DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

Reply to
Attention of:

PUBLIC NOTICE NO. FP14-MH01-10 **20 May 2014**
CESAM-PD-EC

JOINT PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS,
MOBILE DISTRICT
AND
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

MODIFICATION TO MAINTENANCE DREDGING AND PLACEMENT ACTIVITES
OPEN BAY THIN-LAYER DISPOSAL OPTION
MOBILE HARBOR NAVIGATION PROJECT
MOBILE COUNTY, ALABAMA

A FEDERALLY AUTHORIZED NAVIGATION CHANNEL

Interested persons are hereby notified that the U.S. Army Corps of Engineers (Corps), Mobile District proposes to implement modifications to the maintenance dredging and placement activities associated with the Mobile Harbor navigation project as previously described in Joint Public Notice FP11-MH01-06. Water quality certification and coastal zone consistency was obtained for all certified portions of the Mobile Harbor navigation project. The Corps, Mobile District proposes to modify the previously certified maintenance dredging and placement activities for the Mobile Harbor navigation project as described in the above public notice to add an environmentally acceptable alternative for managing maintenance dredged material within the Mobile Bay navigation channel.

This public notice is issued in accordance with the rules and regulations published in the Federal Register on 26 April 1988. These laws are applied whenever dredged or fill materials may enter waters of the United States, or for the transportation of dredged material for the purpose of placement into ocean waters. The recipient of this notice is requested specifically to review the proposed action as it may impact water quality, relative to the requirements of Section 404(b)(1) of the Clean Water Act. Review of any other potential impacts is also requested.

PROJECT AUTHORIZATION: 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 the 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.

WATERWAY AND LOCATION: Mobile Harbor, Mobile Bay and the Gulf of Mexico, Mobile County, Alabama.

DESCRIPTION OF THE ENTIRE AUTHORIZED AND EXISTING PROJECT: 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 the 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.

The portions of the federally-authorized Mobile Harbor, Alabama navigation project to be included in this authorization consists of the following:

a. A 57-foot x 700-foot channel from the Gulf of Mexico for approximately eight (8) miles to Mobile Bay;
b. A 55-foot x 550-foot channel from the mouth of the Mobile Bay for a distance of approximately 29 miles to near the mouth of Mobile River, including a passing lane two (2) miles long and 625 feet wide at mid-bay;
c. A 55-foot x 750-foot x 4,000-foot anchorage area just south of McDuffie Island;
d. A 55-foot x 1,500-foot x 1,500-foot turning basin opposite McDuffie Island;
e. A 40-foot deep channel with the width varying from 700 feet, near the Mobile River mouth, to 500 feet, near the Cochrane Bridge (U.S. Highway 98), a distance of approximately four (4) miles;
f. A 40-foot x 800-foot – 1,000-foot x 2,500-foot turning basin opposite the Alabama State docks between river miles 1.0 to 1.5;
g. A 40-foot x 1,000-foot x 1,600-foot turning basin just south of the Cochrane Bridge.

The authorized dimensions of all segments of the Mobile Harbor Project have not been constructed. The maintained dimensions of the bay channel are 45 feet by 400 feet and the outer bar channel is 47 feet by 600 feet. Each of these areas is maintained to a depth that is 10 feet less than the authorized depth. Several additional features of the authorized project have not been constructed at this time. The anchorage areas that would be located south of the mouth of the Mobile River have not been constructed, and the bay channel and the bar channel, have not been widened. The new turning basin opposite McDuffie Island, between Pinto Island and Little Sand Island was constructed in 2010.

Approval for advanced maintenance for the Mobile Harbor navigation project was received from South Atlantic Division in the mid-1990s as per the Navigation Regulations ER1130-2-530, 29 November 1996. As such, the navigation channels have associated advanced maintenance to accomplish dredging in an efficient, cost-effective, and environmentally responsible manner. In addition to the federally-authorized channel dimensions providing for navigation, two sediment basins in the lower Mobile River and three sediment basins in the bay channel, have been previously authorized and approved. These sediment basins are to provide improved channel maintenance efficiency. Each of the basins is several thousand feet long and has depths ranging from four feet to ten feet lower than the existing navigation channel bottom. The basins decrease frequency of dredging to provide a more cost-effective and reliable channel. In addition to sediment basins, an advanced widening feature is authorized for the bar channel. A map of the authorized Mobile Harbor Federal navigation project is illustrated in **Figure 1**.

