



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

FINDING OF NO SIGNIFICANT IMPACT

FOR THE CONSTRUCTION OF
-DREDGED MATERIAL DISPOSAL AREAS
ALONG THE ATLANTIC INTRACOASTAL WATERWAY,
AT SITES MSA-641A and MSA-640/640A
PALM BEACH COUNTY, FLORIDA-

I have reviewed the Environmental Assessment (EA) of the proposed action. Based on information analyzed in the EA, reflecting pertinent information obtained from other agencies and special interest groups having jurisdiction by law and/or special expertise, I conclude that the proposed action will have no significant impact on the quality of the human environment. Reasons for this conclusion, are in summary:

1. There will be no adverse impacts to endangered or threatened species or sites of cultural or historical significance.
2. The proposed project has been determined to be consistent with the Florida Coastal Zone Management Program.
3. Measures to eliminate, reduce, or avoid potential impacts to fish and wildlife resources will be implemented during project construction.
4. Benefits to the public will be maintenance of the Intracoastal Waterway navigation channel and continued local economic stimulus.
5. Unavoidable effects include the permanent loss of these sites for recreational use to maintain safety and temporary aesthetic impacts from the operation of heavy equipment and the burning of wood scraps during site construction.
6. Visual impacts to adjacent property owners would be mitigated if revegetation of the buffer zone has not occurred prior to work initiation.

In consideration of the information summarized, I find that the proposed action will not significantly affect the human environment and does not require an Environmental Impact Statement.

DATE

2 May 94

TERRENCE C. SALT
Colonel, Corps of Engineers
Commanding

ENVIRONMENTAL ASSESSMENT

FOR THE CONSTRUCTION OF DREDGED MATERIAL DISPOSAL AREAS ALONG THE ATLANTIC INTRACOASTAL WATERWAY, AT SITES MSA-641A AND MSA-640/640A

PALM BEACH COUNTY, FLORIDA

1.00 PURPOSE OF AND NEED FOR ACTION.

1.01 Project Description: The project consists of constructing dredged material disposal sites, designated as Material Site Areas (MSA/s), MSA-641A and MSA 640/640A in Palm Beach County, Florida to dispose of maintenance dredged material from the Atlantic Intracoastal Waterway (AIWW). It will be done in 2 phases. Phase I consists of site clearing and grubbing; phase II of diked disposal area construction. Subsequent site appearance will incorporate buffer zones of undisturbed native vegetation between cleared areas and the site's outer property boundaries. This will insure that the aesthetics of construction and future MSA use will not disturb these areas' aesthetic settings. A 10-foot wide area along the outer perimeter of the properties will also be cleared and grubbed to permit construction and maintenance of security fences. The detailed methods of construction and disposal area designs are contained in the Environmental/Engineering Narratives, Appendix I.

1.02 The Need and Purpose of the Project: The purpose of the project is to create upland disposal areas to accommodate maintenance dredged material from the Intracoastal Waterway for the next 50 years. As demand for residential and commercial property along the waterway increases, the need for long-term planning is necessary to provide for the increased demand for dredged material disposal. As existing disposal areas are reaching capacity it is essential that these sites be prepared to meet this need to maintain the Federally authorized navigation channel.

2.00 ALTERNATIVES.

2.01 No-action: This alternative would eventually result in reduced capability to dredge certain reaches of the AIWW where existing disposal areas are reaching capacity . Failure to maintain the AIWW would result in navigation conditions which are unsafe. Although the boating public would be notified of shoaling conditions, safe navigation of the AIWW would become increasingly difficult. This alternative would not fulfill the need to provide long range maintenance of the AIWW.

2.02 Alternative site selection: The Florida Inland Navigation District (FIND) conducted an exhaustive study to evaluate the management of dredged materials; and, the proposed and existing disposal easements and ownerships in Palm Beach County. The results of this effort are contained in the final report entitled, "Long-Range Dredged Material Management Plan for the Intracoastal Waterway in Palm Beach County, Florida," published in December 1989. This report projected AIWW dredging and disposal requirements for the next 50 years based on existing and historical dredging information. The FIND inventoried and ranked existing disposal sites based on size, vegetative cover, location, zoning and land use impacts, and the approximate cost or land values of the subject sites. Each site was also evaluated based on engineering and environmental suitability. Along this narrow, inland reach of the AIWW, where beach and borrow site disposal is impracticable, upland disposal sites were preferred to avoid negative environmental impacts from dredged material disposal on wetlands and/or in shallow open water. Public meetings were also conducted to obtain input and to complete the site selection process. Disposal sites designated MSA-641A and MSA-640/640A were determined to be the most suitable for long-range dredged material disposal.

3.00 AFFECTED ENVIRONMENT

3.01 General. In 1824 a "canal", which is now called the Atlantic Intracoastal Waterway (AIWW), was initially recommended as a transportation route to certain areas of Florida where construction of overland transportation was considered not practicable. Later the AIWW was essential for the protection of the settlers in Florida from the Seminole Indians by the Army. The Army used the AIWW to transport goods and men to various forts along the waterway (Buker, 1975). It was created for coastal schooners having no more than a 5 to 6 foot draft. The waterways were constructed through estuarine areas with the materials generally sidecast into emergent or mangrove wetlands. These spoil mounds can be seen as prominent features from aerial photographs.

