ENVIRONMENTAL ASSESSMENT (DRAFT)

MOBILE HARBOR TURNING BASIN
MOBILE COUNY, ALABAMA

A FEDERALLY AUTHORIZED PROJECT
January 2006

Prepared by

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

CONSTRUCTION OF THE MOBILE HARBOR TURNING BASIN
MOBILE HARBOR FEDERAL NAVIGATION PROJECT
MOBILE COUNTY, ALABAMA

FEDERALLY AUTHORIZED

I. **PROPOSED ACTION.**

1) Purpose and Need for the Proposed Action. The principal navigation problem is the lack of a safe and efficient turning area for vessels calling at McDuffie Terminal, as well as the planned Choctaw Point Terminal. The current federal navigation project in the vicinity of McDuffie Terminals and Choctaw Point terminal does not include an authorized turning area. Consequently, vessels calling at McDuffie terminals opt to turn off their berth and utilize the channel and authorized turning basin location in the vicinity of Little Sand Island, rather than travel the additional distance for the turning maneuver in the Cochrane Turning Basin. Vessels turning off their berth are constrained to performing the maneuver by adjusting their forward draft and ballast to 15 feet or less in order to turn adjacent to McDuffie Terminals, given the risk of grounding outside the channel limits. Once the turned vessels are pierside, reballasting requires an additional 2 to 6 hours in order to commence loading. The additional 2 to 6 hours for reballasting is costly and inefficient. Reballasting costs could be eliminated if vessels were able to proceed into the harbor in-ballast and stable to use the Mobile Turning Basin. Furthermore, use of the channel for the turning maneuver blocks traffic moving north or south of McDuffie Terminals, resulting in costly delays. The existing channel width limits vessel maneuverability and also restricts many vessels to one-way traffic. Widening the channel adjacent McDuffie Island for a distance of approximately 0.8 miles to its fully authorized width and constructing the authorized turning basin in the location adjacent Little Sand Island through a “General Reevaluation Report” has been proposed to alleviate harbor delays and improve safety conditions.

2) Authority. The Mobile Harbor Turning Basin was authorized as a portion of the Mobile Harbor Project in the Supplemental Appropriations Act of 1985 (PL 99-88), which was approved on 15 August 1985. The project was also authorized in the Water Resources Development Act of 1986 (PL 99-662), which was approved on 17 November 1986, and provides for development to deepen and widen the channel over the bar to 57 feet by 700 feet for 7.4 miles; deepen and widen the bay channel to 55 feet by 550 feet for 27 miles; deepen and widen an additional 3.6 miles of bay channel to 55 feet by 650 feet; and provide a 55-foot deep anchorage area and turning basin in the vicinity of Little Sand Island.

II. **ALTERNATIVES CONSIDERED.**

The General Reevaluation Report has evaluated a future "without" project condition, which provides for a channel 45 feet deep and 400 feet wide, with vessels turning off their berths in the channel adjacent McDuffie Island and the authorized turning basin location in the vicinity of Little Sand Island. In addition, the GRR investigated an array of alternative navigation project modifications and analyzed channel improvement alternatives including construction of the authorized turning basin and channel widening in the vicinity of Sand Island. Turning basin depths have been evaluated in 2-foot increments from 36 feet to the existing project channel depth of 45 feet. These alternatives were developed based on the Alabama State Port Authority's request. Widths of 450' to 550' and turning basin depths from 36 feet to 45 feet were assumed to accommodate the sponsor's request. The disposal sites used to accept the dredged material removed during construction of the turning basin will occur at three previously authorized disposal areas: Garrows Bend upland site associated with the Choctaw Point Terminal Project; Sand Island Beneficial Use Area (SIBUA); and Gaillard Island.

III. **FACTORS CONSIDERED IN THE DETERMINATION THAT NO ENVIRONMENTAL IMPACT STATEMENT IS REQUIRED.** All impacts in the Environmental Assessment are short termed and insignificant, and include increased noise levels, exhaust emissions, localized turbidity, and benthic community destruction. No vegetated wetlands would be impacted. No threatened or endangered species would be impacted. No historical or archeological artifacts are known to occur in the area. All adverse impacts caused by the proposed action are considered minor.

IV. **CONCLUSION.** An evaluation of the Environmental Assessment of the proposed action involving the construction and disposal activities for the Mobile Harbor Turning Basin, Mobile County, Alabama as discussed in the Environmental Assessment indicates that the action would have no effects on the environment and that the preparation of an Environmental Impact Statement is not required.

Date: _____

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ENVIRONMENTAL ASSESSMENT

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1.0 Project Description

1.1 General. Mobile Harbor, Alabama, is located in the southwestern part of the state, at the junction of the Mobile River with the head of Mobile Bay (Figure 1). The port is about 28 nautical miles north of the Bay entrance from the Gulf of Mexico and 170 nautical miles east of New Orleans, Louisiana. The navigation channel dredging in Mobile Bay and Mobile River began in 1826 with enactment of the River and Harbor Act of 1826. Over subsequent years, the federal project at Mobile River and Mobile Bay was expanded to include adjoining channels within the bay. Section 104 of the River and Harbor Act of 1954 (House Document 74, 83rd Congress, First Session, as amended, and previous acts) authorized a 40-foot channel. Improvements to the existing Federal project were authorized in Water Resources Development Act of 1986 (PL 99 – 662, Ninety-ninth Congress, Second Session), which was approved 17 November 1986, and amended by Section 302 of the Water Resources Development Act of 1996.

1.2 Existing Permitted Project. The authorized project dimensions as illustrated in Figure 1 are: a) 57 by 700 feet for a distance of 7.4 miles across the bar; b) 55 by 550 feet for a distance of 27.0 miles in the bay; c) 55 by 650 feet for a distance of 4.2 miles in the bay; and, d) provision of a 55-foot deep anchorage and turning basin in the vicinity of Little Sand Island. The current dimensions of the existing navigation channel are: 47 feet deep by 600 feet wide across Mobile Bar and 45 feet deep by 400 feet wide in the bay (Figure 1). The 45-foot channel serves McDuffie Terminals located at the mouth of the river. The river channel, as illustrated in Figure 2, then becomes 40 foot deep and proceeds north to the Cochrane/Africatown Bridge passing over the Bankhead and Wallace tunnels. The Mobile River, on which the Alabama State Docks facilities are located, is formed some 45 miles north of the city with the joining of the Alabama and Black Warrior/Tombigbee Rivers. The Mobile River also serves as the gateway to international commerce for the Tennessee/Tombigbee Waterway. In the southern edge of Mobile Bay, access is gained to the Gulf Intercoastal Waterway which stretches from St. Marks, Florida, to Brownsville, Texas.

2.0 Existing Environmental Documentation

- Supplemental Environmental Impact Statement, Mobile Harbor Channel

Improvements, Offshore Dredged Material Disposal, November 1985.

- Environmental Impact Statement, United States Navy Gulf Coast Strategic Homeporting, Appendix V, August 1986.

- Environmental Impact Statement, Choctaw Point Terminal Project, Mobile, Alabama, August 2004.

3.0 Proposed Action

3.1 The proposed action will excavate approximately 3 million cubic yards (cy) of sediment to construct the authorized turning basin in the Mobile River located between Pinto Island to the north and Little Sand Island to the south. The eastern limit of the turning basin would be approximately 1,350 feet from the centerline of the existing ship channel. The depth of the turning basin would be to elevation -45.0 feet mean lower low water (MLLW) with 4 feet of advance maintenance and an additional 2 feet for allowable overdepth to account for imprecision of the dredge capability for a total depth elevation of -51.0 feet (MLLW). Side slopes at all locations would be approximately 1 vertical to 4 horizontal. The excavation will be performed using either or combination of a hydraulic pipeline dredge, bucket dredge, or hopper dredge. The location and configuration of the proposed turning basin in the Mobile River is illustrated in Figure 3. The dredged material will be disposed of entirely in approved and preexisting disposal areas provided by the ASPA.

