

# APPENDIX III

## FLORIDA COASTAL ZONE MANGEMENT CONSISTENCY DETERMINATION

# FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES

## 1. Chapter 161, Beach and Shore Preservation.

The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed project is not located in a beach area. Therefore, the project would not apply to this chapter.

## 2. Chapters 186 and 187, State and Regional Planning.

These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: This project will be coordinated with the Tampa Bay Regional Planning Council and the State Clearinghouse. Therefore, this project would comply with the intent of this Chapter.

## 3. Chapter 252, Disaster Preparation, Response and Mitigation.

This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The dredging and placement would be consistent with the intent of this Chapter.

## 4. Chapter 253, State Lands.

This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The dredging and placements would not affect state lands. The proposal would comply with the intent of this chapter.

**5. Chapters 253, 259, 260, and 375, Land Acquisition.**

This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter would not apply.

**6. Chapter 258, State Parks and Aquatic Preserves.**

This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed work would not affect any parks or preserves, and would, therefore, be consistent with this chapter.

**7. Chapter 267, Historic Preservation.**

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The construction of the new navigation channel has been coordinated with the Florida State Historic Preservation Officer. Procedures will be implemented to avoid affects on unidentified historic properties, which may be located within the affected areas. Remote sensing surveys will be completed to identify historic properties, which may be eligible for inclusion in the National Register of Historic Places, in the navigation channel and in the proposed disposal areas. Therefore, the work will be consistent with the goals of this chapter.

**8. Chapter 288, Economic Development and Tourism.**

This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The expansion of the channel and turning basin encourages the development Tampa Harbor and economic growth of the area. Therefore, the work would be consistent with the goals of this chapter.

**9. Chapters 334 and 339, Public Transportation.**

This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The expansion of the channel and turning basin promotes recreational and commercial

navigation within Tampa Harbor. Therefore, the work would comply with the goals of this chapter.

**10. Chapter 370, Saltwater Living Resources.**

This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fisherman and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The work would not affect salt-water living resources, therefore, the work is consistent with the goals of this chapter.

**11. Chapter 372, Living Land and Freshwater Resources.**

This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions that provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The placement of material in the channel would not affect any resources covered by this Chapter. Therefore, the work would comply with the goals of this chapter.

**12. Chapter 373, Water Resources.**

This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This work does not involve water resources as described by this chapter.

**13. Chapter 376, Pollutant Spill Prevention and Control.**

This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: This work does not involve the transportation or discharging of pollutants.

**14. Chapter 377, Oil and Gas Exploration and Production.**

This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This work does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, does not apply.

**15. Chapter 380, Environmental Land and Water Management.**

This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development.

Response: The construction dredging and placement has been coordinated with the local regional planning commission. Therefore, the work would be consistent with the goals of this chapter.

**16. Chapter 388, Arthropod Control.**

This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The work would not further the propagation of mosquitoes or other pest arthropods.

**17. Chapter 403, Environmental Control.**

This chapter authorizes the regulation of pollution of the air and waters of the state by the DEP.

Response: A permit application is being prepared for the project. Final compliance would come with the permit modification. Therefore, the work is complying with the intent of this chapter.

**18. Chapter 582, Soil and Water Conservation.**

This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the work. Particular attention will be given to work on or near agricultural lands.

Response: The proposed work is not located near or on agricultural lands and would therefore, this chapter would not apply.

# APPENDIX IV

## ESSENTIAL FISH HABITAT DETERMINATION AND COORDINATION

**ESSENTIAL FISH HABITAT ASSESSMENT  
TAMPA HARBOR-ALAFIA RIVER NAVIGATION PROJECT**

1. A study has been authorized under Section 933 of the Water Resources Development Act of 1990. The description of the project and its impacts are in the attached Feasibility Report and Draft Environmental Assessment.
2. The Alafia River Navigation Channel expansion would affect 0.275 acres of fringe mangrove habitat as identified as EFH. Impacts to this resource are identified in Section 4, Environmental Consequences of the Environmental Assessment. We consider these impacts to be minimal on an individual project and cumulative affects basis. Because of the poor habitat quality associated with the Tampa Harbor, the only mitigation would be the replanting of 0.275 acres of mangroves along the new shoreline.
3. Beneficial Uses of Dredged Material.
  - a. Bird Island Expansion: Dredged material would be used to create approximately 25 acres of wetland and upland habitat for bird foraging and nesting. There would be a loss of shallow-water habitat but this loss would be offset by the creation of saltmarsh habitat used as nursery habitat for fish.
  - b. CMDA-2D Wetland Creation: Dredged material would be used to create approximately 67 acres of wetland habitat for bird foraging and nesting, water quality improvement in Hillsborough Bay and fish habitat. There would be a loss of shallow-water habitat but this loss would be offset by the creation of saltmarsh habitat used as nursery habitat for fish.
  - c. MacDill Seagrass Restoration Site. This area has been previously coordinated with National Marine Fisheries Service prior to EFH and is being used as a dredged material placement area for maintenance material.. The hole provides refugia during cold months and an edge for feeding along. This are was considered more important to restore as a potential seagrass beds area. This area is listed by the Habitat Restoration Committee as potential restoration projects in Tampa Bay in the Comprehensive Conservation Management Plan by the Tampa Estuary Program.
  - d. Whiskey Stump Key. These holes were created to provide a sedimentation basin adjacent to Port Redwing. The holes provide refugia for fish in cold weather. This area is listed by the Habitat Restoration Committee as potential restoration projects in Tampa Bay in the Comprehensive Conservation Management Plan by the Tampa Estuary Program. The creation of suitable substrate for seagrass growth would outweigh the loss of hole and edge effect.

