

APPENDIX D: PERMITS

BOBBY JINDAL
GOVERNOR



SCOTT A. ANGELLE
SECRETARY

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

December 28, 2011

Richard Hartman
National Marine Fisheries Service
c/o LSU, Military Science Bldg, Rm 266
Baton Rouge, LA 70803

JAN - 3 2011
[Handwritten signature]

RE: **C20110518**, Coastal Zone Consistency
National Marine Fisheries Service
Grand Liard Marsh and Ridge Restoration CWPPRA Project BA-68: Ridge and marsh
restoration via dedicated dredging and sheet piling, **Plaquemines Parish, Louisiana.**

Dear Mr. ~~Hartman~~ *Rick*:

The above referenced project has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this information request, please contact Jeff Harris of the Consistency Section at (225) 342-7949 or 1-800-267-4019.

Sincerely,

Keith Lovell

Keith Lovell
Administrator
Interagency Affairs/Field Services Division

KOL/jdh

cc: Tye Fitzgerald, CPRA
Dave Butler, LDWF
Albertine Kimble, Plaquemines Parish

DEPARTMENT OF THE ARMY PERMIT

Permittee: National Marine Fisheries Service

Permit No. MVN-2011-3319-EOO

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Hydraulically dredge, transport, deposit, and maintain approximately 3,134,000 cubic yards of material to create a 432 acre marsh area and a 18,000 linear foot ridge as part of the Grand Liard Marsh and Ridge Restoration Project (CWPPRA BA-68), in accordance with the drawings attached in thirty sheets dated November 2011.

Project Location: A 1,161 acre project area that includes the remnant ridge on the east bank of Bayou Grand Liard, within Bastain Bay and the Gulf of Mexico near Triumph, in Plaquemines Parish, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **MAY 31, 2017**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: See Attached.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- Section 404 of the Clean Water Act (33 U.S.C. 1344).
- Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

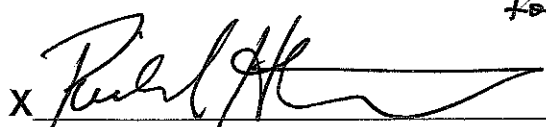
- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

X  *for National Marine Fisheries Service* X 5/30/2012
 (PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

 Michael V Farabee, Chief Eastern Evaluation Section (DATE)

for Edward R. Fleming, District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

 (TRANSFeree) (DATE)

SPECIAL CONDITIONS: MVN-2011-3319-EOO

7. The permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.
8. The permittee must install and maintain, at the permittee's expense, any safety lights, signs, and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on the permittee's authorized facilities.
9. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
10. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.,) in the waterway, you are advised to notify the US Coast Guard so that a Notice to Mariners, if required, may be prepared. Notification, with a copy of your permit approval and drawings, should be mailed to the US Coast Guard, Sector New Orleans Command Center, 200 Hendee Street, New Orleans, Louisiana 70114, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 365-2281.
11. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the applicant will contact the Chitimacha Tribe of Louisiana at P.O. Box 661, Charenton, LA 70523, and the US Army Corps of Engineers, New Orleans District, Regulatory Branch (CEMVN). CEMVN will initiate the required Federal, State, and Tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.
12. Prior to commencing work on the project, the permittee must obtain all necessary state and parish approvals.
13. If the proposed project requires any additional work not expressly permitted herein, the permittee must apply for an amendment to this authorization.
14. Field personnel/dredging crew should periodically inspect both the dredging and disposal sites for the presence of oil during daylight hours. Periodic inspections may coincide with shift changes, repositioning of equipment or other activities related to dredging and disposal operations. Time conducted and results of these inspections should be recorded. If oil in any form is observed, dredging should cease and the U.S. Coast Guard (USCG) National Spill Response Center should immediately be contacted (1-800-424-8802). The USCG New Orleans Sector (504-365-2200) and CEMVN, Regulatory Branch (504-862-2766) should be notified of the incident. Field personnel should document the incident (take photographs, mark location and time observed, record color and size of sheen, etc.) to assist the USCG's investigation and response. Dredging should not resume until approved by USCG and CEMVN.
15. All contract personnel associated with the project shall be informed of the potential presence of five species of sea turtles: green, hawksbill, Kemp's ridley, leatherback, and loggerhead. The

