U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SILVER SPRING, MARYLAND

ENVIRONMENTAL ASSESSMENT OF BIG ISLAND MINING CWPPRA PROJECT XAT-7

ST. MARY PARISH, LOUISIANA

JUNE 1996

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JUNE 1996

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BIG ISLAND MINING
St. Mary Parish, Louisiana

1.0 INTRODUCTION

This Environmental Assessment (EA) evaluates the impacts of a project to enhance the western sub-delta development of the emerging lower Atchafalaya River Delta located in southeast St. Mary Parish, Louisiana, as shown in Figure 1. The project is named Big Island Mining and is referred to as XAT-7.

This project is part of the Coastal Wetlands Planning, Protection, and Restoration Act (Pub. L. No. 101-646, Title III-CWPPRA) made law in 1990. Five Federal agencies and the State of Louisiana have combined in a Task Force to implement the "comprehensive approach to restore and prevent the loss of coastal wetlands in Louisiana" mandated by CWPPRA. The five Federal agencies involved are: the U.S. Department of the Army, the U.S. Department of Commerce, the U.S. Department of Interior, the U.S. Department of Agriculture, and the U.S. Environmental Protection Agency. The Big Island Mining project was included on the Second Priority Project List (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1992) and will soon be ready for construction.

Big Island originated in 1973 as a designated disposal site for dredged material generated during maintenance dredging of navigation channels within the lower Atchafalaya Basin. Resulting from continuous disposal of dredged material at this location, Big Island presently contains 1,070 acres and has an elevation of +10 to +12 feet National Geodetic Vertical Data (NGVD). This elevation represents one of the highest points in the bay and is an upland site within the Atchafalaya Delta. In addition to its size, Big Island represents a source of sediment that could be mined for wetland construction within the region. Thus, the Big Island Mining project originated with the idea that subaqueous or subaerial sediment associated with Big Island could be locally redistributed to create coastal wetlands.

1.1 Technical Background

The Louisiana Coastal Zone contains 7.9 million acres of which about 3 million acres are coastal marshes. These marshes currently are being converted to open water at a rate of 34.9 square miles per year (Barras et al., 1994). This rate is similar to that measured in previous years by Gagliano et al., 1981 and DeLaune et al., 1991. This conversion results from natural and anthropogenic factors that have altered the hydrology and physical integrity of these wetlands and still persist today.

The primary pattern of land loss in the Louisiana Coastal Zone results from the submergence of coastal marshes and subsequent conversion to open water (Turner, 1990). Generally, submergence occurs when the rate of vertical accretion, including mineral sediment deposition and organic matter accumulation, does not equal or exceed the rate of geologic subsidence and the eustatic sea level rise. Consequently, these marshes begin to break apart and create open shallow ponds within the marsh interior. This ponding increases until the entire marsh area has converted to open water.

Coastal marshes develop and are nourished by hydrological processes that influence site specific chemical, physical, and biological processes which affect plant growth and mineral sediment deposition (Mendelssohn and Burdick, 1988). Because these processes are interrelated, the site specific factors influencing conversion of marsh to open water may vary widely and are difficult to assess.


Abbeville
(18)
Erath
Delcambre
Olivier
Lydia
Jeanerette
Avery Island
Patoutville
Henry
N
.6
IBERIA
Bayou
CHITIMACHE IND RES
Sorrel
Charenton
90
182
83
14
Baldwin
Weeks I
Mud Pt
Glencoe
Cypremort
Franklin
(7)
Intracoastal City
INTRACOASTAL
Cote Blanche Island
Center
STM
VERMILION BAY
Redfish Point
Cypremort Point
WEST COTE BLANCHE BAY
Marone Point
South Bend
PROJ
MARSH ISLAND
EAST COTE BLANCHE BAY
Point Chevreuil
South Point
Mound Point
SHELL KEYS NATIONAL WILDLIFE REFUGE
Gulf of Mexico
10 Miles
0
10 Miles
APPROXIMATE SCALE: 1" = 5.5 MILES

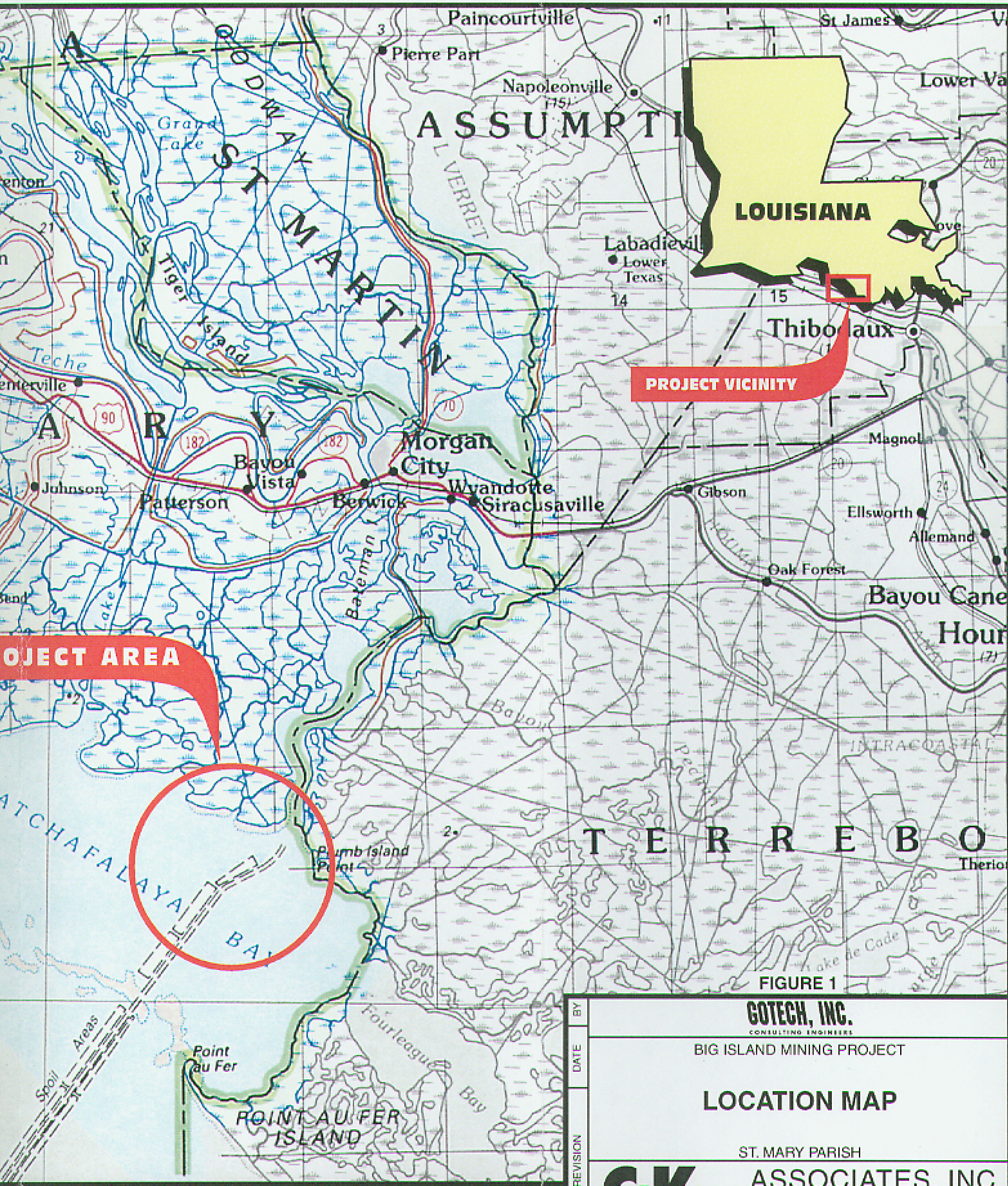


FIGURE 1

GOTECH, INC.
CONSULTING ENGINEERS

BIG ISLAND MINING PROJECT

LOCATION MAP

ST. MARY PARISH

C-K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

DRAWN	MPC	APPROVED	BKD
CHECKED	JSH	DATE	MAY 23, 1995
		DWG. NO.	B34-104-01

NO.	REVISION	DATE	BY

NOTE:
BASE MAP TAKEN FROM U.S.G.S. MAP "STATE OF LOUISIANA", DATED 1990, AT A SCALE OF 1:500,000

Natural factors associated with coastal land loss include subsurface compaction and subsidence, eustatic sea level rise, physical substrate scouring, and erosion exacerbated by periodic tropical cyclonic storms (Craig et al., 1979; Boesch et al.,1983). In addition, site specific natural influences, such as increased herbivore activity, can promote land loss within coastal marshes (Nyman et al., 1993c).

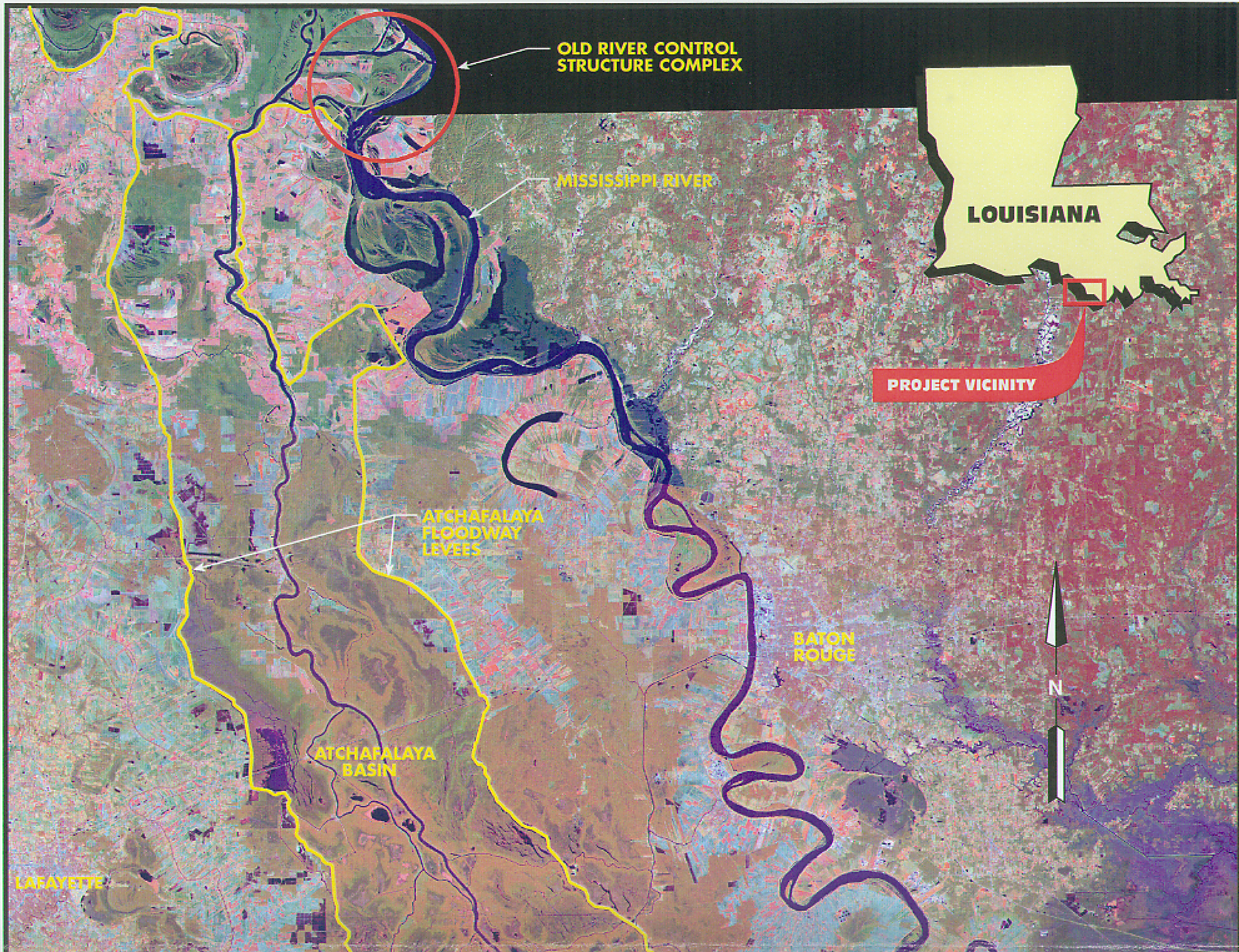
Anthropogenic activity accounted for 26 percent of total wetland loss within Louisiana between 1955 and 1978 (Turner and Cahoon, 1988). These direct losses were caused by dredging canals and creating spoilbanks, draining land, and expanding agricultural and urban areas.

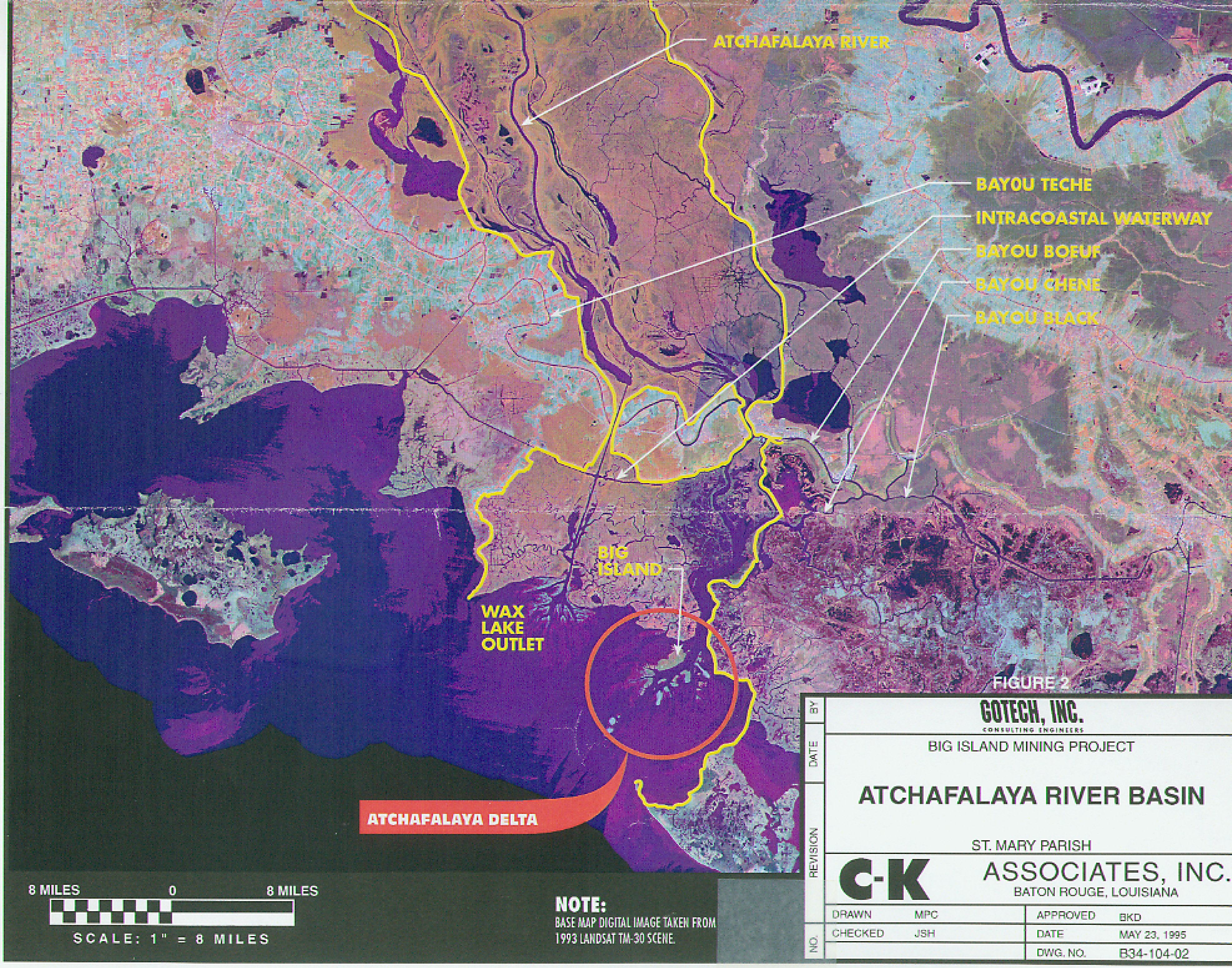
Turner and Cahoon (1988) attribute indirect causes of wetland loss to (1) temporal trends in estuarine salinity, **(2)** saltwater intrusion in waterways, (3) saltwater movement in marshes, (4) plant responses to salinity change and submergence, and (5) subsidence, water level rise and sediment deprivation. Indirect losses were exacerbated by levee construction for flood protection along the Mississippi River (Templet and Meyer-Arendt, 1988), extensive canal construction associated with oil and gas exploration (Turner et al., 1982) and navigation channel development and maintenance dredging. These large scale perturbations altered existing patterns of surface hydrology and sediment distribution over large areas and facilitated saltwater intrusion into coastal marshes.