Planning Division  
Environmental Branch

AUG 22 2000

Mr. Andreas Mager, Jr.  
Regional Director  
Southeast Regional Office  
9721 Executive Center Drive North  
St. Petersburg, Florida 33702

Dear Mr. Mager:

This is reference to your July 7, 2000, letter which provided Essential Fish Habitat Determination (EFH) comments and recommendations on the Tampa Harbor - Alafia River navigation Project. In your letter you recommend that the dredged material be placed in uplands or the Ocean Dredged Material Disposal Site (ODMDS) and that we mitigate for impacts to mangrove and shallow bay bottom. We cannot accept all of your recommendations. We plan to place most of the material in the ODMDS and to mitigate for any mangrove wetland losses. However, we feel that creating wetlands and bird habitat are a better use of some of the dredged material in this particular area. To do otherwise would be contrary to the broader environmental interests and the concept of "beneficial use of dredged material." We also feel that the quality of habitat impacted, with the exception of the mangrove habitat, in this industrial port area does not require mitigation.

The U.S. Fish and Wildlife Service in their preparation of the Fish and Wildlife Coordination Act Report has characterized project habitat and provided this office with guidance as to the viability of habitat within the project area. The bottom sediments are periodically disturbed by maintenance dredging and propeller wash from ship and tugboat movement in this industrial area. Most of the shorelines along the project both north and south of the channel are significantly altered. Some of the shoreline along the north bank are bulkheaded. There is a mangrove area that will be mitigated.

The alternatives described as Beneficial Uses of Dredged material were obtained from the Agency on Bay Management's

Habitat Restoration Committee. Their recommendations concerning habitat restoration needs within Tampa Bay are part of the Tampa Bay Estuary Program's Comprehensive Conservation Management Plan.

The project will generate approximately 5 million cubic yards of material. A large portion of this material will be placed in the ODMDS. However, we have weighed the alternatives and are considering creation of the 107 acres of valuable, productive emergent habitat at CMDA-2D and 52 acres of nesting and foraging habitat for birds at Sunken/Bird Island. This was suggested by the Audubon Society. The design used would create additional bird loafing and feeding areas. Another facet of this project was to provide bank stabilization to protect the existing bird nesting area from erosion.

Both the expansion of Bird/Sunken Island and the Wetland Creation along CMDA-2D occur in a part of Hillsborough Bay that does not support seagrass regeneration. The seagrass bed here is an experimental plot located along the eastern shore of the Bay next to the Cargill facilities and will not be impacted. During plan formulation, we considered creating a turning basin at this site but eliminated this alternative from consideration because of the seagrass bed.

We plan to mitigate for the loss of mangrove fringe along the existing man-made shoreline by planting a double row of mangrove seedlings to replace that fringe as recommended by the U.S. Fish and Wildlife Service. We do not intend to mitigate for the loss of 58-acres of Bay bottom in an industrial area. However, the creation of 159-acres of emergent wetlands would offset any losses of habitat from the dredging.

If you have any questions about this response, contact Mr. Bill Fonferek at 904-232-2803.

Sincerely,

James C. Duck  
Chief, Planning Division

Fonferek/CESAJ-PD-ER/2803/als 8-4-00  
Pugger/CESAJ-PD-ER  
Smith/CESAJ-PD-E  
Strain/CESAJ-PD-P  
Murphy/CESAJ-~~DP-1~~  
Pike/CESAJ-OC  
Duck/CESAJ-PD

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**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
9721 Executive Center Drive North  
St. Petersburg, Florida 33702

July 7, 2000

James C. Duck, Chief  
Jacksonville District Corps of Engineers  
Planning Division  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

Dear Mr. Duck:

The National Marine Fisheries Service (NMFS) has reviewed your staff's letter, dated May 8, 2000, and the Environmental Assessment (EA) for the proposed Tampa Harbor-Alafia River Navigation Channel Expansion in Hillsborough County, Florida. Modifications to the existing channel include widening the channel 50 feet to the south, deepening the channel to a project depth of 42-feet, and widening the turning basin to provide a 1,200-foot diameter. Dredged material would be placed within the designated Offshore Dredged Material Disposal Site (ODMDS) and at various locations within Tampa Bay identified in the EA as beneficial use sites.

The project is located in aquatic habitats identified as Essential Fish Habitat (EFH) in the 1998 amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the Gulf of Mexico Fishery Management Council (GMFMC). The 1998 generic amendment was prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). The Corps of Engineers (COE) made a determination that the project would not have a substantial adverse impact on EFH or Federally managed fisheries in the Gulf of Mexico.

Categories of EFH which will be impacted by the proposed dredging include mangrove wetlands, estuarine sand substrate and estuarine water column which are identified as EFH for juvenile pink shrimp and black grouper; postlarval and juvenile red drum; postlarval, juvenile, and adult gray snapper; and, juvenile yellowtail and lane snappers. Widening and deepening the channel will affect an additional 48 acres of bay bottom habitat. Expansion of the turning basin will impact approximately 0.275 acre of mangrove habitat, 10 acres of bay bottom, plus an additional area from resultant side slopes. We find that this proposed project will adversely impact EFH and associated fishery resources.