3.02 MSA-640/640A & MSA-641A. Both disposal sites consist primarily of uplands characterized by approximately equal portions of cleared and wooded uplands. The eastern edge of 640/640A & MSA-641A, respectively support a narrow band of open water, and mangroves/open water. However, disposal site construction will only affect uplands at each location. Environmental/Engineering narratives thoroughly address existing geographic characteristics of both sites (Appendix I).

3.03 Water Quality: Water quality issues relevant to both disposal sites are thoroughly addressed in Appendix I.

3.04 Biological: Existing biological characteristics of both sites are thoroughly addressed in Appendix 1.

3.05 Cultural, Historical, and Archeological Resources: An archival and literature review, including review of the current National Register of Historic Places listing, was conducted to determine if significant cultural resources are located in the project area. No significant cultural resources are recorded for either of the two project areas. During an April 1991 site inspection, it was observed that both properties are located in urban areas surrounded by other properties developed for residential or light commercial uses. No surface artifacts were observed during a pedestrian survey of both properties. It is the District's determination that significant cultural resources are not likely to be located there.

3.06 Socioeconomics: Both disposal sites are located in urban areas surrounded by other properties developed for residential or light commercial uses. Local residents use both sites for activities such as, hiking, fishing, bird-watching and similar endeavors.

3.07 Navigation: The AIWW is located immediately adjacent to both sites. The majority of navigation along this reach of the AIWW is recreational in nature.

3.08 Recreation: As access to the property is relatively limited, these sites are primarily used by the adjacent property owners for activities such as, hiking, fishing, bird-watching and similar endeavors.

3.09 Aesthetics: The recreational boaters and the adjacent property owners use the sites as a wooded backdrop to their recreational activities providing an increased pleasurable experience.

3.10 Air Quality: No significant sources of air pollution are located nearby. The area is wooded and adjacent areas are light commercial and residential.

3.11 Safety: The disposal sites are posted for no trespassing but are accessible to the public. Accordingly, individuals who may choose to trespass expose themselves to minor hazards from insect/reptile bites, tripping, falling branches and similar unexpected perils.

4.00 ENVIRONMENTAL CONSEQUENCES

4.01 Water Quality: Measures contained in the Engineering Narratives will be implemented at both disposal sites to preclude negative water quality impacts and violations of state water quality standards (Appendix X).

4.02 Impact on Flora and Fauna: All of the vegetation will be removed from the site's interior. The mammals and birds using the site would relocate to other adjacent vegetated areas thus lowering the biological productivity of the site during Phase I. During vegetation removal, mobile species would relocate to adjacent habitats. Dike construction would temporarily eliminate burrow and/or ground nesting opportunities beneath its footprint. However, the dike itself may be used for these activities once completed. There would be a lag time between Phase I and II. During this interval, pioneer plant species would colonize the cleared/diked areas which would encourage use of the site by small mammals, birds and reptiles for cover and food. During this time lag, and at subsequent extended periods between dredge disposal events, these sites will serve as an ecotone for resident and migratory wildlife. The loss of vegetation and subsequent site succession will simulate that which occurs in ecosystems affected by fire; ie. with each dredged material disposal event the site will be returned to an early successional stage which will then cycle through various stages of habitat development affecting species diversity through time.

4.03 Threatened and Endangered Species: The Jacksonville District determined that Federally listed endangered and threatened species do not occur at, or in the vicinity of these projects and would, therefore, not be affected by disposal site construction. The USFWS concurred with this determination (Appendix III).

4.04 Cultural, Historical or Archeological Resources: As stated above, it is the Jacksonville District's determination that significant cultural resources are not likely to be present in either MSA 641A or MSA 640/640A and that disposal area construction will not have an effect on potentially significant cultural resources. This determination was coordinated with the Florida State Historic Preservation Officer (SHPO). The SHPO concurred with the no effect determination in an April 8, 1992 letter (Appendix III).

4.05 Navigation: The construction of disposal areas for dredged material would have long-term benefits to the maintenance of navigation along the AIWW.

4.06 Florida Coastal Zone Management: The project has been evaluated in accordance with Section 307 of the Coastal Zone Management Act. It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Management Plan (Appendix II). In accordance with the 1979 Memorandum of Understanding and the 1983 Addendum to the Memorandum concerning acquisition of water quality certifications and other State of Florida authorizations, the preliminary Environmental Assessment and the Coastal Zone Management Consistency Determination will be submitted to the State to show consistency with the Florida Coastal Zone Management Plan.

4.07 Recreation: There would be a elimination of the recreational activities by the adjacent property owners now using the site. There would be a minor degradation of the recreational experience to boaters along the AIWW from the small size of the buffer zone on this side of the disposal site.

4.08 Aesthetics: The construction impacts will have a temporary adverse impact on aesthetic resources at the disposal sites. An increase in noise and air pollution can be expected during the construction activities. Existing vegetation around the exterior of the property will be left in place to act as a natural buffer to help screen the disposal site from view. Along the boundary of site 640/640A the planting of shrubs/trees may be required to buffer aesthetic impacts to adjacent properties where existing vegetation in the disposal area has been cut and replaced with palm trees. This measure would remove objectionable aesthetic impacts to adjacent property owners.