3.2 The disposal sites used to accept the dredged material removed during construction of the turning basin will occur at three previously authorized disposal areas. Approximately 1.2 million cy of sandy material will be placed at Garrows Bend on land to be reclaimed associated with the Choctaw Point Terminal Project. The site will involve the construction of approximately 5,100 feet of dike with a finished elevation of approximately 14 ft NGVD. Impacts connected with the use of this site were addressed in the Final Environmental Impact Statement for the Choctaw Point Terminal Project, Mobile, Alabama, 2004. A permit was issued (AL-01-04269-L) for the construction of the proposed facilities in March 2005. The approximate location of the Garrows Bend disposal area is illustrated on the project map in Figure 2. A plan view of the disposal area as well as sections for the containment dikes are shown in Figures 4 and 5, respectively.

The remaining materials will be disposed in either or both the Sand Island Beneficial Use Area (SIBUA) (Figure 6) and Gaillard Island disposal site (Figure 7). Sediment consisting of predominantly sand will be placed in the SIBUA site for support and preservation of the Sand Island Lighthouse. Every attempt will be made to place approximately 500 thousand cy of material in this area. Materials containing higher fractions of fine grained materials will be placed at the Gaillard Island Site.

4.0 Need for the Proposed Action

4.1 The principal navigation problem is the lack of a safe and efficient turning area for vessels calling at McDuffie Terminal, as well as the planned Choctaw Point Terminal. The current federal navigation project in the vicinity of McDuffie Terminals and Choctaw Point terminal does not include an authorized turning area. Consequently, vessels calling at McDuffie terminals opt to turn off their berth and utilize the channel and authorized turning basin location in the vicinity of Little Sand Island, rather than travel the additional distance for the turning maneuver in the Cochrane Turning Basin. Vessels turning off their berth are constrained to performing the maneuver by adjusting their forward draft and ballast to 15 feet or less in order to turn adjacent to McDuffie Terminals, given the risk of grounding outside the channel limits. Once the turned vessels are pierside, reballasting requires an additional 2 to 6 hours in order to commence loading. The additional 2 to 6 hours for reballasting is costly and inefficient. Reballasting costs could be eliminated if vessels were able to proceed into the harbor in-ballast and stable to use the Mobile Turning Basin. Furthermore, use of the channel for the turning maneuver blocks traffic moving north or south of McDuffie Terminals, resulting in costly delays. The existing channel width limits vessel maneuverability and also restricts many vessels to one-way traffic. Widening the channel adjacent McDuffie Island for a distance of approximately 0.8 miles to its fully authorized width and constructing the authorized turning basin in the location adjacent Little Sand Island through a “General Reevaluation Report” has been proposed to alleviate harbor delays and improve safety conditions.

5.0 Alternatives to the Proposed Action

5.1 Evaluation of future “without” project conditions, which provides for a channel 45 feet deep and 400 feet wide, with vessels turning off their berths in the channel adjacent McDuffie Island and the authorized turning basin location in the vicinity of Little Sand Island was conducted. Investigations included an array of alternative navigation project modifications. The channel improvement alternatives included construction of the authorized turning basin and channel widening in the vicinity of McDuffie Island. Turning basin depths evaluated 2-foot increments from 36 feet to the existing project channel depth of 45 feet. These alternatives were developed based on the Alabama State Port Authority's request. The investigation of the alternative widths of 450’ to 550’ and turning basin depths from 36 feet to 45 feet were developed to accommodate the sponsor’s request. Disposal of all dredged materials will conducted in existing disposal areas provided by the non-Federal Sponsor.

6.0 Scope

6.1 This Environmental Assessment (EA) was prepared in accordance with Engineer Regulation (ER) 200-2-2, *Procedures for Implementing the National Environmental Policy Act (NEPA)* and the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations (CFR) Pts. 1500-1508). The objective of the EA is to determine the magnitude of the environmental impacts of the proposed action. If

such impacts are relatively minor, a Finding of No Significant Impact (FONSI) would be issued and the Mobile District, U.S. Army Corps of Engineers may proceed with the action. If the environmental impacts are significant according to CEQ's criteria (40 CFR Pt. 1508.27), an Environmental Impact Statement (EIS) or a supplement to the existing 1976 Final Environmental Impact Statement would be prepared before a decision is reached to implement the proposed action.

A recertification for the operation and maintenance dredging permit for the Perdido Pass navigation project was requested from the Alabama Department of Environmental Management. This recertification was issued on July 28, 2004 and is included in Appendix B.

7.0 Existing Conditions

The proposed project is located in the city of Mobile, Alabama, in the southwestern portion of the state near the mouth of the Mobile River at the head of Mobile Bay as illustrated in Figure 1. It is approximately 1.5 miles south of downtown Mobile along the west side of the Mobile Harbor Ship Channel. The site is generally bounded on the west by 1-10 and mainline railroad corridors through the city of Mobile and on the east by the Mobile River.

7.1 Climatic and Physical Conditions

7.1.1 Climate. Coastal areas of the Gulf of Mexico (Gulf) have a humid, warm-temperature to sub-tropical climate. Occasional subfreezing temperatures occur in the area. The water temperature of the Gulf influences winter air temperatures in the Mobile area. Air temperatures usually reach 90°F or higher about 70 days per year with occasional temperatures in excess of 100°F (Navy 1986). The climatic effect of the Gulf is demonstrated in the relatively mild average annual air temperature of 68°F with January being the coldest month and July is the warmest month.

Tropical storms occur in the Gulf in summer and fall with Hurricane season extending from June 1 to November 30. The season averages ten (10) named storms, six (6) of which become hurricanes (Atlantic Tropical Weather Center 2002). These storms are most likely to occur in the Mobile Bay area from late August to early October (Navy 2002).

Rain. The Mobile area receives an average annual rainfall of 65 inches, among the highest for metropolitan areas in the continental US. This rainfall can be accentuated by hurricanes, tropical storms, and El Nino events. The driest period of the year is typically from August through November (TAI 1998). Rainfall is somewhat evenly distributed throughout the year with the exception of a slight maximum at the height of the summer thunderstorm season and a slight minimum during the late fall. Average maximum monthly rainfall occurs in July with 7.7 inches and average minimum monthly rainfall in October, with 2.6 inches (Navy 1986).

Wind. Wind is one of the basic forces governing circulation of estuarine and continental shelf waters, and speed and direction are the most important aspects of its influence. These forces interact with atmospheric pressure to produce circulation patterns, wind-stress, tide and current modifications, and coastal erosions and deposition processes. These processes are strongly influenced during the spring and summer by the Bermuda High while a series of high and low pressure systems affect the fall and winter weather patterns. There are no consistent seasonal wind directions, but net wind movement is northward from March through August and southward from September through February. Calculated as an annual average, winds blow from the south or southeast 19 percent of the time and from the north or northeast 18 percent of the time. This pattern is well-developed, and these forces generate moderately strong southerly daytime winds, particularly during the summer months (Navy 1986). The highest wind speed ever measured in Mobile was 145 mph during Hurricane Frederic in 1979 (Navy 1986).

7.1.2 Currents. Circulation patterns within Mobile Bay are controlled by astronomical tides, winds, and freshwater inflows. The tidal prism of the Bay, based on the weighted mean tidal range of 1.4 feet and a surface area of 236,000 acres, is about 330,000 acre-feet. In the past, during periods of relatively low freshwater inflow, i.e., when inflow is about 12,200 cubic feet per second, the "flushing time" of the Bay is estimated at between 45 and 54 days (Navy 1986).

The tidal circulation of Mobile Bay was investigated by Austin (1954) during a period of low river discharge. This study indicated that the incoming current from the Gulf enters through the main pass. A portion of this water flows up the west side of the bay and part enters the Mississippi Sound through Pas aux Herons. Within about four hours, the flow through Pas aux Herons reverses and water enters Mobile Bay from the Sound. Another part of the flooding water mass flows to the east into Bon Secour Bay before turning west to rejoin the generally northward trending flood tide entering the central part of the bay.

