Appendix I

OYSTER RESOURCES

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE & FISHERIES

ROBERT J. BARHAM
SECRETARY

July 16, 2009

Karl Morgan, Acting Administrator
Louisiana Department of Natural Resources
Coastal Management Division
P.O. Box 44487
Baton Rouge, LA 70804-4487

RE: *Consistency Number: C20090032*
Applicant: COE-NOD
Notice Date: January 20, 2009
Location: Mississippi Sound

Dear Mr. Morgan:

The professional staff of the Louisiana Department of Wildlife and Fisheries (LDWF) has reviewed the public notice referenced above. The following recommendations have been provided by the appropriate biologist(s):

Fisheries:
Although Marine Fisheries staff has been briefed on plan formulation and WVA evaluations, we believe that dredged material should be used beneficially to the maximum extent possible. Per current oyster seed ground management policy, expanding existing Confined Disposal Areas 17 and C/D to upland elevation is acceptable within the pre-existing right-of-way, however, any additional expansion as proposed in the January 2009 Calcasieu River and Pass DMMP into the historic Calcasieu Lake waterbottom must be constructed to marsh elevation.

The Louisiana Department of Wildlife and Fisheries appreciates the opportunity to review and provide recommendations to you regarding this proposed activity. Please do n ot hesitate to contact Christy Lavergne at 225-765-2386 should you need further assistance.

Sincerely,

Randy Pausina
Assistant Secretary

c: Christy Lavergne, Biologist Supervisor
Heather Finely, Biologist Program Manager
Kyle Balkum, Biologist Program Manager

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

September 19, 2008

REPLY TO
ATTENTION OF

Planning, Programs and
Project Management Division
Environmental Planning
And Compliance Branch

Ms. Karen Foote
Louisiana Department of Wildlife and Fisheries
Post Office Box 98000
Baton Rouge, Louisiana 70898

Dear Ms. Foote:

This letter is in reference to the Calcasieu River and Pass, Louisiana Dredged Material Management Plan and Supplemental Environmental Impact Statement.

The U.S. Army Corps of Engineers, New Orleans District (CEMVN), in conjunction with the Port of Lake Charles (the local sponsor for the study), requests a waiver of oyster seed ground mitigation requirements stemming from impacts to the historical water bottom of Calcasieu Lake. Impacts would result from the expansion of confined disposal facilities (CDFs) 17 and D/E and from the creation of 466 acres of intertidal marsh.

The Calcasieu Ship Channel spans 36 miles from Lake Charles, Louisiana, to the Gulf of Mexico and handles about 50 million tons of cargo through deep-draft and shallow-draft vessels and barges every year. Unfortunately, dredged material disposal capacity is inadequate for maintaining the channel to federally authorized dimensions. Therefore, CEMVN is developing a Dredged Material Management Plan and Supplemental Environmental Impact Statement (DMMP/SEIS) to identify and evaluate CDFs and beneficial use sites for the placement of material dredged from the ship channel. An oyster and seagrass resource survey[1] was conducted in August, 2007 for the project area and has been shared with the Louisiana Department of Wildlife and Fisheries.

CDF 17 is located adjacent to the eastern side of the Calcasieu Ship Channel between miles 18 to 20 (Figure 1). If additional capacity for containing dredged material is needed, the existing CDFs 17 and 19 would be incorporated into a single CDF and expanded east into Calcasieu Lake and west along the channel

[1] E and E Group, L.L.C. Environmental Consultants on behalf of the U.S. Army Corps of Engineers, New Orleans District. August, 2007. Final Report. Calcasieu River and Pass Dredged Material Management Program: Oyster Resource Assessment for a Portion of the Louisiana Department of Wildlife and Fisheries, Calcasieu Lake Public Oyster Tonging Area, Calcasieu Parish, Louisiana.

to straighten out the eroded shoreline (Figure 2). The expanded area would occupy approximately 218 acres of shallow open water bottom.

CDF D/E is located adjacent to the eastern side of the Calcasieu Ship Channel between miles 12 to 16 (Figures 1 and 3). If needed, the existing CDF would be expanded east into Calcasieu Lake, with an upland expansion area occupying approximately 293 acres.

Adjacent to the upland expansion area of CDF D/E, semi-confined intertidal marsh would be created in Calcasieu Lake. The marsh would extend from the edge of the upland expansion to the approximate 3-foot depth contour of Calcasieu Lake and would occupy approximately 466 acres of shallow open water bottom. A rock dike would be constructed to contain the dredged material until it has consolidated and wetland vegetation has become established. The rock dike would extend in height above the planned marsh level. During the pumping of dredged material, the material would be allowed to flow throughout the site, and the substrate for the establishment of marsh would form over four pumping cycles. The dike would be opened after the dredged material has stabilized and vegetation has colonized to facilitate water exchange. The intervals and dimensions of the openings would be coordinated with the Louisiana Department of Wildlife and Fisheries and other resource agencies. If necessary, trenasses would be constructed to ensure tidal flow and organism ingress and egress throughout the area.

We understand that any of the actions involving impacts to the historic Calcasieu Lake bottom area would be subject to oyster seed ground mitigation requirements. We are requesting a waiver of these requirements for the possible upland expansion of these CDFs and the 466 acres of intertidal marsh that would be created adjacent to them.

If you have any questions or concerns regarding this letter, please contact Ms. Sandra Stiles, telephone (504) 862-1583. The Operations Manager for the Calcasieu River and Pass, Louisiana project is Ms. Tracy Falk (504) 862-2971.

Sincerely,

/S/

Elizabeth Wiggins
Chief, Environmental Planning and
Compliance Branch

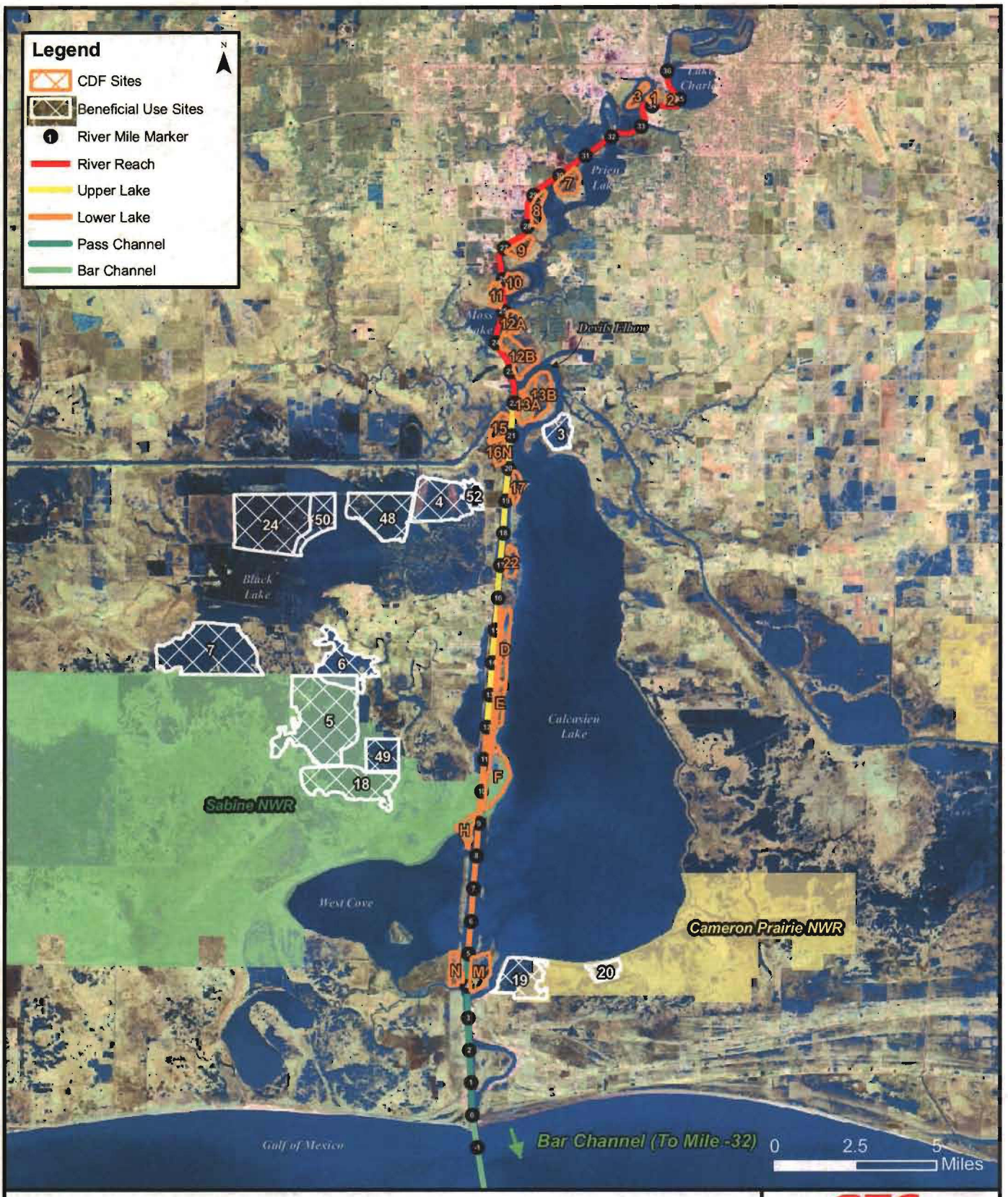
Enclosure

Copies Furnished
Creef, OD-TS

SES
Stiles
PM-RS

Owen
PM-RS

Wiggins
PM-R



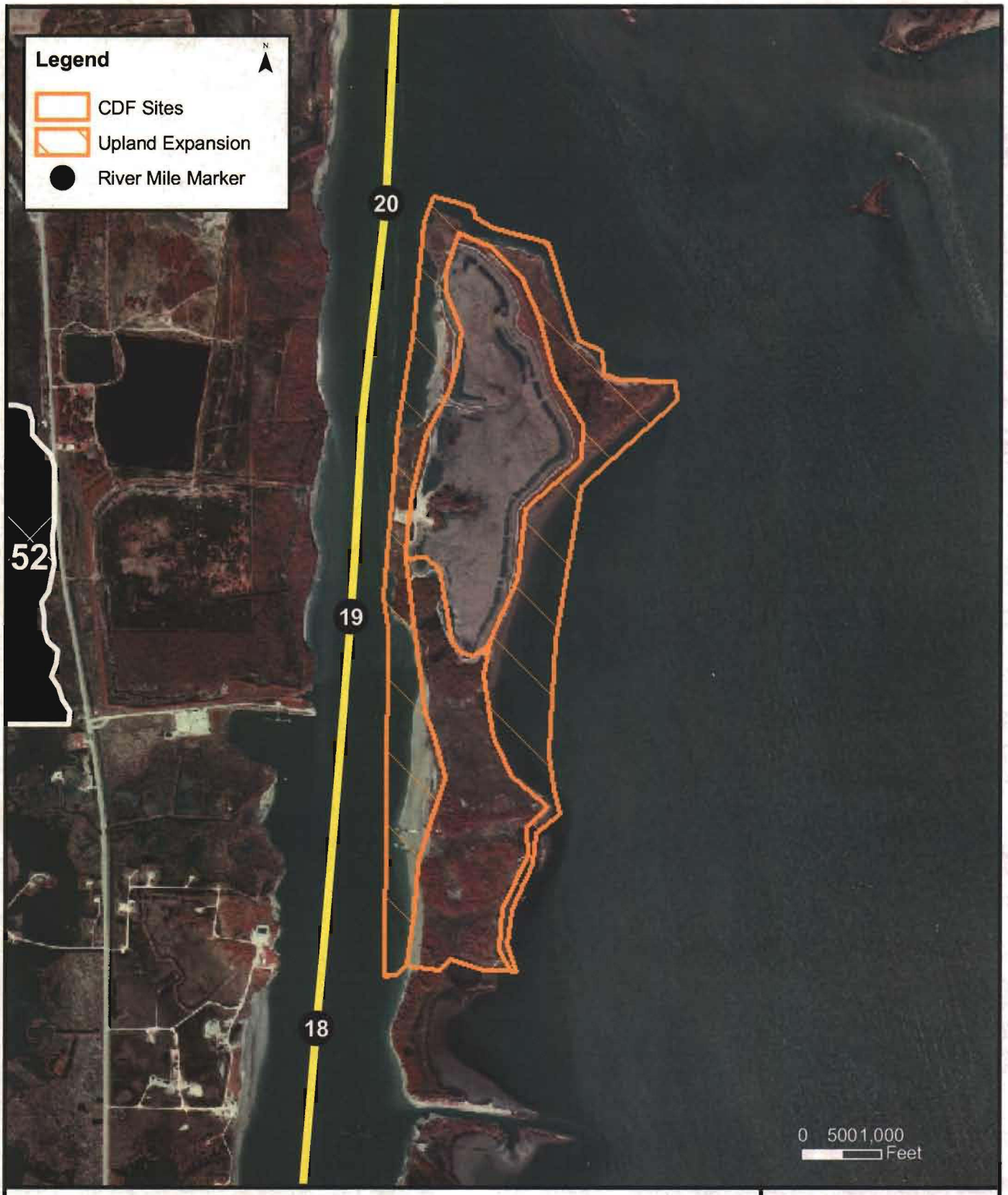
DISPOSAL SITES FOR DREDGED MATERIAL

Calcasieu River and Pass, Louisiana
Dredged Material Management Plan

Landsat Thematic Mapper Satellite Image: 2002 RGB753-Pan merge, LDEQ (2002)

GEC

Figure: 1
Date: October 2007
Scale:1:260,000
Source: USGS/GEC/USACE
Map Author: Moore 27585101-765