A major event affecting sediment distribution within the Louisiana Coastal Zone is the current channel shift occurring within the Mississippi River Delta complex. In 1900, the Atchafalaya River captured 13 percent of the Mississippi River's flow at the point of convergence near Simmesport, Louisiana, approximately 70 miles northeast of Lafayette, Louisiana (Morgan et al., 1953). By 1952, this distributary had captured 30 percent of the Mississippi's flow and increased sedimentation was observed within the lower Atchafalaya Basin (Adams and Baumann, 1980). In 1963, this increased flow into the Atchafalaya River was regulated by the construction of the Old River Control Structure by the U.S. Army Corps of Engineers (USACOE) near Simmesport, Louisiana (Figure 2). The structure allows the USACOE to maintain a 30/70 split of the channel flow between the Atchafalaya and Mississippi Rivers during normal river stages. During floods or high river stages, more of the flow can be diverted down the Atchafalaya River.

The increased flow down the Atchafalaya River from 1900 to 1952 initially transported abundant prodelta clays into the Atchafalaya Bay. This phase was proceeded by the deposition of fine sands at the mouth of the Atchafalaya River and Wax Lake Outlet (van Heerden and Roberts, 1988). In 1973, the emergence of a subaerial (above water) delta confirmed the presence of a new delta within the Atchafalaya Bay (van Heerden et al., 1991). Sediment deposition in the new delta is highest during flooding events where average annual peak flow into the Atchafalaya Bay averages over 400,000 cubic feet per second with a sediment load of 46.9 million tons (Roberts and van Heerden, 1982). This long-term source of sediment provides for continued delta expansion and marsh creation throughout the shallow Atchafalaya Bay.

The significance of this new prograding delta is notable when contrasted with the rapid loss of coastal wetlands within the Louisiana Coastal Zone and especially near or adjacent to the current Mississippi River Delta. Wetlands adjacent to the lower Mississippi Channel and bird's foot delta represent areas of greatest land loss during the past 40 years (Barras et al., 1994). Recent land gain reported within this rapidly subsiding area (Barras et al., 1994) primarily is due to the deposition of dredged material on spoil banks. Comparatively, much of the land gain within the Atchafalaya Bay results from the emergence of the prograding subaerial delta. Over 6,800 acres of Atchafalaya Bay bottom have been converted to subaqueous delta since 1973 (U.S. Department of Commerce, 1992). This continuing deposition of sediment represents an important foundation needed for marsh creation and nourishment.


OLD RIVER CONTROL STRUCTURE COMPLEX
LOUISIANA
MISSISSIPPI RIVER
PROJECT VICINITY
ATCHAFALAYA FLOODWAY LEVEES
BATON ROUGE
N
ATCHAFALAYA BASIN
LAFAYETTE



NOTE:
BASE MAP DIGITAL IMAGE TAKEN FROM 1993 LANDSAT TM-30 SCENE.

FIGURE 2

GOTECH, INC.
CONSULTING ENGINEERS

BIG ISLAND MINING PROJECT

ATCHAFALAYA RIVER BASIN

ST. MARY PARISH

C-K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

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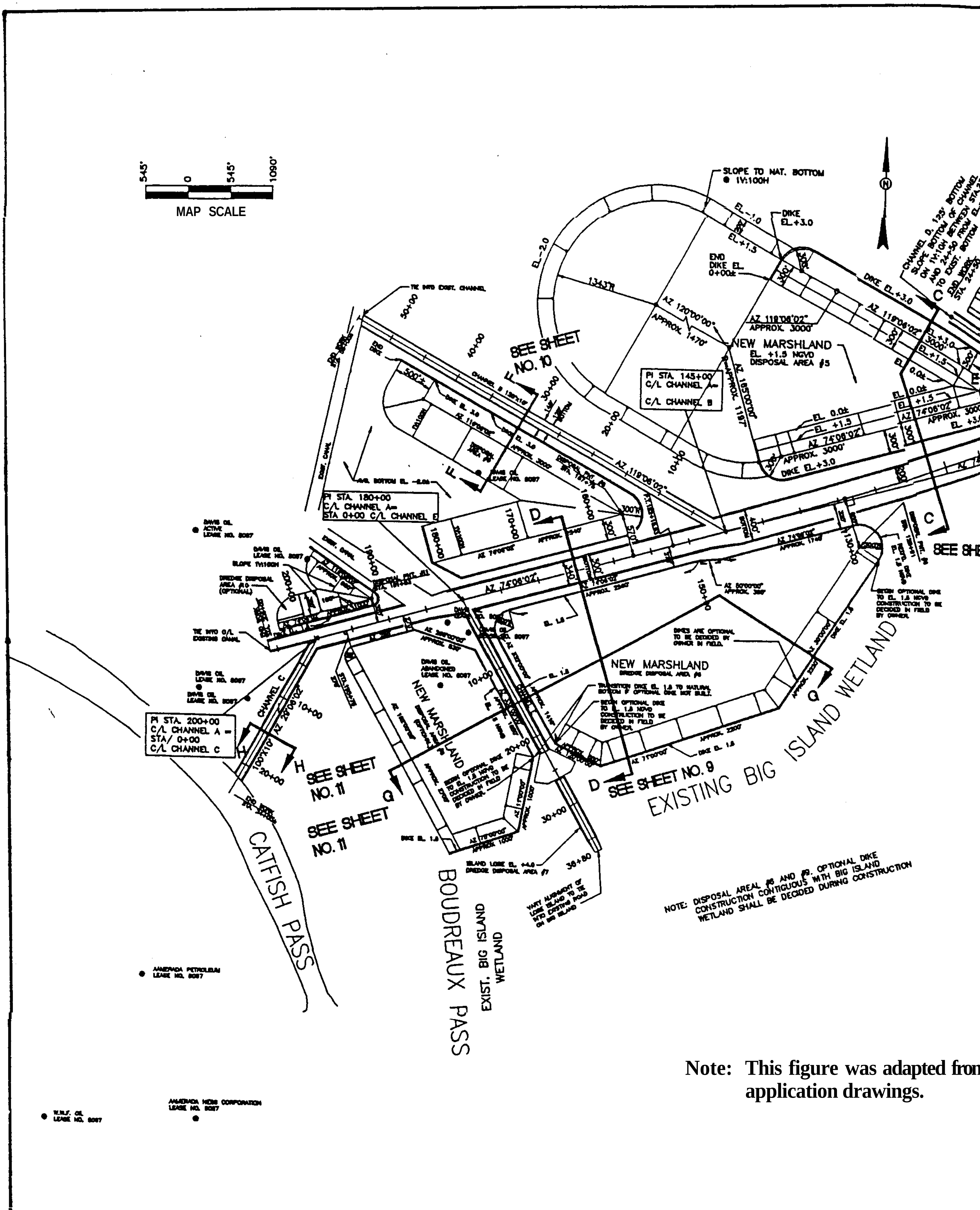
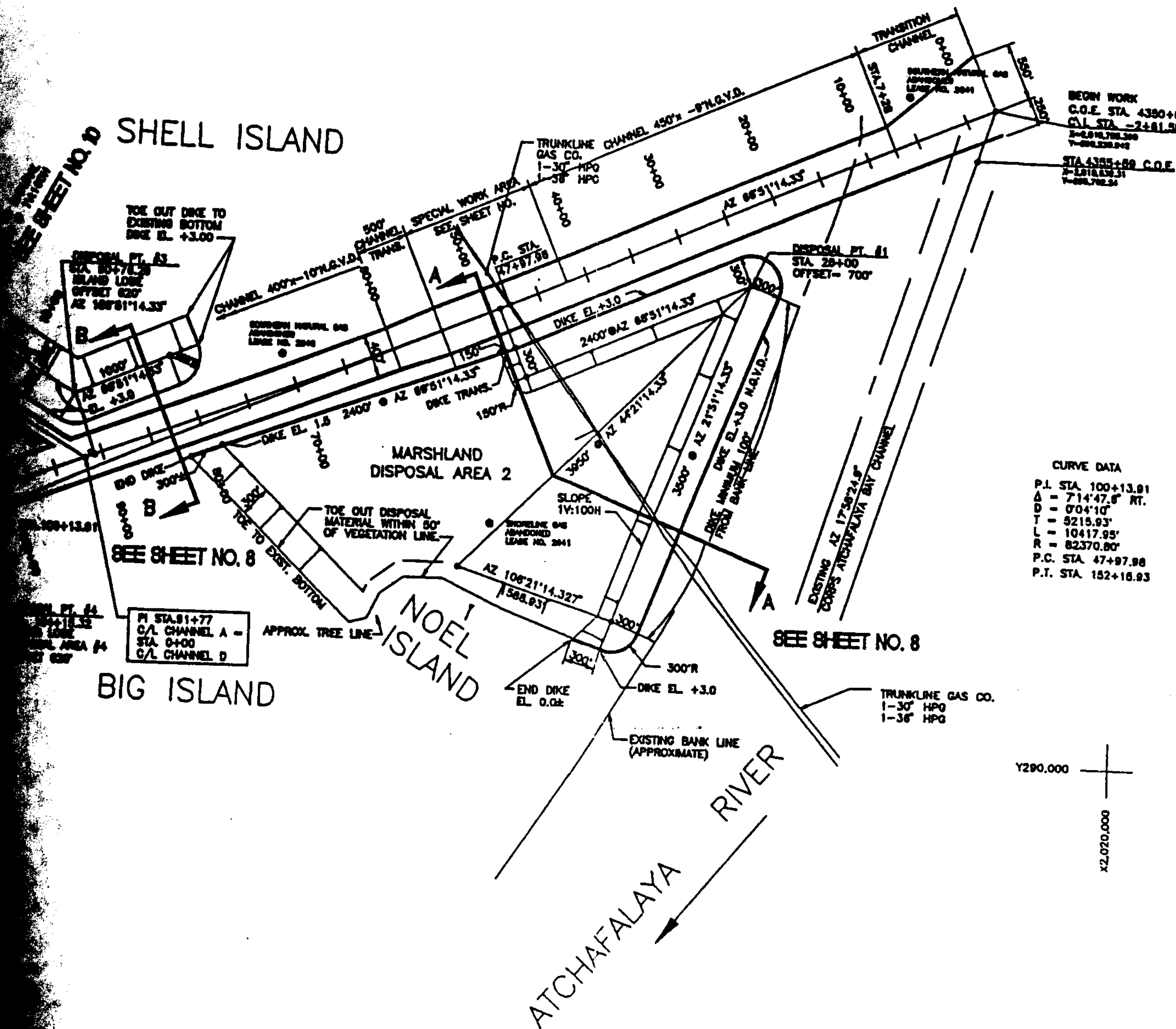
CHECKED	JSH	DATE	MAY 23, 1995
		DWG. NO.	B34-104-02



Note: **This figure was adapted from application drawings.**



mingham & Gannuch Inc.'s permit

FIGURE 4

Historically, the Atchafalaya River system has been an integral part of regional flood control management, commerce, oil and gas exploration, fish and wildlife management, and recreation (U.S. Environmental Protection Agency, 1990). In addition, the fresh water and sediment discharge represents a sustaining influence on adjacent coastal marshes (Gosselink, 1984; Nyman and DeLaune, 1991; Randall and Day, 1987). For these reasons, state, federal, and university research interests have closely monitored the emergence of the prograding delta. Recent studies suggest that regular maintenance dredging of the Atchafalaya Bay Channel by the USACOE has reduced the rate of natural delta progradation, disrupted the natural sediment delivery systems and promoted wetlands loss (U.S. Department of Commerce, 1992). Because mineral sediment deposition is a primary factor influencing the rate of vertical accretion in coastal marshes, the disruption of the sediment delivery system in the prograding Atchafalaya may result in long-term reduction in land gain.

As shown in Figure 3, the Atchafalaya Bay Channel runs through the center of the prograding delta. The USACOE maintains a 400-foot wide, 20-foot deep navigation channel in the center of the Atchafalaya Bay Channel. Maintenance dredging of this channel has adversely impacted the natural sediment delivery system of the river by channeling suspended sediment away from secondary distributary channels into deeper and more open waters (U.S. Department of Commerce, 1992; van Heerden et al., 1991). The velocity of the water in the dredged channel increases erosion from the banks or heads of newly formed lobes resulting in a loss of land mass. In addition, the disposal of dredged material on the east and west sides of the channel has reduced or blocked flow through these channels. This cumulatively affects east and west migration of sediment through smaller distributary channels and subsequently has caused reductions in the delta building potential of the natural sediment delivery system (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993a). Because coastal wetlands evolve slowly as a result of annual sediment deposition and organic accumulation (Delaune et al., 1987; Nyman et al., 1993a, b, and d), a reduction in the volume of sediment and frequency of deposition reduces delta growth and marsh expansion and may cause a reduction of newly created wetlands.

On the west side of the Atchafalaya Bay Channel, Big Island was constructed by the deposition of dredged material. This 1,070-acre island, adjacent to the navigation channel, has elevations of +10 to +12 feet NGVD, and no distributary channels. Big Island's size, orientation, elevation, and lack of internal channelization inhibit marsh expansion in the western region of the prograding delta.

On the east side of the Atchafalaya Bay Channel, natural and man made influences have also decreased delta expansion. Erosion of the heads of newly formed lobes facing the navigation channel resulted in land loss from these areas. Dredged material was placed at the heads of these lobes beginning in 1987 to mitigate for this loss. Unexpectedly, some of this dredged material migrated into these secondary channels during seasonal storms and caused a sealing off the these channels (U.S. Department of Commerce, 1992). This resulted in a reduction in the easterly (lateral) transport of sediment and has resulted in land loss within this area.

The recognition that the potential for delta expansion had been reduced within the Atchafalaya Bay stimulated interest in designing mitigative measures to slow or reverse this trend. Specifically, the enhancement of delta creation to the east and west existing delta lobes became a primary focus of engineering design.

As with any coastal land creation project, sediment availability and transport are essential elements that significantly influence the feasibility of a given project. Although Big Island is within the Atchafalaya Delta Wildlife Management Area (ADWMA) and represents a valuable land mass, subaqueous deposits of Big Island represent a significant source of dredge material. Big Island is a designated disposal site established in 1973 on the west side of the Atchafalaya Navigation Channel. Big Island consists primarily of dredged material generated from maintenance dredging of Bayous Chene, Boeuf, and Black navigation channels and the lower Atchafalaya River and Bay Channels.

A conceptual plan evolved to enhance sediment delivery throughout the delta which involved the creation of a new distribution channel to the west and unplugging of existing tertiary channels to the east. The dredging of a new channel to the west of Big Island involved several alternative alignments, whereas the unplugging or dredging of sealed channels to the east represents a routine activity.

In addition to creating or unplugging channels, observations of subaerial delta expansion within the Atchafalaya Bay suggest that strategic placement of spoil along the edge or front of subaqueous mud flats at the point of channel bifurcation could create elevations which would be conducive to the establishment of wetland vegetation and would enhance delta lobe development (Day and Conner, 1998). During flood events, water from the channel would flow over this man-made bank and deposit sediment behind the spoil area due to the reduced velocity of the water. An elevation of +3.0 feet NGVD is considered the target elevation of the spoil bank to achieve this effect in the Atchafalaya Bay (Day et al., 1987). Thus, strategic placement of spoil resulting from the proposed dredging activity to establish east-west distribution channels also could create marsh elevations and enhance delta growth.

1.2 Project Location

The Big Island Mining project is in the Atchafalaya Bay, in the lower southeast corner of St. Mary Parish, Louisiana. The proposed project area is in the western half of the lower Atchafalaya River Delta near Latitude N-29° 27'00' and Longitude W-91° 17'30'. The project area would encompass the shallow bay to the north and west of Big Island.

1.3 Project Funding

Seventy-five percent of the funding for this project is provided through CWPPRA with 25 percent cost sharing by the Louisiana Department of Natural Resources (LDNR). The project is administered by cooperative agreements between the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) and LDNR.

2.0 PURPOSE AND NEED FOR ACTION

2.1 Purpose

A major goal of CWPPRA is to "restore and prevent the loss of coastal wetlands in Louisiana." The purpose of the Big Island Mining Project is to enhance the westward development of the lower Atchafalaya River Delta and its adjacent coastal wetlands. This purpose would be achieved by cutting an east-west distributary channel between Big Island and Shell Island to the north. Dredged material from this operation would be placed strategically at eight disposal sites along the new channel to enhance delta development west of the Atchafalaya Bay Channel. Figure **4** (adapted from the permit application) shows the location of the proposed channel and designated disposal sites.