In the northern, upper portion of the Bay, the tidal inflow from the south is forced to the east of the bay by the inflow from the Mobile River delta. The freshwater inflow generally continues on the surface in a southerly direction along the western side of the Bay. This flow pattern sets up a generally counter-clockwise circulation within the upper Bay (Navy 1986).

7.1.3 Salinity. Salinity distribution of Mobile Bay is dependent upon river flows and tides. Both surface and bottom salinity appear to be lowest in March and April and highest during the four-month period from September through December. Salinity is always higher in the bottom water, although the Bay's average depth is only 9.7 feet (Navy 1986). The relationships between river discharge and salinity profile along the ship channel were reported by McPhearson (1970) (Navy 1986). High river discharges can reduce surface salinities from 20 parts per thousand (ppt) to nearly 0 ppt even in the southernmost portion of the Bay. High stream flows result in a high hydrostatic head that produces higher tides and currents at the mouth of the Bay. Under extremely high flows, an outward-moving surface current can continue even during flood tide. During low

stream flows, saline water can intrude as much as 21 miles upstream in the Mobile River (Navy 1986).

During low river discharges, riverine and transitional waters in the upper and middle Bay form a surface lens over the more saline bottom waters. During periods of moderate to high fiver discharge riverine and transitional waters tend to dominate the entire surface field in the lower portion of the Bay (Navy 1986). High-salinity water from the Gulf can move as overflow from the Main Ship Channel, as a broad bottom intrusion, or as a combination of the two. The broad bottom intrusion of marine waters tends to favor the east side of the Bay, whereas riverine and transitional waters favor the bottom of the west side of the Bay (Navy 1986).

7.1.3 Tides. In Mobile Bay and adjacent Gulf waters, the tidal variation is diurnal with an average period of 24.8 hours. The tidal wave progresses from south to north. Tidal movement into Mobile Bay is a continuation of the tidal progression within the Gulf. The Bay has a diurnal tidal cycle, typically with one high and one low tide over the average period. Two high or two low tides occur during the biweekly neap tides. The mean tidal range in Mobile Bay varies from 1.2 feet at the entrance to 1.5 feet at the head end of the Bay. Within the tidal inlets and bayous along the Alabama coast, the mean tidal range varies from about 0.6 to 1.8 feet. Mean Low Water (MLW) during the winter months varies from 0.5 to 1.0 foot below the summer month range. The reported range of most tides within the Bay is between 1.0 and 2.5 feet (Navy 1986).

Winds can induce large variation in the range of the tidal flows. Strong northerly winds can force water out of the Bay, resulting in current velocities of several knots at the main pass. Water levels as much as 1.9 feet below MLW have been recorded under such conditions. The steadier and more prevailing southeast-to-southwest winds induce an opposite condition whereby winds pile water up in the upper portion of the Bay. An indication of the frequency of abnormal wind-driven waves and water setup resulting from these southerly winds has been derived from the frequency with which the eastbound lane of Battleship Parkway had been closed. The eastbound lane, at an elevation of 2.5 feet MLW, is more susceptible to flooding than the westbound lane.

7.1.4 Sediments. The sediment of Mobile Bay consists of sand to clays with various mixtures of sand, silt, and clay covering most of the bay bottom. The Mobile Bay sediments are approximately 50 percent sand and 50 percent clay as described the Navy (1986). The northern portion of the bay is comprised of deltaic sands and silty sands and silts and clayey silts carried in by the Mobile River. Sediments of the lower bay are primarily estuarine silty clay and clay. The western shoreline exhibits sands which grade to clayey sand, sandy clay and clays towards the deeper parts of the bay. Oyster reefs and shell occur in isolated locations in the southern part of Mobile and Bon Secour Bays (COE 1985a).

The upper portion of Mobile Harbor is predominantly silt and clay higher concentrations of sand. The northernmost part of the harbor which reflects the conditions within the turning basin area is sandier due to the larger grain sizes initially deposited

into the estuary by the mouth of the river while the finer silts and clays were deposited in the deeper portions of the harbor area.

7.2 Environmental Conditions

7.2.1 Estuarine Environment. The Turning Basin site is characterized as estuarine shallow water habitat, located between emergent marshes. The project area is totally submerged and ranges in depth from approximately 2.3 feet at the northeast corner of the project area to about 24.4 feet at the southwest corner. Existing biological and ecological documentation of the shallow aquatic habitat is not considered to be extensive. Two historic studies were performed around Garrows Bend to characterize the benthic habitat (Vittor 1978; 1981). This study area is in close proximity to the turning basin and considered to exhibit the same benthic characteristics. The study indicated that most representative of the shallow water habitat in the project area showed a low diversity index for benthic macroinvertebrate species. Species equitability (distribution of different species) was low for these same samples with the dominant species being polychaete worms and amphipods. The amphipods are thought to be a primary food source for several forage and recreational fish (Vittor 1981). At that time the report indicated that past use and activities of the area has greatly diminished the quality of the benthic and aquatic habitats.

In 2002 a submerged aquatic vegetation (SAV) survey was conducted of the Garrows Bend (USACE 2004) area to determine if SAV exists in the project area. Based on the survey, the occurrence of SAV within Garrows Bend is extremely rare. Individual plants were found anchored in the exposed water bottoms, but there was no congregation of plants that could constitute a grassbed. Earlier SAV inventories of Mobile Bay (Stout et al. 1982; COE 1985a) identified as much as 20 species of submerged aquatic vegetation occurring in the shallow shoreline areas of Mobile Bay. Data show that through the 1960s and 1970e, grassbeds in the bay have steadily declined. Historically, a combination of changes has occurred to produce a decline in submerged grassbeds in Mobile Bay. Dredging activities have physically removed suitable habitat by deepening portions of the bay. Increased boat traffic, hydraulic dredging, and shoreline construction during the last 20 years have led to increases in turbidity levels. More efficient agricultural methods have been developed to compensate for a decline in the availability of agricultural land. These changes have increased the use of concentrated fertilizers and herbicides. The resulting excessive nutrient loading is considered to be a negative impact upon submerged grassbeds because it often causes dramatic increases in the productivity of planktonic algal populations.

Environmental studies were conducted by the Navy (1986) for the Gulf Coastal Strategic Homeporting Project in the same location as the proposed turning basin. A reconnaissance was conducted to locate grassbeds within the project footprint and surrounding areas. The investigation revealed at that time that no grassbeds were observed off the southwestern tip of Pinto Island.

7.2.2 Benthic Environment. Studies of the benthic characteristics of Mobile Bay have been conducted have been somewhat extensive in comparison to other similar

estuarine areas. Seasonal studies have been completed in D'Olive Bay, the Theodore Ship Channel, and lower Mobile Bay (Vittor 1979). A limited benthic survey was conducted in February 1986 to characterize faunal assemblages of various sediments near the proposed Homeport site (Navy 1986).

Vittor and Associates, Inc. (1982) studied the benthic macrofauna of bay waters off the southeastern edge of Pinto Island. This study included the location proposed for the turning basin. The study showed that densities ranged from 573 to 2,943 individuals per square meter, reaching the highest levels at the deeper sampling locations. The total number of taxa collected at a given station varied from 9 to 19. Numerical dominants in decreasing order of abundance included annelids (64.8 percent), molluscs (25.6 percent), arthropods (5.7 percent), and other phyla (3.9 percent). An earlier study (ACAB 1981) was conducted near Pinto Island indicated no consistent trends in seasonal abundance. However, species richness (total number of taxa) was lowest in late spring and summer, whereas the highest number of taxa was collected during the winter months. *Mediomastus ambiseta*, *Mulinia lateralis*, and *Mulinia ponchatrainensis* dominated the benthic assemblages at that time.

Study results at D'Olive Bay benthos was dominated by the polychaete (*Laeonereis culveri*) and the marsh clam (*Rangia cuneata*) was abundant at some stations. Benthic community composition and abundance were influenced by salinity and dissolved oxygen fluctuations. Similar conditions apparently exist for most of upper Mobile Bay (COE 1985a) with Gastropods dominating the upper bay including *Maritida reclivata*, *Probythinella protera*, and *Taxadine sphinctostoma*. Predominant annelids include *L. culveri*, *Mediomastna californiensis*, *Neanthes succinea*, *Parendelia americana*, *Streblospio benedicti*, *M. californiensis*, *N. succinea*, and *S. benedicti* with *R. cuneata*, *P. protera*, *T. sphinctostoma*, and L. culveri as the most suitable indicators of specific habitat types in Mobile Bay (Vittor 1979).