DESCRIPTION OF THE PROPOSED MODIFICATION: The Mobile District proposes to implement modifications to maintenance dredging and placement activities associated with the Mobile Harbor navigation project. The proposed modification will change the open bay thin-layer disposal activity defined in Joint Public Notice and Permit FP11-MH01-06 as being an emergency storm-related action to also include a long term open bay thin-layer disposal option. Providing this option will add an environmentally acceptable alternative for managing maintenance dredged material within the Mobile Bay navigation channel that allows sufficient time for benthic recovery and permits the bottom elevations to return to that of the adjacent bottom as the placed sediment is remobilized within the Bay's natural sediment transport system.

Open Bay Thin-layer Disposal Actions. Since the late 1980's maintenance practices for the Mobile Bay Federal navigation channel required that all maintenance dredged material be taken to open water and disposed in Mobile-North Ocean Dredged Material Disposal Site (ODMDS) as per the Water Resources Development Act of 1986. Since that time questions have been raised whether removing all the dredged material from the Bay's sediment transport system is environmentally sound. The Water Resources Development

Act 1996 provides the authority to consider alternatives to disposal of dredged material for the Mobile Harbor Federal Navigation Project that includes other environmentally acceptable alternatives including beneficial uses and environmental restoration.

As part of the 2012 recertification of the Mobile Harbor Federal navigation project, the use of open bay disposal areas was authorized in the event storm-related emergency dredging activities are required and considered critical to provide safe and reliable navigation to their pre-storm dimensions. Open bay placement utilizes pre-established historical disposal areas that have been implemented during emergency procedures resulting from Hurricane Georges in 1998 and Hurricane Katrina in 2005 as described in Public Notice Number FP05-MH12-10 dated 21 September 2005.

An Interagency Working Group (IWG) has been established to evaluate and provide guidance pertaining to alternative sediment management practices in Mobile Bay. The IWG consists of the following local, State and Federal agencies:

- Alabama State Port Authority
- U.S. Army Corps of Engineers, Mobile District
- U.S. Army, Engineer Research and Development Center
- Alabama Dept. of Environmental Management
- Alabama Dept. of Conservation and Natural Resources, State Lands Division
- Alabama Dept. of Conservation and Natural Resources, Marine Resources Division
- Geological Survey of Alabama
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service, Habitat Conservation Division
- Mobile Bay National Estuarine Preserve
- Dauphin Island Sea Lab
- The Nature Conservancy
- Mobile County Environmental Department
- Federal Aviation Authority

In 2012, the dimensions of the Mobile Bay navigation channel were compromised and a critical need arose to return the channel to full operational dimensions which could not effectively be accomplished by hopper dredges. The IWG concurred with the Corps, Mobile District's determination that invoking the emergency option was a reasonable action under the circumstances and that it would be a valuable opportunity to monitor and model the open bay placement sites to answer questions as to how the material behaves once it has been placed. In September of 2012, the Corps, Mobile District utilized a large pipeline dredge to clear the upper Bay channel. This action resulted in the placement of about 9 million cubic yards of maintenance dredged sediment within the

historically established open bay sites (**Figure 2**). The placement utilized thin-layer techniques such that the thickness would be no greater than12 inches. The Corps, Mobile District subsequently implemented a monitoring and modeling program to demonstrate and predict the behavior and fate of the placed sediment. The results of these studies were to be used to determine future open bay placement strategies.

Monitoring and Modeling Results. Monitoring of the thin-layer disposal sites began shortly after the 2012 placement with the collection of sediment cores and profiling imagery collected at the thin-layer placement sites on September 24-28. Sediment Profiling Imagery (SPI) was collected at approximately 200 stations. Push cores for grain size analysis and geotechnical properties were collected at approximately 185 stations. Sampling conducted at the thin-layer placement stations represented a time series from 24 hours to 6 months post-placement.