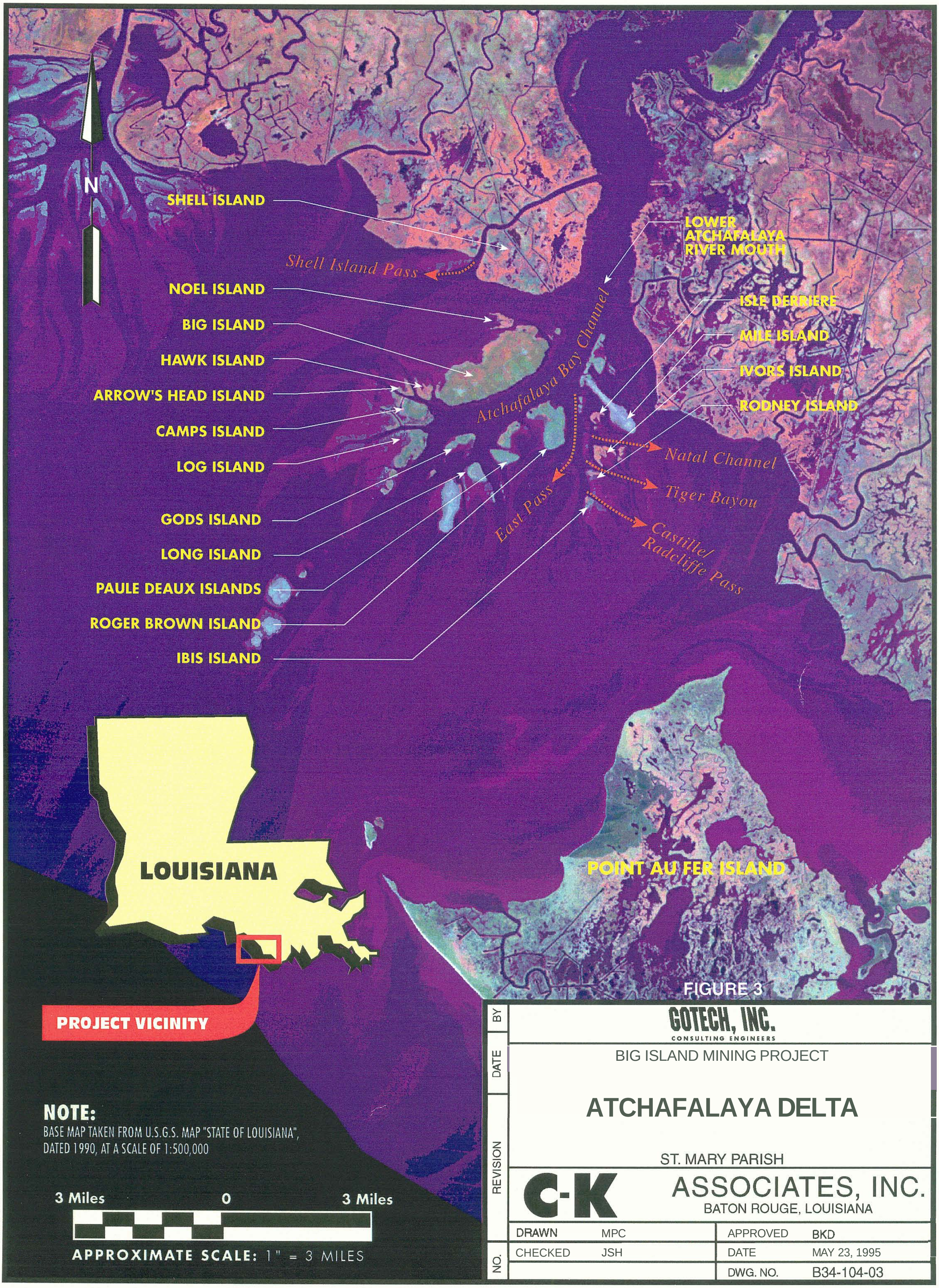


FIGURE 3

GOTECH, INC.
CONSULTING ENGINEERS

BIG ISLAND MINING PROJECT

ATCHAFALAYA DELTA

ST. MARY PARISH

C-K ASSOCIATES, INC.
BATON ROUGE, LOUISIANA

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CHECKED	JSH	DATE	MAY 23, 1995
		DWG. NO.	B34-104-03

BY | DATE | REVISION | NO.

05/25/95C IMAGE: BIG ISLAND LANDSAT

2.2 Need For Action

The Big Island Mining project is one of two CWPPRA projects designed to enhance the development of the Lower Atchafalaya Delta. The need to implement the Big Island Mining project emanates from the project's long-term potential to create and sustain new delta and coastal wetlands west of Big Island. The Atchafalaya River is the primary distributary of Mississippi River and currently delivers an estimated 46.9 million tons of fine grain sediment annually to the shallow waters and prograding delta in Atchafalaya Bay. This sediment is necessary for coastal wetlands formation and provides substrate on which biological activities occur.

Although loss of coastal wetlands in Louisiana is estimated at 34.9 square miles per year, the prograding Atchafalaya Delta represents the most significant area of actual land gain within the Louisiana Coastal Zone.

2.2.1 Historic Shift in the Mississippi River Delta

The current shift in the locus of Mississippi River sediment deposition from the Mississippi River Delta, which formed approximately 1,000 years ago, to the Atchafalaya Bay is an extremely rare event. The new prograding Atchafalaya Delta marks the beginning of a building process that contributes to a very dynamic and productive ecosystems. The proposed sediment delivery projects would enhance and utilize the existing hydrologic influences to continue build and nourish coastal wetlands by enhancing the deltaic processes.

2.2.2 Mitigation of Dredging Impacts

The initial stages of Atchafalaya Delta progradation represents a unique opportunity to implement long-term mitigative measures that enhance the delta building process while accommodating maintenance dredging for commercial navigation. Although maintenance dredging has reduced the potential for delta expansion, the magnitude of these impacts may be minimized by the implementation of effective measures to enhance delta development. Unlike the current Mississippi River Delta where extensive alterations to hydrologic processes were readily implemented and are difficult to alter, mitigative opportunities within the Atchafalaya Delta benefit from its geographic setting and current research and can be implemented during the early phases of delta development.

2.2.3 Protection of Highly Productive Fresh Water Marshes

The loss of fresh water marshes in the Louisiana Coastal Zone from 1956 to the present represents a significant natural resource loss. The implementation of the Big Island Mining project would initially create approximately 800 acres of freshwater marsh and 280 acres of island lobes. This new marsh would be constructed with about 3.6 million cubic yards of dredged material which would be placed in no less than eight locations to mimic delta development as shown in Figure **4.**

The hydrologic sediment delivery process would be enhanced so that additional wetlands would continue to develop during the life of the project. Project engineers estimate that a total of 2,270 acres of water bottom would be raised 2 feet during the life of the project. For the original project an estimated 230 acres of aquatic vegetation would benefit from project construction, about 360 acres on Shell Island would be protected from storm damage and erosion and 230 acres would be enhanced (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b). Similar or greater benefits should occur with the revised project because of the greater amount of material being dredged and the proximity of disposal areas to Shell Island.

2.2.4 Protection from Storm Surge and Flooding

The protection from hurricanes and storms provided by coastal wetlands and barrier islands off the Louisiana coast is well documented (US. Army Corps of Engineers, 1994). The Atchafalaya Bay, with its prograding delta, provides critical protection to inland populations by buffering the effects of storm surges and subsequent flooding associated with hurricanes and tropical storms.

2.2.5 Long-Term Natural Resource Benefits

The long-term resource benefits represented by the Big Island Mining project are primarily derived from the natural resource value represented by the prograding Atchafalaya Delta and its adjacent fresh water marshes. The Atchafalaya River is the primary distributary of Mississippi River and currently transports an estimated 46.9 million tons of fine grain sediment annually.

The new prograding Atchafalaya Delta relies on the Atchafalaya River as its long-term source of sediment, fresh water, and other resources which contribute to the long-term sustainability of coastal wetlands. In turn, these wetlands provide natural resource benefits typically associated with freshwater marshes, including high quality wildlife and fisheries habitat.

2.2.6 Enhancement of Estuarine Habitat

The Atchafalaya Bay provides significant habitat for freshwater resident and estuarine dependent fishery species. This estuary provides nursery and foraging habitat that supports the production of many valuable commercial and recreational fish and shellfish. The prograding delta with its fresh water influences, represents a source of energy and nutrients that contributes to the productivity of coastal marshes throughout the central Louisiana Coastal Zone.

2.3 Authorization

The NMFS is the Federal sponsor for implementation of the Big Island Mining project which was included on the Second Priority Project List (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1992). This responsibility includes conducting an environmental evaluation and other activities involved for final decision-making in compliance with the National Environmental Policy Act (NEPA) of 1969. To meet NEPA compliance requirements an **EA** must be conducted for each wetland project site that is modified or restored.

The Big Island Mining project, identified as XAT-7 in the CWPPRA Restoration Plan, is located in St. Mary Parish. It is classified as a critical, short-term project (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b).

3.0 ALTERNATIVES INCLUDING PROPOSED ACTION

The project site and scope were identified by the Louisiana Coastal Wetlands Conservation and Restoration Task Force (1993a) and are included in the Second Priority List. An LDNR contracted Engineering Design Report and Engineering Summary for the Big Island Mining project was prepared by Brown Cunningham Gannuch, Inc. in March 1995 (Contract No. 25085-95-04).

The seven proposed alternatives are derived from two separate approaches to increasing the volume of sediment for wetland creation west of Big Island. Alternatives 1-3 involve the orientation of a dredged channel to originate at the Atchafalaya Navigation Channel and discharge northwest of Big Island. Alternative 4 utilizes the placement of a permanent dredge pipeline from the Atchafalaya Navigation Channel to an established disposal area behind Big Island. From this designated disposal area, sediment could be pumped into a dredged distribution channel that discharges into waters west and north of Big Island. Alternatives 5, 6, and 7 represent the combination of the dredged channel and pipeline scenarios.

The Big Island project considered the following seven alternatives to determine the better solution from a cost and probable impacts standpoint.

Alternative One: Dredge a new channel across the middle of Big Island.

Alternative Two: Dredge a new channel on the northern end of Big Island.

Alternative Three: Dredge a new channel between Shell Island and Big Island.

Alternative Four: Place a permanent 20-inch diameter dredge line across Big Island and designate dredge disposal areas for the USACOE to deposit dredge material behind Big Island from their maintenance dredging of the lower Atchafalaya Bay Channel. This material would be used to construct a sub-delta behind Big Island.

Alternatives Five, Six and Seven: These three remaining alternatives combine Alternative Four with each of Alternatives One, Two, and Three.

3.1 No Action Alternative

The no action alternative would fail to create and protect valuable wetlands that provide and protect other resources in Louisiana. Specifically, failure to mitigate the adverse impacts caused by maintenance dredging of the Atchafalaya Navigation Channel would result in the reduction in the delta building process within the Atchafalaya Bay. The no action alternative would not be responsive to the recommendations in the Louisiana Coastal Wetlands Restoration Plan and approved by the Task Force. Also, no action would be contrary to the recommendations in other long-term plans for protecting or restoring Louisiana's coastal wetlands (Edwards et al., 1995; Gagliano, 1994; van Heerden, 1994).

Due to the need to protect our coastal wetlands as evidenced by the public funding through the CWPPRA, the no-action alternative was not the preferred alternative.

3.2 Big Island Mining Constructibility

The original concept of the Big Island Project was to construct a distributary channel 500 feet to 700 feet wide and 6 feet deep and about 5,000 feet long across the Island and strategically place the dredged material to create island lobes and marshlands beyond the west side of the Island. This basic concept remains the guide, however, details and alternatives for constructibility have been introduced as follows:

Based upon current engineering practices, interviews with representatives of the LDNR, Louisiana Department of Wildlife and Fisheries (LDWF), USACOE and several dredging contractors the following channel alignments and sizes, island lobe construction, and marsh creation were used to develop the project alternatives.

For Alternatives One, Two, and Three, the main channel cut from the Atchafalaya Bay Channel is proposed to have a 500-foot wide bottom with one vertical on two horizontal side slopes with a bottom elevation at -10.0 feet NGVD. Due to the sandy consistency of the dredged material, dredging would require the use of a cutterhead dredge with an 18- to 20-inch diameter discharge line to efficiently move the material. Additional channels are needed to allow for placement of island lobes and marshlands and to convey sediments to the bay area.

The project channel would intersect the Atchafalya Bay Channel at a 45° angle and will have a bottom contour sloping from -20 feet NGVD bay channel bottom to -10 feet NGVD project bottom.

Island lobes would be constructed in strategic areas with dredged material generated during the channel excavation. These island lobes would be constructed to an elevation of +3.0 NGVD because the Atchafalaya Bay Channel normal flood elevation very seldom exceeds this height. After initial settlement these lobes would be between +2.5 and +2.75 NGVD or an elevation conducive to the growth of marsh vegetation and overtopping during flood events.

Marsh areas created by dredge material would be constructed to elevation +1.5 to +2.0 NGVD to be within the normal tidal fluctuations as recorded on the Amerada Hess gauge located within a mile of the project. The published readings on this gauge, according to USACOE records are: minimum at -1.0 NGVD, average +0.8 NGVD, and maximum +3.0 NGVD.

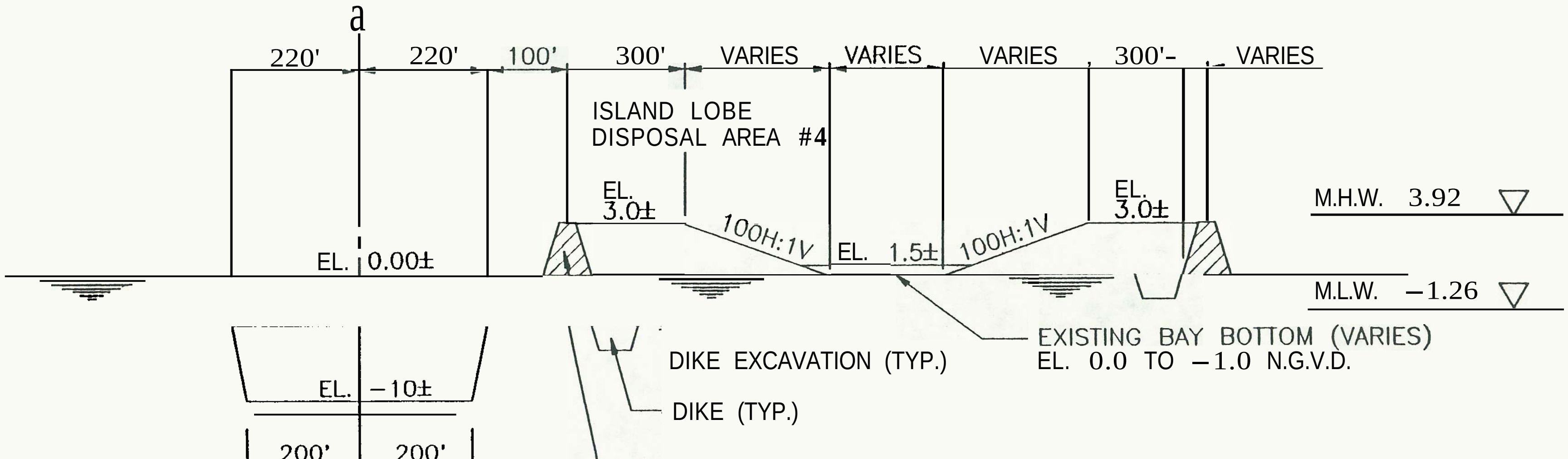
Figure 5 is a cross-section drawing showing a typical channel, dike and island lobe, and marshland disposal area.

3.3 Alternatives

3.3.1 Alternative One

Alternative One consists of cutting a primary channel through the geographical center of Big Island with a 400-foot wide bottom at elevation -10 feet NGVD and one vertical on two horizontal side slopes, giving a total width (at elevation 0.0) of 440 feet. This primary channel would start at the Atchafalaya Bay Channel near centerline and extend westerly for about 10,000 feet, crossing Big Island. At this point the channel would split with the larger channel turning west and a branch channel going in a west-northwest direction. The channels would reduce to a 200-foot wide and a 100-foot wide bottom, respectively. The larger channel would extend 10,000 feet to reach deep water in Shell Island Pass. Dredged material would be placed to form island lobes along the downstream side of each subchannel following the split. Islands will be constructed by diking off the channel side and discharging dredged material perpendicular to the channel, building a +3.0 feet NGVD ridge which slopes away from the channel on about a one vertical on 100 horizontal side slope to copy naturally occurring delta island lobes. The existing marshlands contiguous with Big Island on its west side would be extended by depositing dredged material to an elevation between +1.5 feet and +2.0 feet NGVD to create additional marsh areas.