7.2.3 Fish and Shellfish. A number of studies evaluating the fish and invertebrates of Alabama estuaries were conducted in the past (Swingle 1971 and Swingle and Bland (1974). The studies looked at species abundance and diversity in coastal waters. A more recent study by Shipp (1979b) provides a summary of available data on Mobile Bay forage fish species. The study indicates that species composition and abundance have been well-documented through the years but that there is a need for research related to environmental changes in Mobile Bay. Shipp's study categorized estuarine forage fish as nearshore and marsh, demersal, or pelagic estuarine species. The nearshore and marsh species are comprised largely of fish in the families *Poeciliidae*, *Cyprinodontidae*, and *Atherinidae* which serve as the prey for the Southern flounder (*Paralichthys lethostigma*) and seatrout (*Cynoscion spp.*) both important sport and commercial species.

Demersal fish of the estuary are dependent upon benthic organisms as their food source base. Some of these fish are migratory with the three most common species in the study area in order of abundance are Atlantic croaker (*Micropogonias undulatus*), spot (*Leiostomus xanthurus*), and sand seatrout (*Cynoscion arenarius*). The most important

forage fish within Mobile Bay estuary are the pelagic species; Bay anchovy (*Anchoa mitchilli*), striped anchovy (*Anchoa hepsetus*), and Gulf menhaden (*Brevoortia patronus*) being the most abundant. The highest ranking pelagic forage species in Mobile Bay watercourses are bay anchovy, Gulf menhaden, and threadfin shad (*Dorosoma petenense*) (Shipp 1979b). Other investigations conducted by the ACAB (1981) focused on regional and seasonal concentrations of fish eggs and larvae of Mobile Bay. It was found that the perimeter of the bay is utilized as nursery habitat by larvae and juveniles of commercially important fish species.

The most commercially important shellfish found in Mobile Bay include the brown and white shrimp, blue crab, and American oyster. The shrimp species spawn in the Gulf and spend a major portion of their life cycle in estuarine system and are an important component of the food web, being preyed upon by fish and birds. The brown shrimp (*Penaeus aztecus*) has a peak spanning period from December through January. The post-larvae move into the estuarine waters between February and May seeking out soft bottom, shallow areas. The Juvenile shrimp move eventually from the bay to the Gulf of Mexico. The white shrimp (*Penaeus setiferus*) spawns in the spring in Gulf waters. The demersal eggs hatch March to October, and post-larval movement into the Mobile Bay estuary peaks from June to September. After living as benthic feeders in very shallow waters, the shrimp passed into deeper estuarine waters and eventually emigrate to the deeper Gulf waters during ebbing tides during June through November.

Another important and very abundant crustacean which utilizes Mobile Bay for portions of its life cycle is the blue crab (*Callinectes sapidus*). Blue crab mate and ovulate in spring end summer in the bay estuary. The females migrate offshore where the eggs hatch and early larval stages develop. Later larval stages enter the estuarine habitat. Juvenile crabs generally congregate in channels and brackish marshes along the bay throughout the year. They prefer soft mud sediments and low salinities (5 to 15 ppt).

Oysters are quite abundant within the Mobile Bay estuary with the majority located in the southern half of the bay (Alabama Marine Resources Laboratory 1971; Smith 1984b). Spawning of oysters involves external fertilization in which eggs and sperm mix in the water column. Spawning generally occurs late May through early June and again in September. Eggs are demersal and develop into free-swimming larvae, eventually settling into sedentary existence, congregating in the presence of mature oysters to form oyster beds or reefs.

7.3 Disposal Areas

The disposal sites used to accept the dredged material removed during construction of the turning basin will occur at three previously authorized disposal areas as addressed below.

7.3.1 Approximately 1.2 million cy of sandy material will be placed at Garrows Bend on land to be reclaimed associated with the Choctaw Point Terminal Project. The site will involve the construction of approximately 5,100 feet of dike with a finished

elevation of approximately 14 ft NGVD. Impacts connected with the use of this site were addressed in the Final Environmental Impact Statement for the Choctaw Point Terminal Project, Mobile, Alabama, 2004. A permit was issued (AL-01-04269-L) for the construction of the proposed facilities in March 2005. A plan view of the disposal area as well as sections for the containment dikes are shown in Figures 4 and 7, respectively.

7.3.2 A portion of the remaining dredged material will be placed in the Sand Island Beneficial Use Area (SIBUA) (Figure 5). Sediment consisting of predominantly sand will be placed in the SIBUA site for support and preservation of the Sand Island Lighthouse. Every attempt will be made to place approximately 500 thousand cy of material in this area. SIBUA has been established for beneficial use as opportunity allows for suitable materials from various channel locations with the Mobile Harbor Federal project. Quality of materials approved for placement in the SIBUA ranges from sandy to silty sandy sediment.

7.3.3 Dredged material containing higher fractions of fine grained sediment will be placed at Gaillard Island, a confined disposal area (Figure 6). Gaillard Island is a primary disposal site for the Theodore Shipping channel and portions of the Mobile Harbor channel. The site is an existing authorized disposal site that has been provided by the Alabama State Port Authority (ASPA).

8.0 Environmental Impacts

8.1 General.

8.1.1 Activities associated with construction of the of the turning basin would result in a number of minor impacts to the immediate project area. The adverse impacts are minimal and temporary in nature and include destruction of benthos, reduced esthetics, reduced air quality, increased turbidity, increased noise, and aquatic organism disturbance.

8.2 Impacts.

8.2.1 Habitat. Adverse impacts to benthic organisms would be encountered as a result of the dredging operations within the footprint of the turning basin. While most of the immobile organisms within the proposed turning basin area are quite adaptable to seasonal changes in temperature, salinity, dissolved oxygen, water clarity and water level fluctuations due to the tidal cycle, the direct removal and upland disposal of the dredged material would destroy the sediment dwelling organisms. Also, some mortality of motile organisms may result from entrainment by the dredging equipment. Natural recruitment into the turning of benthic organisms, encrusting organisms and fishes would occur rapidly such that the overall impact would not be significant. Previous environmental studies cited in Section 2 of this EA have indicated that submerged aquatic vegetation (SAV) is rare in this area. Therefore, it has been determine that there would be no effect on existing SAV.

8.2.2 Esthetics. Esthetics would be reduced in the project area during the dredging and disposal operations, due to the physical presence of the dredge and pipeline used to transport the dredged material as well as the presence of other land-based equipment. However, these impacts would be temporary and insignificant.

8.2.4 Water Quality. Some silty material will be associated with the dredging and placement operations and its suspension may result in a slight localized increase in turbidity at the dredging and disposal sites. Since the materials being excavated using at hydraulic pipeline dredge and disposal will be within exiting upland disposal sites are, no significant long-term elevation of turbidity is expected. The State of Alabama's water quality standards would not be significantly affected and water clarity would return to ambient conditions shortly after sediment placement at the disposal site. As required by the Clean Water Act, a Section 404 (b)(1) evaluation for the removal of sediment from the navigation channel and placement of material in an upland disposal site with a weir discharge, a report has been prepared and is included as Appendix A.

8.2.5 Air Quality. Air quality would be temporarily and insignificantly affected by the proposed action. Emissions are expected to occur and would result from the operation of the dredge, land-based equipment, and any other support equipment which may be on or adjacent to the job site. The project area is currently in attainment with National Ambient Air Quality Standards parameters. The proposed action would not affect the attainment status of the project area or region. A State Implementation Plan conformity determination (42 United States Code 7506 (c) is not required since the project area is in attainment for all criteria pollutants.