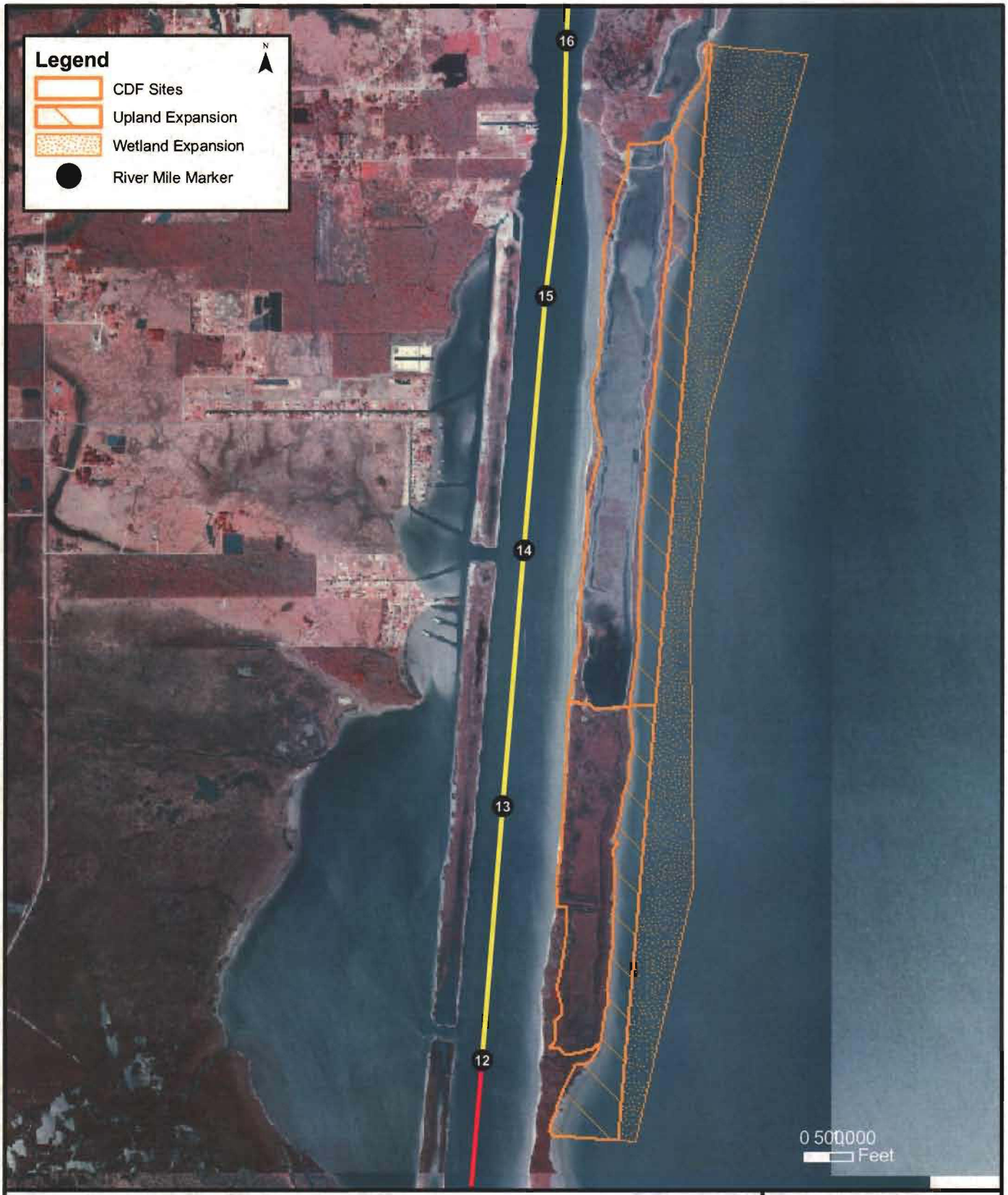


CDF 17/19

Calcasieu River and Pass, Louisiana
Dredged Material Management Plan

USGS DOQQ 2005 WESTLAKE SW 3009354

Figure: 2
Date: August 2007
Scale:1:20,350
Source: USGS/GEC/USACE
Map Author: Moore 27585101-765



CDF D/E

Calcasieu River and Pass, Louisiana
Dredged Material Management Plan

USGS DOQQ 2005 WESTLAKE SW 3009354

Figure: 3
Date: August 2007
Scale:1:32,930
Source: USGS/GEC/USACE
Map Author: Moore 27585101-765

KATHLEEN BABINEAUX BLANCO
GOVERNOR

State of Louisiana

DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF SECRETARY

BRYANT O. HAMMETT, JR
SECRETARY

December 8, 2006

Ms. Tracy Faulk
Operations Manager, Operations Division
New Orleans District, U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

RE: Calcasieu River and Pass DMMP, Dredge Disposal Locations and Details

Dear Ms. Faulk:

We are in receipt of your recent letter and map that outlined several dredge disposal scenarios for Calcasieu Lake. As you are aware, we have been in continued discussions with your staff over dredge disposal options for this area and it has been our long-standing goal to allow dredge disposal to marsh elevation within the original footprint of the Corps' disposal cells. Based upon information provided in your recent letter, you have determined that dredge disposal to marsh elevation within the original disposal cell footprint will not provide enough disposal capacity for the Corps' 20-year dredge material management plan (DMMP). We feel that beneficially using dredge material to create marsh habitat is the most environmentally sensible way to proceed.

Based upon the review of each scenario presented in your letter, the scenarios fail to provide significant fisheries benefits in terms of beneficial use of dredge material to create marsh habitat. We further urge the Corps to evaluate other dredge disposal options that maximize marsh habitat creation, including further investigation of the following:

1. Utilize the original right-of-way (ROW) footprint for dredge disposal to marsh elevation.
2. Determine the volumetric upland capacity of the area on the channel side of the existing spoil cells which will fall between the proposed rock dike and the existing spoil cells.
3 Additional coastal erosion/subsidence areas where the dredged sediments from the Calcasieu ship channel can be used beneficially to restore marsh habitat.
4 Plan and hold a public meeting prior to finalizing the DMMP so that the public has ample opportunity to provide input.

Although spoil disposal plans should remain to marsh elevation within the original ROW, please be advised that, as we understand, any disposal component that falls outside of the original ROW

must be coordinated with and approved by the Louisiana Office of State Lands. Thank you for the opportunity to comment on the proposed DMMP. We look forward to reviewing the revised proposal once it is prepared. If you have additional questions or would like to discuss the issues further, please contact Patrick Banks of my staff at 225.765.2370 or by email at pbanks@wlf.louisiana.gov.

Sincerely,

John E. Roussel
Deputy Assistant Secretary
Office of Fisheries

c: Karen Foote
Patrick Banks
Michael Harbison
Heather Warner-Finley
Christy Lavergne
Clay Carter – Office of State Lands

Copy

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

REPLY TO
ATTENTION OF:
Operations Division

Mr. Patrick Banks
Louisiana Department of Wildlife & Fisheries
2000 Quail Drive
Baton Rouge, LA 70808

RE: Calcasieu River & Pass DMMP, Calcasieu and Cameron Parishes, LA
Oyster and bay bottom mitigation for lakeside expansion of current confined disposal facilities.

Dear Mr. Banks

Pursuant to the Water Resource Development Act of 1996 (WRDA 96), the United States Army Corps of Engineers (USACE) is preparing a dredged material management plan (DMMP) that establishes the means of dredged material placement for a minimum of 20 years. It is the USACE, Mississippi Valley Division, New Orleans District (MVN) intent to prepare a DMMP and an Environmental Impact Statement (EIS) for the disposal of dredged material from the routine maintenance of the Calcasieu River and Pass, Louisiana project. The DMMP and EIS will be developed in accordance with "Guidance for Conducting Civil Works Planning Studies" dated April 22, 2000 (Engineering Regulation [ER] 1105-2-100). The ER requires that the DMMP address the requirements of applicable environmental statutes for the disposal options considered, including the requirements of National Environmental Policy Act (NEPA), Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research and Sanctuaries Act, and the Coastal Zone Management Act.

The ongoing DMMP analysis and study will investigate alternatives for managing dredged material for the next 20 years, including confined, aquatic (open water or ocean) disposal, within banks disposal, beach nourishment, and beneficial uses. An assessment of existing and projected conditions for continued maintenance of the Federal project is also being conducted. In addition to dredged material generated by channel maintenance, the DMMP will also assess the dredged materials generated from the Lake Charles Harbor and Terminal District (LCHTD) and other channel users (i.e., CITGO, Conoco Phillips, Cameron Parish, and others) that may be generated through activities such as berthing development and maintenance.

As discussed at our meeting at LDWF offices on September 26, 2006, approximately 40 million cubic yards of material will be dredged from the navigation channel between miles 7 to 21 over the next 20 years that will require a placement area. This number does not include bulking or shrinkage. The current upland placement areas in this channel segment do not have enough capacity to contain this material without expanding into the lake. A combination of upland and marsh creation in the lake as well as ecosystem restoration and enhancement in the Sabine Wildlife Refuge will be needed to accommodate the dredging necessary to maintain the ship channel.

Dredged Material Capacity estimates for lakeside expansion of the confined disposal facilities (CDFs) in Lake Calcasieu and marsh creation have been estimated. The quantities were estimated for expanding the existing upland placement areas to the right of way line, then options for marsh creation to the -3 and -5 foot countour (see enclosed drawing). The upland CDF capacity was calculated to an elevation of + 20 with levee slopes at 3H to 1V. The Marsh Creation capacities were calculated to a final elevation of +2 MLG. The quantities are presented in three areas:

Area 1 – The proposed retention structure east of sites 17, 19, & 22.
Area 2a – The proposed retention structure east of sites D & E to the minus 5' contour.
Area 2b – The proposed retention structure east of sites D & E to the minus 3' contour.
Area 3 – The proposed retention structure lakeside of site F.

AREA	UPLAND	UPLAND +MARSH	MARSH ONLY
1	5,030,327	5,427,266	1,236,970
2A	8,174,434	19,210,442	12,433,390
2B	8,174,434	10,911,254	4,131,967
3	N/A	N/A	3,571,671

Scenario A:	Area 1 + 2A+ 3 Upland and Marsh Creation:	28,210,000 CY
Scenario B:	Area 1 + 2B + 3 Upland and Marsh Creation:	19,910,000 CY
Scenario C:	Area 1 + 2A + 3 Marsh Only:	17,242,000 CY
Scenario D:	Area 1 + 2B + 3 Marsh Only:	8,940,000 CY

These quantities are neatline capacity only. These numbers are preliminary and will be refined based on the recently completed geotechnical lab results relating to shrinkage and loss factors to be released in our geotechnical evaluation within the next three weeks. Utilizing Scenario A, an additional 12 million cubic yards of disposal capacity will need to be established using other means of existing confined disposal enhancement and/or marsh creation in the Sabine Wildlife Refuge or other private property owners.

An oyster survey within the proposed areas of expansion is ongoing in order to determine possible mitigation values and requirements. USACE MVN requests your assistance in determining the extent to which expansion into the lake is environmentally feasible and what mitigation would be required.

Should you have any questions or comments regarding this matter, please contact me at 504-862-2971.

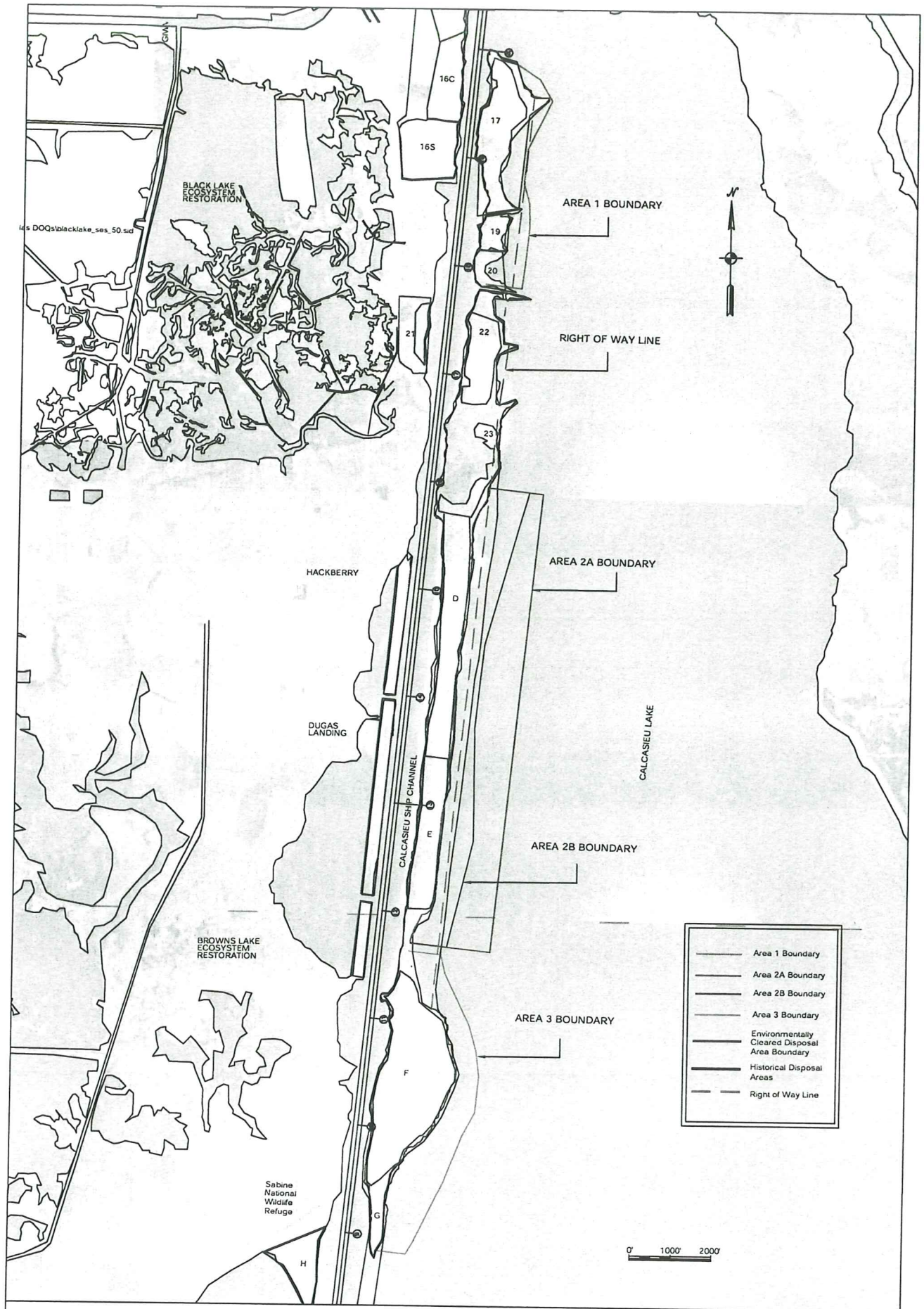
Sincerely,

Tracy Falk
Operations Manager
for Operations Division

Copies Furnished:

Mireya Laigast
CEMVN-PM-W

Edward Creef
CEMVN-OD-T



CALCASIEU RIVER & PASS DMMP

Proposed Lake Expansion Sites

Drawing Date	October 10, 2006
Drawn By	Danny J. Broady
Checked By	Dana L. Chaney
Drawing Name	Alternative Expansions Sites.dwg
Drawing Scale	1" = 2000'

E and E Group, L.L.C.
Environmental Consultants

FINAL REPORT
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
CALCASIEU RIVER AND PASS DREDGED MATERIAL MANAGEMENT PROGRAM
OYSTER RESOURCE ASSESSMENT OF A PORTION OF THE
LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES (LDWF)
CALCASIEU LAKE PUBLIC OYSTER TONGING AREA,
CALCASIEU PARISH, LOUISIANA

AUGUST 2007

P.O. BOX 11186
JEFFERSON, LOUISIANA 70181-1186
(504) 464-9906 PHONE
(504) 464-9816 FAX

FINAL REPORT
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
CALCASIEU RIVER AND PASS DREDGED MATERIAL MANAGEMENT PROGRAM
OYSTER RESOURCE ASSESSMENT OF A PORTION OF THE
LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES (LDWF)
CALCASIEU LAKE PUBLIC OYSTER TONGING AREA,
CALCASIEU PARISH, LOUISIANA

AUGUST 2007

E & E GROUP, LLC
P.O. BOX 11186
JEFFERSON, LOUISIANA 70181-1186

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LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES (LDWF)
CALCASIEU LAKE PUBLIC OYSTER TONGING AREA,
CALCASIEU PARISH, LOUISIANA
AUGUST 2007

INTRODUCTION

The following is an oyster and seagrass resource survey conducted in connection with the ongoing Calcasieu River and Pass Dredged Material Management Program (DMMP). The DMMP potential spoil containment areas located on the western edge of Calcasieu Lake in Calcasieu Parish, adjacent to the Calcasieu Ship Channel Miles 11-16, are centered 15 miles south southeast of Sulphur, Louisiana in the LDWF Calcasieu Lake Public Oyster Tonging Area. **Figure 1** is a map of coastal Louisiana showing the location of the proposed work in relation to the coast.