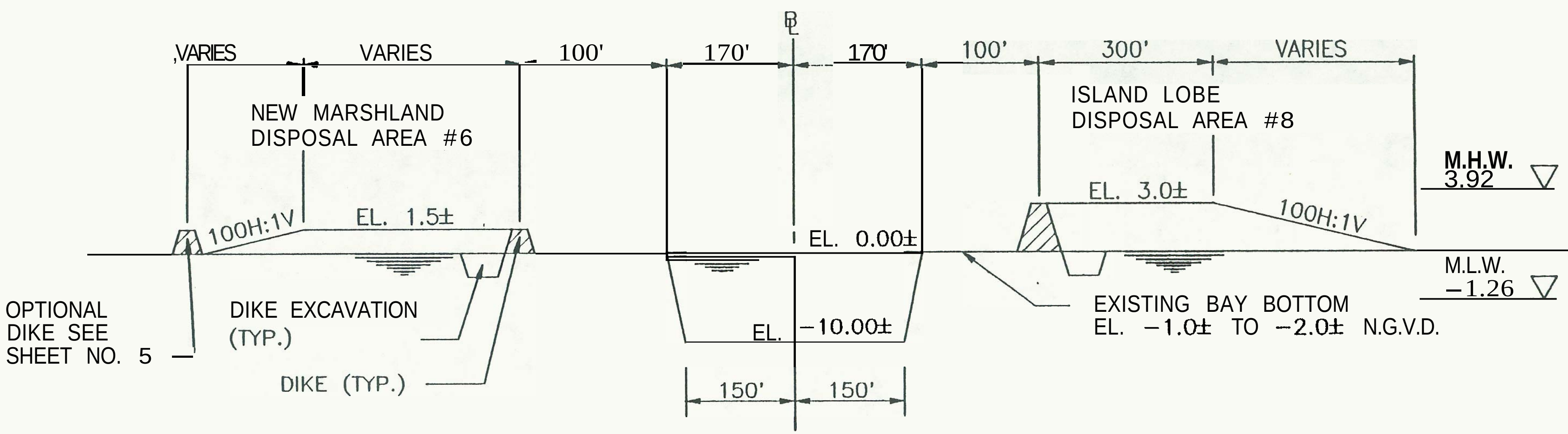
The total estimated quantity of dredged material to be mined for Alternative One is 3,877,200 cubic yards.



SECTION C–C

STA. 117+00 – CHANNEL "A"

SCALE NOT SHOWN



NOTE: FOR DETAIL OF DIKE SEE SHEET 8.

ALL ELEVATIONS N.G.V.D.

SECTION D-D

STA. 160+00 – CHANNEL "A"

SCALE NOT SHOWN

FIGURE *5*

NATIONAL MARINE FISHERIES HABITAT CONSERVATION DIVISION	**BIG ISLAND MINING PROJECT TYPICAL CROSS SECTIONS SHOWING CHANNEL AND DISPOSAL AREAS**	DATE: JULY, 1995
	PREPARED BY BROWN CUNNINGHAM & GANNUCH, INC.	SHEET: 9 OF 13

3.3.2 Alternative Two

The Alternative Two scheme would shift the main channel cut to the north end of Big Island, following an existing swale across the island referred to as the "Ditch" by ADWMA personnel. The average island elevation is estimated to be +2.0 feet NGVD along this channel route.

The main cut would curve slightly and extend across Big Island following the "Ditch" line, traveling in a westerly direction. This main cut, which would have a 400-foot wide bottom at elevation -10.0 feet NGVD, would extend some 10,000 feet, then intersect with a secondary channel. A secondary channel would travel 5,000 feet in a northwesterly direction until reaching deep water in Shell Island Pass. In this alternative, another channel would transect the main channel and extend in a north and south direction. The main channel would extend an additional 6,000 feet to the west.

The total estimated volume of dredged material to be mined for Alternative Two is 3,966,227 cubic yards.

3.3.3 Alternative Three

For alternative three the main cut would start at the upstream limit of the USACOE Atchafalaya Bay Channel at an approximately 45" angle. It would extend in a westerly direction for a total of 21,000 feet, crossing Noel Island and following an existing silted in slough on the north side of Big Island. The main channel has a 400-foot wide bottom at elevation -10.0 feet NGVD. Smaller channels (Channels D and B) branch off at 45" angles and extend northward for approximately 2,000 and 5,500 feet, respectively, until emptying into deep water at Shell Island Pass or an oil and gas access channel.

From the southern side of Channel A, Channel E would extend in a southeasterly direction for 2,500 feet so that the dredged material would be placed to tie into an existing road on Big Island. Channel C, the most westward of the secondary channels, would extend in a southwesterly direction for 2,400 feet and terminate in Catfish Pass.

Similarly, as described in Alternative One, the dredged material from these channels would be placed strategically to create island lobes and marshlands. The existing marsh contiguous with Big Island would be extended westward as much as 3,000 feet.

The total estimated volume of dredged material is 3,589,093 cubic yards.

3.3.4 Alternative Four

Alternative Four would utilize dredged material, stockpiled by the USACOE when performing maintenance dredging on the Atchafalaya Bay Channel, to create a subdelta on the western side of Big Island. In interviews with USACOE representatives, they indicated a willingness to cooperate by depositing dredged material on the west side of Big Island to be used by the project as a source of material to build island lobes and create marshlands.

In order to move the material to strategic locations to build island lobes and marshlands, a channel network would be needed for efficient placement of dredge discharge lines. Also, to dredge the stockpile area, a cut of -8.0 feet to -10.0 feet NGVD would be needed. This would leave a large pond area after the material is removed which could be filled to +1 .5 feet NGVD by USACOE contractors during subsequent dredging.

The USACOE would fill the dredged stockpile area at no cost to the project. The project would dredge the distribution channel network first, then dredge the stockpile area. The Alternative Four channel network is similar to Alternative Three. It should be noted that Alternative Four does not have a direct connection to the Atchafalaya Bay Channel and would not be self-sustaining.

The total dredged material volume for Alternative Four is 2,731,932 cubic yards.

3.3.5 Alternatives Five and Six

Alternatives Five and Six would combine Alternative One with Alternative Four and Alternative Two with Alternative Four, respectively. By inspection these two alternatives were determined to be much more costly than Alternative Seven, which follows, therefore, these two alternatives were dropped.

3.3.6 Alternative Seven

Alternative Seven would combine Alternative Three and Alternative Four. This would provide for a connection between the stockpile area and the Atchafalaya Bay Channel via a 400-foot wide bottom by 10.0-foot deep channel. Alternative Seven is equivalent to Alternatives One, Two, and Three channel schemes; but has use of the USACOE dredged stockpile material to build island lobes and marshlands.

The total volume of Alternative Seven is 4,803,182 cubic yards.

3.4 Discussion of Alternatives

On the basis of costs the Alternatives are ranked as follows:

Alternative Four	$4,278,300*
Alternative Three	$5,843,500
Alternative One	$6,068,000
Alternative Two	$6,160,300
Alternative Seven	$7,325,600
Alternatives Five and Six	**

• Alternative Four does not have a main channel connecting to the Atchafalaya Bay Channel.
****These two Alternatives were more expensive then Alternative Seven and were not included.**

Alternative One would require 96 acres of clearing and grubbing while Alternative Two would require 60 acres. Alternatives Four and Seven would excavate a large deep water borrow area that would require refilling to restore it to marshlands. Alternatives Five, Six and Seven would allow river sediments to enter into the borrow pit. Alternative Three affords the least interruption to existing land/wetlands.

On the basis of impact to the flora/fauna and hunting of Big Island the Alternatives with least impacts are ranked as follows:

Alternative Three
Alternative Seven
Alternative Four
Alternatives Two and Six
Alternatives One and Five

Alternative Four would not connect to the bay channel and would transport little sediments. Alternatives One and Five would intersect the bay channel on the inside of a curve and are downstream of East Pass which would result in a lower chance to direct stream bed loads. Alternatives Two and Six would be upstream of East Pass and intersect the bay channel in a tangent reach which would increase their chances of diverting stream sediments. Alternatives Three and Seven intersect the bay channel at its upstream limit in a straight section of the bay channel which affords the best chance of diverting stream sediments.

On the hydraulic basis, the Alternatives are ranked best to least as follows:

Alternatives Three and Seven
Alternatives Two and Six
Alternatives One and Five
Alternative Four

3.5 Conclusions and Recommendations for Big Island Mining

The Big Island Mining project would dredge a channel and use dredged material to construct a sub-delta, complete with island lobes and marshlands, on the western side of Big Island. Based upon the foregoing discussion, Alternatives One, Two and Three would accomplish the project goals of opening up the western side of Big Island to sediment delivery from the Atchafalaya Bay Channel, constructing island lobes and marshlands and enhancing the growth of a sub-delta. Furthermore, based upon interviews with various government agencies regarding the project goals and reviewing the constructibility of the Alternatives, the engineers decided that Alternative Three would be the most economic and least disruptive solution to in-situ conditions on Big Island.

Alternative Four, although less costly, would not open the sub-delta directly to the Atchafalaya Bay Channel. Also, this Alternative would require an agreement with the USACOE and probably could not be implemented this calendar year since USACOE dredging plans are complete for 1995.

Alternatives Five, Six and Seven are too costly to implement for the incremental benefits they offer.

3.6 Preferred Alternative

Alternative Three was selected on the basis of benefit, impact, and cost. Preliminary engineering details of the preferred Alternative are shown in Figure 4. Big Island Channel station 0+00 starts in the lower Atchafalaya River, intersecting at **45°** with the existing USACOE Atchafalaya Bay Channel at station 4350+68.07 CR. This Channel generally runs southwest and, according to the engineering report, would reduce the average Atchafalaya Bay Channel flow by 4.4 percent for a river flow of 100,000 cubic feet per second. The Big Island Channel (Channel A), which starts with an 775-foot wide bottom at elevation -20.0 feet, acts as a venturi to accelerate the flow transporting some of the lower (heavier) sediments from the river into the new channel. The channel side slopes are preliminarily assumed to be 1 vertical on 2 horizontal. From station 7+28 to station 60+00 (5,272 feet) the channel has a bottom width of 450 feet at elevation -9.0 feet NGVD with 1 vertical on 2 horizontal side slopes. After a 500 foot transition, the channel narrows and deepens to 400 feet by -10 feet up to station 90+00.

At station 90+00 the first tertiary distributary channel, Channel D, intersects with the main Channel A at an angle of 45° towards the west-northwest and is 2,000 feet long. This channel has a 100-foot wide bottom at an elevation of -10.0 feet NGVD. Starting at station 90+00 Channel A continues with a 400-foot wide bottom at a depth of -10.0 feet NGVD with 1 vertical and 2 horizontal side slopes, continuing in a west-southwest direction to station 145+00 (5,500 feet) until intersecting with Channel B.

Channel B exits at a 45° angle and extends in a west-northwest direction for some 5,500 feet until intersecting with an existing Apache Oil Field Canal. Channel B has a bottom width of 125 feet at elevation of -10.00 feet NGVD and 1 vertical on 2 horizontal side slopes.

Channel A narrows at Station 145+00 to a 300-foot wide bottom at elevation -10.0 feet NGVD, continuing straight in a west-southwest direction behind Big Island. At approximate station 180+00 Channel A intersects with Channel E. Channel E exits at an approximate angle of 103° from Channel A, traversing towards Big Island in a south-southeast direction for approximately 2,500 feet. This channel has a 75-foot wide bottom at elevation -10.0 feet NGVD, with 1 vertical on 2 horizontal side slopes. This channel ends with two 45° flair channels to allow for water circulation into and out of the two Big Island existing wetland areas to eliminate stagnation due to the three contiguous planned disposal areas numbers six, seven, and nine near Big Island. Channel E is designed to maintain access to Disposal Area 7 which connects to one of the trails maintained by the ADWMA personnel.

Between station 180+00 and 200+00, Channel A has a bottom width of 200 feet at elevation -10.0 feet NGVD with 1 vertical on 2 horizontal side slopes. Channel A continues straight in the south-southwest direction. At station 200+00 Channel A intersects with Channel C.

Channel C exits from Channel A at 45° in a south-southwest direction and extends some 2,400 feet until it intersects with the existing Catfish Pass Channel. Channel C has a 125-foot wide bottom at elevation -10.0 feet NGVD with 1 vertical on 2 horizontal side slopes.

Once past the confluence with Channel C, Channel A reduces to a bottom width of 100 feet at elevation -10.0 feet NGVD. Channel A extends another 1,000 feet until it terminates in the existing Apache Oil Canal, at approximate station 210+00.

In summary, the Big Island Mining Project consists of dredging a mainstream distributary from the Atchafalaya River that extends some 21,000 feet along the northern side of Big Island with four tertiary distributaries of smaller cross sections to mimic the bifurcations formed in an emerging delta. The maximum amount of material to be dredged is estimated as 3,018,800 cubic yards for Channel A, 236,700 cubic yards for Channel B, 116,000 cubic yards for Channel C, 105,800 cubic yards for Channel D, and 111,800 cubic yards for Channel E. These channels will be maintenance dredged, if necessary, at years 5, 10, and 15.

3.6.1 Big Island Dredged Material Disposal Areas

In an effort to emulate the natural river delta building patterns two types of dredged material disposal areas have been designed into the Big Island project.

Both island lobes and marshland disposal areas would be strategically placed to help maintain good flow patterns during high stage conditions in order to direct land building sediments to the areas behind Big Island.

Island lobe disposal areas would be located at the main channel entrance and at the secondary channel confluences. The island lobe configuration would consist of a "V" shaped low lying levee embankment with the apex of the "V" located at the channel intersection. Each leg of the island lobe would consist of a 300-foot wide berm built to elevation +3.0 feet NGVD then sloping back down to the natural bottom at a 1 vertical on 100 horizontal slope. A dike would be constructed on the leading edge of each leg of the island lobe to allow for close construction to the channel and to prevent discharge from back-flowing into the channel cut. The legs of the island lobe would form a 45° angle to each other reflecting the naturally occurring island lobe angles.

Disposal Areas No. 1 (66 acres), No. 3 (43 acres), No. 4 (72 acres), No. 7 (3 acres), No. 8 (96 acres) and the optional area No. 10 (12 acres) would be constructed as island lobes (Figure 4).

The second type of disposal area, marshland, would consist of creating new wetlands by depositing dredged material for a final elevation of +1.5 feet NGVD along the northern side of Big Island (side opposite the river). A very productive wetland is contiguous with the north side of Big Island. If necessary to minimize impacts to this wetland, dikes would be constructed along the outer edge of this wetland expanse. The new marshland disposal area would consist of raising the natural water bottom, which varies from -2.0 to 0.0 feet NGVD along the Big Island Channel route, to an average settled elevation of +1.5 NGVD. Perimeter dikes would be constructed in certain areas to prevent overflows. On perimeters not needing dikes, a gradual slope of 1 vertical on 100 horizontal would be used to get the "marshland" back to natural (bottom) elevations. Generally, the edge of the disposal areas would be positioned 100 feet from the top of the channel bank.

Disposal Areas No. 2 (189 acres), No. 5 (303 acres), No. 6 (206 acres) and optional area No. 9 (96 acres) will be constructed as marshland (Figure 4).

To maintain project construction productivity the disposal areas were sized and positioned to minimize the lengths of the dredge discharge lines, thereby keeping costs down.

Dredged Disposal Area No. 1

This area consists of an island lobe extending some 2,400 feet along the channel with the opposite leg extending some 3,500 feet along the bank of the Atchafalaya River. Presently, this area is a mudflat with no vegetation. Disposal Area No. 1 has a capacity of 245,000 cubic yards of dredged material.

Dredged Disposal Area No. 2

This area consists of a new marshland encompassing an area of 189 acres. The northern boundary is the slope side of island lobe Disposal Area No. 1. The south side is the vegetation line of Big Island. This area has a disposal capacity of 439,850 cubic yards.

Dredged Disposal Area No. 3

This island lobe is located on the north side of Channel A-D intersection. The leg parallel to Channel A is approximately 1,000 feet long and the leg along Channel D is approximately 1,500 feet long. This disposal area can receive 225,000 cubic yards of dredged material.

Dredged Disposal Area No. 4

This island lobe area is located on the downstream side of the Channel A-D intersection. The leg along Channel D extends from some 3,000 feet and the leg along Channel A also extends some 3,000 feet. This disposal area has a volume of 300,000 cubic yards.

Dredged Disposal Area No. 5

This area is a new marshland type disposal area creating about 303 acres. This area is contiguous to the back side of island lobe No.4. This area has a disposal capacity of 351,000 cubic yards.

Dredged Disposal Area No. 6

This disposal area would be marshland and extend along the south side of Channel A and east of Channel E, adjacent to the wetlands along Big Island. This disposal area would create some 206 acres of new marshland and would receive about 799,500 cubic yards of dredged material. The dikes along the south side of this area are located far enough away from the existing Big Island wetlands to allow for tidal and river overflow water to circulate in this area to eliminate stagnation.

Dredged Disposal Area No. 7

This is an island lobe that crosses the existing Big Island wetland and connects to the Big Island high ground at elevation +4.0 feet NGVD. This area starts at the southern end of Channel E and extends 1,000 feet to Big Island. Creating this island lobe would reduce the existing wetland by some three acres. This disposal area has a dredged material capacity of 20,700 cubic yards. Channel E and this disposal area would tie into the existing trail on Big Island to maintain the ingress/egress from the Shell Island Pass side.

Dredged Disposal Area No. 8

This island lobe disposal area is located between Channel A and Channel B on the south side of Channel B. The leg along B extends some 3,000 feet and the A leg some 2,500 feet. Disposal Area 8 has a capacity of 564,200 cubic yards of dredged material.