8.2.6 Noise. Noise from the dredge and other associated support equipment would be evident in the project area. While this noise would be evident to those workers on the job and any users in close proximity of the project, it would be short-term and insignificant. Normal noise levels would be achieved at the end of each workday and after completion of the job.

8.3 Federally-protected Species. Refer to Appendix B for coordination letters.

8.3.1 Essential Fish Habitat (EFH). EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity and include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate. n estuarine waters such as Mobile Bay, these EFH include areas such as estuarine emergent wetlands, seagrass beds, algae flats, mud, sand, and shell substrates, and the estuarine water column. The Mobile Harbor Turning Basin, EFH including emergent wetlands, mud substrate, and estuarine water column are present for species such as red drum, brown shrimp, pink shrimp, and white shrimp. The area also provides habitat for prey species (e.g. Gulf menhaden, shad, croaker, and spot) that are consumed by larger commercially important species. In addition, the area provides habitat for spotted seatrout, striped mullet, southern flounder, Atlantic croaker, and Gulf menhaden.

Coordination with the NMFS, Protected Species Management Branch, in Panama City, Florida in accordance will be initiated through this Public Notice for the operations involving construction of the turning basin. Based on the findings of the EIS for the Choctaw Point Terminal Project it has been established that salinities level in the project area are too low to maintain substantial populations of the EFH species listed above. Given the low salinity levels and absence of SAV in the turning basin area, it has been the Mobile District determined that the proposed action would have no affect on EFH under the purview of NMFS.

8.3.2 Threatened and Endangered Species. Coordination with the U.S. Department of the Interior, Fish and Wildlife Service, Daphne, Alabama was initiated under FP06-MH13-10. In accordance with the Threatened and Endangered Species Act, coordination of such species for this area was conducted in 1985 in the EIS for Mobile Harbor, Alabama Channel Improvement and again in 2004 in EIS for the Choctaw Point Terminal Project, Mobile, Alabama. Based on these findings the construction of the turning basin will have no effect to any Federal listed threatened or endangered species. Aquatic species such as the Florida manatee, Gulf sturgeon, and sea turtles would not normally use the project area and would not likely exhibit incidental use of the area during project implementation. Because the area is not a major provider of life history requirements for these species, it has been determined that there will be no effects to these species as a result of the proposed action. Based on the no effect determination, coordination with the U.S. Fish and Wildlife Service will be initiated through this public notice.

8.3.3 Environmental Justice. On February 11, 1994, the President issued Executive Order (E.O.) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations.* The order required that Federal agencies conduct programs, policies, and activities that substantially affect human health or the environment so that there is no disproportionately high and adverse human health or environmental effects on minority and low-income populations. This project is not designed to create a benefit for any group or individual, but rather benefits on a nationwide basis. There are no indications that the proposed sand bypassing operation would be contrary to the goals of E.O. 12898, or would create disproportionate, adverse human health or environmental impacts on minority or low income populations of the surrounding community.

8.3.4 Cultural Resources. A marine remote sensing survey utilizing both magnetometer and side-scan sonar data has been conducted over the entire proposed project area. No targets with the potential to be cultural resources were identified during these surveys. As a result of the negative findings, this project will pose no effect to cultural resources within the project area. These findings and recommendations have been coordinated with the Alabama State Historic Preservation Officer who has concurred with the investigation.

8.4 Cumulative Impacts. The Proposed Action would represent an incremental increase in the effects of human activities and impacts in the Mobile area. There are several other

activities occurring in the vicinity of the Proposed Action that could involve impacts to traffic, air quality, wetlands, etc. The loss of wetlands in Mobile Bay has been documented in various reports. According to the MBNEP, nonfresh marsh in Mobile Bay decreased from 19,016 acres in 1955 to 12,336 acres in 1979 (a 35 percent decrease). During the same time period, mud and/or sand flats in Mobile Bay increased from 626 acres to 2,308 acres (a 269 percent increase) (MBNEP 1998). Since 1979, the loss of wetlands has occurred at a reduced rate due to the CWA 404 permit program and the Federal "No Net Loss of Wetlands" initiative. The proposed action will have no effect on existing wetland.

9.0 Conclusion. Based on the above discussion of the minor impacts, which would result from the implementation of the proposed action and due to the lack of long-term adverse impacts, it is believed that no significant cumulative impacts resulting from the construction of the Mobile Harbor Turning Basin site and adjacent areas would occur.

10.0 List of Agencies, Interested Groups and Public Consulted

Region 4, U.S. Environmental Protection Agency
Field Representative, Fish and Wildlife Service
Regional Director, National Park Service
Regional Director, National Marine Fisheries Service
Commander, Eighth Coast Guard District
Alabama State Historic Preservation Officer
Alabama Department of Environmental Management
Alabama Department of Conservation and Natural Resources

Other Federal, State, and local organizations, affiliated Indian Tribe interests, and U.S. Senators and Representatives of the State of Alabama are being sent copies of the notice and are being asked to participate in coordinating this proposed work.

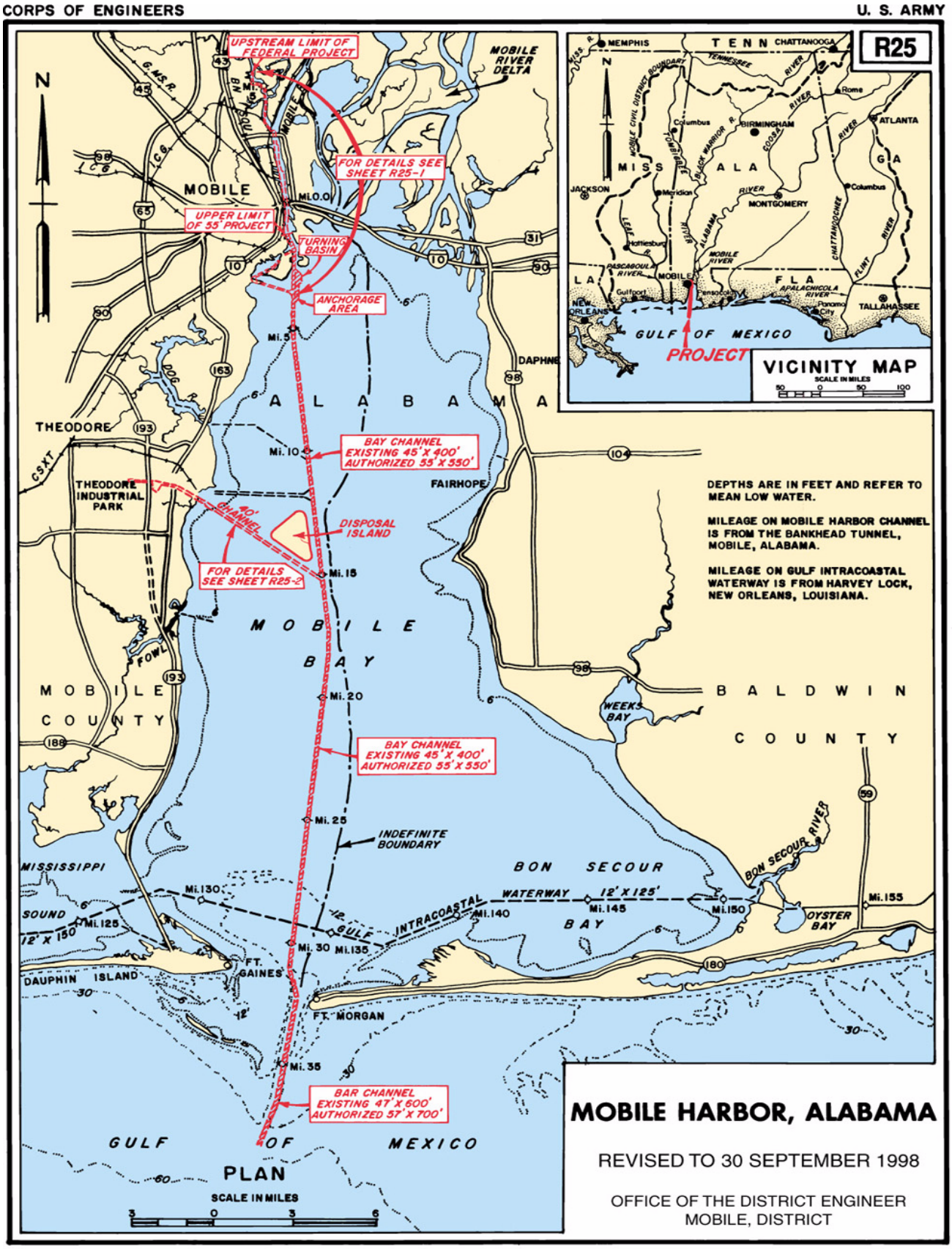

Figure 1. Overall project map illustrating general location and project dimensions.