permittee must adhere to National Marine Fisheries Service's (NMFS) 2006 Sea Turtle and Smalltooth Sawfish Construction Conditions, which are as follows: (1) All construction personnel shall be deemed responsible for observing water related activities and the presence of sea turtles. (2) The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles, which are protected under the Endangered Species Act of 1973. (3) If needed, any siltation barriers utilized during construction activities shall be made of material in which sea turtles could not become entangled, and should be properly secured and monitored. (4) All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the waterbottom. (5) If a sea turtle is sighted within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection, including, no operating of moving equipment within 50 feet of a sea turtle, discontinuing the use of any mechanical construction equipment if a sea turtle is observed within a 50 foot radius of the equipment, and any siltation barriers used shall be re-secured in the sighting areas. Activities may not resume until the identified sea turtle(s) have left the work area on their own accord. (6) Any collision with and/or injury to a sea turtle shall be reported immediately to NMFS' Protected Resources Division (727-824-5312), the Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana field office (337-291-3100), and CEMVN (504-862-2766).

16. Prior to construction, the permittee is required to have a qualified biologist inspect the project area for the presence of undocumented bird nesting colonies during their respective nesting season. Once complete, the surveys including rookery and nest locations must be reported to Patti Holland (337) 291-3121, with U.S. Fish and Wildlife Service (FWS) and Mike Seymour (225) 765-2281, with the LDWF, Natural Heritage Program. For areas containing the nesting wading birds listed below, all activity occurring within 1,000 feet of the nesting colony should be restricted to the project activity window. If the project is long-term or time sensitive, and the time of year restrictions are not practicable, an abatement plan must be developed and approved through consultation with FWS.

Project Activity Window	Species
July to March 1	Anhinga, Cormorant
August 1 to February 15	Great Blue Heron, Great Egret
August 1 to March 1	Snowy Egret, Little Blue Heron, Tricolored Heron, Reddish Egret
September 1 to April 1	Cattle Egret, White and White-faced Ibis
September 1 to March 15	Green-backed Heron, Yellow-crowned Night-Heron
September 1 to March 1	Black-crowned Night Heron
August 1 to April 1	Roseate Spoonbill

BOBBY JINDAL
GOVERNOR



STEPHEN CHUSTZ
INTERIM SECRETARY

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

March 19, 2013

Tye Fitzgerald
Coastal Protection and Restoration Authority
P.O. Box 44027
Baton Rouge, LA 70804-4027

RE: **C20110518 modification 2**, Coastal Zone Consistency
Coastal Protection and Restoration Authority
Grand Liard Marsh and Ridge Restoration CWPPRA Project BA-68; modification to
Equipment Access Route, Access Channel and Sand Fill amounts, and removal of timber
pilings and abandoned flowlines, **Plaquemines Parish, Louisiana.**

Dear Mr. Fitzgerald:

The above referenced project modification has been reviewed for consistency with the approved Louisiana Coastal Resource Program (LCRP) as required by Section 307 of the Coastal Zone Management Act of 1972, as amended. The modification, as proposed in the application, is consistent with the LCRP. If you have any questions concerning this information request, please contact Jeff Harris of the Consistency Section at (225) 342-7949 or 1-800-267-4019.

Sincerely,

A handwritten signature in blue ink that reads "Keith Lovell".

Keith Lovell
Acting Administrator
Interagency Affairs/Field Services Division

KOL/jdh

cc: Rachel Sweeny, NMFS
Brad Laborde, COE-NOD
Dave Butler, LDWF
Albertine Kimble, Plaquemines Parish
Frank Cole, OCM/FI

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2013 MAR 20 P 12:39
CPRA



DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P. O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

Site copy

REPLY TO
ATTENTION OF:

Operations Division
Eastern Evaluation Section

APR 23 2013

SUBJECT: MVN-2011-3319-EOO

National Marine Fisheries Service
% Tye Fitzgerald
Coastal Protection and Restoration Authority
Post Office Box 44027
Baton Rouge, Louisiana 70804