Early data about harvests in Calcasieu Lake prior to 1967 are limited. The lake was completely closed to oyster harvest from 1967-1975 due to over fishing and possibly other environmental factors. When the lake reopened to harvest in 1976, oyster harvesting was limited to tonging. As with most of the managed public oyster harvesting areas, the tonging area is usually open to harvest in September or October and closes at the end of April. In 1992, the Louisiana Department of Health & Hospitals (LDHH) created two conditionally managed harvest areas, the Calcasieu Lake Conditionally Managed area (CLCMA) and the West Cove Conditionally Managed Area (WCCMA). Theses areas are managed based on the height of the Kinder, Louisiana Gauge on the Calcasieu River. The WCCMA closed when the Kinder Gauge reached seven feet and the CLCMA when the gauge reached 12 feet. In 1998 the river stage criteria for the CLCMA was changed to 13.5 feet (M. Harbison, Personal Communication). In the 2004-2005 oyster harvesting season, hand oyster dredges limited to three feet in width were allowed. The following year (2005-2006) mechanical assists (winches) were allowed. The dredge width limit remained at three feet. **Table 1** presents the stock assessments and estimated harvest data from the two Calcasieu Lake Conditionally Managed Areas (LDWF, 2006).

DESCRIPTION OF PROPOSED WORK

Figure 2 shows the potential project area in relation to a portion of the Louisiana Department of Wildlife & Fisheries Public Oyster Tonging Area in Calcasieu Lake. The map also shows the previously labeled disposal areas along the sides of the ship channel. Water depth data collected by Gahagan & Bryant Associates, Inc. (GBA) and referenced to mean low Gulf (MLG) are also shown in the figure. At the southern end of the project area, the map also shows the northern end of the CLCMA.

Ultimately, the project will consist of a series of diked, dredged material containment areas with dewatering structures. The lake side of the containment areas and possibly portions of the individual cells will be rock dikes. At this time, the size, location, elevation and other pertinent project details are not fixed. The oyster resource assessment area was designed to cover the maximum possible footprint area plus a 1,500 ft offset to insure that oyster resource data would be available for all potential project configurations.

Based on consultations with the Louisiana Department of Wildlife and Fisheries (LDWF), and in compliance with the May 1, 2005 revised Sampling Protocol for Projects in Public Oyster Areas, the project area was defined and the data collection and presentation methodologies adopted. The portion of the Calcasieu Lake Oyster Seed Ground within 1,500 ft of the maximum potential dredged material containment area was defined as the project area in compliance with the requirements set forth by Louisiana Department of Wildlife and Fisheries. A waiver of the requirement to conduct an oyster resource assessment of the actual ship channel was obtained from the LDWF Marine Fisheries Division. A copy of the waiver is enclosed as **Appendix A**.

MATERIALS AND METHODS

All sampling was carried out on a 21 ft MonArk workboat (**R/V Moby Dick**) drawing approximately 1.5 ft of water. Locations for the bottom poling and oyster sampling were determined using a Trimble NT300D 12 channel global positioning system (GPS) receiver. Data from the USCG differential GPS (DGPS) broadcast transmitter at English Turn, Louisiana (29° 52.7 ft North Latitude, 89° 56.6 ft West Longitude) was used to provide real time differential correction (Type 9) of the GPS data. The DGPS data accuracy is typically $\pm$ 1 m. The location data were collected in NAD83.

The seed ground project areas were poled using a two second grid of latitude (approximately 202 ft apart) or of longitude (approximately 177 ft apart) transect intervals. Poling data were collected at intervals of 20-40 ft apart along the individual transects. The consistency of the bottom and/or the presence or absence of surface or buried shell was noted during the poling transects. The results of the poling were plotted in the field on a map of the area overlaid by the two seconds of latitude and longitude grid lines. The DGPS units provided the location data for plotting the poling data.

The topography of the surrounding marsh area was obtained from the Moss Lake (SE, SW, NE & NW) and Hackberry Bay (SE, SW NE & NW) USGS Digital Ortho Quarter Quadrangles (DOQQ's).

The GBA bathymetric and sidescan position data were collected using a Trimble NT300D differential Global Positioning System (GPS) to provide the vessel positioning. The NT300D received differential correction messages broadcast by the United States Coast Guard in order to achieve position accuracy of 1 meter or less. The NT300D was interfaced to HyPac Version 8 Gold navigation and data acquisition survey system. HyPac provides a real-time graphical display of the vessel position relative to preplanned survey lines as well as channel and

known boundaries. HyPac provided the vessel operator with range, bearing and offset from the survey line to aid in holding course. Soundings were taken with a Odem HydroTrac Fathometer calibrated for shallow water surveys and correlated with the data acquisition survey system.

In addition to the Trimble and HyPac equipment previously described, side-scan sonar imagery was collected with an Edgetech DF1000 dual-frequency (100 & 500 kHz) digital sonar tow fish interfaced with a CODA DA100 digital acquisition system. Soundings were taken simultaneously with an Odem HydroTrac Fathometer when allowable. Transducers located on each side of the sonar tow fish emit acoustic pulses, and then receive return signals that echo off of objects, or the seafloor. The return signal is digitized in the tow fish and transmitted to the topside system via a coaxial tow cable. Although the side-scan system is capable of collecting imagery data at both frequencies simultaneously, only the high resolution 500 kHz is shown in the final product. The lower frequency is used during processing for target identification. The survey lines were horizontally projected and referenced into the NAD 83, 1702- Louisiana State Plane.

The side-scan system was towed from a steel arm mounted on the aft starboard side of the boat. The tow fish was located at an approximate depth of -1.0 ft and approximately 1-2 feet behind the GPS antenna on the survey vessel. This tow configuration minimized any layback errors that may be associated with positioning the side-scan images. The side-scan survey lines were run in a north-south direction parallel to the shoreline on approximate 130-foot-spacing to allow for overlapping coverage at less than 2 knots per hour.

The purpose of acquiring multiple positions on successive transects is to minimize any horizontal error in the side-scan data caused by bottom slopes. This horizontal error is due to the theory used by the acquisition systems processing the data. Side-scan data acquisition systems assume that the bottom is relatively flat, and large constant inclines will not be properly rectified to account for the vertical change in the bottom. This error increases with distance from the sounder, overlapping transects minimizes this horizontal error.

During post-processing, the sonar imagery data were played back from the storage media. The images were enhanced to better determine bottom characteristics such as soft mud, hard bottom and/or oyster shell, and each pass was incorporated into a mosaic image. Each sonar ping is plotted based on a recorded geodetic position and oriented vessel heading. The sonar records from each pass were combined to make one complete image similar to an aerial photograph. This processing method of combining successive digital side-scan data is commonly referred to as mosaicing. The mosaic was exported as a geo-referenced TIFF image and imported to AutoCAD where it was plotted relative the aerial imagery and digitized shorelines of the area. Poling data were collected on the sidescaned area to ground truth the data.

Based on the poling and sidescan data and the location of the proposed work, it was determined whether to use diver samples (Type III bottoms) or dredge samples (Type I or Type II bottoms) on the seed grounds. In areas of Type III bottom oyster samples were collected by a diver using a 1.0 m^2 (10.76 ft^2) quadrat frame. Prior to collecting the oyster samples, the diver would crawl around within an approximate 50 ft radius of the sample location and then report first hand observations of the presence or absence of surface or buried shell, live oysters or any

noteworthy features of the bottom. Based on the diver observations (primarily the presence and quantity of shell), the quadrat frame was placed on the bottom and all of the oysters and shell within the margins of the frame was placed in a mesh bag and brought to the surface. At each sample point, the diver collected three 1.0 m^2 replicate samples. Each replicate sample was labeled and photographed immediately after collection.

All live or recently dead oysters were counted and measured and observations about the presence or absence of fouling organisms or sediment on the shells were made. The epifauna, associated organisms and evidence of the prior presence of organisms were also noted for each sample replicate. Recent death in an oyster was determined by examining the interior of the shells. An oyster was considered recently dead if the shells were still attached at the umbo (hinge) and if the interior of the shells were clean, unfouled and the shell margins were complete. Old boxes are oyster shells still attached at the umbo, but with fouled interiors and/or eroded shell margins. Market sized oysters were considered to be 7.6 cm (3.0 in) and larger. All calculations involving sacks were based on 180 market sized oysters per sack. Seed sized oysters were converted to sacks using 360 oysters per sack. Spat sized oysters were converted to sacks using 720 oysters per sack.

In areas of Type I and/or Type II bottoms, a hand dredge measuring 30 in wide with 12 teeth on 2.5 inch centers was towed for at least three minutes. Replicate tows were completed for this bottom type with the beginning and ending points of each tow recorded. Each replicate sample was labeled and photographed immediately after collection if the dredge collected any items.

Water quality data were collected one foot (0.3 m) below the water surface and above the bottom. Salinity, conductivity, and temperature data were collected using an YSI Model 30 S-C-T Meter.

Common names of mollusks follow Turgeon, et al. (1998). Common names of decapod crustaceans follow Williams, et al. (1988).

GENERAL RESULTS AND DISCUSSION

In the interpretation of the data, it should be noted that poling of the bottom provides an indication of whether presently productive bottom exists in the project area. Sometimes, the poling data may indicate the presence of exposed shell or reef, when, in actuality, the shell is buried under a few to many inches of very soft bottom. This means that the poling data can and does provide a number of false positive results. In this and other oyster resource surveys, we have found that shallowly buried shell cannot always be distinguished by poling alone. We consider the presence of shell or reef, based on poling data, to be a presumptive test for potentially productive bottom and is used to screen the project area for possible areas to confirm and quantify the presence of living oyster resources. Diver observations are used to confirm the presence of productive bottom and the oyster sample data are used to quantify the standing crop of oysters currently present. The combination of poling, diver observations and oyster sample data must be used together to provide an accurate picture of the oyster resources in the project area. The oys-

ter dredge data indicates the presence of oyster resources in areas described as barren and supportive or barren and non-supportive.

Poling and sidescan ground truthing data were collected on December 5-6 and 14-15, 2006. Dredge samples and 1.0 m^2 samples were colleted March 5-6, 2007

CALCASIEU LAKE TONGING AREA RESULTS AND DISCUSSION

SUBMERGED AQUATIC VEGETATION

The water depths in the project area, referenced to MLG, are shown in **Figure 2**. No rooted aquatic vegetation was observed in the project area. No floating aquatic vegetation was observed.

POLING DATA

Figure 3 presents poling data collected in the project area. The largest areas of scattered shell and a few small areas of hard reef were found at the extreme northern end of the project area. Smaller individual areas of scattered shell were found throughout the project area. Most of the project area was moderately firm to firm bottom.

BOTTOM TYPE MAPPING

Based on the poling and ground truthing of the sidescan data, the project area bottom was classified as Type I (Barren, Non-Supportive), Type II (Barren, Supportive) or Type III ((Exposed Shell or Reef). **Figure 4** presents the bottom type map for the project area based on the data in **Figure 3.** The poling data indicated that 715.4 acres of the project area were Type I water bottoms. Similarly, Type II water bottoms occupied 2,950.1 acres of the project area. Type III water bottoms comprised 257.0 acres of the project area water bottoms.

OYSTER DREDGE SAMPLE RESULTS & OBSERVATIONS

Figure 5 shows the locations where the replicate, three minute, oyster dredge samples were collected and the 1.0 m^2 quantitative quadrat data were collected. **Appendix B** contains copies of the individual sample photographs of both the dredge samples and the 1.0 m^2 sample replicates, taken at the time of collection. Dredge sample locations **DS-1** and **DS-2** were taken on the southern portion of the seed ground project area, in an area designated as firm bottom (Type II) based on the poling data. The **DS-1** dredge sample contained a few pieces of marsh vegetation (see **Appendix B** for photograph). The **DS-2** sample contained one live oyster (7.0 cm) with large and small acorn barnacles (*Balanus* sp.), a small hooked mussel (*Ischadium recurvum*) and an encrusting Bryozoan.

Dredge sample locations **DS-3** and **DS-4** were taken on a moderately firm (Type II) portion of the seed ground project area based on the poling data. Dredge sample **DS-3** contained one apparently live Atlantic rangia clam (Rangia cuneata) and a piece of marsh vegetation. Both

were caught on the dredge tooth bar when the sample was retrieved and slipped back into the water before the sample could be brought aboard. No photo of the sample was taken. Dredge sample **DS-4** contained some marsh vegetation and woody debris.

Dredge sample locations **DS-5** and **DS-6** were taken on a buried shell bottom (Type II) based on the poling data. **DS-5** contained seven live oysters (4.5, 6.0, 6.5, 9.0, 10.5, 10.5 and 11.0 cm), two old boxes and several small acorn barnacles. This dredge sample was attempted four times before a complete three minute tow could be completed. On the first three attempts, the softness of the bottom allowed the dredge to bury itself and fill the bag with a mud-clamshell matrix. The oysters collected were apparently very widely scattered over the surface of the mud-clam shell matrix where the occasional clam shell was exposed at the surface of the bottom. Based on the width of the dredge and the length of the drag and assumed 33% dredge efficiency, the seven oysters collected corresponded to 0.010 oysters/ft^2 (0.108 oysters/m^2). **DS-6** contained four live oysters (7.0, 8.5, 9.0 and 10.5 cm), one old box, small acorn barnacles and a hooked mussel. Based on the width of the dredge and the length of the drag and assumed 33% dredge efficiency, the four oysters collected corresponded to 0.006 oysters/ft^2 (0.062 oysters/m^2).

Dredge sample locations **DS-7** and **DS-8**, like **DS-3** and **DS-4** were taken on a moderately firm bottom (Type II) based on the poling data. **DS-7** contained a few pieces of vegetation and the **DS-8** sample was empty.

Dredge locations **DS-9** and **DS-10** were taken on soft bottom (Type I) based on the poling data. Both samples contained only marsh vegetation.

DIVER AND OYSTER SAMPLE OBSERVATIONS

Diver observations and triplicate, 1.0 m^2 oyster samples were collected at 11 individual locations within the project area, as shown in **Figure 5**. **Table 2** presents the individual sample replicate data and **Table 3** presents a summary table of the sample results from each location. Photographs of the individual sample replicates are presented in **Appendix B**, after the photographs of the hand dredge samples.

At **O-1**, based on the poling data, the bottom was scattered shell. The diver reported a firm shell crust over a softer bottom. The oysters present were highly clustered and were of a consistent density across the area covered by the diver. The shell in the samples was approximately 20% blackened from contact with the bottom. Epifauna in the samples included the oyster flatworm (*Stylochus ellipticus*), hooked mussel (*Ischadium recurvum*), Atlantic rangia (*Rangia cuneata*) clam shells, small mud crabs (Family Xanthidae), small and large acorn barnacles (*Balanus* spp.).