4.09 Socioeconomics: There will be a short-term minor stimulus to the local economy from the contracting of equipment and labor and the sale of goods and services (fuel, food, lodging) in support of the construction. No socially significant activities will be altered by the site development. Potential local gains could be obtained from the recovery and sale of wood products from the harvested timber (firewood, etc.).

4.10 Air Quality: There could be a short-term increase in smoke and particulates if the vegetation is burned to dispose of the cleared vegetation. Permits will be acquired from the appropriate governmental agencies to control the burning. Should State standards be such that burning cannot be accomplished on the site, then, the materials will be removed from the site and disposed of properly.

4.11 Coordination With Others: The work will be coordinated with all interested parties prior to work initiation through the issuance of a public notice during the spring of 1994.

4.12 Safety: During disposal site construction the site will be intensively managed and all activities will be conducted according to an Occupational Health and Safety Plan. During this time unauthorized access will be strictly controlled, essentially eliminating the possibility of trespass and associated hazards. Upon project completion, the entire site will be enclosed with a security fence which will minimize the possibility of trespass and associated hazards.

5.0. LIST OF PREPARERS

<u>NAME</u>	<u>DISCIPLINE</u>	<u>EXPERIENCE</u>	<u>ROLE IN PREPARING EA</u>
William J. Lang	Biologist	16 years environmental impacts assessment	Biological Impact Assessment,
Janice Adams	Archeologist	9 years experience NEPA documentation,	Cultural Resources Analysis
Paul C. Stevenson	Landscape Architect	8 years landscape architect, field and design work	Aesthetic and Recreational Resource Analysis

6.00 SUMMARY OF COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REQUIREMENTS.

6.01 Clean Air Act, as amended. 42 U.S.C. 7401 et seq. Any official of a Federal agency having jurisdiction over any property or facility constituting an emissions source shall be subject to and comply with Federal, state, interstate or local requirements respecting control and abatement of pollution. All Federal projects, licenses, permits, financial assistance and other activities must conform to EPA approved or promulgated state implementation plans. The assurance of such conformity is an affirmative responsibility of the head of the Federal agency involved. Sections 118, 176(c), and 309, 42 U.S.C. Executive Order 12088, Federal Compliance with Pollution Control Standards, 13 October 1978.

The only project-related sources of such emissions would be from the burning of materials cleared from the sites. All appropriate permits will be obtained prior to any burning.

6.02. Clean Water Act (Federal Water Pollution Control Act), as amended. 33 U.S.C. 1251 et seq. (PL 92-500). Any official of a Federal agency having jurisdiction over any property or facility or engaged in any activity that may result in the discharge or runoff of pollutants shall be subject to, and shall comply with federal, state, interstate and local requirements, both substantive and procedural, respecting control and abatement of pollution. Federal agencies are not exempt from the requirement to obtain certification from the state or interstate agency for any discharge into navigable waters (except as provided in Section 404(r)). Executive Order 12088, 13 October 1978. EPA guidelines, 33 U.S.C. 1344b. CEQ Memorandum 17 Nov 80, guidance to apply Sec. 404(r) to a Federal project.

All state water quality standards will be met when dredging activities occur. All portions of both disposal sites affected by site preparation consist of uplands. Therefore, a 404(b)(1) analysis under the Clean Water Act is not required.

6.03 Coastal Zone Management Act of 1972, as amended. 16 U.S.C. 1451 et seq. Any activity that a Federal agency conducts or supports that directly affects the coastal zone, and any development project in the coastal zone, shall be, to the maximum extent practicable, consistent with approved state management programs. NOAA Regulations, 15 CFR Part 930 revised 15 June 1979, 44 F.R. 37142.

It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Management Plan (Appendix II). In accordance with the 1979 Memorandum of Understanding and the 1983 Addendum to the Memorandum concerning acquisition of water quality certifications

and other State of Florida authorizations, the Environmental Assessment and the Coastal Zone Management Consistency Determination will be submitted to the State to show consistency with the Florida Coastal Zone Management Plan.

6.04 Endangered Species Act (ESA) of 1973, as amended. 16 U.S.C. 1531 et seq. This project is considered fully coordinated under the ESA when the USFWS concurs in writing with the Corps' No Effect Determination (Appendix II).

6.05 Fish and Wildlife Coordination Act, as amended. 16 U.S.C. 661 et seq. For any proposal or Federal work affecting any stream or other body of water, the Federal agency proposing such work must first consult with the Fish and Wildlife Service and state wildlife agency with a view to preventing losses and damages to wildlife resources and to providing for development and improvement of wildlife resources. The proposal will be coordinated with the USFWS during public notice review.

6.06 Marine Protection, Research, and Sanctuaries Act of 1972, as amended. 33 U.S.C. 1401 et seq. In connection with Federal projects involving dredged material, the Secretary of the Army may issue permits for the ocean discharge of dredged material, applying the same criteria which apply to Environmental Protection Agency (EPA) issuance of permits for ocean dumping of other material. Executive Order 12088, Federal Compliance with Pollution Control Standards, 13 Oct 78.

This legislation does not apply to the creation of upland dredged material disposal sites.