Optional Dredged Disposal Area No. 9

This marshland disposal area is located along the south bank of Channel A and the west bank of Channel E and stops along the east side of Boudreaux Pass. A rear dike contiguous to the Big Island wetland between Channel E and Boudreaux Pass would prevent spillage into the wetland area and also allow for water circulation. This area would create 96 acres of new marshland and has a capacity of 255,100 cubic yards for dredged material.

Optional Dredged Disposal Area No. 10

This island lobe is located on the north side of Channel A at its intersection with the existing Apache Oil Company Canal. The Channel A leg extends some 1,000 feet and the Apache leg extends 700 feet. This disposal area has a capacity of 30,500 cubic yards for dredged material.

In summary, there are eight disposal areas and two optional areas designed to receive the estimated 3.59 million cubic yards of material to be dredged from the proposed channels. With this material, the Big Island Mining project potentially would create about 800 acres of new marsh and nearly 300 acres of island lobes. Disposal areas shown in Figure 4 have adequate capacity to receive the expected volume dredged from all channels.

4.0 AFFECTED ENVIRONMENT

The Big Island Mining project is located in the coastal area of south-central Louisiana within the Atchafalaya Bay Subbasin of the Atchafalaya River Basin. The Atchafalaya Bay Subbasin consists of the Atchafalaya Bay off St. Mary Parish and a portion of the Gulf of Mexico south of East Cote Blanche Bay and east of Marsh Island. The State of Louisiana owns the land in the Atchafalaya Bay and emergent land is leased and managed as the ADWMA by the LDWF.

The effects of the Atchafalaya River and its prograding delta are a dominant factor influencing the ecology of the project area. From the early 1950's until 1973, prodelta clays and silty clays aggraded the bay bottom seaward of both the lower Atchafalaya River and the Wax Lake Outlet. The 1973 flood resulted in the transport and deposition of abundant quantities of sediments in Atchafalaya Bay. Prior to that flood, only a few small shoals were exposed at low tide, and these areas were primarily created from maintenance of the navigational channel. The 1973 flood resulted in the creation of subaerial lobes on the eastern and western sides of the river outlet, initiating a period of rapid delta development. Since that time, sands have been prograding over finer delta clays and silts and marshlands have expanded rapidly in Atchafalaya Bay (Roberts and van Heerden, 1982). Delta growth, however, has been adversely affected by erosive storm events (van Heerden, 1983) and the presence of a few large spoil disposal areas. The delta complex includes over 12.5 square miles of marshlands which have developed within Atchafalaya Bay since 1972 (van Heerden et al., 1991). This prograding delta has affected the regional hydrologic regime by reducing the storage capacity of Atchafalaya Bay and confining water movement over a smaller surface area. Water circulation patterns have been altered and the freshwater influence in the general vicinity has increased.

The prograding delta has affected the need for maintenance dredging of the Atchafalaya Bay Channel (U.S.Army Corps of Engineers, 1976). As originally authorized by the River and Harbor Act of June 1910 and superseded by the River and Harbor Act of 1968, the USACOE is responsible for maintaining the Atchafalaya River and Bayous Chene, Boeuf, and Black (U.S.Army Corps of Engineers, 1993). The channel follows a route along reaches of the Gulf Intracoastal Waterway and Bayou Chene, through the Avoca Island-Cutoff Bayou drainage channel to the Lower Atchafalaya River, and from there across the Atchafalaya Bay to the 20-foot depth contour in the Gulf of Mexico. To maintain the 20-foot deep, 400-foot wide authorized channel, maintenance dredging has been conducted 16 times since 1975 (Nord, 1995) with much of the material dredged prior to 1987 from the upper segment being placed on what is known as Big Island (Figure 2). Since 1987 and in accordance with the ADWMA Habitat Management Plan, the USACOE has placed most of the dredged material on the eastern side of the navigation channel.

The latest LDWF (1993-94) Annual Report states that the ADWMA is comprised of approximately 137,000 acres of which nearly 20,000 acres have been colonized by vegetative communities. During times of low water, extensive mud flats are exposed (Louisiana Department of Wildlife and

Fisheries, 1993). Big Island is approximately 1,070 acres in size (Figure 2) and is vegetated primarily with wax myrtle (Mvrica cerifera) and willow trees (Salix niara).

4.1 Physical Environment

4.1.1 Geology, Soils and Topography

The Atchafalaya estuary is located between the Mermentau and Terrebonne/Timbalier systems and straddles the western boundary of the Mississippi River Deltaic Plain and the eastern edge of the Chenier Plain. The Atchafalaya Bay with an average depth of **5** feet, is the predominant feature of the estuary and contains two young, active deltas located at the lower Atchafalaya River and Wax Lake Outlet.

The Atchafalaya River is a major distributary of the Mississippi River, carrying about 30 percent of the Mississippi River flow to the coast (U.S. Army Corps of Engineers, 1993). For the past 10 years, approximately 62 percent (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b) of the 236,000 cubic feet per second average daily flow has been conveyed by the lower Atchafalaya with the remainder flowing through Wax Lake Outlet, as shown in Figure 2. The lower Atchafalaya River has conveyed 65 percent and Wax Lake Outlet 35 percent of the average daily suspended sediment load of 221,000 tons. Approximately 40 percent of the suspended sediment entering the bay is deposited in the delta. The subaqueous delta began to form at the mouth of the lower Atchafalaya River between 1952 and 1962 with the introduction of silts and fine sands to the bay. By 1972, the underwater delta front advanced to the Point au Fer shell reef. The spring flood of 1973 produced the first natural subaerial growth in the delta (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b). The combined subaerial expression is now some 17,300 acres and represents the largest area of natural wetland growth in Louisiana (van Heerden, 1994).

The relatively flat inner continental shelf of the Atchafalaya Delta is conducive to sediment deposition and deltaic expansion unlike the seaward transport, sediments to the deeper continental slope off the Mississippi River (Boesch, et al., 1994). Sediments in Atchafalaya Bay are predominantly well sorted silty sand and sandy silt overlying prodelta clays. The delta front and distributary mouth bar deposits are primarily sands. The interior of the subaerial lobes consists of finer silts and clays deposited as a result of an influx of finer sediments (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b). In the shallow waters of the Atchafalaya Bay, resuspension by storm waves is a major mechanism of sediment redistribution. Sediment that bypasses the Atchafalaya and Wax Lake Outlet deltas is being deposited on the shelf seaward of the bay, or pushed westward by long-shore currents (van Heerden, 1994).

Big Island was created just south of the mouth of the river and west of the channel during the 1973 maintenance dredging. Subsequent dredging of the channel with an hydraulic cutterhead dredge and deposition on Big Island has added to the initial island so that elevations of +10 to +12 feet NGVD occur in the interior (Fur and Refuge Division, 1990). Big Island is about 2.4 miles long and 0.7 mile wide and approximately 1,070 acres in size. Big Island is comprised of a mixture of coarser materials, fine sand, silts and clays.

4.1.2 Climate and Weather

The Atchafalaya River Delta area has a hot, subtropical climate which is characterized by long, hot and humid summers, and short, mild and humid winters. Temperatures between May and October average between 88" to 90" Fahrenheit (F). Temperatures of 90"F or higher occur approximately 100 days between May and October with an average humidity of 62 percent.

Winter temperatures between November and April average 69°F with relative humidity between 30-85 percent. Cold spells usually last three days due to the dominance of warm gulf air moving inland from the coast year round. A winter temperature of 32°F or less is expected 15 days per year and there is a 20 percent chance of temperatures falling below 20"F during the winter.

Copious rains fall throughout the year as a result of the dominant coastal air masses moving inland and mixing with continental air. Average annual rainfall is 62 inches per year and heavy thunderstorms occur frequently. Less rainfall usually occurs in the fall months and snow only occurs at intervals of decades. During the past 90 years, six hurricanes and eight tropical storms have passed over the delta, the latest being Hurricane Andrew in August 1992.

4.1.3 Air Quality

Air quality over the delta is good. Air masses are highly unstable in this area due to coastal synoptic weather patterns. There are no industrial or automotive air emissions in the area.

4.1.4 Surface Water Resources

Water Quality

The water quality of surface waters within the Atchafalaya Basin is good. Data from 1991 obtained from the Louisiana Department of Environmental Quality rates surface waters of the Atchafalaya Bay and Delta and Gulf waters to the 3-mile limit as adequate for primary contact recreation, secondary contact recreation, propagation of fish and wildlife, and oyster propagation (Louisiana Department of Environmental Quality, 1994). Isolated areas of oil and gas exploration and agricultural runoff of fertilizer and pesticides in the upper basin cause some concern for water quality. This influence appears to be isolated and does not significantly affect the overall water quality of the basin.

ADWMA personnel (Carloss, 1995) reported isolated cases of avian botulism in the vicinity of new spoil areas between November 1993 and March 1994. Over 600 dead ducks, mainly green-winged teal (Anas crecca carolinensis), were collected along with 196 other birds, primarily peeps.

Salinity

The Atchafalaya Basin is the most stable region in coastal Louisiana in terms of salinity (Boesch et al., 1994). Large amounts of fresh water continue to pass through the system. Saltwater intrusion is rare due to flow from the Atchafalaya River. During most of the year, the salinity is typically below 0.5 parts per thousand (ppt) in the lower Atchafalaya River. Prevailing seasonal winds and entrainment of diluted Gulf waters are secondary modifiers of the salinity isohalines (Orlando et al., 1993).

4.1.5 Storm and Flood Protection

Storm. Wave and Erosion Buffers

The Atchafalaya Delta is the southernmost land area in St. Mary Parish and acts as the first line of defense against seasonal cyclonic storms. On August 26, 1992, Hurricane Andrew made landfall directly over the headquarters of the ADWMA which is located on an island southwest of Big Island.

The presence of deltas at lower Atchafalaya River and Wax Lake outlets has elevated water levels near the coast during floods (backwater effect), causing sediment-rich water to be transported into surrounding marshes (Roberts and van Heerden, 1982).

Erosion and Accretion Patterns

The landscape of the Atchafalaya Bay is constantly evolving due to Atchafalaya River stages, subsidence, cold fronts, waves and currents, and human activities, especially maintenance dredging. During flood years, island growth occurs with channel extension, bifurcation and initiation of narrow and sinuous overbank channels. Small channels fill with fine-grained sediment and gradually coalesce into small subaerial lobes. Along with lobe fusion, the addition of coarse sediments to the landward ends of lobes results in subaerial accretion in an upstream direction (van Heerden et al., 1991).

Winter storm fronts have a significant impact on water surface elevations in Atchafalaya Bay. The southwesterly winds preceding the frontal passage cause a setup of water surface elevations in the bay. As the front passes, the northeasterly winds and water surface gradient push the water out of the bay causing a set down of water levels that exposes much of the delta front to wave action. Subaerial land in the delta is primarily lost during the winter months as a result of these storm fronts (van Heerden and Roberts, 1980). The eroded sediment either remains in the subaqueous portion of the delta and provides a base for future subaerial propagation or is swept from the bay by waves, tides, and riverine currents.

Hurricanes, also cause a drawdown of water levels prior to landfall. As the storm comes into the bay, water levels increase from the storm surge. In this process, storms rework the delta sediments in Atchafalaya Bay. Hurricane Andrew moved about 2 million cubic yards of sediment into the Chene, Boeuf and Black Navigation Channel in August 1992 (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b).

4.2 Biological Environment

4.2.1 Vegetative Communities

In a developing delta, environmental changes such as deposition, erosion, sedimentary compaction, subsidence and levee flank depression control plant invasion and growth. Physical and biotic characteristics that appear to be important in the establishment of plant associations in the Atchafalaya are elevation, sediment deposition rate, sediment grain size, and herbivore activity (Sasser and Fuller, 1988). In their studies of the vegetation in the Atchafalaya Delta, they reported three general patterns of vegetation as:

(1) Species which increased through time and converged on certain elevational zones [water willow (Justicia ovata), elephant ear (Colocasia esculenta), rice cutgrass (Leersia oryzoides), smartweed (Polvnonum punctatum), American bulrush (Scirpus americanus), and cowpea (Vigna luteola)].

(2) Species relatively stable over time with elevational shifts attributable to local erosion or accretion [black willow (Salix niqra), sensitive jointvetch (Aeschvnomene indica), spikerush (Eleocharis sp.), maidencane (Panicum hemitomon), bulltongue (Saqittaria lancifolia), softstem bulrush (Scirpus validus), and cattail (Tvpha domingensis)]; and

(3) Species present over a wide range initially, eventually disappearing at low elevations [wapato (Saqittaria latifolia), purple ammannia (Ammannia coccinea), sedge (Cyperus difformis), pennywort (Hydrocotyle sp.), climbing hempweed (Mikania scandens), delta duckpotato (Saqittaria platyphylla), and chicken spike (Sphenoclea zeylanica)].

Saaittaria marsh was the most important wetland habitat in the Atchafalaya Delta throughout the 1970s (Montz, 1978) and early 1980s but then declined sharply so that by 1986 only 20 percent of vegetated land was Sanittaria (Sasser and Fuller, 1988). Perennial species, Scirpus, water willow, and rice cutgrass replaced the annual Saqittaria sp. Black willow on the highest elevations and cattails on intermediate elevations were relatively stable through time. Vegetation dominating low intertidal marsh on the protected side of delta islands is delta duckpotato which is replaced at slightly higher elevations by wapato (Johnson **et al.**, 1985). American bulrush grows at higher elevations, and is usually more abundant on island "flanks" along secondary river channels. Cattails and bulltongue are found in areas having an intermediate percentage of sand and intermediate elevations.

Submerged aquatic vegetation occurs at the downstream ends of islands with the lowest elevations and lowest percentage of sands. Southern naiad (Naias quadalupensis) dominates in areas too deeply flooded and possibly too cold for emergence of duckpotato (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993b). Wild-celery (Vallisneria americana), plantain (Heteranthera dubia), and pondweed (Potamogeton sp.) appear in shallower water and mud flats (Castellanos, 1994), and with additional accretion, emergent vegetation becomes established. Because the delta area is so dynamic and the waters are so turbid with suspended sediments, submerged aquatic vegetation varies in species, density and location from year to year (Sasser, 1995).

4.2.2 Fish and Wildlife Resources

Few studies of fish and crustacean populations have been conducted in the Atchafalaya Delta. Juneau and Barrett (1975) and Hoese (1976) sampled Vermilion and Atchafalaya Bays with gill nets and otter trawls. Thompson and Deegan (1983) sampled fishes with a trawl and seine in channels and creeks associated with natural and artificial islands. Those researchers reported that the nekton community of the Atchafalaya Delta consisted of freshwater, estuarine, estuarine-marine, and marine fishes and crustaceans with over 100 species recorded. In the waters around Big Island, which, generally, are fresh or low salinity, blue catfish (Ictalurus furcatus), freshwater drum (Aplodinotus grunniens), channel catfish (Ictalurus punctatus), and sunfishes (Lepomis sp.) are most likely to occur (Fur and Refuge Division, 1990). Spotted seatrout (Cvnoscion nebulosus), sand seatrout (Cvnoscion arenarius), black drum (Pononias cromis), red drum (Sciaenops ocellata), blue crab ~~(Callinectes sapidus~~), and penaeid shrimp occur during periods of higher salinities (Hoese, 1976). A study of nekton utilization of vegetated habitats in the Atchafalaya Delta is underway (Castellanos, 1994).

The fresh marsh habitat of the Atchafalaya River Delta supports large numbers of wintering waterfowl. Mallard (Anas platyrhynchos platyrhynchos), canvasback (Aythya valisineria, pintail (Anas acuta), green-winged teal (Anas crecca carolinensis), blue-winged teal (Anas discors), gadwall (Anas strepera), mottled duck (Anas fulvigula maculosa), coot (Fulica americana) and snow geese (Chen hyperborea) are commonly observed (Sasser and Fuller, 1988). The number of ducks utilizing this area in recent years numbered over 200,000 (Fur and Refuge Division, 1990).

In 1990 a census of wading birds and seabird nesting colonies was conducted in Louisiana. Twenty-seven species of colonial nesting waterbirds were studied (Martin and Lester, 1990). At the sample station north of Big Island near the proposed channel, no colonies were reported in 1990 (Martin and Lester, 1990) nor during the 1993 survey (Vermillion, 1995).

4.2.3 Threatened and Endangered Species

The current list of endangered or threatened species was reviewed as part of this assessment. The project area is in the defined range for eagles and sea turtles. No sightings of sea turtles have been reported (McTigue, 1995). Bald eagles (Haliaeetus leucocephalus) have been spotted in the vicinity of Big Island (Carlos, 1995), however, there are no nests in the immediate area. As stated in Appendix B, Biological Assessment Report, the USACOE (1985) stated that "No endangered or threatened species are expected or known to occur in the project area."

4.3 Cultural Environment

4.3.1 Historical or Archeological Resources

The Louisiana coastal waters have been traversed by watercraft since the earliest colonization by Europeans of the region. At present, **42** recorded wrecks have occurred in Louisiana coastal waters and seven have occurred in the Atchafalaya Bay. Due to the dependence on ship travel during the colonization of south Louisiana and the frequency of tropical storms in the area, there is the potential that historical ship remains may be located beneath the sediments that have accumulated during the past four or five decades.