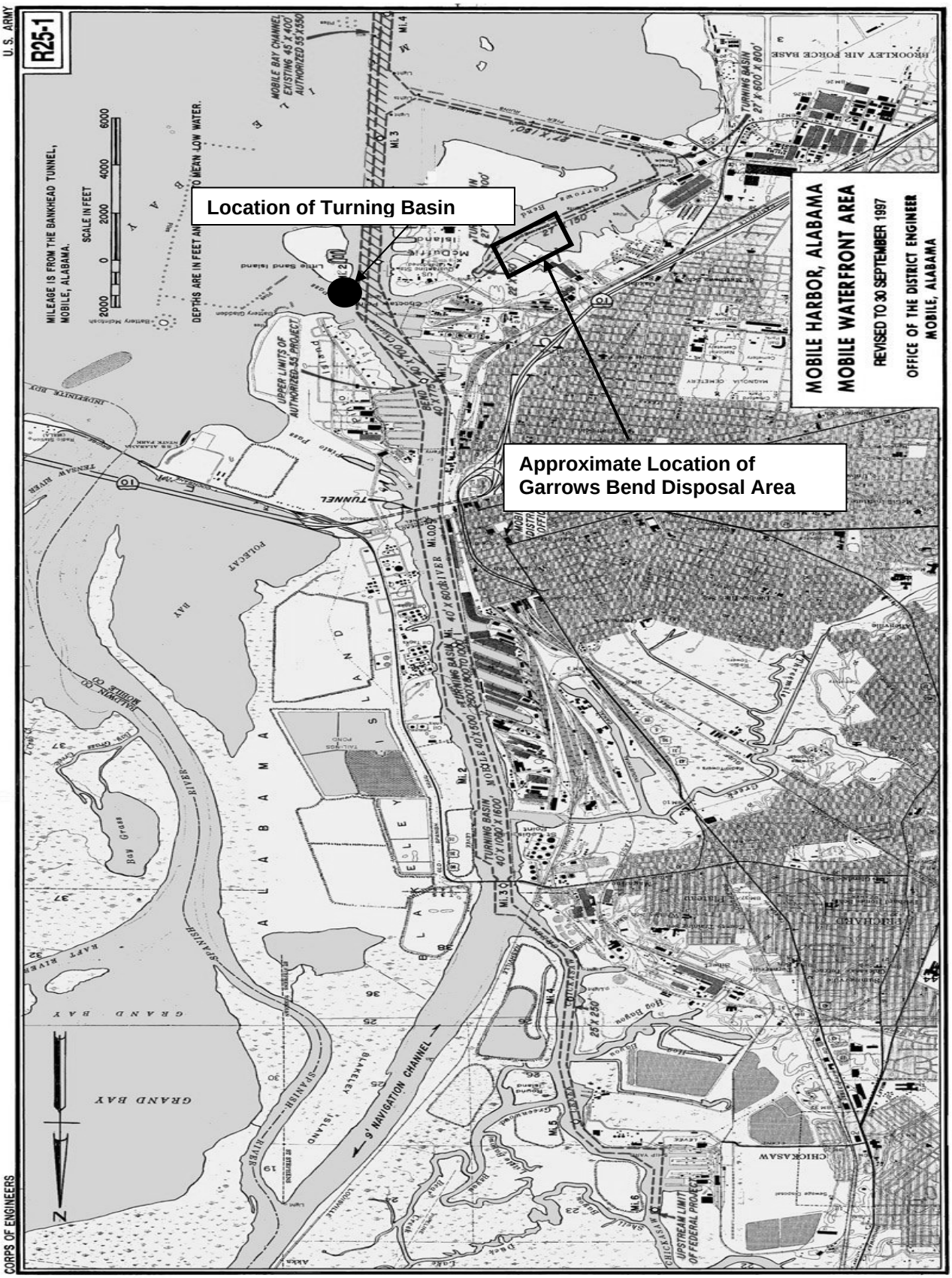

Figure 2. Map of Existing Mobile Harbor Federal Navigation Project Dimensions

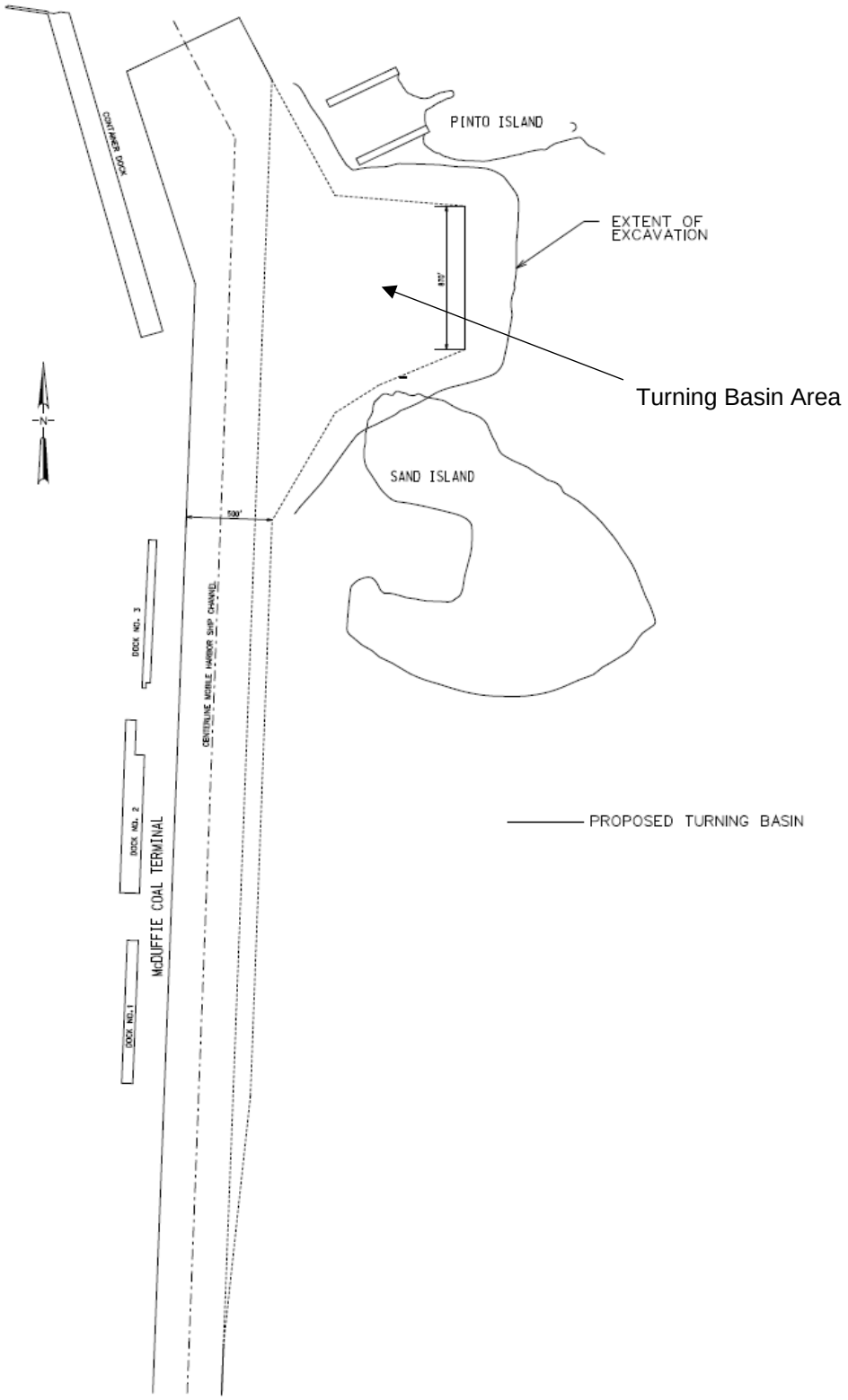

Figure 3. Location and configuration of the proposed turning basin