6.07 National Environmental Policy Act of 1969, as amended. Environmental information on the project has been compiled and the Environmental Assessment is available for public review in compliance with 33 CFR Parts 335-338. These regulations govern the Operations and Maintenance of US Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged or Fill Material into Waters of the US or Ocean Waters. This public coordination and environmental assessment complies with the intent of NEPA. The process will fully comply with the Act once the Finding of No Significant Impact has been signed by the District Commander.

6.08 National Historic Preservation Act of 1966, as amended. Archival research, fieldwork and coordination with the Florida State Historic Preservation Officer are in compliance with the National Historic Preservation Act, as amended, and the Archeological and Historic Preservation Act, as amended.

7.00 References.

Bromwell and Carrier, Inc. 1989. Phase One: Long-range Dredged Material Management Plan Atlantic Intracoastal Waterway, Palm Beach County, Florida. Lakeland, Florida.

Buker, George E., 1975. *Sun, Sand, and Water, A History of the Jacksonville District, US Army Corps of Engineers, 1821-1975.*

Mosura, E. Lynn. June 1987. *Environmental Site Documentation for Proposed Dredged Material Disposal Areas in Palm Beach County, Volume V and VI - MSA's 641A and 640/640A.*

US Fish and Wildlife Service. 1987. *Endangered and Threatened Species of Southeastern United States. Region 4, Atlanta, Georgia.*

APPENDIX I

**ENVIRONMENTAL/ENGINEERING
NARRATIVES**

ENVIRONMENTAL SITE DOCUMENTATION
FOR
PROPOSED DREDGED MATERIAL DISPOSAL AREAS
IN PALM BEACH COUNTY

VOLUME IV - MSA 640

Report Prepared Under Contract to:

TAYLOR ENGINEERING, INC., for the
FLORIDA INLAND NAVIGATION DISTRICT

Prepared by:

E. Lynn Mosura

WATER AND AIR RESEARCH, INC.
Gainesville, Florida

February 1991
File: 75301

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1.0 INTRODUCTION

1.0 INTRODUCTION

A 50-year dredged material management plan is being developed for the Intracoastal Waterway (ICWW) along Palm Beach County, Florida. The plan concept was developed during Phase I of the project (Bromwell and Carrier 1989). Potential sites were screened for dredged material disposal, and a total of eight primary sites were selected after consideration of environmental, engineering, and operational factors.

During the current Phase II effort, primary sites will undergo further environmental scrutiny to assure the selection of sites with minimal environmental constraints. This document reports the results of the environmental survey carried out at one of these sites.

Site MSA 640 is located approximately 2 miles north of State Road 806 (Atlantic Ave.) and east of U.S. 1 along the western side of Lake Worth Creek (ICWW) near Delray Beach (Figure 1-1). The 7.1-acre site is adjacent to an undeveloped parcel of land that fronts U.S. Highway 1. Property to the north and south of the site is single family residential.

The soils on the site are predominantly Arents-Urban land complex. This soil type is a somewhat poorly drained sandy fill that was placed over organic soils in low, wet areas bordering the ICWW. The site elevation ranges from below 5 feet along the ICWW to above 5 feet National Geodetic Vertical Datum (NGVD) on the western side of the site.

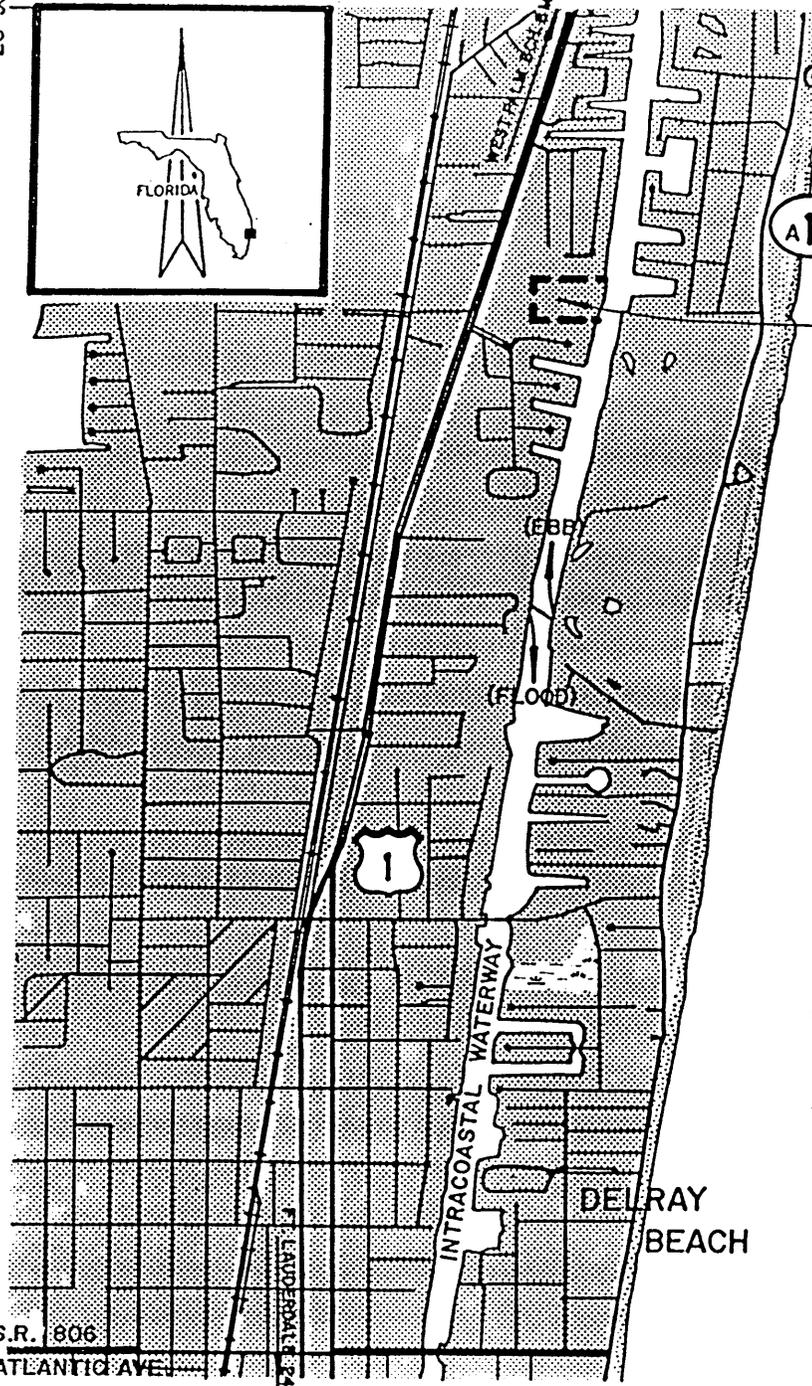
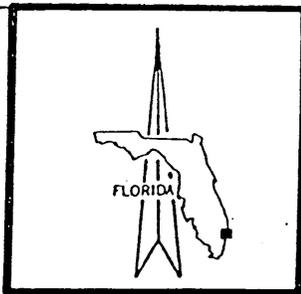
A review of the Florida Master File indicates no historical or archaeological sites known for this property.