In addition to being designated as EFH, these areas, in association with other habitats, provide essential forage, refuge, nursery, and maturation requirements for a variety of finfish and shellfish of commercial, recreational, and ecological importance including spotted seatrout, tarpon, snook, mullet, menhaden, and blue crab. Several of these species serve as prey for other fisheries managed under the MSFCMA by the GMFMC (e.g.; red drum, mackerels, snappers, and groupers) and highly migratory species managed by the NMFS (e.g.; billfishes and sharks). In addition to their habitat



value, mangrove wetlands provide valuable water quality maintenance and shoreline stabilization functions such as pollution and sediment removal and wave attenuation. Furthermore, mangroves produce and export detritus, a vital link in the estuarine food web, to the Tampa Bay ecosystem.

Because many of the dredged material disposal options would convert existing valuable habitat to other habitat types, the NMFS disagrees with the identification of these dredged material disposal options as being "beneficial use" options. These include the MacDill seagrass restoration area, expansion of Dredged Material Management Area CMDA-2D, expansion of the Alafia Banks, and the Whiskey Stump Key seagrass restoration area.

Unvegetated sandy substrate may appear to be unproductive but in reality these areas serve as productive growth sites for macro- and microphytic algae, benthic diatoms, benthic dinoflagellates, polychaete worms, crustaceans, molluscs and insect larvae (Livingston, 1990). As such, they are directly or indirectly important as sources of food for fish and invertebrates that are of commercial, recreational, and ecological importance such as flounder, seatrout, menhaden, mullet, and blue crab. A detailed ecological description of estuarine bay bottoms is found in Armstrong (1987).

Seagrass habitat is also important in the production of fishery resources. Seagrass are also utilized for nursery, forage and cover by a variety of finfish and shellfish that are of commercial, recreational, and ecological importance. Representative inhabitants of seagrass beds include spotted seatrout, red drum, shrimp, and bay scallop. In addition to their habitat function, seagrasses help stabilize bottom sediments and thereby lessen the turbidity of surrounding waters. A detailed ecological description of seagrasses on the west coast of Florida is found in Zieman and Zieman (1989).

The MacDill and Whiskey Stump Key seagrass restoration areas are man-made deepwater features created as a result of past practices of utilizing these areas as borrow sites for fill material. These areas provide habitat diversity within a bay system that has been significantly altered by anthropogenic activities. Notably, these areas provide refuge to fishes which are susceptible to low temperatures (e.g., snook and tarpon) during episodes of extreme cold weather. Local fishery experts and resource managers, particularly the Tampa Bay Regional Planning Council's Agency on Bay Management (ABM), have for years debated the value and benefits of these borrow areas both as-is and in the restored condition without achieving consensus. By public notice dated July 17, 1998, the Corps of Engineers proposed the placement of material dredged from Cut-G of the Tampa Channel into the MacDill borrow site with the provision that it was a one-time test to determine if material could be placed in the borrow site without jeopardizing adjacent habitats, including seagrass habitat. Analysis of this effort should be thoroughly reviewed by the ABM prior to proceeding with additional efforts to utilize these areas as disposal sites for dredged material.

The NMFS is also concerned regarding the filling of shallow bay bottom adjacent to Dredged Material Management Area CMDA-2D and the Alafia Banks to create elevations suitable for emergent wetland vegetation. The U.S. Fish and Wildlife Service (USFWS) and Tampa BayWatch have reported (pers. comm.) finding seagrass (*Halodule wrightii*) colonizing areas east of CMDA-2D. As noted above, seagrasses are also important in the production of fishery resources and maintaining water quality. The restoration and protection of seagrasses is a key goal of the Tampa Bay Estuary

Program (TBEP) which has established a nitrogen management strategy to improve water clarity to facilitate the recovery of seagrasses. Current trends indicate that the TBEP's seagrass recovery goal could be met in 30 years and the upper segments of Tampa Bay, including Hillsborough Bay, are prime candidates for seagrass recovery. Hillsborough Bay lost nearly all of its 2,700 acres of seagrass habitat and currently supports only approximately 150 acres. The conversion of existing shallow water habitats to emergent marsh under the auspices of beneficial use would preclude the availability of these bay bottom areas for the natural restoration of seagrass habitat. (TBEP, 1996) The Audubon Society, which manages the Alafia Banks for avian species, has long been a proponent of preventing erosion of these island and restoring habitat lost to erosion. Again, careful consideration for existing habitats must be given prior to converting these areas to different habitat types.

Finally, another goal of the TBEP's Comprehensive Conservation and Management Plan (TBEP, 1996) is the development of a "Long-Term Dredging and Dredged Material Management Plan for Tampa Bay". Development of this plan is currently underway by the COE and an interagency advisory committee. The intent of the plan is to provide information to ports, agencies, and maritime interests and to foster coordination of dredging and dredged material management to maximize shared placement and beneficial use opportunities. Until the Plan is complete, existing upland disposal sites should be used to the maximum extent possible unless well defined and broadly accepted beneficial use options are clearly available. The idea of using existing disposal sites as dredged material recycling sites for future beneficial use or other fill material needs is a concept supported by the NMFS and should be further explored.

Therefore, in consideration of the above identified adverse impacts to living marine resources, the NMFS does not agree with the COE's assessment that adverse impacts to EFH are minimal and the resultant affect on EFH from the "beneficial use" projects would be positive. To ensure the conservation of EFH and associated fishery resources, final action on the proposed action should require the following:

#### **EFH Conservation Recommendations**

1. That dredged material be placed in existing, upland, contained disposal sites or the ODMDS until the Dredged Material Management Strategy for Tampa Bay is complete.
2. That a comprehensive mitigation plan be developed to compensate for adverse impacts to approximately 0.27 acre of mangrove wetlands and approximately 58-acres of shallow bay bottom habitat.