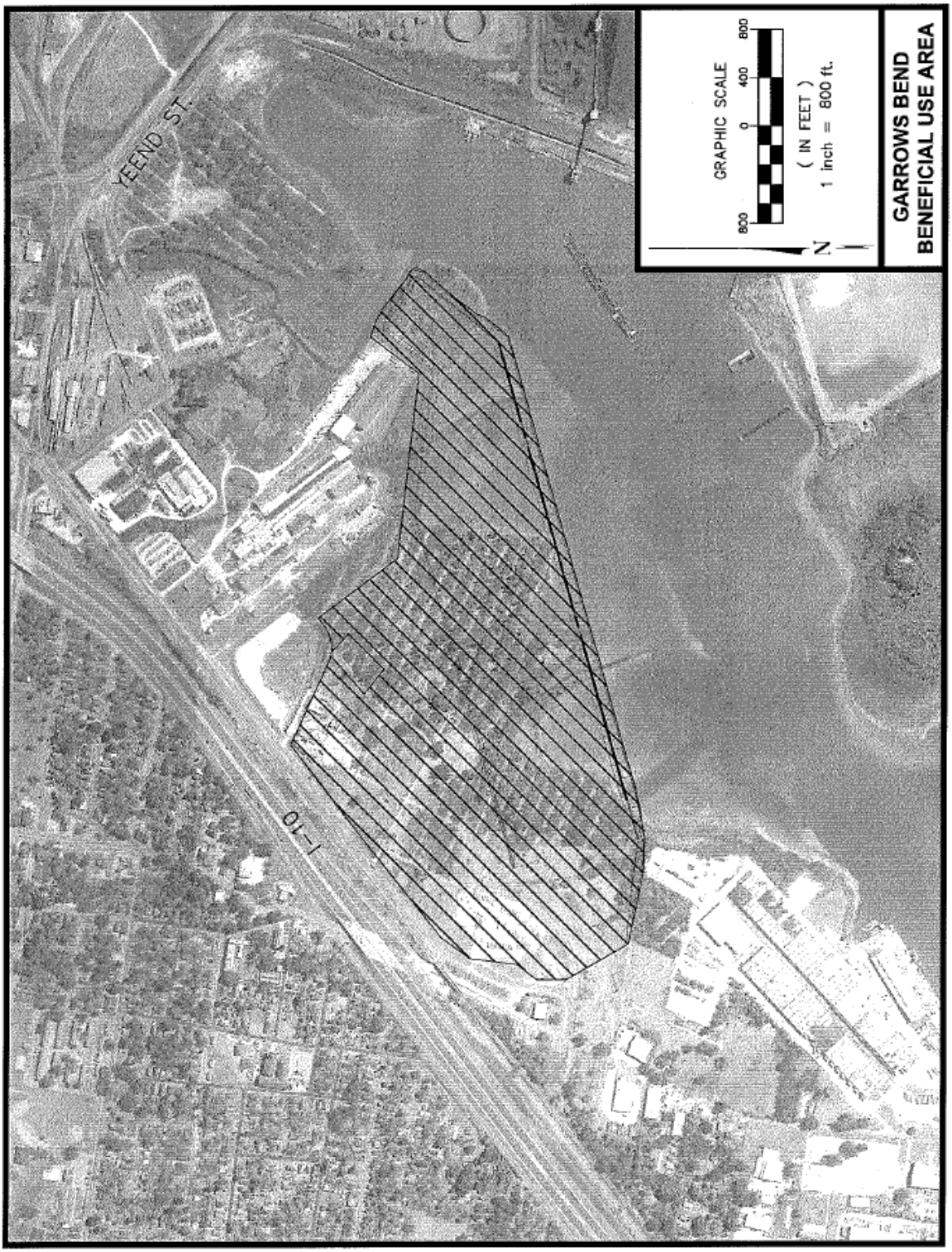

Figure 4. Garrows Bend Disposal area

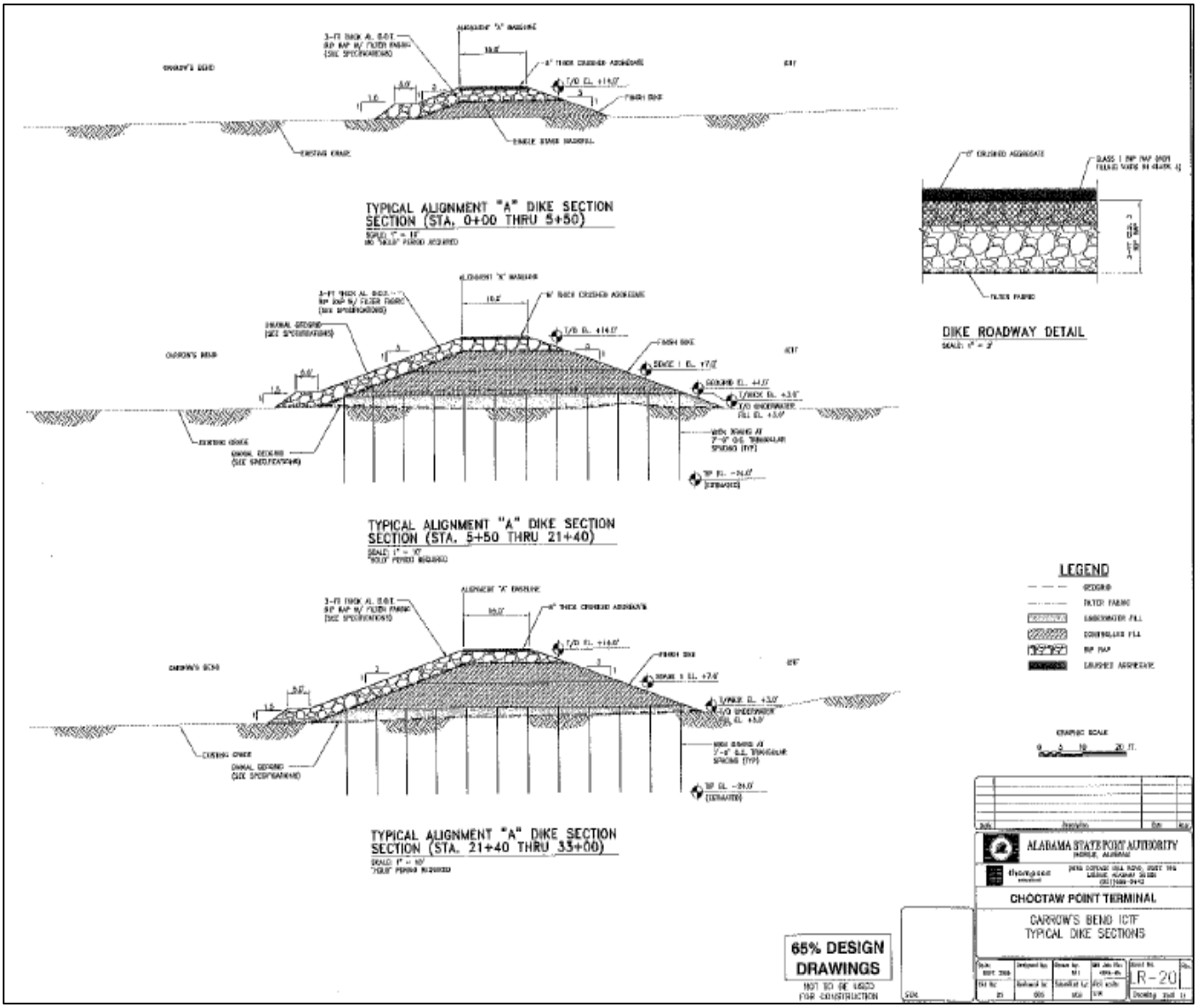

Figure 5. Cross sections of dikes to be constructed at the Garrows Bend Disposal area