Numeric modeling was conducted to show the behavior of the thin-layer material once it has been placed on the bay bottom. Current and wave induced sediment transport was simulated for both the natural bay bottom and the placed material. The simulations were conducted representing known seasonal conditions from February through May of 2010. Also included in the simulations were storm events representing Hurricane Gustav (Aug-Sept 2008) and Hurricane Ida (2009). These periods were modeled representing both the “with” and “without” project conditions. The “with” project conditions assumed 12-inch thick thin-layer deposits placed evenly in the designated disposal areas. The “without” condition assumed no thin-layer disposal and represented the natural bay bottom. Simulations were conducted using different scenarios representing the placed and natural bottom sediment characteristics. Conclusions from the modeling effort indicate the following:

- Approximately 35% of the sediment that erodes from the designated disposal areas is transported and deposited in the navigation channel.
- The remaining 65% is widely dispersed throughout the bay by waves, wind, river, and tide driven currents.
- The dredged material placed in thin-layers is less erodible (~ 45%) than native sediment.

The results of the monitoring and modeling efforts indicate that material placed in thin-layer method is not transported along the bottom as a large sediment mass, rather it is remobilized into the water column by waves and currents and returned into the Bay’s natural sediment transport system. Placement of the dredged sediment in this manner has minimal effects on the Bay’s natural resources.

In addition to the monitoring and modeling efforts, a comprehensive sediment budget was prepared for the Mobile Bay National Estuary Program to document Mobile Bay’s long term regional sediment dynamics. The study indicates that

maintenance sediment dredging quantities exceeds natural sediment inputs and that open bay disposal would be most similar to natural long term depositional processes. The study also suggested that design of dredged material placement techniques focusing on thin-layer disposal farther from the channel would help prevent the material from being re-deposited in the navigation channel. Given the results of these studies, the IWG recommended that a long term option for conducting within bay thin-layer disposal should be pursued.

Strategic Sediment Placement Plan. Sediment removed from Mobile Bay navigation channel will be placed using a spill barge outfitted with a continuous GPS tracking system and a diffuser or baffle plate. The spill barge utilizes a system of winches, which constantly move the barge in a sweeping pattern to prevent material from exceeding the thin-layer tolerance. Placement of material in the open bay sites will occur at least 2,500 feet from the edge of the channel.

A strategic placement plan provides an approach that optimizes the use of adjacent thin-layer open bay sites, takes advantage of additional beneficial use opportunities, and continues the use of the ODMDS. This balanced approach allows for more efficient use of both pipeline cutterhead dredges and hopper dredges, which greatly enhances the use of the native bay sediments and improves navigation channel reliability.

The strategic sediment placement plan presented herein is based on using historic shoaling rates/reaches aligned with available adjacent open bay sites and evaluated by measuring water depth and pipeline distances from the shoals to the placement site. Typically, each 2 mile reach of channel has 3 open bay placement areas within a reasonable pumping distance that are adequately sized based on the historic shoaling rates for the associated channel reach. In the case where shoaling rates are consistent with historical rates, a pipeline cutterhead dredge could be used every 12-24 months, which would result in a thin-layer placement in each of the three placement sites approximately once every 4 to 6 years. During the approximate 12-24 months between pipeline cutterhead dredging events, it is likely that a hopper dredge would be required to remove corner shoaling and place the material within the ODMDS. **Figure 3** presents an example of the thin-layer placement strategy utilizing the pre-established historical disposal areas. Abnormal shoaling rates and unforeseen events can shift the alternating placement strategy. However, tracking of each placement event will provide optimal management of the placement sites. As discussed previously, using such a strategy provides an environmentally acceptable alternative for managing maintenance dredged material within the Bay channel that will allow sufficient time for benthic recovery and permit the bottom elevations to return to that of the adjacent bottom as the placed sediment is remobilized into the Bay's natural sediment transport system.

WATER QUALITY CERTIFICATION: Pursuant to the Clean Water Act, state water quality certification is required for the proposed action. A modification to

the existing water quality certification (Joint Public Notice and Permit FP11-MH01-06) will be requested from the Alabama Department of Environmental Management (ADEM) for a five (5)-year period. A decision relative to water quality certification will be determined by ADEM after completion of the required comment period for this public notice.