Native American vessel relics might be located in Atchafalaya Bay since the Chitimacha Tribe of Louisiana hunted and fished the entire Atchafalaya Basin. Although the Chitimacha were known to have communities near Grand Lake and the mouth of the Atchafalaya River, no permanent sites have been located in the ADWMA.

In the **EA** for deposition of dredged material within the Atchafalaya Delta, the USACOE (1985) stated that "No National Register properties or other cultural resources are recorded in the area of the proposed work. No impacts to cultural resources are expected and no cultural resources surveys are necessary." A Cultural Resource Assessment Report is contained in Appendix C.

4.3.2 Economics (Employment and Income)

Morgan City and Delcambre, Louisiana, are fishing ports located near the Atchafalaya Bay. The combined value attributed to the commercial fishing landings of these two ports in 1992 was $29.5 million or 2.6 percent of the total value of finfish landings in the continental United States. In 1993, the value dropped to $25.8 million and 2.4 percent (Holliday and O'Bannon, 1994). The overall 1989 value of the commercial fishing industry from all parishes adjacent to the Atchafalaya Basin and possibly influenced by fishery resources from marshes of the delta totaled $74.9 million. The 1990 value of these same industries was approximately $71.7 million (U.S. Army Corps of Engineers, 1994).

In addition to the economic impact from the commercial fishing industry, revenue is generated from recreational wildlife and fisheries activities within the delta. Since the 1970s when the delta became emergent, fishing, hunting and trapping have attracted sportsmen. Many local businesses in St. Mary Parish and especially Morgan City serve this market.

Navigation is an important part of the economy. Bayous Chene, Boeuf, and Black navigation channel completed in 1981, and the Gulf Intracoastal Waterway provide transportation routes for commercial and private traffic. Both Morgan City and Berwick are active ports with oil distribution, marine transportation, shipbuilding, and oil related businesses and industries operating along the riverfront (Louisiana Coastal Wetlands conservation and Restoration Task Force, 1993b).

4.3.3 Land Use

Emergent land in the ADWMA is managed for game and habitat improvement for fish and wildlife. A 5-acre campground and the headquarters for the ADWMA are located on islands southwest of Big Island. Mooring areas for houseboats also are available. There are several sites of hydrocarbon exploration and production located west of Big Island. The vast majority of emergent land is in the various stages of natural delta succession.

4.3.4 Recreation

Big Island and other areas in the Atchafalaya Delta are accessed by boat only, usually launched 25 miles to the north, near Morgan City. Recreational activities are limited to fishing, camping, and hunting and perhaps bird watching because of the remoteness of the location. Hunting activity begins in September with dove season and continues through February with rabbit season (Fur and Refuge Division, 1990). Most of the rabbit hunting takes place on Big Island. Waterfowl season represents the most important hunting season with an average harvest of 2.3 ducks per hunter per day at the main delta during the 1980-88 season. The most important species were green-winged teal (Anas discors), mallard (Anas platyrhynchos), gadwall (Anas strepera), and mottled duck (Anas fulvigula). With the reduction in days and bag limits for the 1988-89 season, the weekday use was 20 hunters and weekend use averaged 75 hunters for a total of 1,700 man/days (Fur and Refuge Division, 1990).

No special hunting permits are required for rabbit, waterfowl (ducks and geese) rails, snipe, coot and gallinules. A daily permit during archery season for deer was instigated in October 1993 (Louisiana Department of Wildlife and Fisheries, 1994). The close proximity of low and high marsh interspersed with bayous and potholes, dry ground and the freshwater of the Bay comprise one of the best waterfowl areas in the state. Bear tracks have been reported on Big Island, however, a sighting has not been confirmed (Carlos, 1995).

Fishing

Because of the large size of Atchafalaya Bay, fishing opportunities are abundant. Commercial fishing varies dramatically with species and time of year. Shrimping during open season (May through August) occurs on the eastern side of the river during the spring season and on the west side during the fall (Fur and Refuge Division, 1990). Sport fishing generally focuses on red drum, but occurs beyond the Big Island area where there is greater salinity influence. During periods of low river flow and rainfall, fishing improves in the more northerly portions of the bay. Commercial crabbing occurs from March through October. Netters (strike, set or seine) utilize the area for different species and seasons. Hoop nets, slat traps and trotlines are other gear used within the ADWMA (Fur and Refuge Division, 1990).

Furbearers and Alligators

Nutria (Myocastor coypus) is the most common furbearer in the delta area although muskrat (Ondatra zioethicus) also occurs there. Trapping probably began soon after emergent vegetation was established in the mid 1970s. Although alligator (Alligator mississippiensis) habitat on the ADWMA is limited, 35 tags were issued for 1994 (Carlos, 1995).

4.3.5 Noise

The delta represents a state-owned, remote area that has no industry other than several oil production platforms located west of the project area. Ambient noise in the area would result from oil and gas exploration, boats, hunters, or wildlife.

4.3.6 Infrastructure

As shown in Figure 3, the Atchafalaya Bay Channel, natural bifurcations and oil and gas access channels constitute the entire transportation network within the Delta. ADWMA personnel maintain trails on Big Island, one of which connects to Dredged Disposal Area No. 7. They also clear areas to plant hardwoods (Carlos, 1995).

5.0 ENVIRONMENTAL CONSEQUENCES

In general, the adverse environmental consequences represented by the no-action alternative far exceed those of the preferred alternative. Without this project, the area north and west of Big Island would remain starved of sediments now transported by the Atchafalaya River Navigation Channel to other areas of the lower Atchafalaya Bay. With the project, subaqueous elevations of the lower Atchafalaya Bay would accrete somewhat slower since some sediments would be diverted.

Construction of the proposed alternatives represents short term adverse impacts which would be offset by the long term environmental benefits. These impacts are insignificant when compared to the creation of 800 acres of coastal wetlands and the protection and enhancement of 600 acres of existing wetlands resulting from implementation of the project. A thorough comparison of the environmental consequences of the preferred alternative is provided below.

5.1 Physical Environment

5.1.1 Geolonv, Soils and Toponraphy

The proposed activity would simulate the natural river delta building patterns by restoring distributory channels and creating island lobes and marshlands configured to help maintain good flow patterns during high stage conditions of the Atchafalaya River. Island lobe disposal areas would be located at the main channel entrance and at the secondary channel confluences. The implementation of the Big Island Mining project initially would create approximately 1,090 acres of freshwater marsh and island lobes. This new marsh (Figure 4) would require approximately 3.6 million cubic yards of dredged material to be placed in eight to ten locations to initiate western delta development. The hydrologic sediment delivery process would be enhanced so that additional wetlands would continue to evolve during the life of the project.

Since sediments dredged from the channels would be the source of material for delta lobe or wetland creation, these previously deposited sediments should be very similar to sediment-laden waters flowing into the Atchafalaya Bay. No potential for contamination is anticipated by use of these sediments since the drainage area has little or no industrial activity.

5.1.2 Climate and Weather

The channels and created wetlands are designed to maintain their integrity for a minimum of 20 years under standard weather conditions. Wetlands are not designed to withstand hurricane conditions and could be damaged by such events. Storms would redistribute sediments to the Atchafalaya Basin or the Bay depending on the direction and force of the winds and currents. Inclement weather could temporarily delay the implementation of the proposed activity. The areas filled with dredged material should vegetate and remain relatively unaffected by weather after compaction.

5.1.3 Air Quality

Minor temporary adverse impacts would result from the proposed activity. Exhaust emissions from construction equipment with airborne pollutants should be dissipated quickly by prevailing winds and be limited to the construction phase of the project.

5.1.4 Surface Water Resources

Short-term adverse impacts to surface water resources would be limited to the designated dredge sites in the Atchafalaya Bay and fill areas of the island lobes and marshlands during construction. Short-term adverse impacts to surface water qual'ty would include increased turbidity in surface waters near the dredge and discharge sites. These impacts would be limited to the construction phase of the project. Because the Atchafalaya Bay is a turbid system, impacts would be minor.

The long-term benefits to surface water resources resulting from the proposed activity include shoreline restoration and marsh protection.

5.1.5 Storm and Flood Protection

Marsh elevations created by this project and the existing adjacent wetlands form the outermost land area of the central Louisiana Coastal Zone and act as the first line of defense against seasonal cyclonic storms. The new channels would provide a minor increase in area to divert Atchafalaya River runoff during high water stages. However this benefit may be offset by the increased wetland areas created by deposition of dredged material.

5.2 Biological Environment

5.2.1 Vegetative Communities

Approximately 30 acres of vegetated wetlands would be removed during the construction of the main distribution channel. An additional 25 acres would be filled to island lobe elevations. Approximately 130 acres of submerged aquatic vegetation would be impacted by construction.

The proposed activity would result in positive long-term impacts on vegetative communities within the project area. The implementation of the Big Island Mining project would initially create approximately 800 acres of freshwater marsh and 280 acres of island lobes. Project engineers estimate that, over the 20-year project life, an additional 2,270 acres of water bottoms would be elevated by 2 feet. Much of this area would become vegetated.

Since there would be over 1 million more cubic yards of material removed from this project than in the original, there should be significantly greater benefits than those predicted by the Wetland Value Assessment team. Those predictions for future benefits were: 230 acres of aquatic vegetation would be benefitted; 360 acres on Shell Island would be protected from storm damage and erosion; and 230 acres enhanced.

5.2.2 Fish and Wildlife Resources

Short-term adverse impacts to fish and wildlife would occur during the construction phase of the project. These impacts include smothering of non-mobile benthic organisms in the deposition sites, possible entrainment by the cutterhead dredge, and increased turbidity in waters near the designated dredge and fill sites. Dikes and the head of island lobes may convert to uplands over the life of the project. Any dikes creating an impoundment would be breached after completion of the project to allow fisheries ingress and egress.

Approximately 2,700 acres within the 137,000 acre ADWMA would be impacted temporarily by dredge and fill activities. These impacts would be limited to the immediate vicinity of construction activity in the shallow bay north of Big Island. The implementation of the proposed activity would not be conducted during the nesting season for migratory birds. Birds and mobile fishery species would be expected to move out of the area directly impacted by dredging and filling.

The channels, dredged to obtain material for wetland creation and to provide for sediment delivery, would impact Noel Island and shallow water bottoms due to the removal of sediment and the increase in turbidity. Since these channels would be approximately 10 feet deep, impacts to water bottom biota would be temporary. Due to increased flows, the sides of the dredged channels may erode.

The proposed activity would improve long-term fishery resources by creating emergent wetlands and shallow resting areas for juvenile aquatic organisms. Detriial material, formed by the breakdown of emergent or submerged vegetation would contribute to the food web of Atchafalaya Bay. Subaerial elevations, void of vegetation, would be used as nesting sites by wading and shore birds. In addition to benefitting fish and wildlife resources, protected inland marsh provides critical habitat for wildlife species during storm events or excessive flooding. Establishing a more natural (bifurcated) channel system would enhance delta development on the western side of the Atchafalaya River Delta.

5.2.3 Threatened and Endangered Species

Bald eagles have been sighted in the area and the presence of black bear is highly probable. No impacts are anticipated to threatened or endangered species due to the absence of construction on Big Island.

The implementation of the project would create over 800 acres of habitat which likely would enhance the food base and foraging habitat suitable for the bald eagle and black bear.

5.3 Cultural Environment

5.3.1 Historical or Archaeological Resources

No impacts are anticipated to historical or archaeological resources within the project area.

5.3.2 Economics

Minor impacts to economic resources would result from the proposed activity. Project engineers estimated that with 4.4 percent of flow diverted from the Atchafalaya Bay Navigation Channel, there would be only a 0.2 percent increase in shoaling of suspended sands. Also, there would be 0.2 percent of bedload shoaling for a total of 0.4 percent increase in sediment deposition. If all sediments were deposited within the first 3,000 feet of the channel, there would be a 2.5 percent increase in maintenance dredging costs.

5.3.3 Land Use

No impacts to current land use would result from the proposed activity.

5.3.4 Recreation

Some temporary adverse short-term impacts to recreation would occur as a result of dredging activity. These would include increased turbidity of surface water and increased noise within the project area during the time of construction.

Long term benefits from the proposed activity would include an increase in fresh water marsh habitat for fish and wildlife species desirable for hunting, fishing or observation.

5.3.5 Noise

Short term adverse impacts would include increased noise associated with dredging the channels and placement of the dredged material. These impacts would be limited to the time of construction.

5.3.6 Infrastructure

No adverse impacts to regional infrastructure are anticipated. Dredging additional channels would benefit navigation by establishing new pathways for access.

6.0 CONCLUSIONS

This EA finds that no significant adverse environmental impacts are anticipated from the implementation of the Big Island Mining project. This conclusion is based on a comprehensive review of relevant literature, site specific data, and project specific engineering reports. This finding supports the recommendations of the CWPPRA Task Force including NMFS, the sponsoring agency. The natural resource benefits anticipated from the implementation of the Big Island Mining project will enhance and sustain the diverse ecosystem found within the Atchafalaya Basin.

7.0 PREPARERS

This EA was prepared by GOTECH, Inc. and C-K Associates, Inc. under contract to NMFS. Sections were written by Mr. Bruce Dyson and Ms. Peggy Jones of GOTECH, Inc. and Mr. Jeff Heaton, Mr. Scott Nesbit and Ms. Laurie Pierce of C-K Associates, Inc. under the direction and guidance of Dr. Teresa McTigue of NMFS. In addition to Dr. McTigue, invaluable reference material and guidance were provided by Mr. Rickey Ruebsamen, Mr. Tim Osborn and Dr. Eric Zobrist of NMFS.

8.0 FINDING OF NO SIGNIFICANT IMPACT

Based on the conclusions of this document and the available information relative to the proposed Big Island Mining project (CWPPRA Project PAT-7), there will be no significant environmental impacts from this action. Furthermore, preparation of an Environmental Impact Statement for cutting a channel and establishing island lobes and marsh elevations with the dredged material is not required by the National Environmental Policy Act or its implementing regulations.

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Rolland A. Schmitten Date
Assistant Administrator for Fisheries
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APPENDIX A

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LITERATURE CITED

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APPENDIX B

BIOLOGICAL ASSESSMENT REPORT

BIOLOGICAL ASSESSMENT REPORT

The current list of endangered or threatened species was reviewed as part of this Environmental Assessment. This review indicated that the proposed project area is in the defined range for eagles, falcons and sea turtles. No sightings of sea turtles have been reported within the prograding Atchafalaya Delta (McTigue 1995). Bald eagles (Haliaeetus leucocephalus) and several species of falcons (Falconidae) have been spotted in the vicinity of Big Island, however, there are no known nests in the project area (Carlos 1995).

Additional evidence suggesting that the proposed activity will have no adverse impacts on threatened and endangered species is contained in a 1985 Environmental Assessment prepared by the USACOE for the Deposition of Dredged Material Within the Developing Atchafalaya River Delta. This report states, "no endangered or threatened species are expected or known to occur in the project area." A "Finding of No Significant Impact" was issued for project on August 28, 1985. A copy of this report follows.

The NMFS is undertaking the required coordination and consultation for this project area pursuant to the requirements of the Endangered Species Act.

ATCHAFALAYA RIVER AND BAYOUS CHENE, BOEUF, AND BLACK, LOUISIANA:

DEPOSITION OF DREDGED MATERIAL WITHIN THE DEVELOPING ATCHAFALAYA RIVER DELTA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Description of Action. This action involves the disposal of dredged material from the lower Atchafalaya River on the east side of the channel in the developing delta. By doing so, no additional fresh marsh behind the currently used disposal areas on the west side would be disturbed, and the eroding delta islands on the east side could be rehabilitated.

Factors Considered in Determination. The Environmental Assessment (EA) has determined that there would be no significant impacts on the human environment. Approximately 100 acres of aquatic bottom habitat and tidal mudflats and a small amount of scrub-shrub habitat could be impacted.

Public Involvement. Upon signature of the FONSI, a Notice of Availability will be sent to concerned Federal, state, local, and other organizations and individuals known to have an interest in the proposed project. The proposed project has already been coordinated with the US Fish and Wildlife Service; National Marine Fisheries Service; Louisiana Department of Wildlife and Fisheries; and Louisiana Department of Natural Resources, Coastal Management Division. A copy of the FONSI and EA will be sent to the Environmental Protection Agency for review under The Clean Air Act. Any inquiries should be directed to Dr. Steve Mathies, (504) 838-2525.

Conclusion. This office has assessed the environmental impacts of the proposed action and has determined that the action would have no significant impact upon the human environment. Therefore, no Environmental Impact Statement will be prepared.