The proposed pipeline route enters Site MSA 640 directly from the ICWW channel located east of MSA 640.

26°30'00"

80°02'30"

26°30'00"



DISPOSAL SITE (MSA 640)

A T L A N T I C O C E A N

DELRAY BEACH

S.R. 806 ATLANTIC AVE

FT. LAUDERDALE 24 M

REFERENCED
 USGS DELRAY BEACH, FL.
 QUADRANGLE 1962, PHOTO-
 REVISED 1969 AND 1973.

80°02'30"



TAYLOR ENGINEERING INC
 9086 CYPRESS GREEN DRIVE
 JACKSONVILLE, FLORIDA 32256

FIGURE I-1 Location MSA 640
 Proposed Dredged Material
 Disposal Site, Palm Beach
 County, Florida

PROJECT
REVISION
SHEET
DATE

2.0 METHODOLOGY

A Water and Air Research, Inc. (WAR), biologist ground-truthed the site to assess vegetation and wildlife conditions on September 5, 1990. During this visit, incidental wildlife sightings were recorded and vegetative conditions were noted.

Blue-line aerial photography (1986 and 1989) at a scale of 1"=200' was used to identify pertinent land use and vegetation features prior to the pedestrian survey. During the field survey, all noted photographic signatures were visited and plant species at these locations were identified or collected for subsequent examination. Vegetation mapping was done on 1989 blue-line aerials (1"=200'). The frequency of occurrence of each plant species within each identified community was determined using a qualitative ranking system. Designations include abundant (A), locally abundant (LA), common (C), locally common (LC), occasional (O), rare (R), and trace (X). The site was reviewed for the presence and location of possible wetlands using the blue-line aerial photography mentioned above, as well as 1984 color infrared aerial photography (1"=2,000'). The County Soil Survey and USGS topographic maps were also consulted to locate possible wetlands on site.

The occurrence of wildlife species on site was documented during visits to each vegetation community. Efforts were made to visit locations of high wildlife habitat value. Areas that were likely to yield animal signs were sought out (i.e., muddy roads/wetland edges). Indirect evidence (nests, scat, and tracks) and direct observation (calls and visual sightings) were utilized to confirm species present. All ecological surveys were conducted during daylight hours, hence nocturnal wildlife observations were not made.

Prior to the field survey, lists of endangered and threatened species and species of special concern possibly occurring on site were compiled based on the range of the species and their environmental requirements. The locations of sensitive species found on site were recorded and observations about population size and habitat use were noted.

3.0 VEGETATION COMMUNITIES

3.1 INTRODUCTION

Vegetation communities and land uses identified at Site MSA 640 and mapped in Figure 3-1 include Brazilian pepper (422), Australian pine (437), streams and waterways (510), disturbed land (740) and roads and highways (814). The vegetation and land uses have been categorized to Level III of the Florida Land Use, Cover and Forms Classification System (FDOT 1985). Acreages of the various map units were determined by the use of a digitizer and are reported in Table 3-1. Table 3-2 is a list of the vegetation species by community type found at the site.

3.2 BRAZILIAN PEPPER (422)

The western portion of the site is vegetated by predominantly Brazilian pepper. A few cabbage palm occur in this area, as well as live oak and strangler fig. Ground cover is sparse in some areas because of the dense Brazilian pepper cover, but where it occurs, it consists of Boston fern, Virginia creeper and balsam apple.