COASTAL ZONE CONSISTENCY: Pursuant to the requirements of the *Coastal Zone Management Act* (CZMA), concurrence with the Corps, Mobile District's determination of coastal zone consistency for this action will be requested from ADEM. The Corps, Mobile District has determined that the proposed action is consistent with the Alabama Coastal Program to the maximum extent practicable. A decision relative to concurrence with coastal zone consistency will be determined by ADEM upon completion of the required comment period.

USE BY OTHERS: The proposed action for the Mobile Harbor navigation project is not expected to cause any significant land use changes in the adjacent areas. Use of waters within the auspices of the Mobile Harbor navigation project include commercial fishing, shrimping and recreational boating. Using the proposed open bay thin-layer disposal areas for placement of dredged material from the Mobile Bay navigation channel would be implemented in such a manner as not to impede navigation.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) CONSIDERATIONS: In accordance with the requirements of the NEPA impacts associated with navigation improvements for the Mobile Harbor navigation project were addressed in an Environmental Impact Statement (EIS) dated October 1980. In addition, a supplemental EIS dated December 13, 1985, was prepared to address impacts associated with the offshore placement (Gulf Disposal Area) of dredged material from construction of navigation improvements and channel maintenance activities, and for the designation of an offshore placement site(s). The Record of Decision implementing the harbor improvements was signed January 8, 1987. The EIS and Supplemental EIS were coordinated with all applicable Federal, state and local agencies and the interested public. An Environmental Assessment (EA) and Findings of No Significant Impact (FONSI) for this action were prepared for the recertification of the Federal project in 2012. A Draft EA has been prepared for the proposed modification and available for review in the U.S. Army Corps of Engineers, Mobile District Office, Planning and Environmental Division or at: www.sam.usace.army.mil/Pd1.htm.

SECTION 404(b)(1) EVALUTION REPORT: Water quality impacts associated with the proposed action have been addressed in an evaluation report prepared in accordance with guidelines promulgated by the Environmental Protection Agency (EPA) under Section 404(b)(1) of the Clean Water Act. A draft Section 404(b)(1) evaluation report has been prepared to address any potential impacts associated with the proposed action. Appropriate revisions will be incorporated into the final report if information is received during the coordination process that

would indicate the need to revise the draft report. The draft Section 404(b)(1) evaluation report is available for review in the U.S. Army Corps of Engineers, Mobile District Office, Planning and Environmental Division or at the following website: www.sam.usace.army.mil/Pd1.htm.

ENDANGERED SPECIES: Several species listed as endangered or threatened are occasional visitors to the vicinity of the project area. The Mobile District has determined that none would be affected by the proposed action. In compliance with Section 7 of the Endangered Species Act, the proposed action is being coordinated with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. Copies of this public notice are being forwarded to the U.S. Department of the Interior, Fish and Wildlife Service, the U.S. Department of Commerce and the National Marine Fisheries Service.

ESSENTIAL FISH HABITAT (EFH): The proposed action involves EFH that could be affected by the proposed action. EFH is defined in the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) as "… those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The Gulf of Mexico Fishery Management Council in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265) has developed management plans for the following fisheries in the vicinity of the proposed action: shrimp, red drum, and coastal migratory pelagic. The Gulf of Mexico Fishery Management Plans (1999) identifies EFH in the project area to be intertidal wetlands, submerged aquatic vegetation, non-vegetated bottoms, shell reefs, and the estuarine water column. The proposed activities would not adversely impact intertidal wetlands and non-vegetated bottoms.

Several studies have been conducted pertaining to the effects of benthic communities in response to thin-layer disposal activities (Wilbur et al. 2008, Wilbur et al. 2007, USACE 1999, and USACE 1994). Responses of benthic infauna to large scale disturbance by dredged material placement were studied at areas in Corpus Christi Bay, Texas. The study looked at biological responses to dredged material disturbance that were linked to both pre-disturbance conditions and differences between disturbed and neighboring undisturbed areas. Results for this study area indicated that benthic communities are poised to respond relatively quickly to disturbances given their historical exposure to impacts and resultant colonization by opportunistic species. The impacts of the dredged material placement were evident for less than one year. The response of benthic communities to thin-layer disposal of dredged material was assessed at three sites in Mississippi Sound in 2006. The findings indicated that adults re-colonized the newly deposited sediments either through vertical migration or lateral immigration from adjacent areas within a period of 3 to 10 months thus indicating that thin-layer disposal offers a viable alternative to conventional open-water disposal practices. A related study conducted in Mississippi Sound associated with the Gulfport Federal project indicated benthic recovery rates to predisposal conditions occurred within 12 months.