28 Aug 85

Date

Eugene S. Witherspoon
Colonel, Corps of Engineers
District Engineer

ATCHAFALAYA RIVER AND BAYOUS CHENE, BOEUF, AND BIACK, LOUISIANA:
DEPOSITION OF DREDGED MATERIAL WITHIN THE DEVELOPING
ATCHAFALAYA RIVER DELTA

ENVIRONMENTAL ASSESSMENT

1. INTRODUCTION

1.1. Purpose. This assessment has been prepared to examine the environmental impacts of the deposition of dredged material within the developing Atchafalaya River delta and the need for an Environmental Impact Statement. Currently, the area to the west of the lower Atchafalaya River within the delta is environmentally cleared and is being used for the disposal of dredged material from the river. The continued use of these disposal sites would threaten or destroy varying amounts of productive fresh marsh. Additionally, some of the islands on the east side of the river channel have undergone substantial erosion over the past few years. By disposing of dredged material on the east side of the developing delta, we feel that the effects of erosion on the delta islands could be negated. Also, the marsh habitat' behind the currently used disposal sites would be preserved from destruction caused by the deposition of dredged material.

1.2. Authorization. . The River and Harbor Act of 1968 (Public law 90-483) authorized the Corps involvement maintaining a navigational channel through the developing Atchafalaya delta. The Corps was directed to construct and maintain a 20-by 400-foot channel from the vicinity of the U.S. Highway 90 crossing over Bayou Boeuf to the Gulf of Mexico.

1.3. Alternatives. In consultation with representatives of the U. S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Louisiana Department of Wildlife and Fisheries, and the Center for Wetland Resources at Louisiana State University, numerous disposal sites were evaluated. They agreed that future disposal should be allowed on the east side of the channel. The specific areas to be disposed upon would be selected prior to the initiation of work so as to maximize the environmental benefits to be derived from such action.

1.4. Project Description. This action involves the disposal of dredged material from the lower Atchafalaya River on the east side of the channel in the developing delta (see plates 1 and 2). By doing so, no additional fresh marsh behind the currently used disposal areas on the west side would be disturbed, and the eroding delta islands on the east side could be rehabilitated.

2. ENVIRONMENTAL IMPACTS

2.1. The proposed action could eventually impact as much as 100 acres of aquatic bottom and tidal mudflats and a small amount of scrub-shrub habitat due to the direct disposal of dredged material. Marsh habitat is expected to develop behind the stabalized eastern deltaic islands. Quantities and quality of marsh will be forecast in a report concerning delta management alternatives to be released in late 1986. Resident benthic communities in the impact area would be destroyed. Benthic recolonization would occur; however, recovery time would depend upon the biology of the affected benthos. The more mobile aquatic organisms, such as fishes, would vacate the affected area, and, therefore, not be affected.

2.2. Elevated turbidity levels resulting from construction activities would have a negligible impact on adjacent benthic and fish communities. Within the impact area, elevated turbidity levels would be localized and short termed.

2.3. Project implementation could impact a small amount of scrub-shrub habitat (eastern baccharis, marsh elder, and black willow). Existing vegetation and slow moving terrestrial organisms would be destroyed. The scrub-shrub community is of low habitat quality; however, it does provide good habitat for rabbits. The loss of acres of this habitat type would

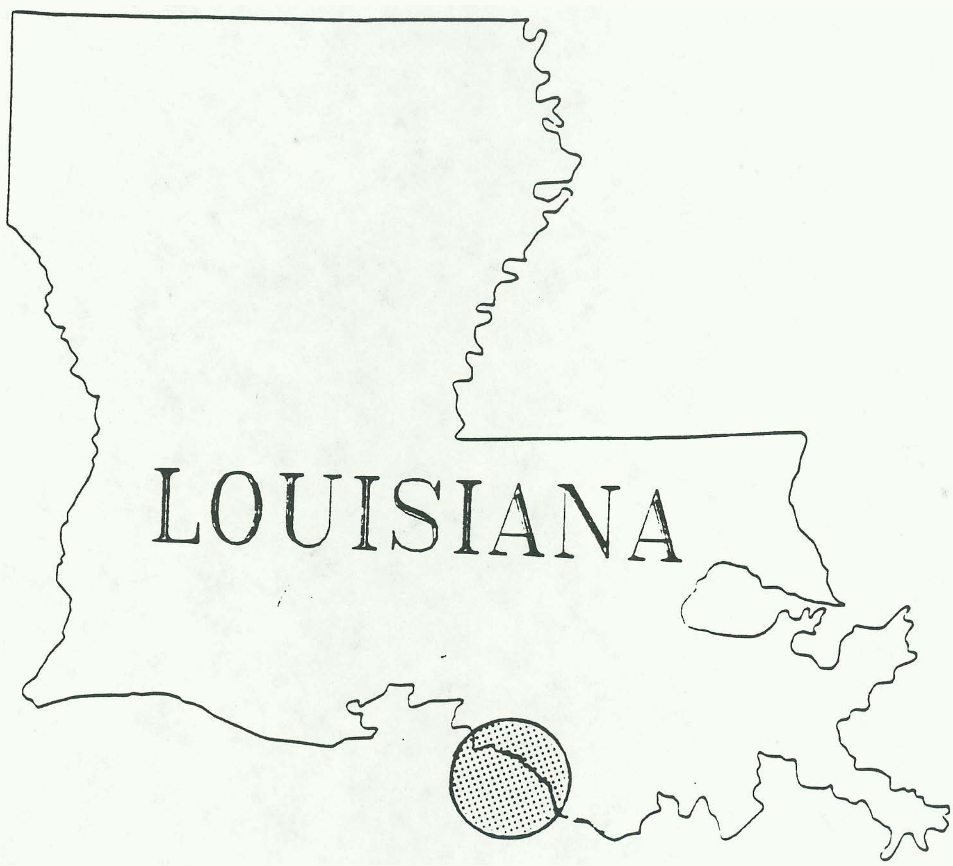

Plate 1. General Location

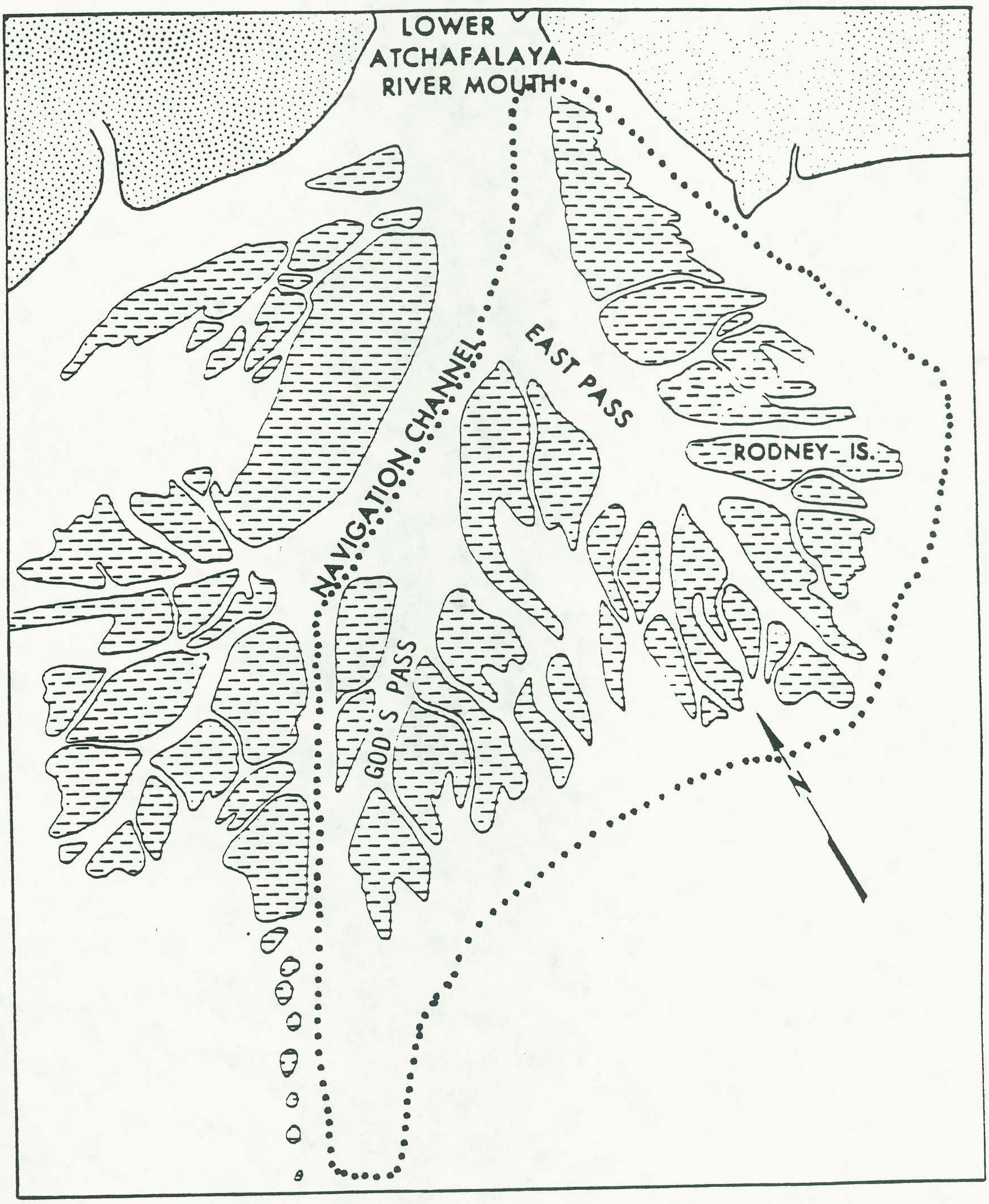

Plate 2. Designation of Deposition Area

have a localized adverse impact on small game, such as rabbits, and on song birds which use the woody shrubs for nesting and roosting. Given the amount of scrub-shrub habitat available in the general vicinity of the project, the overall loss of acres would be negligible.

2.4. No endangered or threatened species are expected or known to occur in the project area.

2.5. No National Register properties or other cultural resources are recorded in the area of the proposed work. No impacts to cultural resources are expected and no cultural resources surveys are necessary.

2.6. The proposed action would be consistent with the Louisiana Coastal Zone Management Guidelines (see Appendix A).

3. FACTORS CONSIDERED AND ESTIMATED IMPACTS

TABLE 1

	Not Appli- cable	Negli- gible	Undeter- minded	Beneficial Major	Beneficial Minor	Adverse Major	Adverse Minor
SOCIAL IMPACT							
Archeological Sites		X					
Community Cohesion		X					
CZM Plans		X					
Esthetics		X					
Historic Sites		X					
Land Use		X					
Noise		X					
People Displacement							
Public Health & Safety		X					
Recreation & Rec. Navigation							
NATURAL RESOURCES IMPACTS							
Air Quality		X					
Beach Accretion	X						
Ground Water		X					
Public Water Supplies	X						
Soil Erosion/Bank Erosion				X			
BIOLOGICAL IMPACTS							
Aquatic Habitat							X
Biological Productivity		X					
Endangered Species		X					
Existing Vegetation							^
Habitat Diversity		X					
Terrestrial Habitat							X
Threatened Species		X					

4. COORDINATION

4.1. The following Federal and state agencies were consulted and their input utilized in the formulation of this action:

a. U.S. Fish and Wildlife Service, Ecological Services, Lafayette Area Office

b. U.S. Environmental Protection Agency, Region VI

c. Louisiana Department of Wildlife and Fisheries

4.2. The following Federal and state agencies were contacted regarding the proposed project:

a. U.S. National Marine Fisheries Service, Galveston, Texas

b. Louisiana Department of Natural Resources, Coastal Management Division

4.3. None of the Federal or state agencies contacted objected to the proposed, project. All of the agencies contacted will receive a copy of both the FONSI and EA.

4.4. A copy of the FONSI, EA, and Section 404 (b)(1) Evaluation (Appendix B) will be sent to the Environmental Protection Agency for review under the Clean Air Act.

4.5. A copy of the FONSI, EA, and our Consistency Determination (Appendix A) will also be sent to the Louisiana Department of Natural Resources, Coastal Management Division. This correspondence will conclude our coordination responsibilities with this agency.

4.6. A Notice of Availability of the FONSI will be mailed to the following concerned Federal, state, and other organizations and individuals known to have an interest in the proposed project.

J. Bennett Johnston, US Senator
Russell B. Long, US Senator
William "Billy" Tauzin, US Congressman

St. Mary Parish Police Jury, President
Terrebonne Parish Police Jury, President
City of Morgan City, Mayor

Eighth Coast Guard District, Commander
Louisiana Department of Transportation, Office of Public Works
State Historic Preservation Officer
Louisiana Department of Environmental Quality
Ecology Center of Louisiana
Orleans Audubon Society, c/o Mr. Barry Kohl
Delta Chapter Sierra Club, New Orleans, LA

5. COMPLIANCE WITH REGULATIONS

Compliance of the project with applicable Federal and state regulations is located in Table 2.

6. CONCLUSION

The deposition of dredged material on the east side of the lower Atchafalaya River channel in the developing delta would have negligible impacts on the human environment; therefore, no Environmental Impact Statement will be prepared.

Steve Mathies
Steve Mathies
Preparer

Suzanne R. Hawes
Suzanne R. Hawes
Chief, Environmental Quality Section

SRHawes for JCW
John C. Weber
Chief, Environmental Analysis Branch

Cletis R. Wagahoff
Chief, Planning Division

TABLE 2

THE RELATIONSHIP OF FORESHORE PROTECTION TEST SECTION TO APPLICABLE REQUIREMENTS

FEDERAL POLICIES	COMPLIANCE
Archeological and Preservation Act	Partial 1/
Clean Water Act	Partial 2/
Qean Air Act	Full
Coastal Zone Management Act	Full
Endangered Species Act	Full
Estuary Protection Act	N/A
Federal Water Project Recreation Act	Full
Fish and Wildlife Coordination Act	Full
Floodplain Management (E. O. 1988)	N/A
Land and Water Conservation Fund Act	N/A
Marine Mammal Protection Act	N/A
Marine Protection Research and Sanctuaries Act	N/A
National Environmental Policy Act	Full
Prime and Unique Farmlands, CEQ Memorandum	N/A
Protection of Wetlands (E. O. 11990)	N/A
River and Harbors Appropriation Act	N/A
Water Resources Planning Act	N/A
Watershed Protection and Food Prevention Act	N/A
Wild and Scenic Rivers Act	N/A
STATE POLICIES	
Air Control Act	Full
Louisiana Coastal Zone Management Plan	Full
Protection of Cypress Tress (E.O. 1980-3)	Full
Water Control Act	Full

1/ Full compliance will be achieved when letters of consultation are received from the State Historic Preservation Officer.

2/ Full compliance will be achieved when the State of Louisiana Water Quality Certificate is obtained.

APPENDIX C

CULTURAL RESOURCE ASSESSMENT REPORT

CULTURALRESOURCE ASSESSMENTREPORT

No adverse impacts to cultural resources are anticipated from the proposed activity. This finding is based on an environmental assessment prepared for the Deposition of Dredged Material within the Developing Atchafalaya River Delta (USACOE 1985). This report states the following:

> "No National Register properties or other cultural resources are recorded in the area of the proposed work. No impacts to cultural resources are expected and no cultural resources surveys are necessary."

A copy of this report is found in Appendix B, Biological Assessment Report.

SENT BY:C-R ASSOCIATES ; C-R & ASSOC

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

DEC - 4 1995

RECEIVED
DEC 07 1995

Mr. Bruce Dyson, P.E., P.L.S.
GOTECH, Inc.
8383 Bluebonnet
Baton Rouge, LA 70810

Dear Mr. Dyson:

Enclosed please find comments from the U.S. Army Corps of Engineers, the State of Louisiana Department of Environmental Quality, the U.S. Natural Resources Conservation Service, and the U.S. Fish and Wildlife Service on the draft environmental assessment prepared for the Big Island Mining project. They are being provided for use in GOTECH's preparation of a final draft environmental assessment for this project per the requirements of the statement of work for Task Order Solicitation Number #56-DKNF-5-10004.

If you have any questions, please do not hesitate to call me at (301) 713-0174.

Sincerely,

Rachel M Smyk

Rachel M. Smyk
Program Specialist

We need/ direction n., t-t
statements / questions

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 80257
NEW ORLEANS, LOUISIANA 701604262

REPLY TO ATTENTION OF:

November 22, 1995

Planning Division
Environmental Analysis Branch

Mr. Tim Osborn
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Restoration Center F/PR 5
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Mr. Osborn:

We have reviewed the Environmental Assessment for the Big Island Mining project (XAT-7) in St. Mary Parish, Louisiana, and are offering comments for your consideration (enclosures 1 and 2). Thank you for the opportunity to comment on this document. If you have any questions concerning these comments, please contact Ms. Suzanne Hawes at (504) 862-2518.