Based on the poling data, the bottom at **O-2** was scattered shell. The diver found approximately one inch of soft sediment over broken oyster shell with some larger shell pieces. None of the shell was exposed at the surface and no live or recently dead oysters were found in the diver reconnaissance.

Similarly, poling indicated that the bottom at **O-3** was scattered shell. The diver found all shell under approximately four inches of very soft sediment. No exposed shell, live or recently dead oysters were found.

At **O-4**, based on the poling data, the bottom was scattered shell. The diver reported scattered clusters and single oysters over a softer bottom. The shell in the samples, primarily buried Atlantic rangia clam shell, ranged from 50-80% blackened from contact with the bottom. Epifauna in the samples included the hooked mussels, clam shells, small mud crabs and small acorn barnacles.

Based on the poling data, the bottom at **O-5** was scattered shell. The diver found approximately a one to two inch layer of soft sediment over Atlantic rangia clam shell. No exposed or buried oyster shell or live oysters were found in the diver reconnaissance.

Similarly, poling indicated that the bottom at **O-6** was scattered shell. The diver found all Atlantic Rangia clam shell under approximately one inch of very soft sediment. No exposed oyster shell, live or recently dead oysters were found.

At **O-7**, in an area identified as scattered shell by poling, the diver found primarily Atlantic rangia shell under 0.5-2 inches of soft sediment. A few live oysters and some oyster shells were also found in the reconnaissance. The shell in the samples ranged from < 10% blackened (Toss 3) to 90% blackened (Tosses 1 and 2). One live Atlantic rangia clam (41 mm) was collected in the three m^2 replicates. The epifauna was limited to a few hooked mussels and a few small acorn barnacles.

Sampling location **O-8** was also from an area of scattered shell based on the poling data. The diver found widely scattered single oysters and clusters on the bottom. The oysters in the clusters were poorly shaped and highly clustered. The shell at the location ranged from 30-50% blackened from contact with the bottom and contained more oyster shell and less Atlantic rangia clam shell than the previous locations. Epifauna included hooked mussels and numerous byssal threads from previous hooked mussel attachment points, small mud crabs and small and large (*Balanus eberneus*) acorn barnacles.

At **O-9**, in an area identified as hard reef based on the poling, the diver found fine shell over a soft bottom with dense clusters of oysters. The oysters were highly clustered, poorly shaped and many of the oysters in the clusters were growing vertically, forming "oyster swords" with the older dead oyster shell buried in the bottom and the live oysters at the top or tip of the "sword". The shell in the samples ranged from 30-80% blackened from contact with the bottom sediments. Atlantic rangia clam shell was present, but most of the shell was oyster shell. Epifauna observed included moderate numbers of hooked mussels, small mud crabs and small and large acorn barnacles.

Sampling location **O-10** was also from an area identified as hard reef, based on the poling data. The diver found individual clusters over soft bottom. The shell in the samples ranged from 20-40% blackened from contact with the bottom. The oysters were highly clustered and poorly

shaped. The samples contained green algae, hooked mussels, small mud crabs and small and large acorn barnacles.

The final sampling location, **O-11,** was also from an area identified as hard reef, based on the poling data. The diver found individual clusters over soft bottom. The density of clusters in this area was highly variable, unlike the relatively uniform bottoms at **O-9** and **O-10**. The shell in the samples ranged from 20-50% blackened from contact with the bottom. The oysters were highly clustered and poorly shaped. The shell in the samples was primarily oyster, with a few Atlantic rangia clam shells. The evidence of current or prior epifauna included old boring sponge holes, moderate to high numbers of hooked mussels, small mud crabs and small and large acorn barnacles. At both **O-10** and **O-11,** current velocities were higher than at all the other sampling locations.

OYSTER SAMPLE DATA

The three 1.0 m^2 sample replicates from sample location **O-1** at the southern end of the project area contained a total of 291 live, one recently dead oyster (0% recent mortality) and 12 old boxes (4% of total live, dead and old boxes). This produced an average of 97.00 oysters/m^2. Spat sized oysters averaged 20 oysters/m^2, seed sized oysters averaged 74.67 oysters /m^2 and market sized oysters averaged 2.33 oysters /m^2. The market sized oysters comprised 2% of the total oysters collected. Based on the numbers of market oysters per m^2, the numbers of market sacks per acre of productive bottom ranged from 0 to 135 and averaged 52 sacks per acre. Based on LDWF numbers of spat, seed and market sized oysters per sack, the oysters collected at **O-1** represent a potential standing crop of 1,005 sacks per acre of productive (with exposed shell) bottom.

No live or recently dead oysters were collected at sampling location **O-2**, **O-3**, **O-5** and **O-6**. A total of 33 live and no recently dead oysters (0% recent mortality) were collected in the three sample replicates at **O-4**. This produced an average of 11.00 oysters/m^2. Of this average, spat sized oysters averaged 1.33 oysters/m^2, seed sized oysters averaged 5.33 oysters /m^2 and market sized oysters averaged 4.33 oysters /m^2. The percentage of market sized oysters ranged from 33% to 44% in the individual sample replicates and average 39%. A total of 2 old boxes (6% of all live, recently dead and old boxes) were collected in the samples. Based on the market oyster densities, the numbers of sacks of market sized oysters per acre of productive bottom at **O-4** ranged from 45 to 157 and averaged 97. Based on LDWF numbers of spat, seed and market sized oysters per sack, the oysters collected at **O-4** represent a potential standing crop of 165 sacks per acre of productive bottom.

The three 1.0 m^2 sample replicates from sample location **O-7** contained a total of 7 live, no recently dead oysters (0% recent mortality) and no old boxes. This produced an average of 2.33 oysters/m^2. Spat sized oysters averaged zero oysters/m^2, seed sized oysters averaged 2.33 oysters /m^2 and market sized oysters averaged zero oysters /m^2. No market sized oysters were collected. Based on the numbers of market oysters per m^2, the numbers of market sacks per acre of productive bottom was zero sacks per acre. The numbers of spat, seed and market sized oysters collected at **O-7** represent a potential standing crop of 26 sacks per acre of productive bottom.

A total of 59 live and no recently dead oysters (0% recent mortality) were collected in the three sample replicates at **O-8.** The eight old boxes in the samples comprised 12% of the total live, recently dead and old boxes collected. The live oysters collected produced an average of 19.67 oysters/m^2. Of this average, spat sized oysters averaged 0.67 oysters/m^2, seed sized oysters averaged 6.67 oysters /m^2 and market sized oysters averaged 12.33 oysters /m^2. The percentage of market sized oysters ranged from 38% to 70% in the individual sample replicates and average 63%. A total of 8 old boxes (12% of all live, recently dead and old boxes) were collected in the samples. Based on the market oyster densities, the numbers of sacks of market sized oysters per acre of productive bottom at **O-8** ranged from 112 to 472 and averaged 277. Based on LDWF numbers of spat, seed and market sized oysters per sack, the oysters collected at **O-8** represent a potential standing crop of 356 sacks per acre of productive bottom.

The three 1.0 m^2 sample replicates from sample location **O-9** contained a total of 462 live, five recently dead oysters (2% recent mortality) and 95 old boxes (17% of the live, recently dead and old boxes collected). This produced an average of 154 oysters/m^2. Spat sized oysters averaged 33.00 oysters/m^2, seed sized oysters averaged 102.67 oysters /m^2 and market sized oysters averaged 18.33 oysters /m^2. Based on the numbers of market oysters per m^2, the numbers of market sacks per acre of productive bottom ranged from 247 to 517 and averaged 412 sacks per acre. The numbers of spat, seed and market sized oysters collected at **O-9** represent a potential standing crop of 1,752 sacks per acre of productive bottom.

A total of 191 live and no recently dead oysters (0% recent mortality) were collected in the three sample replicates at **O-10.** The 14 old boxes in the samples comprised 7% of the total live, recently dead and old boxes collected. The live oysters collected an average of 63.67 oysters/m^2. Of this average, spat sized oysters averaged 12.00 oysters/m^2, seed sized oysters averaged 42.00 oysters /m^2 and market sized oysters averaged 9.67 oysters /m^2. The percentage of market sized oysters ranged from 10% to 21% in the individual sample replicates and average 15%. Based on the market oyster densities, the numbers of sacks of market sized oysters per acre of productive bottom at **O-10 r**anged from 112 to 405 and averaged 217. Based on LDWF numbers of spat, seed and market sized oysters per sack, the oysters collected at **O-10** represent a potential standing crop of 757 sacks per acre of productive bottom.

The three 1.0 m^2 sample replicates from sample location **O-11** contained a total of 396 live, four recently dead oysters (1% recent mortality) and 47 old boxes (11% of the live, recently dead and old boxes collected). This produced an average of 132 oysters/m^2. Spat sized oysters averaged 11.67 oysters/m^2, seed sized oysters averaged 93.67 oysters /m^2 and market sized oysters averaged 26.67 oysters /m^2. Based on the numbers of market oysters per m^2, the numbers of market sacks per acre of productive bottom ranged from 292 to 967 and averaged 600 sacks per acre. The numbers of spat, seed and market sized oysters collected at **O-11** represent a potential standing crop of 1,719 sacks per acre of productive bottom.

WATER QUALITY DATA

Salinity, conductivity, water temperature and water depth data were collected at sampling locations **O-1**, **O-4**, **O-7**, **O-9** and **O-11** (see **Figure 5** for locations). The data collected are as follows:

PARAMETERS/UNITS	LOCATION	LOCATION	LOCATION	LOCATION	LOCATION
Sampling Location	**O-1**	**O-4**	**O-7**	**O-9**	**O-11**
Surface Salinity/psu	7.6	7.8	8.4	9.0	7.9
Bottom Salinity/psu	7.5	8.2	8.9	9.2	8.2
Surf. Cond. mS/cm	10.25	11.53	12.55	12.43	11.25
Bott. Cond. mS/cm	10.19	11.09	12.84	12.71	11.50
Surface Temperature/°C	17.7	17.3	17.9	15.1	15.8
Bottom Temperature/°C	13.5	13.9	17.3	15.2	15.7
Water Depth/m	1.1	1.2	0.8	1.2	1.5

These salinities are supportive of oyster culture. The organisms present and the relatively low numbers of epifaunal species observed in the samples indicate that this habitat has experienced these salinities or possibly lower values for some months prior to the sampling. The epifauna observed were typical of the upper oligohaline or lower mesohaline salinity zones of the estuary.

IMPACT MINIMIZATION

At this time, all the project features have not been designed. Once these features have been designed, appropriate impact minimization/mitigation measures can be implemented for the final design.

SUMMARY & CONCLUSIONS

The project will consist of a series of diked dredged material containment areas with dewatering structures. The lake side of the containment areas and possibly portions of the individual cells will be rock dikes. At this time the size, location, elevation and other pertinent project details are not fixed. The oyster resource assessment area was designed to cover the maximum possible footprint area plus a 1,500 ft offset to insure that oyster resource data would be available for all potential project configurations.

Water depths in the project area ranged from less than two feet to approximately six feet. No rooted aquatic vegetation was observed in the project area.

Poling data indicated three distinct zones in the project area. At the northern end of the project area, a large area of scattered shell (Type III bottom) was identified northeast of Disposal Area 17. In the north-central and central portions of the project area the poling data indicated that a mix of moderately firm, firm, buried shell and scattered shell bottoms were present. This area extended from the southern portion of Disposal Area 17 to the south-central portion of Disposal Area D. Firm bottom with small areas of soft and buried shell bottoms and isolated areas of scattered shell dominated the bottom types between the south-central portions of Disposal Area D south to the end of the project area near Disposal Area F.

The entire project area that was accessible comprised a total of 6.13 square miles (3,922.46 acres) of bottom. Based solely on the poling data, the project area bottom contained 715.36 acres of Type I (barren, non-supportive) bottom, 2,950.06 acres of Type II (barren, supportive bottom) and 257.04 acres of Type III (scattered shell and reef) bottom.

Based on the diver observations at most of the sampling locations in the central portion of the project area south of the Texaco Cut (**O-2**, **O-3**, **0-5**, **O-6** and **O-7**) and north of Disposal Area D, much of what shows as scattered shell (Type III bottom) in this portion of the project area is actually entirely or predominantly buried Atlantic rangia clam shell with little or no exposed oyster or clam shell or live oysters. The diver observations also showed that exposed shell and live oysters were abundant at the northern and southern ends of the project area.

Dredge sample data confirmed that the firm, moderately firm and soft bottom areas delineated by poling were barren of oysters and shell. A few live oysters were collected in the replicate dredge samples taken on the largest continuous area of buried shell (Type II) bottom in the project area. The oysters collected were apparently very widely scattered over the surface of the mud-rangia clam shell matrix where the occasional clam shell was exposed at the surface of the bottom. Based on the width of the dredge and the length of the drag and assumed 33% dredge efficiency, the oysters collected in both drags corresponded to less than 0.010 oysters/ft^2 (0.108 oysters/m^2). At these densities and with the assumed low dredge efficiencies, it is entirely possible that the extremely widely scattered exposed oysters in this area were missed by the poling.

The oyster sample data show that the highest standing crops of oysters were present at the northern and southern ends of the project area. Sampling locations **O-1** (1,005 sacks/acre total oysters), **O-8** (356 sacks/acre total oysters), **O-9** (1,752 sacks/acre total oysters), **O-10** (757 sacks/acre total oysters) and **O-11** (1,719 sacks/acre total oysters) showed relatively high standing crops of primarily highly clustered and poorly shaped oysters. Sampling locations from the central portions of the project area such as **O-4** (165 sacks/acre total oysters) and **O-7** (26 sacks/acre total oysters), as well as sampling locations **O-2**, **O-3**, **O-5** and **O-6** (0 sacks/acre total oysters) showed a significantly lower standing crop than the northern and southern ends of the project area.

Water quality data were collected at five sampling locations. The salinities observed were supportive of oyster culture. The organisms present and the relatively low numbers of epifaunal species observed in the samples indicate that this habitat has experienced these salinities or possibly lower values for some months prior to the sampling. The epifauna observed were typical of the upper oligohaline or lower mesohaline salinity zones of the estuary.

At this time, all the project features have not been designed. Once these features have been designed, appropriate impact minimization/mitigation measures can be implemented for the final design.