A major parameter influencing benthic recovery rates is the prior disturbance history of a particular area. Studies indicate that benthic recovery occurs more rapidly in shallow areas, such as Mobile Bay, where the resident benthic communities are already adapted to dynamic conditions and shifting sediments. Being that Mobile Bay is a depositional shallow waterbody with dynamic sediment processes, it would be expected that benthic recovery would be consistent with that shown by previous studies.

Impacts of thin-layer disposal actions conducted in a strategic manner would allow sufficient time for benthic recovery and permit the bottom elevations to return to that of the adjacent bottom. The placed sediment would be remobilized into the Bay's natural sediment transport system. Impacts to EFH would be temporal in nature associated with the maintenance dredging and placement activities in Mobile Harbor. The proposed activities would not significantly affect coastal habitat identified as EFH in the project area. Based on the extent of this habitat in the general vicinity of the project and the temporal nature of the impact, the overall impact to fisheries resources is considered negligible.

CULTURAL RESOURCES CONSIDERATIONS: In compliance with the National Historic Preservation Act, the proposed action was coordinated with the Alabama State Historic Preservation Officer (ASHPO) during the 2012 project recertification. A cultural and historic resources investigation has been performed and indicates that there are no properties listed on or eligible for inclusion on the National Register that will be affected by the proposed action. Copies of this notice are being sent to the ASHPO.

EVALUATION: The decision whether to proceed with the proposed action will be based on evaluating the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which may be reasonably expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, esthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. The proposed action will proceed unless found to be contrary to the public interest.

Inasmuch as the proposed action involves the discharge of materials into navigable waters, incorporation of the strategic open bay thin-layer disposal option associated with this Federal project is being made under guidelines promulgated by the Administrator of the EPA in conjunction with the Secretary of

the Army. If these guidelines alone prohibit designating these proposed placement site(s), any potential impairment of the maintenance of navigation, including any economic impact on navigation and anchorage which results from the failure to use this site will also be considered.

COORDINATION: The agencies receiving copies of this public notice are:

U.S. Department of the Interior, Fish and Wildlife Service, Daphne, Alabama
U.S. Department of Commerce, National Marine Fisheries Service, Panama City, Florida
U.S. Department of Commerce, National Marine Fisheries Service,
Protected Species Management Branch, St. Petersburg, Florida
Commander, Eighth Coast Guard District
Alabama Department of Conservation and Natural Resources, Game and Fish Division
Alabama Department of Conservation and Natural Resources, Marine Resources Division
Alabama Department of Conservation and Natural Resources, State Lands Division
Alabama State Historic Preservation Office
Gulf of Mexico Fishery Management Council

Other Federal, State and local organizations, and the United States Senators and Representatives of Alabama are being sent copies of this notice and are asked to participate in coordinating this proposed action. It is requested that the information contained in this notice be communicated to any other parties who may have an interest in the proposed action.

CORRESPONDANCE: Any person who has an interest which may be affected by this proposed activity may request a public hearing. Any comments or request for a hearing must clearly set forth the interests which may be affected and the manner in which the interest many be affected. Correspondence concerning this Public Notice should refer to Public Notice Number FP14-MH01-10 and should be directed to the District Engineer, U.S. Army Engineer District, Mobile, P.O. Box 2288, Mobile, Alabama 36628-0001, Attention: CESAM-PD-EC. Comments must be received no later than **15 days from date of this public notice** and directed to Mr. Larry Parson at 251.690.3139 or larry.e.parson@usace.army.mil .