Please be advised that the regulations (50 CFR Section 600.920) to implement the EFH provisions of the MSFCMA require your office to provide a written response to this letter within 30 days of its receipt and at least 10 days prior to final approval of the action. A preliminary response is acceptable if final action can not be completed within 30 days. Your final response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH Conservation Recommendations, you must provide and

explanation of the reasons for not implementing those recommendations.

If we can be of further assistance, please advise. Related comments, questions or correspondence should be directed to Mr. David N. Dale in St. Petersburg, Florida. He may be contacted at 727/570-5311 or at the letterhead address above.

Sincerely,

*for* 

Andreas Mager, Jr.  
Assistant Regional Administrator  
Habitat Conservation Division

cc:

F/SER4

F/SER43

F/SER3

EPA-Atlanta, West Palm Beach

FWS-Jacksonville, St. Petersburg

FDEP-Tallahassee, Tampa

FFWCC-Tallahassee, St. Petersburg

SWFWMD-Tampa

TBRPC-St. Petersburg

## LITERATURE CITED

- Armstrong, N.E. 1987. The ecology of open-bay bottoms of Texas: a community profile. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.12). 104 pp.
- Livingston, R.J. 1990. Inshore Marine Habitats *In* "Ecosystems of Florida" (R.L. Myers and J.J. Ewel, eds.) pp. 549-573. University Presses of Florida, Gainesville.
- Tampa Bay Estuary Program. 1996. Charting the Course: The Comprehensive Conservation and Management Plan for Tampa Bay. 263 pp.
- Zieman, J.C., and R.T. Zieman. 1989. The ecology of the seagrass meadows of the west coast of Florida: a community profile. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.25). 155 pp.

Planning Division  
Environmental Branch

AUG 04 2000

Mr. Andreas Mager, Jr.  
Regional Director  
Southeast Regional Office  
9721 Executive Center Drive North  
St. Petersburg, Florida 33702

Dear Mr. Mager:

This is in reference to your July 7, 2000, letter which provided Essential Fish Habitat Determination (EFH) comments on the Tampa Harbor - Alafia River navigation Project. This is our interim response to comments and recommendations. At this time we believe we cannot accept the recommendations contained in your letter. We will provide a more detailed response in the near future.

If you have any questions about this response, contact Mr. Bill Fonferek at 904-232-2803.

Sincerely,

James C. Duck  
Chief, Planning Division

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*mm* Duck/CESAJ-PD

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Faxed 8-4-00

FACSIMILE TRANSMITTAL HEADER SHEET					
COMMAND		NAME OFFICE SYMBOL	TELEPHONE NUMBER	AUTHORIZED RELEASER'S SIGNATURE	
FROM: William J Fonferek		CESAJ-PD-ER	(904) 232-2803		
TO: Andreas Mager		NMFS - St Petersburg	727-570-5312	DATE-TIME	MONTH YEAR
CLASSIFICATION	NO. PCS	PRECEDENCE	REMARKS: FAX 727-570-5517		
SPACE BELOW FOR COMMUNICATIONS CENTER USE ONLY					
DA Form 3918-R 1 Aug 72					

MESSAGE:  
Here is the Jacksonville District response.  
Bill Fonferek

**U. S. Army Corps of Engineers  
Jacksonville District**

**Planning Division  
Environmental Branch**

400 West Bay Street  
Mail: P. O. Box 4970  
Jacksonville, FL 32232-0019

Phone: (904) 232-2202  
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Please call us if you have had any problems receiving or if there are any pages missing.

# APPENDIX V

## SECTION 404(B)(1) EVALUATIONS

**WHISKEY STUMP KEY SEAGRASS RESTORATION SITE  
SECTION 404(b)(1) EVALUATION  
DREDGED MATERIAL**

I. Project Description

a. Location. Tampa Harbor-Alafia River Navigation Channel, Hillsborough County, Florida.

b. General Description. The Corps is proposing to place dredged material from the construction of the Alafia River Navigation Channel in a former borrow area located adjacent to Whiskey Stump Key near the Tampa Big Bend Navigation Project in Tampa Bay.

c. Authority and Purpose. This study is authorized by Water Resources Development Act 1992. Pursuant to Section 204 of the Water Resources Development Act of 1996, the US Army Corps of Engineers was delegated the authority to look for opportunities for using dredged material in a way beneficial to the aquatic environment. This proposal was presented to the Corps for consideration by the Habitat Restoration Committee of the Agency on Bay Management, Tampa Bay Regional Planning Council.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. . Alafia has fines ranging between 5 to 45 percent. Preliminary findings indicate the high percentage of fines in the dredged material may not be problematic for a beneficial use plan.

(2) Quantity of Material. Approximately 950,000 cubic yards of dredged material excavated from the navigation entrance channel will be placed in the hole.

(3) Source of Material. The material will be excavated from selected sites within the Tampa Harbor navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. It is a 53-acre site located north of Tampa Harbor Big Bend Navigation Project.

(2) Type of Site. The site is a sedimentation basin used in the construction of Port Redwing.

(3) Type of Habitat. The hole is a cold water refugia for large fish. It is habitat

for a large number of species of fish that use the edge of the hole as habitat. The center of the hole has low dissolved oxygen and is less likely used by the fisheries. Smaller species and juvenile fish use the adjacent seagrass beds.