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FIGURES

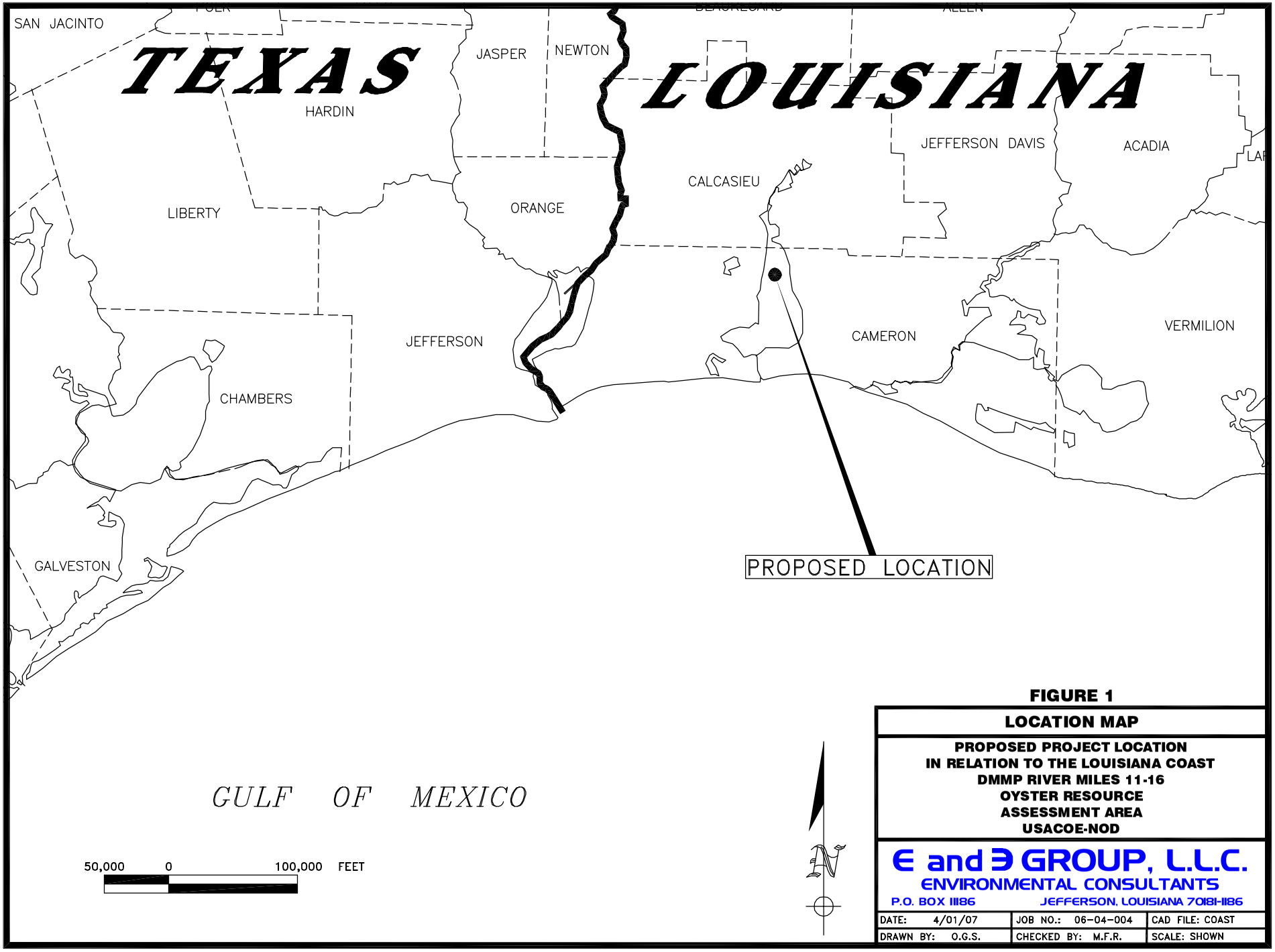

FIGURE 1

LOCATION MAP

PROPOSED PROJECT LOCATION
IN RELATION TO THE LOUISIANA COAST
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 1186 JEFFERSON, LOUISIANA 70181-1186

DATE: 4/01/07	JOB NO.: 06-04-004	CAD FILE: COAST
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

FIGURE 2

POLING DATA FOR
PROPOSED PROJECT AREA MAP
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

LEGEND:

- S – SOFT BOTTOM
- ◩ – MODERATELY FIRM BOTTOM
- F – FIRM BOTTOM
- D – DEEP
- ◆ – FINE SHELL BOTTOM
- ■ – BURIED SHELL BOTTOM
- ▲ – SCATTERED SHELL BOTTOM
- ● – HARD REEF BOTTOM

1500 FEET FROM PROPOSED PROJECT

CALCASIEU SHIP CHANNEL

17

19

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

CALCASIEU LAKE

TEXACO CUT

MATCHLINE

FIGURE 3
SHEET 1 OF 4

POLING DATA
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 1 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

22

23

SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

TOO SHALLOW

LEGEND:

17C - DISPOSAL AREAS

- GBA SIDE SCAN DATA

LEGEND:

- S – SOFT BOTTOM
- ◩ – MODERATELY FIRM BOTTOM
- F – FIRM BOTTOM
- D – DEEP
- ◆ – FINE SHELL BOTTOM
- ■ – BURIED SHELL BOTTOM
- ▲ – SCATTERED SHELL BOTTOM
- ● – HARD REEF BOTTOM

1500 FEET FROM PROPOSED PROJECT

CALCASIEU LAKE

MATCHLINE

FIGURE 3
SHEET 2 OF 4

POLING DATA
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 2 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

LEGEND:

S – SOFT BOTTOM
◩ – MODERATELY FIRM BOTTOM
F – FIRM BOTTOM
D – DEEP
◆ – FINE SHELL BOTTOM
■ – BURIED SHELL BOTTOM
▲ – SCATTERED SHELL BOTTOM
● – HARD REEF BOTTOM

1500 FEET FROM PROPOSED PROJECT

CALCASIEU LAKE

TOO SHALLOW

TOO SHALLOW

MATCHLINE

LEGEND:

17C - DISPOSAL AREAS

- GBA SIDE SCAN DATA

FIGURE 3
SHEET 3 OF 4

POLING DATA
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 3 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

TOO SHALLOW

TOO SHALLOW

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

- GBA SIDE SCAN DATA

1500 FEET FROM PROPOSED PROJECT

LEGEND:

- S – SOFT BOTTOM
- ◩ – MODERATELY FIRM BOTTOM
- F – FIRM BOTTOM
- D – DEEP
- ◆ – FINE SHELL BOTTOM
- ■ – BURIED SHELL BOTTOM
- ▲ – SCATTERED SHELL BOTTOM
- ● – HARD REEF BOTTOM

CALCASIEU LAKE

LOWER CALCASIEU LAKE MANAGEMENT AREA

FIGURE 3
SHEET 4 OF 4

POLING DATA
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 4 OF 4

E and E GROUP, L.L.C.
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P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

17A

19

1500 FEET FROM PROPOSED PROJECT

LEGEND LDWF SEED GROUNDS:

TYPE–I – BARREN, NON–SUPPORTIVE = 715.36 ACRES

TYPE–II – BARREN, SUPPORTIVE = 2950.06 ACRES

TYPE–III – SCATTERED SHELL & REEF = 257.04 ACRES

TEXACO CUT

MATCHLINE

N

FIGURE 4
SHEET 1 OF 4

BOTTOM TYPE MAPPING
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 1 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06–04–004	CAD FILE: 04–004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

22

LEGEND:

17C - DISPOSAL AREAS

1500 FEET FROM PROPOSED PROJECT

LEGEND LDWF SEED GROUNDS:

TYPE-I - BARREN, NON-SUPPORTIVE = 715.36 ACRES

TYPE-II - BARREN, SUPPORTIVE = 2950.06 ACRES

TYPE-III - SCATTERED SHELL & REEF = 257.04 ACRES

23

MATCHLINE

FIGURE 4
SHEET 2 OF 4

BOTTOM TYPE MAPPING
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 2 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

1500 FEET FROM PROPOSED PROJECT

LEGEND:

17C - DISPOSAL AREAS

LEGEND LDWF SEED GROUNDS:

TYPE-I - BARREN, NON-SUPPORTIVE =715.36 ACRES

TYPE-II - BARREN, SUPPORTIVE =2950.06 ACRES

TYPE-III - SCATTERED SHELL & REEF =257.04 ACRES

MATCHLINE

FIGURE 4
SHEET 3 OF 4

BOTTOM TYPE MAPPING
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 3 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

1500 FEET FROM PROPOSED PROJECT

LOWER CALCASIEU LAKE MANAGEMENT AREA

LEGEND LDWF SEED GROUNDS:

TYPE-I - BARREN, NON-SUPPORTIVE = 715.36 ACRES

TYPE-II - BARREN, SUPPORTIVE = 2950.06 ACRES

TYPE-III - SCATTERED SHELL & REEF = 257.04 ACRES

FIGURE 4
SHEET 4 OF 4

BOTTOM TYPE MAPPING
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 4 OF 4

E and E GROUP, L.L.C.
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P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

O-6 - OYSTER SAMPLE LOCATIONS

DS-9 - DREDGING LOCATIONS

O-11

O-10

O-9

1500 FEET FROM PROPOSED PROJECT

DS-8

DS-7

O-8

17

19

TEXACO CUT

O-7

MATCHLINE

N

FIGURE 5
SHEET 1 OF 4

OYSTER SAMPLE AND DREDGE LOCATIONS
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 1 OF 4

E and E GROUP, L.L.C.
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DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

22

LEGEND:

17C - DISPOSAL AREAS

O-6 - OYSTER SAMPLE LOCATIONS

DS-9 - DREDGING LOCATIONS

1500 FEET FROM PROPOSED PROJECT

O-6

O-5

23

DS-10

DS-9

O-4

DS-6

DS-5

O-3

MATCHLINE

FIGURE 5
SHEET 2 OF 4

OYSTER SAMPLE AND DREDGE LOCATIONS
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 2 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

17C

500 250 0 500 1000 FEET

O-2

1500 FEET FROM PROPOSED PROJECT

DS-3

DS-4

17C

LEGEND:

17C - DISPOSAL AREAS

O-4 - OYSTER SAMPLE LOCATIONS

DS-9 - DREDGING LOCATIONS

MATCHLINE

FIGURE 5
SHEET 3 OF 4

OYSTER SAMPLE AND DREDGE LOCATIONS
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 3 OF 4

E and E GROUP, L.L.C.
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P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

MATCHLINE

500 250 0 500 1000 FEET

LEGEND:

17C - DISPOSAL AREAS

O-6 - OYSTER SAMPLE LOCATIONS

DS-9 - DREDGING LOCATIONS

O-1

DS-2

DS-1

1500 FEET FROM PROPOSED PROJECT

LOWER CALCASIEU LAKE MANAGEMENT AREA

FIGURE 5
SHEET 4 OF 4

OYSTER SAMPLE AND DREDGE LOCATIONS
CALCASIEU LAKE
DMMP RIVER MILES 11-16
OYSTER RESOURCE
ASSESSMENT AREA
USACOE-NOD
SHEET 4 OF 4

E and E GROUP, L.L.C.
ENVIRONMENTAL CONSULTANTS
P.O. BOX 11186 JEFFERSON, LOUISIANA 70181-1186

DATE: 12/19/06	JOB NO.: 06-04-004	CAD FILE: 04-004
DRAWN BY: O.G.S.	CHECKED BY: M.F.R.	SCALE: SHOWN

TABLES

TABLE 1. LDWF CALCASIEU LAKE STOCK ASSESSMENTS AND HARVEST ESTIMATES
(FROM 2006 OYSTER STOCK ASSESSMENT REPORT)

SEASONS	STOCK ASSESSMENT		ESTIMATED SACKS HARVESTED
	MARKETABLE	TOTAL	
1963	-	-	210,160
1967-1974	-	-	NO COMMERCIAL LANDINGS
1975-1976	142,726	441,183	40,000
1976-1977	694,420	869,475	10,000
1977-1978	483,673	621,885	141,976
1978-1979	-	-	75,000
1979-1980	676,333	979,613	125,000
1980-1981	355,664	705,117	150,000
1981-1982	608,110	988,575	-
1982-1983	-	-	50,000-75,000
1983-1984	-	-	150,000
1984-1985	125,407	644,788	-
1985-1986	315,160	537,760	27,400
1986-1987	589,940	1,217,959	200,000
1987-1988	796,950	2,703,647	125,000
1988-1989	463,331	1,036,580	50,000
1989-1990	172,046	640,892	40,000
1990-1991	408,961	1,268,962	50,000
1991-1992	1,048,882	1,731,367	31,383 [1]
1992-1993	749,915	1,612,736	27,328
1993-1994	748,281	1,238,783	12,818
1994-1995	756,525	1,246,480	6,134
1995-1996	956,926	1,298,379	29,082
1996-1997	618,767	1,083,866	43,441
1997-1998	950,979	1,706,510	80,735
1998-1999	702,371	1,160,115	39,202 [2]
1999-2000	614,145	1,032,117	50,592 [3]
2000-2001	846,176	197,311	35,881
2001-2002	1,163,750	2,409,482	21,297
2002-2003	781,676	110,257	21,386
2003-2004	1,169,997	1,700,663	18,196
2004-2005	1,099,236	2,468,560	44,293
2005-2006 [4]	915,625	1,541,893	N/A
2006-2007	238,945	463,623	N/A

N/A - NOT AVAILABLE
1- STARTED USING DEALER REPORTS FOR LANDINGS
2- THE 1999 PORTION OF THE DATA WAS DERIVED FROM PRELIMINARY TRIP TICKET DATA
3- TRIP TICKET DATA WAS UNAVAILABLE, CALLED DEALERS FOR LANDINGS
4- HURRICANE RITA MADE LANDFALL ON 9/23/05 IN CAMERON PARISH, DELAYING SEASON OPENING, LIMITING THE NUMBER OF FISHERMEN AND BUYERS