CURTIS M. FLAKES
U.S. Army Corps of Engineers
Mobile District

Enclosures

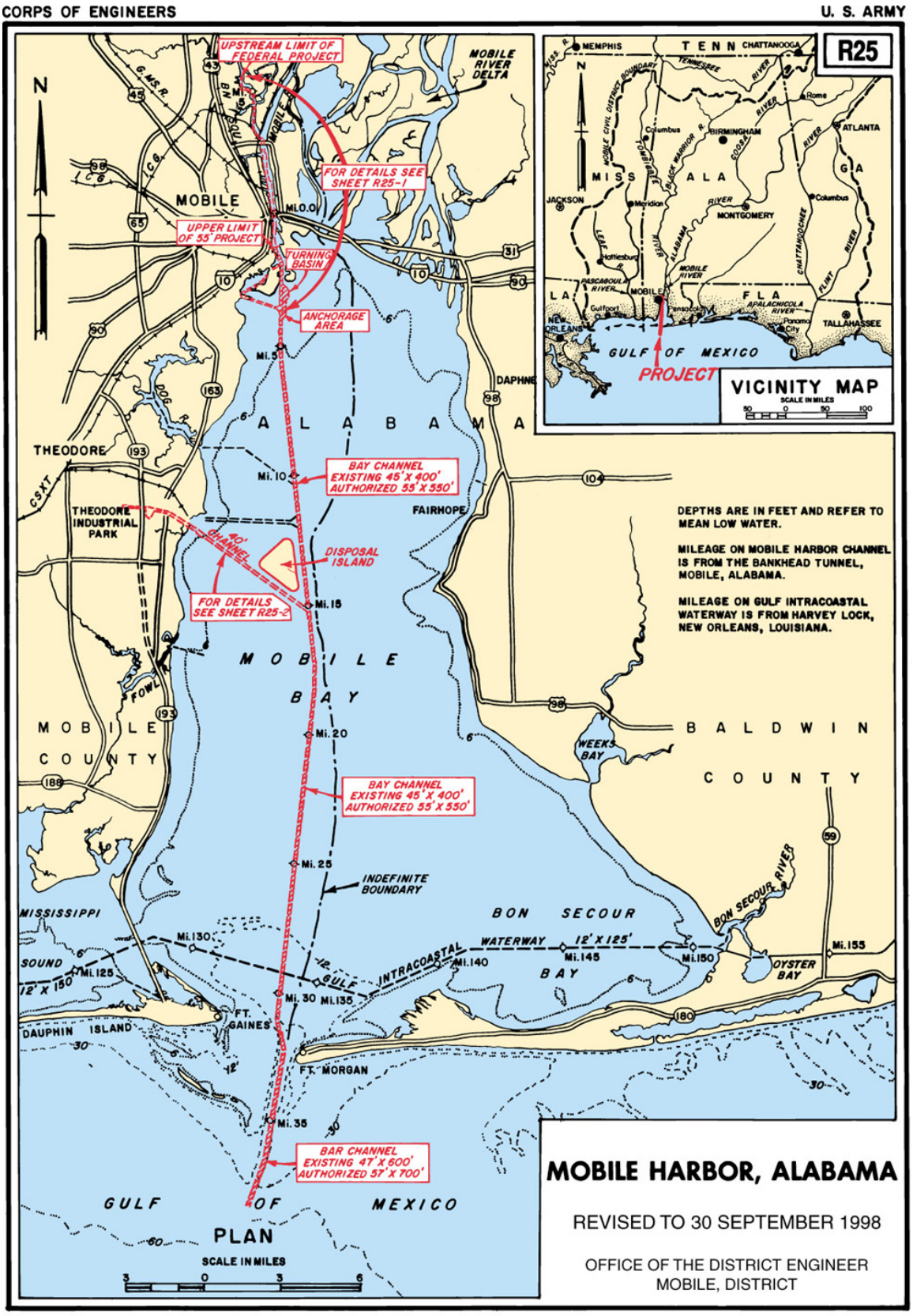

Figure 1. Mobile Harbor Federally Authorized Navigation Project

Figure 2. Locations of the open water disposal areas in Mobile Bay. The 2012 thin-layer placement was in Disposal Areas 1, 2, 3, 10, 11, & 13.

Figure 3. Example of the Strategic Sediment Placement Plan utilizing pre-established open bay placement areas.