Sincerely,

R. H. Schroeder, Jr.
Chief, Planning Division

Enclosures

GENERAL COMMENTS

We recommend that this project be brought back before the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) Task Force because design, cost, and benefits have drastically changed since the Second Priority Project List Report.

a) The original design included "mining" the dredged material in Big Island and placing the material in delta lobes to expedite wetland formation. New design is a new distributary channel north of Big island with some material from this channel being placed to build delta lobes to facilitate wetland creation and the remainder of the material being used to create marsh.

b) The project cost has apparently risen by 41 percent (total fully funded *cost* = $4,136,100, Page D-57, Second Priority Project List Report versus $5,843,500 on page 15 in the subject Environmental Assessment (EA)).

c) The Wetland Value Assessment in the Second Priority Project List Report indicated initial creation of 340 acres of marsh and future accretion of 1224 acres for a net gain of 1564 acres. The subject EA on page 29 indicates a net gain of 1200 acres.

No WVA for revised project. Figured value

We are not sure that even 800 acres can be initially created. As we stated in our letter of June 26, 1995, to your Mr. Zobrist, boring data available to us indicates that material below -6 feet (ft.) NGVD is prodelta clays. The initial height of 1.5 ft. NGVD for marsh creation sites is probably too low. Work done on Big Island by the COE in the mid-70's indicates that the upper limit of marsh elevation was slightly over 2.0 ft. NGVD. Page 12 of *your* EA states that the average tidal height on the Amerada Hess gage is +0.8 ft. NGVD. With the compaction that will occur with clays, very *Little* marsh will remain after a few years. We strongly suggest that you acquire boring data to accompany this EA.

The project description does not discuss the possibility that the project may require maintenance to keep the channel bifurcations open. As you mention on gage 5, some of the bifurcations on the east aide of the channel have sealed off. If this happens behind Big Island, your predicted marsh accretion will not occur. If maintenance is necessary, costs would increase,

Needs attention

→ Reg can do

SPECIFIC **COMMENTS**

The acres of marsh created initially and those predicted to occur in the future are not consistent within *the EA.*

Page 5 states 800 acres *created* initially.

Page 27 says *850* acres created initially.

Page 19 says overall 1,800 acres *of* marsh created.

Page 24 *states* overall 1,200 acres *of* marsh created.

Page 8 - If Figure 4 were less "busy", Alternative 3 would be easier to understand. The Figure should clearly show the existing *features* in the delta and simply indicate the proposed project features.

Page 8, Figure 4 and Page 13, Figure 5 - both these indicate dikes to contain dredged material. The discussion of impacts to fish and wildlife resources on Page 30 should include a description *of* the reduction in access for marine and estuarine organisms caused by these dikes. The project description should include dike breaching, if that is possible.

Page 9, last paragraph (and page *28*, 6th full paragraph) - The estimates given *here* about acres enhanced and *protected are* rough estimates from the CWPPRA Main Report and have been replaced by the WVA figures quoted above.

Page 12, second full paragraph - If the maximum height on the Amarada Hess gage is 3.0 ft. NGVD, it is unlikely that lobes with a settled elevation between *2.5 and 2.75* ft. NGVD would support marsh vegetation.

Page 12 - The EA would be more informative if plates for Alternatives 1, *2*, 4, and 7 were included.

Page 17 - If the channels behind Big Island are supposed *to* mimic natural bifurcations as paragraph five states, why does Channel E leave Channel A *at* 103 degrees when all the other tertiary distributaries leave at 45 *degrees?*

Page 27, Plate 4 indicates a road on Big Island, this is not mentioned here.

Page 27 - the impacts of the No Action alternative need to be discussed. Especially, the EA does not take into account *the* fact that the sediment that would accrete behind Big Island in the future with project would probably accrete to form marsh somewhere else in the LAR delta without this project, Page 28, 6th full paragraph - the "additional* 400 acres of marsh to be created by accretion should be mentioned here, with a description of the rationale for such accretion.

Page 30, Economics - the impacts to navigation caused by dredging of the new channel should be discussed here.

State of Louisiana

Department of Environmental Quality

Edwin W. Edwards
Governor

William A. Kucharski
Secretary

NOV 15 1995

950086

U. S. Dept. of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Silver Springs, Maryland 20910

Attention: Dr. Erik C. Zobrist

Gentlemen:

RE. Big Island Mining CWPPRA Project XAT-7, St. Mary Parish.

We have reviewed your submittal for the above referenced proposal, and have no objection to the proposed work, provided that all practicable means are utilized to minimize any discharge of water pollutants that can result from the proposed project. If the Corps of Engineers determines that the proposed activity requires a Federal permit under Section 404 of the Clean Water Act, or if the proposed activity will result in a discharge to the waters of the state, you should contact this office for the necessary certification or permits.

Thank you for the opportunity to review this proposal.

Sincerely,

Larry Wiesepape
Certifications Coordinator

United States
Department of
Agriculture

Natural Resources
Conservation Service

3737 Government Street
Alexandria, Louisiana
71302

November 6, 1995

Mr. Erik Zobrist (F/HPS)
National Marine Fisheries
Building III, 12th Floor, Room 714
1315 East-West ,Highway
Silver springs, Maryland 20930

Dear Mr. Zobrist:

RE: Draft EA of the Big Island Mining Project

The Natural Resources Conservation Service has reviewed the above referenced document. Our only concern is the cost of the selected alternative is over 40 percent higher then the fully funded cost of the project when it; was approved. Thank you for the opportunity to review this environmental assessment.

Sincerely,

Bennett C. Landreneau
Assistant State Conservationist
Water Resources

CC: Britt Paul, Water Resources Planning Staff Leader, NRCS, Alexandria

United States Department of the Interior

FISH AND WILDLIFE SERVICE
825 Kaliste Saloom Road
Brandywine Bldg. II, Suite 102
Lafayette, Louisiana 70508

November 21, 1995

Erik C. Zobrist, PhD
Project Manager Restoration Center, F/HP5
National Marine Fisheries Service
3315 East West Highway, Room 12714
Silver Spring, Maryland 20910

Dear Dr. Zobrist:

We have reviewed the draft environmental assessment (EA) for the Big Island Mining Project in Atchafalaya Bay. St. Mary Parish, Louisiana. The EA was transmitted by your October 16, 1995 letter to this office. The project is being funded by the Coastal Wetlands Planning, Protection and Restoration Act. We have reviewed the information provided relative to the National Environmental Policy Act 1969 and the Endangered Species Act of 1973 (as amended), and provide the following comments.

General Comments

Overall, the EA adequately describes the impacts of the project to fish and wildlife resources. The section that addressed alternatives was done particularly well. Of the several alternatives identified and evaluated, the one selected was, in our opinion, best suited for creating coastal wetlands with available funding, while causing only minor adverse environmental impacts.

Specific Comments

Page 3, paragraph 6 - The comments regarding land loss and gain in the active Mississippi River delta are misleading and should be clarified. The EA references a report by Barras et al.(1994) that documented extensive land loss in the delta for the period from 1956 to 1978. That report, however, also compared loss rates for that period and more recent conditions(1990) and showed that the delta experienced the greatest reduction in loss rates of all coastal Louisiana basins. The net loss rate declined by 73 percent, Although the report does not specifically identify the causes for this ahange, Plate 9 of the report shows many sites where delta splays have formed along distributary passes in the active delta.

Page 12, Section 3.3 Alternatives - This section describes the various alternatives considered in the EA. A drawing depicting thr alternative channel alignments and marsh creation sites would be helpful in understanding the spatial relationship between the navigation channel, Big Island, Shell Island Pass, marsh creation sites, and alternative channel alignments.

Page 20, paragraph 2 - The EA should note that the dredged material disposal plans described in this paragraph refer only to the bay reach of the Federal navigation channel. Disposal plans far other reaches do not necessarily follow the same format.

Page 24, Section 4.2.3 Threatened and Endangered Species - The only previously listed falcon species expected to occur in the project area is the Arctic peregrine falcon; however, that species was recently delisted. Therefore falcons need not be discussed in this section or in Section 5.2.3 on page 30.

This section and Section 5.2.3 should include the threatened Louisiana black bear as bear tracks were observed on Big Island (as noted on page 26 of the EA).

The threatened and endangered species section on page 25 references an EA prepared by the Corps of Engineers in 1985 which states that no threatened or endangered species occur in this portion of Atchafalaya Bay. This statement could be confusing to the reader because it contradicts preceding statements regarding the defined range and sightings of listed species. In recent years the number of bald eagle nesting territories located in coastal wetlands north of Atchafalaya Bay has increased substantially and several nesting territories have recently become established much closer to tha bay than the older territories. Therefare, we suggest the 1985 reference be deleted from this section but retained in the biological assessment report: (Appendix B) as supportive information.

The Fish and Wildlife Service concurs in the findings of the EA and supports implementation of the: project; that project will create and enhance wetlands, and will provide valuable information for developing future plans to optimize wetland development in the Atchafalaya Delta.

Please contact Gerry Bodin or this office (318) 262-6662, extension 244, if questions arise.

Sincerely,

Russell C. Watson

Russell C. Watson
Acting Field Supervisor

SENT BY:C-K ASSOCIATES

NATIONAL MANNE FISHERIES SERVICE
RESTORATION CENTER, F/HP5
1335 East West Highway
Silver Spring, MD 20910

DATE: October 16, 1995

TO: Bruce: Dyson
PHONE: 504-766-5358
FAX: 504-766-5879

RECEIVED
OCT 19 1995

Number of Pages, Including Cover: 7

FROM: Erik Zobrist
PHONE: 301-713-0174
FAX: 301-713-0184

Hi Bruce,

Here are copies of comments we have received for the Atchafalaya Sediment Delivery EA. Please let me know if I can be of assistance. Thanks.

~~Erik~~
Erik

Needs further information

✓ Peggy has corrected

All figures in EA have been checked against engineering drawings
Dredged amounts and disposal capacities are from earlier information.

State of Louisiana

EDWIN W. EDWARDS
GOVERNOR

JACK McCLANAHAN
SECRETARY

DEPARTMENT OF NATUHAL RESOURCES

September 13, 1995

Dr. Erik C. Zobrist
National Marine Fisheries Service
1335 East-West Highway
Silver Spring, MD 20910

RE: C950332, Coastal Zone Consistency
National Marine Fisheries Service
Direct Federal Action
Comments an draft Environmental Assessment of the Atchafalaya Sediment Delivery Project PAT-2
St. Mary Parish, Louisiana

Dear Dr. Zobrist:

The draft Environmental Assessment for the above referenced project has been reviewed by this Department. Section 4.1.5 states that the presence of the Atchafalaya River deltas have increased the elevation of coastal wafers in St. Mary Parish. While the EA mentions that the new channels will provide "a minor increase in area to divert Atchafalaya River runoff during high water stages" (Section 5.1.5), it does not give an estimate of the increase of flood waters in the Lower Atchafalaya River especially in the vicinity of Morgan City. Please include in the final EA a discussion of these increases. Thank you for the opportunity to review this document. If you have any questions please contact Mr. Ben Kropog of the Consistency Section at (504)342-7939.

[illegible]

Look for [illegible] van Heerden, 1992 & other references

Sincerely,

Terry W. Howey
Terry W. Howey,
Administrator

TWH/JDH/bjk

COASTAL MANAGEMENT DIVISION P.O. BOX 44487 BATON ROUGE, LOUISIANA 70804-4487
TELEPHONE (504) 342-7591 FAX (504) 3199139

United States
Department of
Agriculture

Natural Resources
Conservation Service

3737 Government Street
Alexandria, Louisiana
71302

September 1, 1995

Mr. Erik Zobrist
National Marine Fisheries Service
1315 East West Hwy.
Room 12747
Silver springs, Maryland 20910

Dear Mr. Zobrist:

RE: Comments on draft EA of the Atchafalaya Sediment Delivery Project

Thank you for the opportunity to review the above referenced. Our comments are listed below:

Pg 4, 2nd para., 8th line - 24,600 cubic Zest per second... ✓
Pg 6, 4th para., 6th line - sealing off the of these... ✓
Pg 14, Sec. 3.1 - What is the current gain/loss rate in the project area? What is predicted for the life of the project.
Pg. 32, Table 1 - Are the units for each column, acres?

Sincerely,

Bennett C. Landreneau
Assistant State Conservationist
Water Resources

cc: Britt Paul, Water Resources Planning Staff Leader, NRCS, Alexandria

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT. CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF:

October 4, 1995

Operations Division
Operations Technical Support Branch

Mr. Erik Zobrist
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Mr. Zobrist:

We have reviewed the draft Environmental Assessment of Atchafalaya Sediment Delivery CWPPRA project PAT 2 and provide the following general and *specific* comments and recommendations:

a. Figure 5. We believe that based on current Louisiana Department of Wildlife and Fisheries maps that Gary Island and Ibis Island were mislabeled in this figure.

b. Based on current Corps of Engineers policy related to the discharge of Dredged Material Into Waters of the U.S., the New Orleans District running out of sites within the upper Atchafalaya Bay to placed dredged material beneficially. Therefore, we recommend that PAT 2 disposal sites are located as far away from the Atchafalaya navigation channel as practicable.,

c. We recommend the grain size characteristics of the shoal be sampled to determine if the material is of coarse enough grain size that containment dike construction unnecessary. During Fiscal Year 1994 and Fiscal Year 1995 fairly coarse grained material was removed from the navigation channel in the vicinity of the PAT 2 dredging site and placed unconfined (post construction surveys *of* East Pass *indicate material* has not: moved into the channel).

d. Based on the configuration of existing features in the Atchafalaya Basin, we recommend that your disposal sites *be* modified to better mimic natural U-shaped features developing within *the* delta. Additionally, we recommend that the diamond shaped disposal area 3 be modified to an open U-shaped feature that includes interchange areas fox water and fisheries. Incidents of avian botulism in the Delta Wildlife Management Area have occurred in areae with standing water, Disposal area 3, as designed, may impound water.

If you have any questions about our recommendations, please feel free call Dr. Linda G. Mathies (504) 862-2318 or Beth Nard at (504) 862-2504.

Sincerely,

Linda G. Mathies

Linda G. Mathies

SENT BY:C-R ASSOCIATES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
825 Kaliste Saloom Road
Brandywine Bldg. II, Suite 102
Lafayette, Louisiana 70508

September 14, 1996

RECEIVED
SEP 19 1996
RESTORATION CENTER

Erik C. Zobrist, Ph.D.
Project Manager
Restoration Center, F/HP5
National Marine Fisheries Service
1315 East West Highway, Room 12714
Silver Spring, Maryland 20910

Dear Dr. Zobrist:

We have reviewed the draft Environmental Assessment (EA) for the Atchafalaya Sediment Delivery Project in Atchafalaya Bay, St. Nary Parish, Louisiana. The EA was transmitted by your August 16, 1995, letter to this office. The project is being funded by the Coastal Wetlands Planning, Protection and Restoration Act. The following comments are provided in accordance with provisions of the National Environmental Policy Act 1969 and the Endangered Species Act of 1973, as amended.

Overall, the EA adequately describes the impacts of the project to fish and wildlife resources. The following comments address our specific concerns.

Falcons are included in the threatened and endangered species discussion in Section 4.2.3 on page 25. The only listed falcon species expected to occur in the project area is the Arctic peregrine falcon; that species was recently removed from the Federal list of threatened and endangered species. Therefore, falcons need not be discussed in this section or in Section 5.2.3 on page 33.

The threatened and endangered species section on page 25 references an EA prepared by the Corps of Engineers in 1985 which states that no threatened or endangered species occur in this portion of Atchafalaya Bay. This statement contradicts preceding statements regarding the defined range and sightings of listed species. In recent years the number of bald eagle nesting territories located in coastal wetlands north of Atchafalaya Bay has increased substantially. Several of the recently established nesting territories are much closer to the bay than the older territories. Therefore, we suggest that the 1985 reference be deleted from this section but retained in the biological assessment (Appendix B) as supportive information.

The EA notes that waterfowl hunting is the most popular form of recreation on the Atchafalaya. Delta Wildlife Management Area. Section 5.3.4 (Recreation) should note that the proposed work would be conducted in and adjacent to popular waterfowl hunting sites and could temporarily interfere with hunter access in much of the East Pass area, if it is implemented, as planned, in the fall. The assessment should consider avoiding this potential impact by scheduling the work outside the waterfowl hunting season.

The Fish and Wildlife Service concurs in the findings of the EA and supports implementation of the project; that project will create and enhance wetlands, and will provide valuable information for developing future plans to optimize wetland development in the Atchafalaya Delta.

Plaan contact Gerry Bodin of this office (318) 262-6662, extension 244, if questions arise.

Sincerely,

David W. Fruge

Field Supervisor

UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

August 19, 1996

MEMORANDUM FOR: Rolland Schmitten
Assistant Administrator
for Fisheries

FROM: Donna S. Wieting, Acting Director
Office of Ecology and Conservation

SUBJECT: Finding of No Significant Impact on the Big Island Mining Restoration Projects in St. Mary Parish, Louisiana

On the basis of the information presented in the subject environmental assessment, I concur in your determination that the proposed action will not have a significant effect on the human environment in accordance with the Council on Environmental Quality's regulations implementing the National Environmental Policy Act. Therefore, a finding of no significant impact is appropriate.

Enclosures