- (4) Timing and Duration of Discharge. The hole would be filled in conjunction with the construction of the new navigation channel.

f. Description of Disposal Method. The dredging would be conducted by a hydraulic dredge or hopper with pump-out capabilities. The outfall would likely have a diffuser at the terminal end. The contractor could employ a flocculant to reduce turbidity and increase settling.

## II. Factual Determinations

### a. Physical Substrate Determinations.

- (1) Substrate Elevation and Slope. The hole is slightly sloped toward an adjacent tidal trough in the Bay. The hole is approximately 12-feet deep.

- (2) Sediment Type. Sediment analysis of the disposal site indicates that the bottom is composed of a layer of silt and fine grained sand. A site investigation was conducted by divers to verify that the habitat was a silty substrate.

- (3) Dredged/Fill Material Movement. The dredged material is not likely to movement because it is a low energy area and the hole acts as a sediment trap for silty material.

- (4) Physical Effects on Benthos. Placement will result in the loss of benthic organisms at the placement site. These communities will reestablish quickly upon completion of work. Disruption of marine life at the placement area will be short term.

- (5) Other Effects. Fisheries at or near the disposal area should not experience substantive adverse effects. Standard manatee construction conditions will be required of all contractors. The work as proposed will not jeopardize protected species. No known historical properties will be affected by this project. The proposed work will result in some temporary disruption of normal vessel traffic in the harbor, but it's completion will have a favorable impact on the operation of the port with a resulting beneficial effect on the local and regional economy. Temporary degradation in water quality at the dredging and disposal sites will also occur. Turbidity would be controlled to not impact adjacent seagrass beds. The long-term filling of the hole would offer the expansion of seagrass beds in the area.

(6) Actions Taken to Minimize Impacts. Turbidity curtains or flocculents could be employed to reduce impacts on seagrass beds. The standard manatee protection conditions would also be employed to reduce potential for impacts. .

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(a) Salinity. No impacts to salinity at disposal site.

(b) Water Chemistry. There will be no changes in water chemistry at the site.

(c) Clarity. There will be a temporary increase in turbidity level at the disposal site and immediately adjacent to the disposal area during the disposal operations.

(d) Color. Due to the minor silt content, there will be a brown turbidity plume associated with the discharge operations.

(e) Odor. There would be no odor problems associated with the dredged material since the material contains few organics and would not be exposed to the air.

(f) Taste. Not applicable.

(g) Dissolved Gas Levels. There would be improved water quality at the site from the increased dissolved oxygen levels.

(h) Nutrients. The material to be discharged is mainly sand with shell fragment, therefore no nutrients would be bound in the material and no release of nutrients would be anticipated.

(i) Eutrophication. No eutrophication is anticipated.

(2) Current Patterns and Circulation. Not applicable.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be

operated to maintain state water quality standards.

d. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. No changes are anticipated because the dredged material is sandy material containing few fines.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration would be reduced during disposal operations. This would be short-term in duration and would not cause any significant adverse effects.

(b) Dissolved Oxygen. There would be no reduction in dissolved oxygen levels from the discharge of the sandy dredged material.

(c) Toxic Metals and Organics. No toxic materials are anticipated to be encountered.

(d) Pathogens. Not Applicable.

(e) Aesthetics. There will be an increase in noise levels and aesthetic degradation from the presence and operation of dredging equipment at the disposal site.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. No photosynthesis occurs at this site.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None required.

d. Contaminant Determinations. Although previous studies by State and Federal agencies have shown elevated levels of contaminate in adjacent areas of Tampa Bay,

including areas close to the mouth of the Alafia River, no contaminants have been in the Alafia River and therefore none are anticipated. This conclusion is based on the following: No spills of hazardous materials that would render the dredged material unsuitable for upland or open water disposal have occurred since 1987 and no active CERCLA sites were found in the vicinity of the port. Although industrial facilities exist in the area that may have a potential for release of toxic materials the materials most likely to be discharged are phosphoric and sulfuric acids, phosphate fertilizers, ammonia, sulfur and waste products from processing phosphate rock. Spills of these materials may have significant short-term impacts on the immediate environment but would not cause a long-term degradation of the sediments severe enough to require special disposal precautions. In addition deepening of the harbor in 1995 and subsequent maintenance dredging in 2000 would have removed any contaminated sediment that may have accumulated. An expanded discussion of this issue recommended additional testing results are contained in the Tier I evaluation (Appendix IX).

e. Aquatic Ecosystem and Organism Determinations

- (1) Effects on Plankton. No significant effects.
- (2) Effects on Benthos. No significant benthic populations are located in the disposal site and therefore no significant adverse impacts are anticipated.
- (3) Effects on Nekton. None are anticipated.
- (4) Effects on Aquatic Food Web. None are anticipated.
- (5) Effects on Special Aquatic Sites. No special aquatic sites are located within the disposal site.
  - (a) Sanctuaries and Refuges. Not applicable.
  - (b) Wetlands. Not applicable.
  - (c) Mud Flats. Not applicable.
  - (d) Vegetated Shallows. None would be affected.
  - (e) Coral Reefs. Not applicable.
  - (f) Riffle and Pool Complexes. Not applicable.
- (6) Threatened and Endangered Species. None would be affected.

(7) Other Wildlife. Not applicable.

(8) Actions to Minimize Impacts. No actions are necessary.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. No mixing will likely occur due to the sandy nature of the dredged material, the shallow water and the small quantity of fines associated with the material.