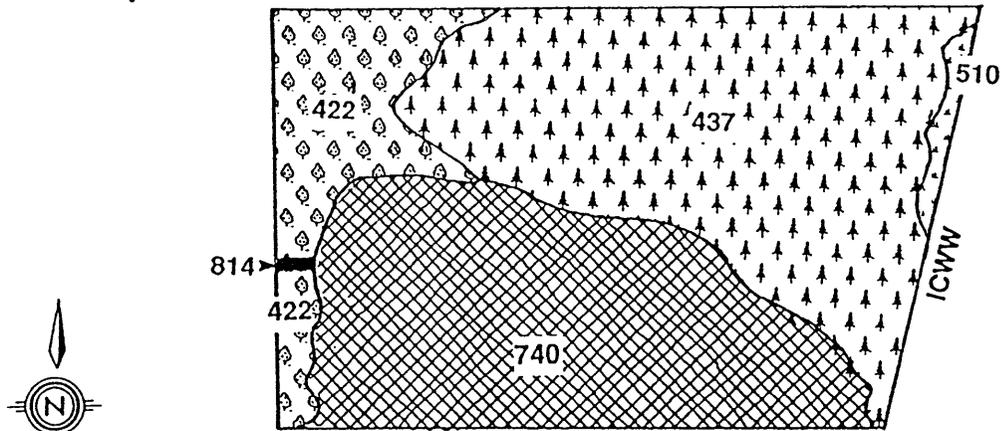
3.3 AUSTRALIAN PINE (437)

Most of the site is covered with the exotic hardwood, Australian pine. Other tree and shrub species found within this community include Brazilian pepper, strangler fig, papaya, and cabbage palm. Along the ICWW a few mangroves occur under the Australian pine canopy. They are scattered along the steeply sloped shoreline and do not cover sufficient area to be mapped separately. Seaside mahoe is also found occasionally near the ICWW.

Ground cover is dominated by a variety of rapidly invading exotic plant species including Asian sword fern, philodendron, oyster plant, wandering jew, and Madagascar periwinkle.

3.4 STREAMS AND WATERWAYS (510)

A small area of the ICWW occurs within Site MSA 640. This area is unvegetated open water.



LEGEND

-  422 BRAZILIAN PEPPER
-  437 AUSTRALIAN PINE
-  510 STREAMS AND WATERWAYS
-  740 DISTURBED LAND
-  814 ROADS AND HIGHWAYS

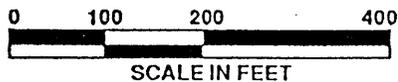


FIGURE 3-1. Land Use and Vegetation of MSA 640 Proposed Dredged Material Disposal Site, Palm Beach County, Florida

Table 3-1. Approximate Acreage of the Florida Land Use, Cover and Forms Classification System Found at the MSA 640 Proposed Dredged Material Disposal Site, Palm Beach County, Florida

Map I.D. No.	Name	Approximate Acreage
422	Brazilian Pepper	1.0
437	Australian Pine	3.2
510	Streams and Waterways	0.2
740	Disturbed Land	2.7
814	Roads and Highways	T *
TOTAL		7.1

* T = Trace.

Source: WAR 1990.

Table 3-2. Vegetation Species by Community Type Found at the MSA 640
Proposed Dredged Material Disposal Site, Palm Beach County,
Florida (Page 1 of 2)

Species	Common Name	Occurrence
BRAZILIAN PEPPER (422)		
Trees and Shrubs		
<u>Ficus aurea</u>	Strangler fig	R
<u>Quercus virginiana</u>	Live oak	R
<u>Sabal palmetto</u>	Cabbage palm	O
<u>Schinus terebinthifolius</u>	Brazilian pepper	C-A
Herbs and Ground Covers		
<u>Momordica</u> sp.	Balsam apple (E)	R
<u>Nephrolepis</u> sp.	Boston fern	O
<u>Parthenocissus quinquefolia</u>	Virginia creeper	R-O
<u>Philodendron</u> sp.	Philodendron	X
AUSTRALIAN PINE (437)		
Trees and shrubs		
<u>Araucaria excelsa</u>	Norfolk island pine	X
<u>Avicennia germinans</u>	Black mangrove	X-R
<u>Brassaia actinophylla</u>	Schefflera	X
<u>Carica papaya</u>	Papaya	O
<u>Casuarina equisetifolia</u>	Australian pine	O-A
<u>Cycas circinalis</u>	Queen sago	R
<u>Ficus aurea</u>	Strangler fig	O
<u>Laguncularia racemosa</u>	White mangrove	X
<u>Roystonea</u> sp.	Royal palm	X
<u>Sabal palmetto</u>	Cabbage palm	O
<u>Schinus terebinthifolius</u>	Brazilian pepper	LC-C
<u>Thespesia populnea</u>	Seaside mahoe	O
<u>Washingtonia robusta</u>	Washington palm	R
Herbs and Ground Covers		
<u>Bidens pilosa</u>	Begger-ticks	C
<u>Catharanthus roseus</u>	Madagascar periwinkle	O
<u>Cereus</u> sp.		X
<u>Cereus undatus</u>	Night-blooming cereus	R
<u>Cissus trifoliata</u>	Sorrel vine	C
<u>Ipomea batatas</u>	Sweet potato	X
<u>Kalanchoe</u> sp.	Mother of thousands	R