TABLE 2
INDIVIDUAL 1.0 m2 QUADRAT OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 1	SEED GROUND : CALCASIEU LAKE								
		COORDINATES : 29º55'41.64" / 93º 19'31.52"							5-Mar-07		%
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		RECENT
		(CM)	L	D	L	D	L	D	L	D	MORT.
SPAT	0	0.1-0.5			1		1		2	0	0%
	1	0.6-1.0	1		4		7		12	0	0%
	2	1.1-1.5	4		4	1	11		19	1	5%
	3	1.6-2.0	4		11		5		20	0	0%
	4	2.1-2.5	1		3		3		7	0	0%
SEED	5	2.6-3.0	2		3		2		7	0	0%
	6	3.1-3.5	1		2		2		5	0	0%
	7	3.6-4.0	5		8		3		16	0	0%
	8	4.1-4.5	3		13		5		21	0	0%
	9	4.6-5.0	13		10		9		32	0	0%
	10	5.1-5.5	14		20		14		48	0	0%
	11	5.6-6.0	19		13		11		43	0	0%
	12	6.1-6.5	10		7		13		30	0	0%
	13	6.6-7.0	6		2		1		9	0	0%
	14	7.1-7.5	5		3		5		13	0	0%
MARKET SACK	15	7.6-8.0					3		3	0	0%
	16	8.1-8.5					2		2	0	0%
	17	8.6-9.0	1				1		2	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			89	0	104	1	98	0	97.00	0.33	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			10	0	23	1	27	0	20.00	0.33	2%
SEED OYSTERS (2.6-7.5 CM) / M2			78	0	81	0	65	0	74.67	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			1	0	0	0	6	0	2.33	0.00	0%
PERCENT MARKET SIZED OYS.			1%		0%		6%		2%		
OLD BOXES			9		1		2		12		
SPAT SIZED SACKS PER ACRE			56		129		152		112		
SEED SIZED SACKS PER ACRE			877		911		731		840		
MARKET SACKS PER ACRE			22		0		135		52		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 2	SEED GROUND : CALCASIEU LAKE								SIZE CLASS % MORT.
		COORDINATES : 29º57'49.45" / 93º 19'01.81"						5-Mar-07			
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0							0	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0							0	0	0%
	10	5.1-5.5							0	0	0%
	11	5.6-6.0							0	0	0%
	12	6.1-6.5							0	0	0%
	13	6.6-7.0							0	0	0%
	14	7.1-7.5	NO LIVE OR RECENTLY DEAD OYSTERS						0	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0							0	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			0	0	0	0	0	0	0.00	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
PERCENT MARKET SIZED OYS.			0%		0%		0%		0%		
OLD BOXES			0		0		0		0		
SPAT SIZED SACKS PER ACRE			0		0		0		0		
SEED SIZED SACKS PER ACRE			0		0		0		0		
MARKET SACKS PER ACRE			0		0		0		0		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 3 / SEED GROUND : CALCASIEU LAKE / COORDINATES : 29º58'54.09" / 93º 19'10.52" / 5-Mar-07 — SIZE CLASS (CM)	TOSS 1 L	TOSS 1 D	TOSS 2 L	TOSS 2 D	TOSS 3 L	TOSS 3 D	TOTAL L	TOTAL D	SIZE CLASS % MORT.
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0							0	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0							0	0	0%
	10	5.1-5.5							0	0	0%
	11	5.6-6.0							0	0	0%
	12	6.1-6.5							0	0	0%
	13	6.6-7.0							0	0	0%
	14	7.1-7.5	NO LIVE OR RECENTLY DEAD OYSTERS						0	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0							0	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			0	0	0	0	0	0	0.00	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
PERCENT MARKET SIZED OYS.			0%		0%		0%		0%		
OLD BOXES			0		0		0		0		
SPAT SIZED SACKS PER ACRE			0		0		0		0		
SEED SIZED SACKS PER ACRE			0		0		0		0		
MARKET SACKS PER ACRE			0		0		0		0		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 4	SEED GROUND : CALCASIEU LAKE							SIZE CLASS % MORT.
		COORDINATES : 29º59'29.93" / 93º 19'04.08"						5-Mar-07		
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5			1		1		2	0	0%
	3	1.6-2.0					2		2	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0	1						1	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0	1		1				2	0	0%
	10	5.1-5.5	1		1				2	0	0%
	11	5.6-6.0			2		1		3	0	0%
	12	6.1-6.5			1		2		3	0	0%
	13	6.6-7.0			2		2		4	0	0%
	14	7.1-7.5					1		1	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0	1						1	0	0%
	18	9.1-9.5			1		2		3	0	0%
	19	9.6-10.0	1		1		1		3	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0			1		1		2	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0					2		2	0	0%
	24	12.1-12.5					1		1	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5			1				1	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			5	0	12	0	16	0	11.00	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	1	0	3	0	1.33	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			3	0	7	0	6	0	5.33	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			2	0	4	0	7	0	4.33	0.00	0%
PERCENT MARKET SIZED OYS.			40%		33%		44%		39%		
OLD BOXES			0		1		1		2		
SPAT SIZED SACKS PER ACRE			0		6		17		7		
SEED SIZED SACKS PER ACRE			34		79		67		60		
MARKET SACKS PER ACRE			45		90		157		97		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 5 / SIZE CLASS (CM)	SEED GROUND : CALCASIEU LAKE / COORDINATES : 29º59'59.75" / 93º 18'57.01" / 5-Mar-07								SIZE CLASS % MORT.
			TOSS 1		TOSS 2		TOSS 3		TOTAL		
			L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0							0	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0							0	0	0%
	10	5.1-5.5							0	0	0%
	11	5.6-6.0							0	0	0%
	12	6.1-6.5							0	0	0%
	13	6.6-7.0							0	0	0%
	14	7.1-7.5	NO LIVE OR RECENTLY DEAD OYSTERS						0	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0							0	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			0	0	0	0	0	0	0.00	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
PERCENT MARKET SIZED OYS.			0%		0%		0%		0%		
OLD BOXES			0		0		0		0		
SPAT SIZED SACKS PER ACRE			0		0		0		0		
SEED SIZED SACKS PER ACRE			0		0		0		0		
MARKET SACKS PER ACRE			0		0		0		0		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 6	SEED GROUND : CALCASIEU LAKE								SIZE CLASS % MORT.
		COORDINATES : 30º00'18.10" / 93º 18'55.38"							5-Mar-07		
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0							0	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0							0	0	0%
	10	5.1-5.5							0	0	0%
	11	5.6-6.0							0	0	0%
	12	6.1-6.5							0	0	0%
	13	6.6-7.0							0	0	0%
	14	7.1-7.5	NO LIVE OR RECENTLY DEAD OYSTERS						0	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0							0	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			0	0	0	0	0	0	0.00	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
PERCENT MARKET SIZED OYS.			0%		0%		0%		0%		
OLD BOXES			0		0		0		0		
SPAT SIZED SACKS PER ACRE			0		0		0		0		
SEED SIZED SACKS PER ACRE			0		0		0		0		
MARKET SACKS PER ACRE			0		0		0		0		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 7	SEED GROUND : CALCASIEU LAKE							SIZE CLASS % MORT.
		COORDINATES : 30º00'07.98" / 93º 19'10.84"						5-Mar-07		
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0							0	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5	1						1	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5			1		2		3	0	0%
	9	4.6-5.0					1		1	0	0%
	10	5.1-5.5							0	0	0%
	11	5.6-6.0							0	0	0%
	12	6.1-6.5			1		1		2	0	0%
	13	6.6-7.0							0	0	0%
	14	7.1-7.5							0	0	0%
MARKET SACK	15	7.6-8.0							0	0	0%
	16	8.1-8.5							0	0	0%
	17	8.6-9.0							0	0	0%
	18	9.1-9.5							0	0	0%
	19	9.6-10.0							0	0	0%
	20	10.1-10.5							0	0	0%
	21	10.6-11.0							0	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0							0	0	0%
	24	12.1-12.5							0	0	0%
	25	12.6-13.0							0	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			1	0	2	0	4	0	2.33	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			1	0	2	0	4	0	2.33	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			0	0	0	0	0	0	0.00	0.00	0%
PERCENT MARKET SIZED OYS.			0%		0%		0%		0%		
OLD BOXES			0		0		0		0		
SPAT SIZED SACKS PER ACRE			0		0		0		0		
SEED SIZED SACKS PER ACRE			11		22		45		26		
MARKET SACKS PER ACRE			0		0		0		0		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 8	SEED GROUND : CALCASIEU LAKE							SIZE CLASS % MORT.
		COORDINATES : 30º02'10.61" / 93º 19'14.21"						5-Mar-07		
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0							0	0	0%
	2	1.1-1.5							0	0	0%
	3	1.6-2.0	1		1				2	0	0%
	4	2.1-2.5							0	0	0%
SEED	5	2.6-3.0							0	0	0%
	6	3.1-3.5							0	0	0%
	7	3.6-4.0							0	0	0%
	8	4.1-4.5							0	0	0%
	9	4.6-5.0	1						1	0	0%
	10	5.1-5.5	1		2		2		5	0	0%
	11	5.6-6.0	1				3		4	0	0%
	12	6.1-6.5			2		4		6	0	0%
	13	6.6-7.0	1		2				3	0	0%
	14	7.1-7.5			1				1	0	0%
MARKET SACK	15	7.6-8.0			2				2	0	0%
	16	8.1-8.5	1				2		3	0	0%
	17	8.6-9.0	1				5		6	0	0%
	18	9.1-9.5			1		1		2	0	0%
	19	9.6-10.0	1				1		2	0	0%
	20	10.1-10.5	2				1		3	0	0%
	21	10.6-11.0	1		1		3		5	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0	1				3		4	0	0%
	24	12.1-12.5	1				3		4	0	0%
	25	12.6-13.0	2						2	0	0%
	26	13.1-13.5	1				1		2	0	0%
	27	13.6-14.0					1		1	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0			1				1	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			16	0	13	0	30	0	19.67	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			1	0	1	0	0	0	0.67	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			4	0	7	0	9	0	6.67	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			11	0	5	0	21	0	12.33	0.00	0%
PERCENT MARKET SIZED OYS.			69%		38%		70%		63%		
OLD BOXES			0		4		4		8		
SPAT SIZED SACKS PER ACRE			6		6		0		4		
SEED SIZED SACKS PER ACRE			45		79		101		75		
MARKET SACKS PER ACRE			247		112		472		277		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 9	SEED GROUND : CALCASIEU LAKE								SIZE CLASS % MORT.
		COORDINATES : 30º02'52.27" / 93º 18'58.54"							6-Mar-07		
		SIZE CLASS	TOSS 1		TOSS 2		TOSS 3		TOTAL		
		(CM)	L	D	L	D	L	D	L	D	
SPAT	0	0.1-0.5	1		6		1		8	0	0%
	1	0.6-1.0	3		8		3	1	14	1	7%
	2	1.1-1.5	6		21		9		36	0	0%
	3	1.6-2.0	7		15		2		24	0	0%
	4	2.1-2.5	4		7		6	1	17	1	6%
SEED	5	2.6-3.0	7		7		8		22	0	0%
	6	3.1-3.5	4		7		4	1	15	1	6%
	7	3.6-4.0	6	1	13		6		25	1	4%
	8	4.1-4.5	12		16		16		44	0	0%
	9	4.6-5.0	14		15	1	12		41	1	2%
	10	5.1-5.5	14		21		15		50	0	0%
	11	5.6-6.0	15		12		13		40	0	0%
	12	6.1-6.5	10		12		8		30	0	0%
	13	6.6-7.0	11		7		5		23	0	0%
	14	7.1-7.5	6		5		7		18	0	0%
MARKET SACK	15	7.6-8.0	5		5		2		12	0	0%
	16	8.1-8.5	3		1		2		6	0	0%
	17	8.6-9.0	2		1		1		4	0	0%
	18	9.1-9.5	1		2		1		4	0	0%
	19	9.6-10.0	4		2		1		7	0	0%
	20	10.1-10.5	1		2				3	0	0%
	21	10.6-11.0	3		2		2		7	0	0%
	22	11.1-11.5	1				1		2	0	0%
	23	11.6-12.0			2				2	0	0%
	24	12.1-12.5			4				4	0	0%
	25	12.6-13.0	1						1	0	0%
	26	13.1-13.5	1				1		2	0	0%
	27	13.6-14.0	1						1	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			143	1	193	1	126	3	154.00	1.67	1%
SPAT OYSTERS (0.1-2.5 CM) / M2			21	0	57	0	21	2	33.00	0.67	2%
SEED OYSTERS (2.6-7.5 CM) / M2			99	1	115	1	94	1	102.67	1.00	1%
MARKET OYSTERS (>7.6 CM) / M2			23	0	21	0	11	0	18.33	0.00	0%
PERCENT MARKET SIZED OYS.			16%		11%		9%		12%		
OLD BOXES			30		48		17		95		
SPAT SIZED SACKS PER ACRE			118		320		118		186		
SEED SIZED SACKS PER ACRE			1113		1293		1057		1155		
MARKET SACKS PER ACRE			517		472		247		412		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 10	SEED GROUND : CALCASIEU LAKE							SIZE CLASS % MORT.
		COORDINATES : 30º03'15.05" / 93º 19'01.65"						6-Mar-07		
		SIZE CLASS (CM)	TOSS 1		TOSS 2		TOSS 3		TOTAL	
			L	D	L	D	L	D	L	D
SPAT	0	0.1-0.5					1		1	0	0%
	1	0.6-1.0	1		1		7		9	0	0%
	2	1.1-1.5	1		2		3		6	0	0%
	3	1.6-2.0	4		3		5		12	0	0%
	4	2.1-2.5	5		1		2		8	0	0%
SEED	5	2.6-3.0	2				1		3	0	0%
	6	3.1-3.5			3		1		4	0	0%
	7	3.6-4.0	2		6		1		9	0	0%
	8	4.1-4.5	2		4		5		11	0	0%
	9	4.6-5.0	1		9		2		12	0	0%
	10	5.1-5.5	6		7		1		14	0	0%
	11	5.6-6.0	7		13		10		30	0	0%
	12	6.1-6.5	5		6		8		19	0	0%
	13	6.6-7.0	2		6		4		12	0	0%
	14	7.1-7.5			6		6		12	0	0%
MARKET SACK	15	7.6-8.0			2		4		6	0	0%
	16	8.1-8.5	1		5				6	0	0%
	17	8.6-9.0			2				2	0	0%
	18	9.1-9.5			2				2	0	0%
	19	9.6-10.0	1				1		2	0	0%
	20	10.1-10.5			1				1	0	0%
	21	10.6-11.0			2				2	0	0%
	22	11.1-11.5							0	0	0%
	23	11.6-12.0	2						2	0	0%
	24	12.1-12.5			2		1		3	0	0%
	25	12.6-13.0	1		2				3	0	0%
	26	13.1-13.5							0	0	0%
	27	13.6-14.0							0	0	0%
	28	14.1-14.5							0	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+							0	0	0%
ALL SIZED OYSTERS / M2			43	0	85	0	63	0	63.67	0.00	0%
SPAT OYSTERS (0.1-2.5 CM) / M2			11	0	7	0	18	0	12.00	0.00	0%
SEED OYSTERS (2.6-7.5 CM) / M2			27	0	60	0	39	0	42.00	0.00	0%
MARKET OYSTERS (>7.6 CM) / M2			5	0	18	0	6	0	9.67	0.00	0%
PERCENT MARKET SIZED OYS.			12%		21%		10%		15%		
OLD BOXES			1		10		3		14		
SPAT SIZED SACKS PER ACRE			62		39		101		67		
SEED SIZED SACKS PER ACRE			304		675		439		472		
MARKET SACKS PER ACRE			112		405		135		217		

TABLE 2 (cont.)
1.0 m2 OYSTER SAMPLE DATA
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SIZE	LDWF OYSTER SIZE GROUP	SAMPLE No. : O - 11	SEED GROUND : CALCASIEU LAKE							SIZE CLASS % MORT.
		COORDINATES : 30º03'29.24" / 93º 19'11.67"						6-Mar-07		
		SIZE CLASS (CM)	TOSS 1		TOSS 2		TOSS 3		TOTAL	
			L	D	L	D	L	D	L	D
SPAT	0	0.1-0.5							0	0	0%
	1	0.6-1.0			1		2		3	0	0%
	2	1.1-1.5			2		3		5	0	0%
	3	1.6-2.0	1		6	1	3		10	1	9%
	4	2.1-2.5	4		8	1	5		17	1	6%
SEED	5	2.6-3.0	1		6	1	8		15	1	6%
	6	3.1-3.5	4		10		3		17	0	0%
	7	3.6-4.0	4		17	1	6		27	1	4%
	8	4.1-4.5	3		17		7		27	0	0%
	9	4.6-5.0	7		23		14		44	0	0%
	10	5.1-5.5	5		19		14		38	0	0%
	11	5.6-6.0	2		21		12		35	0	0%
	12	6.1-6.5	3		16		12		31	0	0%
	13	6.6-7.0	2		15		11		28	0	0%
	14	7.1-7.5	5		7		7		19	0	0%
MARKET SACK	15	7.6-8.0	3		3		4		10	0	0%
	16	8.1-8.5	3		6		3		12	0	0%
	17	8.6-9.0	1		5		6		12	0	0%
	18	9.1-9.5	1		4		5		10	0	0%
	19	9.6-10.0	1		1		3		5	0	0%
	20	10.1-10.5			2		4		6	0	0%
	21	10.6-11.0	2				3		5	0	0%
	22	11.1-11.5					1		1	0	0%
	23	11.6-12.0	1		3		3		7	0	0%
	24	12.1-12.5					4		4	0	0%
	25	12.6-13.0	1				2		3	0	0%
	26	13.1-13.5					1		1	0	0%
	27	13.6-14.0					2		2	0	0%
	28	14.1-14.5					1		1	0	0%
	29	14.6-15.0							0	0	0%
	30	15.0+					1		1	0	0%
ALL SIZED OYSTERS / M2			54	0	192	4	150	0	132.00	1.33	1%
SPAT OYSTERS (0.1-2.5 CM) / M2			5	0	17	2	13	0	11.67	0.67	5%
SEED OYSTERS (2.6-7.5 CM) / M2			36	0	151	2	94	0	93.67	0.67	1%
MARKET OYSTERS (>7.6 CM) / M2			13	0	24	0	43	0	26.67	0.00	0%
PERCENT MARKET SIZED OYS.			24%		12%		29%		20%		
OLD BOXES			5		23		19		47		
SPAT SIZED SACKS PER ACRE			28		96		73		66		
SEED SIZED SACKS PER ACRE			405		1698		1057		1053		
MARKET SACKS PER ACRE			292		540		967		600		