(2) Determination of Compliance with Applicable Water Quality Standards. Water quality certification has been issued by the State. Monitoring of the discharge site will be conducted to insure State standards met.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

(b) Recreational and Commercial Fisheries. There would be a long-term change in the species composition of fish at the site. There would be a edged maintained for 20 years as the hole is continually filled. At the completion of the project, there would likely be some relief for fish but the cold weather refugia would be eliminated.

(c) Water Related Recreation. Not applicable.

(d) Aesthetics. The proposed discharge would increase noise and scenic degradation along the ocean front during disposal operations.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. Since the bottom substrate is silty, the placement of an irregular sandy substrate would provide additional diversity to the area. It would also create potential substrate for seagrass bed colonization.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

**CMDA-2D WETLAND CREATION SITE  
SECTION 404(b)(1) EVALUATION  
DREDGED MATERIAL**

I. Project Description

a. Location. Tampa Harbor-Alafia River Navigation Channel, Hillsborough County, Florida.

b. General Description. The Corps is proposing to place dredged material from the construction of the Alafia River Navigation Channel adjacent to Dredged Material Management Area CMDA-2D to create 107 acres of wetlands.

c. Authority and Purpose. This study is authorized by Water Resources Development Act 1992. Pursuant to Section 204 of the Water Resources Development Act of 1996, the US Army Corps of Engineers was also delegated the authority to look for opportunities for using dredged material in a way beneficial to the aquatic environment.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The excavated material to be placed in the hole would be silty- sand, silts and rock.

(2) Quantity of Material. Approximately 1,545,100 cubic yards of dredged material excavated from the navigation entrance channel will be placed in the hole.

(3) Source of Material. The material will be excavated from selected sites within the Tampa Harbor navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. The placement area is located adjacent to southeast corner of the Dredged Material Management Area CMDA-2D. It is approximately 107 acres.

(2) Type of Site. It is an open water area adjacent to an upland disposal area. The bottom sediments were formerly dredged material from the navigation channel.

(3) Type of Habitat. It is an open water area with benthic sandy bottom. There are no seagrass or hardbottoms in the area.

(4) Timing and Duration of Discharge. The placement would be in conjunction with the dredging of the expanded navigation channel.

f. Description of Disposal Method. The material would be excavated using a clamshell and placed on a barge. It would be transported to the placement area where it would be offloaded by mechanical means.

## II. Factual Determinations

### a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope.

(2) Sediment Type. Sediment analysis of the disposal site indicates that the bottom is composed of a layer of silt and fine-grained sand.

(3) Dredged/Fill Material Movement. The dredged material is not likely to movement because it is a low energy area.

(4) Physical Effects on Benthos. Placement will result in the loss of benthic organisms at the placement site. These communities will reestablish quickly upon completion of work. Disruption of marine life at the placement area will be short term.

(5) Other Effects. Fisheries at or near the disposal area should not experience substantive adverse effects. Standard manatee construction conditions will be required of all contractors. The work as proposed will not jeopardize protected species. No known historical properties will be affected by this project. The proposed work will result in some temporary disruption of normal vessel traffic in the harbor, but it's completion will have a favorable impact on the operation of the port with a resulting beneficial effect on the local and regional economy. Temporary degradation in water quality at the dredging and disposal sites will also occur. Turbidity would be controlled to not impact adjacent seagrass beds. The long-term filling of the hole would offer the expansion of seagrass beds in the area.

(6) Actions Taken to Minimize Impacts. Turbidity curtains or flocculents could be employed to reduce turbidity. The standard manatee protection conditions would also be employed to reduce potential for impacts.

### b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

- (a) Salinity. No impacts to salinity at disposal site.
- (b) Water Chemistry. There will be no changes in water chemistry at the site.
- (c) Clarity. There will be a temporary increase in turbidity level at the disposal site and immediately adjacent to the disposal area during the disposal operations.
- (d) Color. Due to the minor silt content, there will be a brown turbidity plume associated with the discharge operations.
- (e) Odor. There would be no odor problems associated with the dredged material since the material contains few organics and would not be exposed to the air.
- (f) Taste. Not applicable.
- (g) Dissolved Gas Levels. There would be improved water quality at the site from the increased dissolved oxygen levels.
- (h) Nutrients. The material to be discharged is mainly sand, silty sand with shell fragment and rock, therefore nutrients levels are likely to be very low and no release of nutrients would be anticipated.
- (i) Eutrophication. No eutrophication is anticipated.

(2) Current Patterns and Circulation. Not applicable.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

d. Suspended Particulate/Turbidity Determinations

- (1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. Minimal changes are anticipated because the dredged material is silty/sandy material containing relatively low levels of fines.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration would be reduced during disposal operations. This would be short-term in duration and would not cause any significant adverse effects.

(b) Dissolved Oxygen. There would be no reduction in dissolved oxygen levels from the discharge of the sandy dredged material.

(c) Toxic Metals and Organics. No toxic materials are anticipated to be encountered. No spills of hazardous materials that would have contaminated the dredged material occurred since 1987 and no active CERCLA sites were found in the vicinity of the port. Although industrial facilities exist in the area that may have a potential for release of toxic materials the materials most likely to be discharged are phosphoric and sulfuric acids, phosphate fertilizers, ammonia, sulfur and waste products from processing phosphate rock. Spills of these materials may have significant short-term impacts on the immediate environment but would not cause a long-term degradation of the sediments. In addition deepening of the harbor in 1995 and subsequent maintenance dredging in 2000 would have removed any contaminated sediment that may have accumulated.