Table 3-2. Vegetation Species by Community Type Found at the MSA 640
Proposed Dredged Material Disposal Site, Palm Beach County,
Florida (Page 2 of 2)

Species	Common Name	Occurrence
<u>Melothria pendula</u>	Creeping cucumber	O
<u>Momordica</u> sp.	Balsam apple	R
<u>Nephrolepis multiflora</u>	Asian sword fern	LC
<u>Nephrolepis</u> sp.	Boston fern	LC
<u>Parthenocissus quinquefolia</u>	Virginia creeper	R-O
<u>Philodendron</u> sp.	Philodendron	LC-O
<u>Poinsettia cyathophora</u>	Painted-leaf	R-O
<u>Rhoeo spathacea</u>	Oyster plant	LC
<u>Sansevieria thyrsoiflora</u>	Bowstring hemp	LC
<u>Stenotaphrum secundatum</u>	St. Augustine grass	LC
<u>Tradescantia tricolor</u>	Wandering jew	LC
DISTURBED LANDS (740)		
Trees and Shrubs		
<u>Ficus aurea</u>	Strangler fig	X
<u>Sabal palmetto</u>	Cabbage palm	R-O
<u>Washingtonia robusta</u>	Washington palm	C
Herbs and Ground Covers		
<u>Catharanthus roseus</u>	Madagascar periwinkle	R-O
<u>Chamaesyce hirta</u>	Hairy spurge	O
<u>Cyperus</u> sp.	Sedge	R
<u>Dactyloctenium aegyptium</u>	Crowfoot grass	O
<u>Lippia nodiflora</u>	Frog fruit	A
<u>Poinsettia cyathophora</u>	Painted-leaf	R
<u>Stenotaphrum secundatum</u>	St. Augustine grass	A

Occurrence:

A = Abundant; C = Common; LC = Locally Common; O = Occasional; R = Rare;
X = Trace.

Source: WAR 1990.

3.5 DISTURBED LAND (740)

Along the southern portion of Site MSA 640 is an area that was cleared prior to February 1986. Aerial photographs taken at that time show a newly cleared portion of the site with little vegetation cover.

Existing vegetation consists of grasses and low-growing herbs that tolerate regular mowing. Common species observed include St. Augustine grass, frog fruit, crowfoot grass, and hairy spurge. A number of Washington palms have been planted in the area and a few cabbage palms occur there as well.

3.6 ROADS AND HIGHWAYS (814)

A dirt road enters the site from the unimproved parcel to the west. This cover type is unvegetated and the road surface consists of sand.

3.7 ENDANGERED AND THREATENED PLANTS

The endangered and threatened plants that may occur at Site MSA 640 are listed in Table 3-3. Only one state endangered and threatened plant was found on Site MSA 640. Night-blooming cereus was observed within the Australian pine community. It is likely that this plant originated from ornamental stock that was introduced to this site. A variety of escaped ornamental plants dominate this site. Another species of Cereus was observed as well. It could not be identified to species, but the evaluation of a sterile sample has eliminated the possibility of it being tree cactus, a state and federally endangered plant.

Table 3-3. Status of State or Federally Listed Endangered and Threatened Plants That May Occur at the MSA 640 Proposed Dredged Material Disposal Site, Palm Beach County, Florida

Species	Status		
	State	FCREPA	Federal
<u>Cereus robinii</u> Tree cactus	E	E	E, II
<u>Cereus undatus</u> * Night-blooming cereus	T		II
<u>Phlebodium aureum</u> Golden polyploidy	T		
<u>Tillandsia fasciculata</u> Common wild pine	CE		
<u>Tillandsia flexuosa</u> Twisted wild-pine	T		
<u>Tillandsia simulata</u> Wild pine	T	T	

* confirmed on site

State: Florida Department of Agriculture; E = Endangered; T = Threatened; CE = Commercially exploited.

FCREPA: Florida Committee on Rare and Endangered Plants and Animals (Unofficial); E = Endangered; T = Threatened.

Federal: United States Fish and Wildlife Service; E = Endangered.

Convention on International Trade in Endangered Species of Wild Fauna and Flora; II = Appendix II species.

Source: FGFWFC 1990.
NeSmith 1990.
WAR 1990.

4.0 WILDLIFE COMMUNITIES

Table 4-1 lists species of wildlife observed during field surveys and identifies habitats in which they were observed. Wildlife habitats on site include all of the communities listed in Table 3-1.

4.1 WILDLIFE HABITAT

The wildlife value of this site is moderately poor. Site MSA 640 is small, bordered on two sides by residential areas, and is covered by non-native plants that provide few food resources for wildlife. However, thick vegetation provides good cover for wildlife, and the proximity to both the ICWW and an undeveloped parcel containing better wildlife food resources tend to offset some of the poor wildlife habitat characteristics of the site.

The site provides some habitat for reptiles and amphibians. The Cuban treefrog, squirrel treefrog, and southern toad are likely to be found in low numbers on the site. Ground skinks may be found in the Australian pine litter.