TABLE 3
OYSTER SAMPLE DATA SUMMARY
USACOE-NOD CALCASIEU SHIP CHANNEL & PASS DMMP OYSTER ASSESSMENT

SEED GROUND	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
SAMPLE NUMBER	O - 1	O - 2	O - 3	O - 4	O - 5	O - 6	O - 7	O - 8	O - 9	O - 10	O - 11
DATE	5-Mar-07	5-Mar-07	5-Mar-07	5-Mar-07	5-Mar-07	5-Mar-07	5-Mar-07	5-Mar-07	6-Mar-07	6-Mar-07	6-Mar-07
AVERAGE LIVE / M2	97.00	0.00	0.00	11.00	0.00	0.00	2.33	19.67	154.00	63.67	132.00
AVERAGE RECENT DEAD / M2	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.00	1.33
AVERAGE % RECENT MORTALITY	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%
AVERAGE LIVE SPAT / M2	20.00	0.00	0.00	1.33	0.00	0.00	0.00	0.67	33.00	12.00	11.67
AVERAGE LIVE SEED / M2	74.67	0.00	0.00	5.33	0.00	0.00	2.33	6.67	102.67	42.00	93.67
AVERAGE LIVE MARKET SIZED / M2	2.33	0.00	0.00	4.33	0.00	0.00	0.00	12.33	18.33	9.67	26.67
PERCENT MARKET SIZED	2%	0%	0%	39%	0%	0%	0%	63%	12%	15%	20%
OLD BOXES	12	0	0	2	0	0	0	8	95	14	47
PERCENT OLD BOXES	4%	0%	0%	6%	0%	0%	0%	12%	17%	7%	11%
SPAT SIZED SACKS / ACRE	112	0	0	7	0	0	0	4	186	67	66
SEED SIZED SACKS / ACRE	840	0	0	60	0	0	26	75	1155	472	1053
MARKET SACKS/ACRE	52	0	0	97	0	0	0	277	412	217	600
TOTAL SACKS/ACRE	1005	0	0	165	0	0	26	356	1752	757	1719
MARKET SACKS S.D.	72	0	0	57	0	0	0	182	145	163	341
No. OF REPLICATES	3	3	3	3	3	3	3	3	3	3	3

APPENDIX A

LDWF PARTIAL
OYSTER ASSESSMENT/MITIGATION WAIVER

State of Louisiana

KATHLEEN BABINEAUX BLANCO
GOVERNOR

DEPARTMENT OF WILDLIFE AND FISHERIES

DWIGHT LANDRENEAU
SECRETARY

19 December 2005

Ms. Linda G. Mathies
Chief, Environmental Function
Operations Division
Technical Support Branch
U. S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

RE: Construction of Bank Stabilization Dikes, Calcasieu Ship Channel between river miles 16 and 11

Dear Ms. Mathies:

We have received the Corps' request dated 08 November 2005 for a waiver of oyster seed ground mitigation for impacts to Louisiana's Calcasieu Lake oyster seed ground. We understand that the Corps' assessment of the source of sediment between river miles 16 and 11 of the Calcasieu Ship Channel is based on results of a model currently in final development phase.

Area staff have reviewed your request. The project area you've described does not have significant oyster resource at this time. We are willing to grant your waiver of oyster seed ground mitigation provided the Corps stays within the project footprint identified in your request. Should the project for any reason move to areas of lake bottom outside of the area identified in your request, we will require mitigation for impacts to oyster seed grounds.

Department staff have long maintained that sediment accumulation requiring maintenance dredging in the Calcasieu Ship Channel originates from erosion of the channel sides. We believe that the project described in your letter of 08 November is a positive step to reduce maintenance dredging in the channel and thereby reduce the need for additional dredge spoil disposal areas in the lake.

Should you have any questions, please contact Heather Warner-Finley at 225.765.2956 or hfinley@wlf.louisiana.gov or Michael Harbison at 337.491.2579 or mharbison@wlf.louisiana.gov. Thank you for your interest in the fishery resources of Louisiana.

Sincerely,

Dwight Landreneau
Secretary

jhwf

cc: Michael Harbison
Christy Lavergne
Venise Ortego

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

REPLY TO
ATTENTION OF

November 8, 2005

Operations Division
Technical Support Branch

Louisiana Department of Wildlife and Fisheries
ATTN: Mr. Dwight Landreneau, Secretary
Post Office Box 98000
Baton Rouge, Louisiana 70898

Dear Mr. Landreneau:

The U. S. Army Corps of Engineers, New Orleans District (CEMVN), in conjunction with the Port of Lake Charles (the local sponsor for the Calcasieu River and Pass, Louisiana project), requests a waiver of oyster seed ground mitigation requirements stemming from impacts to the historical water bottom of Calcasieu Lake resulting from the construction of bank stabilization dikes along the left-descending bankline of the Calcasieu River navigation channel between river miles 16 and 11 (Figures 1-3).

Historically, dredged material from the ship channel has been placed in confined disposal facilities (CDFs) built adjacent to the channel since the construction of the Calcasieu River deep draft navigational channel in the late 1940's to early 1950's. These facilities are constructed using earthen containment dikes to hold dredged material. The CDFs are subject to erosion from vessel wakes, wind driven waves, and tidal actions. As a result, the channel side CDF containment dikes are losing material back into the navigational channel where it contributes to the reduction of project depth. The continued erosion also threatens the integrity of the containment dikes. If these dikes fail, dredged material will spill into the channel and navigation would be impacted.

The CEMVN proposes to construct bank stabilization dikes along the channel side of existing CDFs to prevent erosion of existing earthen containment dikes. This also would decrease the likelihood of dike failure and subsequent spilling of dredged material into the navigation channel following placement of dredged material into these disposal areas. Construction of bank stabilization dikes on the channel side of existing CDFs also may reduce shoaling and decrease the frequency of maintenance dredging.

Bank stabilization dikes would be constructed in shallow open water along the channel side of existing CDFs located on the left descending bank of the Calcasieu River between miles 16 and 11 to prevent the flow and erosion of dredge material into the navigational channel. Rock, concrete, earth, shell, or a combination of these materials would be used for dike construction and maintenance. Bank stabilization dikes would be constructed to a maximum height of about +8.0 feet Mean Low Gulf (MLG) over a total maximum length of approximately 27,650 linear

feet (Figures 4-6). A maximum of approximately 56 acres of shallow open water bottom would be impacted by the dike placement.

Flotation access channels would be excavated, as necessary, by mechanical dredges along the channel side of the dikes to permit rock/concrete/shell-carrying barges and construction equipment access to the work sites. Flotation channels would be excavated to a maximum depth of about –7.0 feet MLG, a maximum width of about 80 feet, and a maximum total length of about 27,650 feet. A maximum of approximately 570,000 cubic yards of material would be excavated for flotation channel construction, and a maximum of about 51 acres of Calcasieu River shallow open water bottom habitat would be impacted by flotation channel excavation. Flotation channel material would be used in the construction of the dikes and/or placed behind the dikes to a maximum elevation of about +8.0 feet MLG for bankline stabilization. An additional 51 acres of shallow open water bottom located between the dike and the CDFs would potentially be impacted by placement of flotation channel material. Flotation channels would be allowed to fill naturally by siltation from wave action and currents in the ship channel.

Construction of these bank stabilization dikes would occur in an area of historical Calcasieu Lake bottom. We understand that any of these actions involving impacts to the historic Calcasieu Lake bottom area would be subject to oyster seed ground mitigation requirements. We are requesting a waiver of these requirements for the construction of these bank stabilization dikes and their associated activities along the Calcasieu River navigation channel.

If you have any additional questions or concerns regarding this letter, please contact Mr. Edward Creef, telephone (504) 862-2521. The Operations Manager for the Calcasieu River and Pass, Louisiana project is Ms. Tracy Falk (504) 862-2971.

Sincerely,

Linda G. Mathies

Linda G. Mathies
Chief, Environmental Function

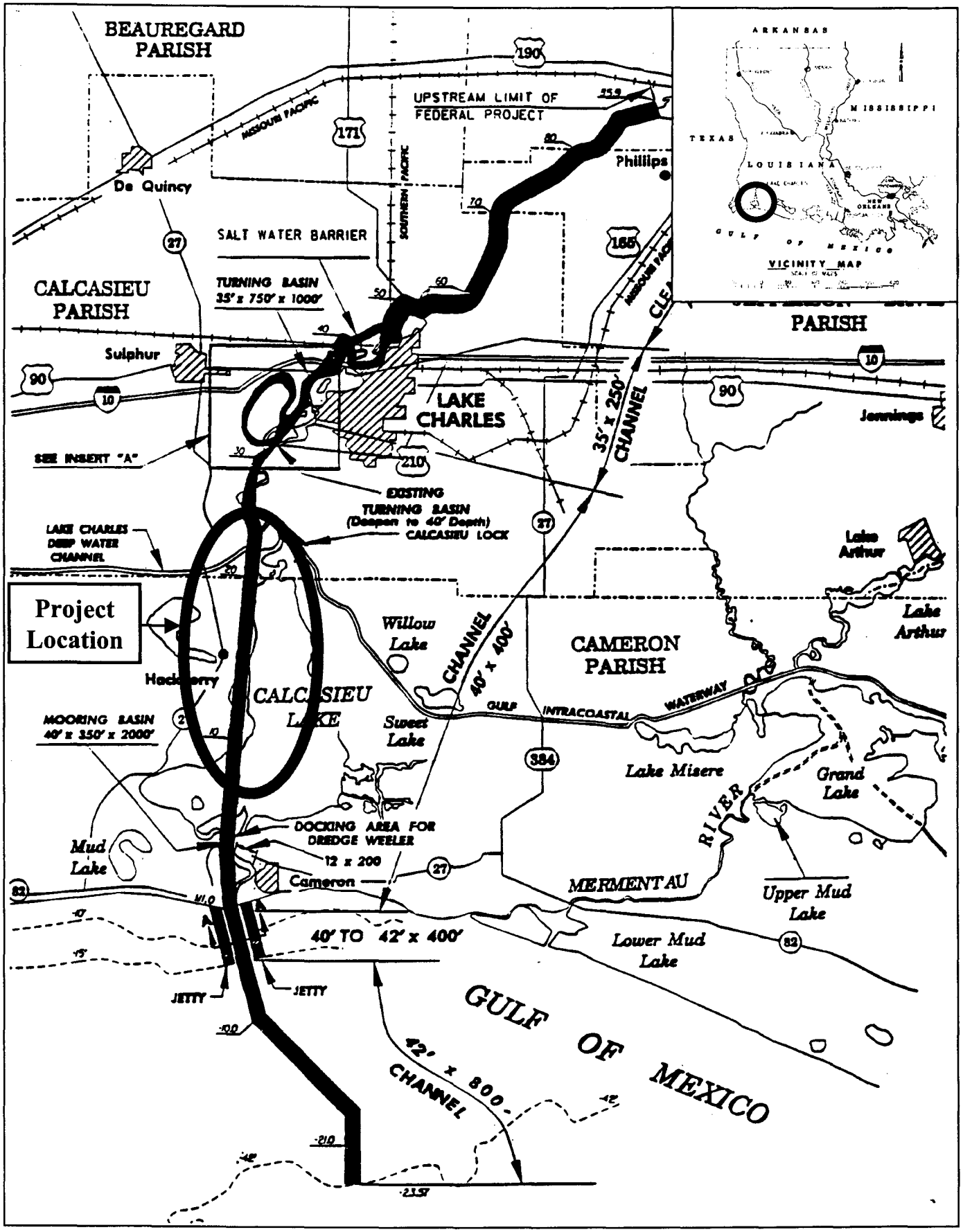

BEAUREGARD PARISH
CALCASIEU PARISH
CAMERON PARISH
UPSTREAM LIMIT OF FEDERAL PROJECT
SALT WATER BARRIER
TURNING BASIN 35' x 750' x 1000'
SEE INSERT "A"
EXISTING TURNING BASIN (Deepen to 40' Depth)
CALCASIEU LOCK
LAKE CHARLES DEEP WATER CHANNEL
Project Location
MOORING BASIN 40' x 350' x 2000'
DOCKING AREA FOR DREDGE WEELER 12 x 200
40' TO 42' x 400'
JETTY
JETTY
42' x 800' CHANNEL
35' x 250' CHANNEL
40' x 400' CHANNEL
GULF INTRACOASTAL WATERWAY
GULF OF MEXICO
LAKE CHARLES
CALCASIEU LAKE
Willow Lake
Sweet Lake
Lake Misere
Grand Lake
Mud Lake
Lower Mud Lake
Upper Mud Lake
Lake Arthur
MERMENTAU RIVER
De Quincy
Sulphur
Phillips
Jennings
Hackberry
Cameron
VICINITY MAP
ARKANSAS
MISSISSIPPI
TEXAS
LOUISIANA
GULF OF MEXICO
MISSOURI PACIFIC
SOUTHERN PACIFIC