(d) Pathogens. Not Applicable.

(e) Aesthetics. There will be an increase in noise levels and aesthetic degradation from the presence and operation of dredging equipment at the disposal site.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. No photosynthesis occurs at this site.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None required.

d. Contaminant Determinations. Although previous studies by State and Federal agencies have shown elevated levels of contaminate in adjacent areas of Tampa Bay, including areas close to the mouth of the Alafia River, no contaminants have been in the Alafia River and therefore none are anticipated. This conclusion is based on the following: No spills of hazardous materials that would render the dredged material unsuitable for upland or open water disposal have occurred since 1987 and no active CERCLA sites were found in the vicinity of the port. Although industrial facilities exist in the area that may have a potential for release of toxic materials the materials most likely to be discharged are phosphoric and sulfuric acids, phosphate fertilizers, ammonia, sulfur and waste products from processing phosphate rock. Spills of these materials may have significant short-term impacts on the immediate environment but would not cause a long-term degradation of the sediments severe enough to require special disposal precautions. In addition deepening of the harbor in 1995 and subsequent maintenance dredging in 2000 would have removed any contaminated sediment that may have accumulated. An expanded discussion of this issue recommended additional testing results are contained in the Tier I evaluation (Appendix IX ).

e. Aquatic Ecosystem and Organism Determinations

- (1) Effects on Plankton. No significant effects.
- (2) Effects on Benthos. No significant benthic populations are located in the disposal site and therefore no significant adverse impacts are anticipated.
- (3) Effects on Nekton. None are anticipated.
- (4) Effects on Aquatic Food Web. None are anticipated.
- (5) Effects on Special Aquatic Sites. No special aquatic sites are located within the disposal site.
  - (a) Sanctuaries and Refuges. Not applicable.
  - (b) Wetlands. Not applicable.
  - (c) Mud Flats. Not applicable.
  - (d) Vegetated Shallows. None would be affected.
  - (e) Coral Reefs. Not applicable.
  - (f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. None would be affected.

(7) Other Wildlife. Not applicable.

(8) Actions to Minimize Impacts. No actions are necessary.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. Mixing will likely occur due to the silty/sandy nature of the dredged material, the shallow water and the small quantity of fines associated with the material. A 150 meter mixing zone will provide adequate dilution of any turbidity plume.

(2) Determination of Compliance with Applicable Water Quality Standards. Water quality certification will be issued by the State prior to project execution. Monitoring of the discharge site will be conducted to insure State standards met.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

(b) Recreational and Commercial Fisheries. There would be a long-term change in the species composition of fish at the site.

(c) Water Related Recreation. Not applicable.

(d) Aesthetics. The proposed discharge would increase noise and scenic degradation along the disposal operations.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. Since the bottom substrate is silty, the placement of an irregular silty/sandy containing shell and rock substrate would provide additional diversity to the area. It would also create potential substrate for seagrass bed colonization.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

**SUNKEN ISLAND/BIRD ISLAND EXPANSION  
SECTION 404(b)(1) EVALUATION  
DREDGED MATERIAL**

I. Project Description

a. Location. Tampa Harbor-Alafia River Navigation Channel, Hillsborough County, Florida.

b. General Description. The Corps is proposing to place dredged material from the construction of the Alafia River Navigation Channel adjacent to Sunken Island/Bird Island to create bird habitat.

c. Authority and Purpose. This study is authorized by Water Resources Development Act 1992. Pursuant to Section 204 of the Water Resources Development Act of 1996, the US Army Corps of Engineers was delegated the authority to look for opportunities for using dredged material in a way beneficial to the aquatic environment. The Habitat Restoration Committee of the Agency on Bay Management, Tampa Bay Regional Planning Council, presented this proposal to the Corps for consideration.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. Alafia has fines ranging between 5 to 45 percent. Preliminary findings indicate the high percentage of fines in the dredged material may not be problematic for a beneficial use plan.

(2) Quantity of Material. Approximately 542,000 cubic yards of dredged material and 42,500 cubic yards of rock excavated from the navigation entrance channel will be used to expand the island and stabilize the northeast shoreline of the island.

(3) Source of Material. The material will be excavated from selected sites within the Alafia River Navigation Channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. A 52-acre open-water site adjacent to Sunken/Bird Island located south of the Alafia River Navigation Channel.

(2) Type of Site. The Islands are upland habitat, well vegetated and support bird nesting in the mangroves. The discharge site is open-water sandy bottom.

(3) Type of Habitat. The site is open-water sandy bottom used by fish.

(4) Timing and Duration of Discharge. The island would be expanded in conjunction with the construction of the new navigation channel.

f. Description of Disposal Method. A clamshell would conduct the dredging. The material would be loaded on barges and mechanically offloaded.

## II. Factual Determinations

### a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. This would be a flat open-water area approximately 7 feet deep.

(2) Sediment Type. The bottom sediments in this area are sandy.

(3) Dredged/Fill Material Movement. The dredged material is not likely to movement because it is a low energy area.

(4) Physical Effects on Benthos. Placement will result in the loss of benthic organisms at the placement site. These communities will reestablish quickly upon completion of work. Disruption of marine life at the placement area will be short term.