Mammals that may utilize the upland habitats include raccoon, armadillo, and opossum. Mice and rats may also be found commonly in these areas. Birds common in suburban areas were observed in the tree canopy. These include northern cardinal, mockingbird, and red-bellied woodpecker. A variety of other birds such as common crow, bluejay, and common grackle may occur on the site. Some migrants such as yellow-rumped warbler, and black and white warbler will use Australian pine canopies, but not to the same extent as native woodlands. Because most of the tree canopy consists of Australian pine, food resources for birds are seriously limited.

The shoreline drops off sharply into the ICWW and discourages the formation of fringing, emergent wetlands used as foraging habitat by wading birds. Foragers that may take advantage of a variety of small fish in the ICWW include osprey, pelican, and cormorant.

Table 4-1. Vertebrates and Invertebrates Observed at the MSA 640
Proposed Dredged Material Disposal Site, Palm Beach County,
Florida

Scientific Name	Common Name	Vegetation Community *
REPTILES AND AMPHIBIANS		
<u>Anolis s. sangrei</u>	Cuban anole	437
BIRDS		
<u>Cardinalis cardinalis</u>	Northern cardinal	437
<u>Melanerpes carolinus</u>	Red-bellied woodpecker	437
<u>Mimus polyglottos</u>	Mockingbird	437
<u>Polioptila caerulea</u>	Blue-gray gnatcatcher	437
INVERTEBRATES		
<u>Cardisoma gaunhumi</u>	Great land crab	437

* 437 = Australian pine

Source: WAR 1990.

Burrows of the great land crab were observed along the sandy, steeply sloped banks bordering the ICWW.

4.2 ENDANGERED AND THREATENED ANIMALS

Table 4-2 lists protected species that are, or may be found at the MSA 640 proposed dredged material disposal site or adjacent waters. Various protected birds, such as herons, egrets and wood stork may find limited perching and foraging habitat in the estuarine waters of the ICWW. In addition, least tern, pelican, and osprey utilize the waters of the ICWW for foraging.

Manatees and sea turtles may move through the waters of the ICWW. However good foraging opportunities for these species do not occur near Site MSA 640 because of the lack of submerged aquatic vegetation.

Migrating raptors that may forage over terrestrial and/or aquatic habitats include American kestrel, Cooper's hawk, merlin, and peregrine falcon.

Table 4-2. Status of State or Federally Listed Endangered or Threatened Wildlife That May Occur on the MSA 640 Proposed Dredged Material Disposal Site, Proposed Pipeline Access, or Adjacent Waters, Palm Beach County, Florida (Page 1 of 2)

Species	Status			Occurrence
	State	FCREPA	Federal	
REPTILES AND AMPHIBIANS				
<u>Caretta caretta</u> Atlantic loggerhead turtle	T	T	T,I	OV
<u>Chelonia mydas</u> Atlantic green turtle	E	E	E,I	OV
BIRDS				
<u>Accipiter cooperii</u> Cooper's hawk		SSC		OV
<u>Bufo brachyurus</u> Short-tailed hawk		R		OV
<u>Casmerodius albus</u> Great egret		SSC		OV
<u>Egretta caerulea</u> Little blue heron	SSC	SSC		OV
<u>Egretta thula</u> Snowy egret	SSC	SSC		OV
<u>Egretta tricolor</u> Tricolored heron	SSC	SSC		OV
<u>Eudocimus alba</u> White ibis		SSC		OV
<u>Falco columbarius</u> Merlin			II	OV
<u>Falco peregrinus</u> Perigrine falcon	E	E	T	OV
<u>Falco sparverius paulus</u> Southeastern kestrel	T	T	C2,II	OV

Table 4-2. Status of State or Federally Listed Endangered or Threatened Wildlife That May Occur on the MSA 640 Proposed Dredged Material Disposal Site, Proposed Pipeline Access, or Adjacent Waters, Palm Beach County, Florida (Page 2 of 2).

Species	Status			Occurrence
	State	FCREPA	Federal	
<u>Falco sparverius sparverius</u> American kestrel			II	OV
<u>Pandion haliaetus</u> Osprey		T	II	OV
<u>Pelecanus occidentalis</u> Brown pelican	SSC	T		OV
<u>Sterna antillarum</u> Least tern	T			OV
MAMMALS				
<u>Trichechus manatus</u> West Indian manatee	E	T	E, I	OV

* Confirmed on site

State: Florida Game and Fresh Water Fish Commission; E = Endangered; T = Threatened; SSC = Species of Special Concern.

FCREPA: Florida Committee on Rare and Endangered Plants and Animals (Unofficial); E = Endangered; T = Threatened; SSC = Species of Special Concern; R = Rare.

Federal: United States Fish and Wildlife Service. E = Endangered; T = Threatened; C2 = A candidate for federal listing, with some evidence of vulnerability, but for which not enough data exists support listing.

Convention on International Trade in Endangered Species of Wild Fauna and Flora; I = Appendix I species; II = Appendix II species.

Occurrence Code: OV = Occasional Visitor (migrants, accidentals, or may be within part of home range of this species).

Source: FGFWFC 1990.
NeSmith 1990.
WAR 1990.

5.0 WETLAND JURISDICTIONS

There are no wetlands located within Site MSA 640. There are a few scattered fringing mangroves located along the ICWW; however, they consist of a discontinuous band along a steeply sloped shoreline.