS

As of the date of this preliminary assessment sufficient capacity exists for the maintenance of the Sabine River to High Island Reach of the Gulf Intracoastal Waterway, Texas Project. As such, a Dredged Material Management Plan Study is not required at this time.

19 June 2012
Date

Christopher W. Sallese
Colonel, Corps of Engineers
District Commander