(5) Other Effects. Fisheries at or near the disposal area should not experience substantive adverse effects. Standard manatee construction conditions will be required of all contractors. The work as proposed will not jeopardize protected species. No known historical properties will be affected by this project. The proposed work will result in some temporary disruption of normal vessel traffic in the harbor, but it's completion will have a favorable impact on the operation of the port with a resulting beneficial effect on the local and regional economy. Temporary degradation in water quality at the dredging and disposal sites will also occur. Turbidity would be controlled to not impact adjacent seagrass beds.

(6) Actions Taken to Minimize Impacts. Turbidity curtains or flocculent could be employed to reduce turbidity. The standard manatee protection conditions would also be employed to reduce potential for impacts.

### b. Water Circulation, Fluctuation and Salinity Determinations

#### (1) Water

- (a) Salinity. No impacts to salinity at disposal site.
- (b) Water Chemistry. There will be no changes in water chemistry at the site.
- (c) Clarity. There will be a temporary increase in turbidity level at the disposal site and immediately adjacent to the disposal area during the disposal operations.
- (d) Color. Due to the minor silt content, there will be a brown turbidity plume associated with the discharge operations.
- (e) Odor. There would be no odor problems associated with the dredged material since the material contains few organics and would not be exposed to the air.
- (f) Taste. Not applicable.
- (g) Dissolved Gas Levels. There would be improved water quality at the site from the increased dissolved oxygen levels.
- (h) Nutrients. The material to be discharged is mainly sand, silty sand with shell fragment; and rock, therefore nutrients levels are likely to be very low and no release of nutrients would be anticipated.
- (i) Eutrophication. No eutrophication is anticipated.

(2) Current Patterns and Circulation. Not applicable.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

d. Suspended Particulate/Turbidity Determinations

- (1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. Minimal changes are anticipated because the dredged material is silty/sandy material containing relatively low levels of fines.
- (2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration would be reduced during disposal operations. This would be short-term in duration and would not cause any significant adverse effects.

(b) Dissolved Oxygen. There would be no reduction in dissolved oxygen levels from the discharge of the sandy dredged material.

(c) Toxic Metals and Organics. No toxic materials are anticipated to be encountered. No spills of hazardous materials that would have contaminated the dredged material occurred since 1987 and no active CERCLA sites were found in the vicinity of the port. Although industrial facilities exist in the area that may have a potential for release of toxic materials the materials most likely to be discharged are phosphoric and sulfuric acids, phosphate fertilizers, ammonia, sulfur and waste products from processing phosphate rock. Spills of these materials may have significant short-term impacts on the immediate environment but would not cause a long-term degradation of the sediments. In addition deepening of the harbor in 1995 and subsequent maintenance dredging in 2000 would have removed any contaminated sediment that may have accumulated.

(d) Pathogens. Not Applicable.

(e) Aesthetics. There will be an increase in noise levels and aesthetic degradation from the presence and operation of dredging equipment at the disposal site.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. No photosynthesis occurs at this site.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None required.

d. Contaminant Determinations. Although previous studies by State and Federal

agencies have shown elevated levels of contaminate in adjacent areas of Tampa Bay, including areas close to the mouth of the Alafia River, no contaminants have been in the Alafia River and therefore none are anticipated. This conclusion is based on the following: No spills of hazardous materials that would render the dredged material unsuitable for upland or open water disposal have occurred since 1987 and no active CERCLA sites were found in the vicinity of the port. Although industrial facilities exist in the area that may have a potential for release of toxic materials the materials most likely to be discharged are phosphoric and sulfuric acids, phosphate fertilizers, ammonia, sulfur and waste products from processing phosphate rock. Spills of these materials may have significant short-term impacts on the immediate environment but would not cause a long-term degradation of the sediments severe enough to require special disposal precautions. In addition deepening of the harbor in 1995 and subsequent maintenance dredging in 2000 would have removed any contaminated sediment that may have accumulated. An expanded discussion of this issue recommended additional testing results are contained in the Tier I evaluation (Appendix IX).

e. Aquatic Ecosystem and Organism Determinations

- (1) Effects on Plankton. No significant effects.
- (2) Effects on Benthos. No significant benthic populations are located in the disposal site and therefore no significant adverse impacts are anticipated.
- (3) Effects on Nekton. None are anticipated.
- (4) Effects on Aquatic Food Web. None are anticipated.
- (5) Effects on Special Aquatic Sites. No special aquatic sites are located within the disposal site.
  - (a) Sanctuaries and Refuges. Not applicable.
  - (b) Wetlands. Not applicable.
  - (c) Mud Flats. Not applicable.
  - (d) Vegetated Shallows. None would be affected.
  - (e) Coral Reefs. Not applicable.
  - (f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. None would be affected.

(7) Other Wildlife. Not applicable.

(8) Actions to Minimize Impacts. No actions are necessary.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. Mixing will likely occur due to the silty/sandy nature of the dredged material, the shallow water and the small quantity of fines associated with the material. A 150 meter mixing zone will provide adequate dilution of any turbidity plume.

(2) Determination of Compliance with Applicable Water Quality Standards. Water quality certification will be issued by the State prior to project execution. Monitoring of the discharge site will be conducted to insure State standards met.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

(b) Recreational and Commercial Fisheries. There would be a long-term change in the species composition of fish at the site.

(c) Water Related Recreation. Not applicable.

(d) Aesthetics. The proposed discharge would increase noise and scenic degradation along the disposal operations.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. Since the bottom substrate is silty, the placement of an irregular silty/sandy containing shell and rock substrate would provide additional diversity to the area. It would also create potential substrate for seagrass bed colonization.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.