Figure 1

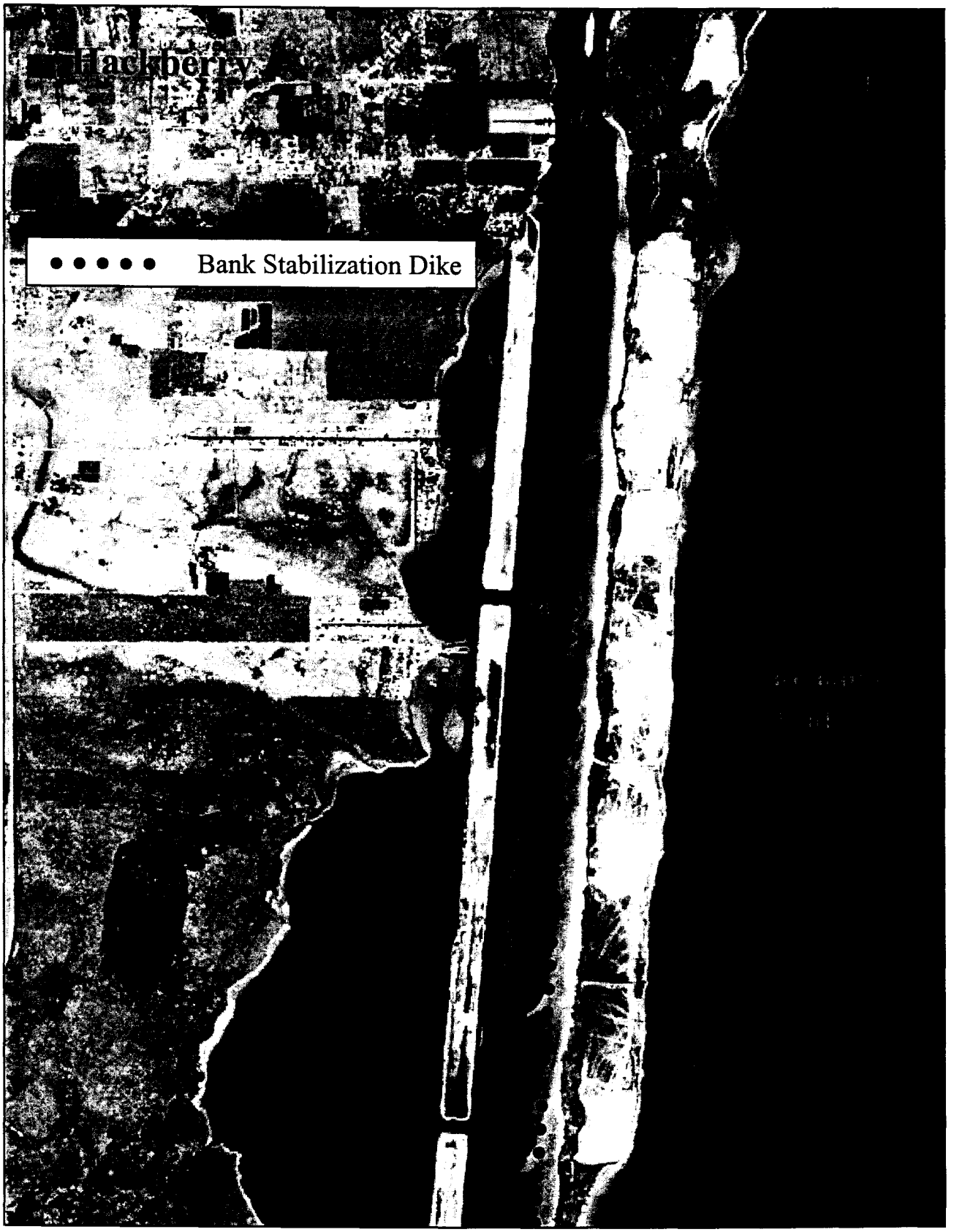
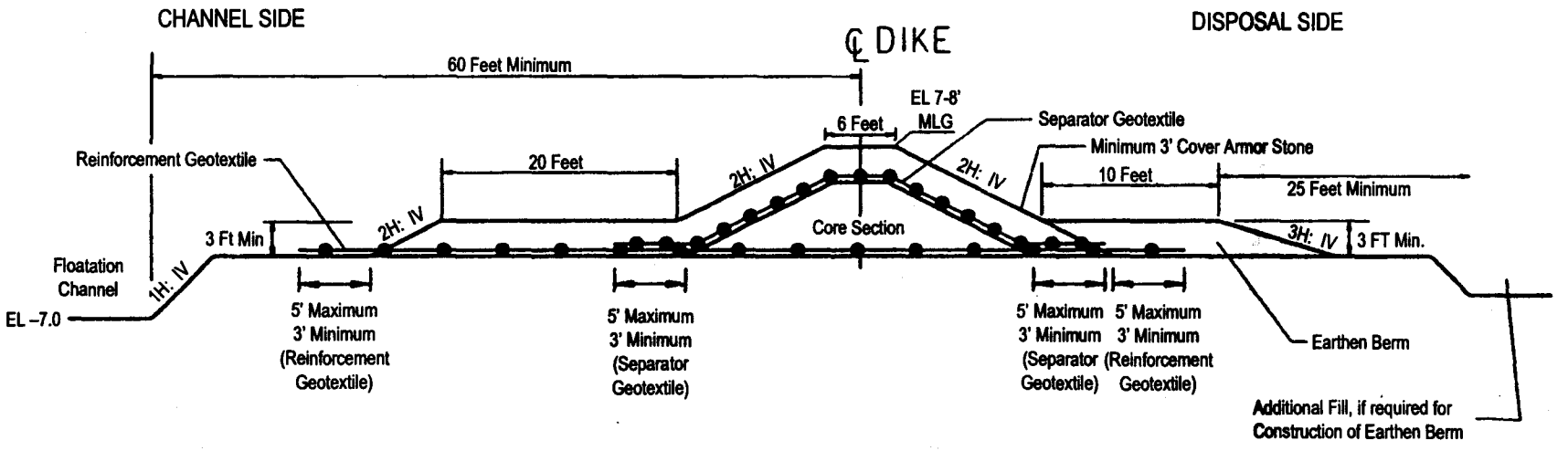


Figure 2

Figure 3



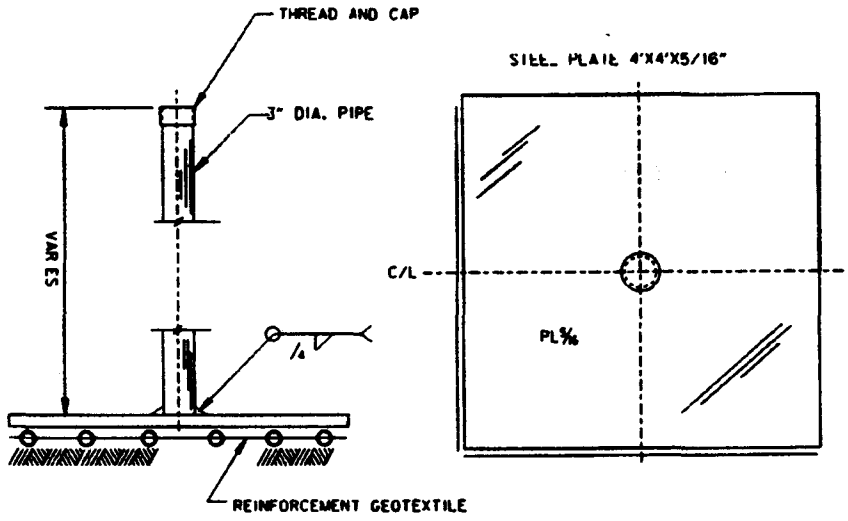
THEORETICAL CROSS SECTION

NOT TO SCALE

Figure 4

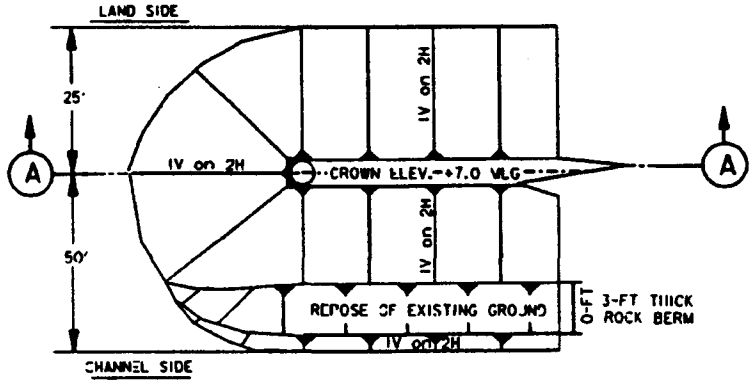
NOTES

1. The 3" diameter pipe shall be extended a minimum of 4" above the armor stone. All pipe and fittings shall be standing and galvanized after welding.
2. Place settlement plates at 1000' intervals over entire length of closure.



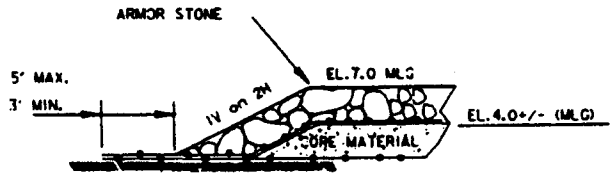
SETTLEMENT PLATE DETAIL

NOT TO SCALE



TYPICAL TIE-IN TO BANKLINE FORESHORE PROTECTION DIKE PLAN VIEW

(Not To Scale)



(A) SECTION

END DETAIL

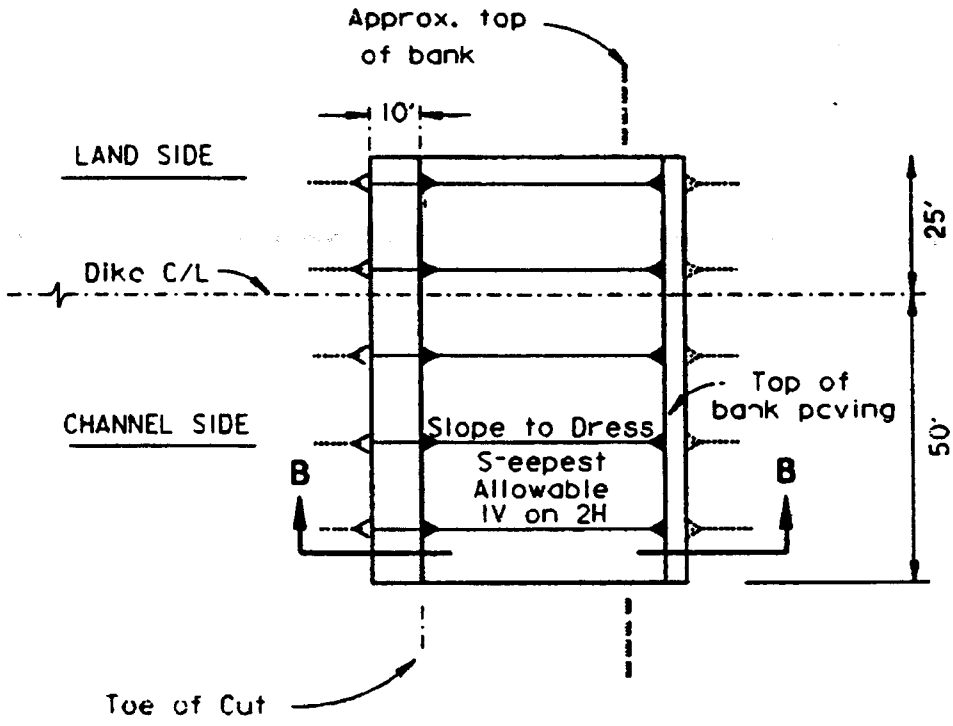
NOT TO SCALE

SOUTHERN LIMIT OF WORK

Figure 5

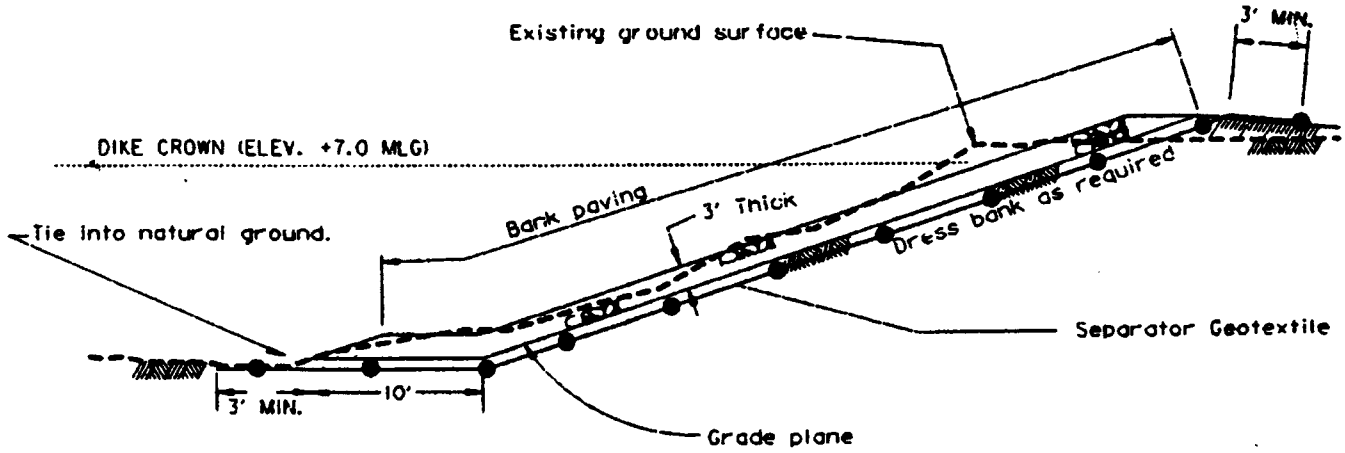
NOTES:

1. Stone bank paving is required at both the north and south limits of dike where the structure ties into existing land.
2. Stone bank paving is required at the interior gap in the dike where the structure ties into existing land.
3. Paving shall extend 50 feet channelward of the dike C/L, and 25 feet landward of the dike C/L as shown on the plan drawings.
4. Bankline shall be dressed as required to assure acceptance of stone paving. Dress slope shall be no steeper than 1V on 2H.
5. **Bank paving shall be constructed and accepted** prior to construction of dike berm.
6. Spoil material resulting from bank dressing shall be disposed of on overbank or behind the stone dike alignment.
7. All dike tie-ins shall be perpendicular to the shoreline.
8. All excavations shown are referenced to MLG Pre-83 epoch.



TYPICAL PLAN VIEW

(NOT TO SCALE)



SECTION B-B

(NOT TO SCALE)

REQUIRED BANK PAVING AT DIKE TIE-IN NORTHERN LIMIT OF WORK

Figure 6

APPENDIX B

Photographs
Dredge Samples & Oyster Samples

Dredge Sample DS-1 March 5, 2007

Dredge Sample DS-2 March 5, 2007

Dredge Sample DS-4 March 5, 2007

Dredge Sample DS-5 March 5, 2007

Dredge Sample DS-6 March 5, 2007

Dredge Sample DS-10 March 5, 2007

O1 Toss 1 March 5, 2007

O-1 Toss 2 March 5, 2007

O-1 Toss 3 March 5, 2007

O-2 Toss 1 March 5, 2007

O-4 Toss 1 March 5, 2007

O-4 Toss 2 March 5, 2007

O-4 Toss 3 March 5, 2007

O-7 Toss 1 March 5, 2007

O-7 Toss 2 March 5, 2007

O-7 Toss 3 March 5, 2007

O-8 Toss 1 March 5, 2007

O-8 Toss 2 March 5, 2007

O-8 Toss 3 March 5, 2007

O-9 Toss 1 March 6, 2007

O-9 Toss 2 March 6, 2007

O-9 Toss 3 March 6, 2007

O-10 Toss 1 March 6, 2007

O-10 Toss 2 March 6, 2007

O-10 Toss 3 March 6, 2007

O-11 Toss 1 March 6, 2007

O-11 Toss 2 March 6, 2007

O-11 Toss 3 March 6, 2007