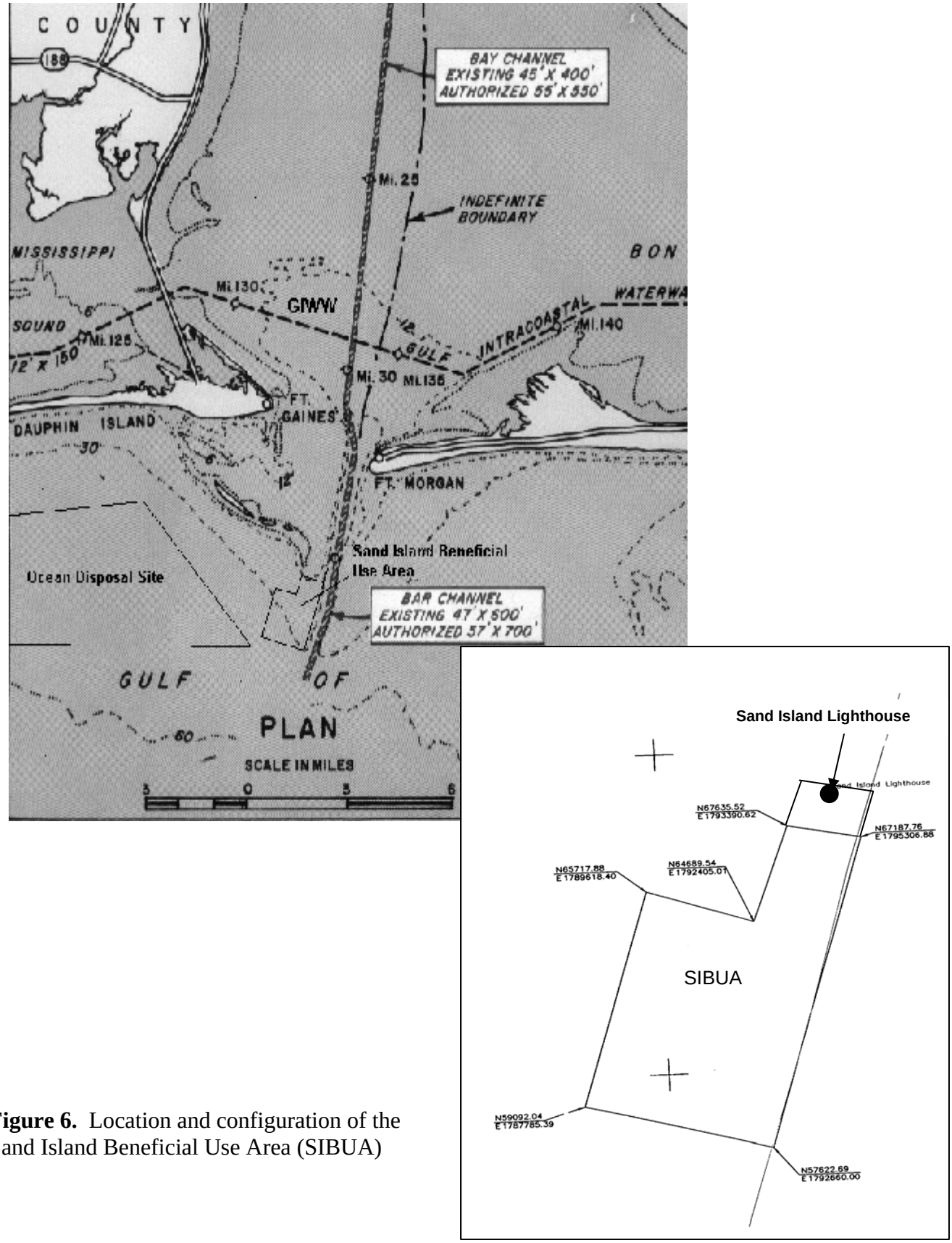

Figure 6. Location and configuration of the Sand Island Beneficial Use Area (SIBUA)

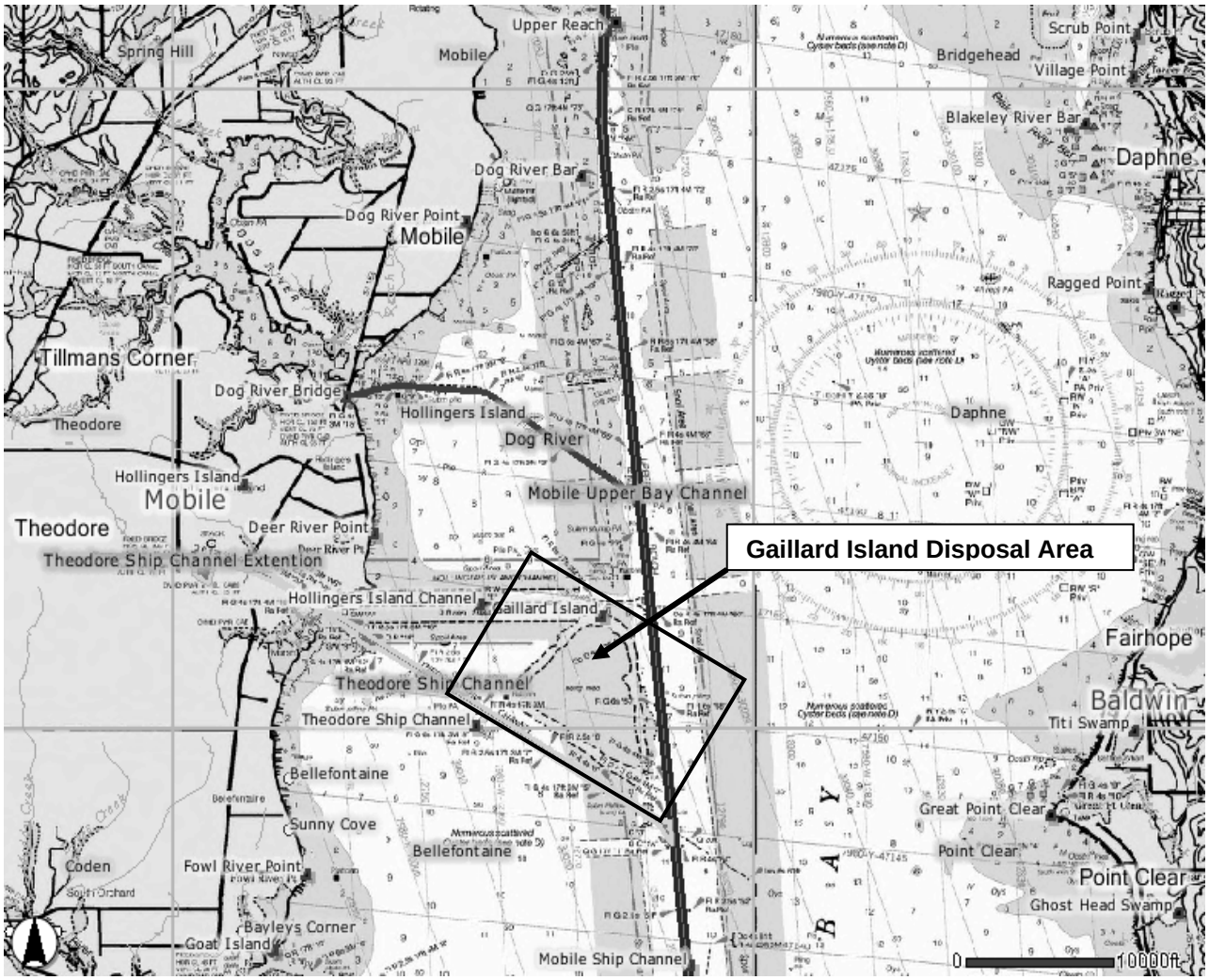

Figure 7. Location of the Gaillard Island disposal area