RECEIVED
2013 APR 25 P 2:02
CFRMA

Gentlemen:

The attached drawings, furnished with your February 26, 2013 permit modification request to include: relocating the equipment access route, realigning the access channel and disposal area, increasing the sand fill cubic yardage within the closure structures, removing timber piles for construction access, and removing an existing abandoned flowline as part of the Grand Liard Marsh and Ridge Restoration project, within Bastian Bay and the Gulf of Mexico, near Triumph, in Plaquemines Parish, Louisiana, are approved and will be included in your plans for the work authorized by the Secretary of the Army in a permit dated June 6, 2012, from the District Engineer at New Orleans, Louisiana.

The conditions to which the work is made subject remain in full force and effect.

A copy of the first page of this permit approval letter must be conspicuously displayed at the project site. Also, you must keep a copy of this signed letter, with attached drawings, at the project site until the work is completed.

Should you have any further questions concerning this matter, please call Brad LaBorde at (504) 862-2225.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Martin S. Mayer

Martin S. Mayer
Chief, Regulatory Branch
For
Edward R. Fleming
Colonel, U.S. Army
District Commander

Enclosure

INDEX TO SHEETS

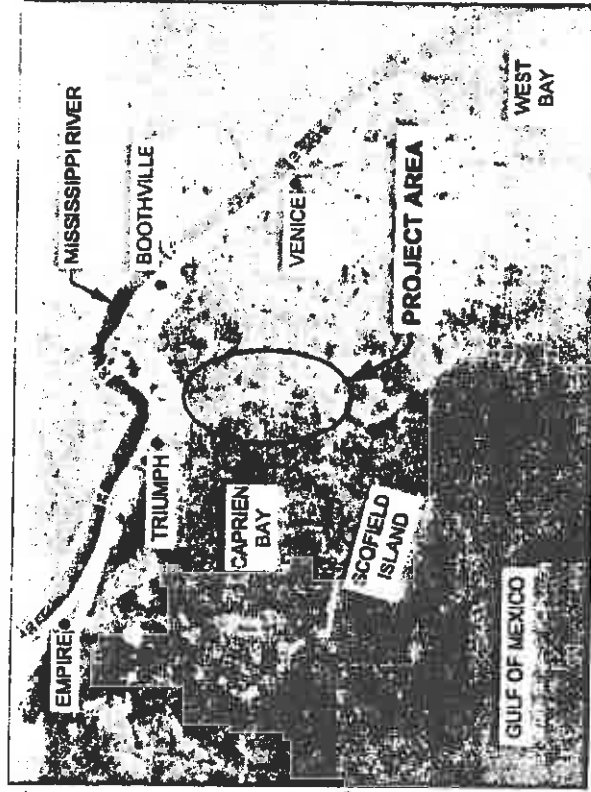
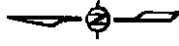
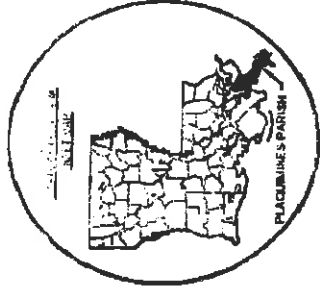
SH. NO. DESCRIPTION

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- 4 MARSH CREATION AREA A LAYOUT
- 5 MARSH CREATION AREA B LAYOUT
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STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

**GRAND LIARD MARSH AND
RIDGE RESTORATION**

BA-68
PLAQUEMINES PARISH



NOT FOR CONSTRUCTION
DOCUMENTS ARE NOT TO BE USED FOR
CONSTRUCTION, BIDDING, RECORDATION,
CONVEYANCE, OR SALES.

PROFESSIONAL ENGINEER
RUDOLPH A. SIMONEAUX, III
LICENSE NO. 34747

APPLICATION BY:

NATIONAL MARINE FISHERIES SERVICES
C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266
BATON ROUGE, LOUISIANA 70803

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RUDOLPH SIMONEAUX

**OFFICE OF COASTAL PROTECTION
AND RESTORATION**
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND
RIDGE RESTORATION

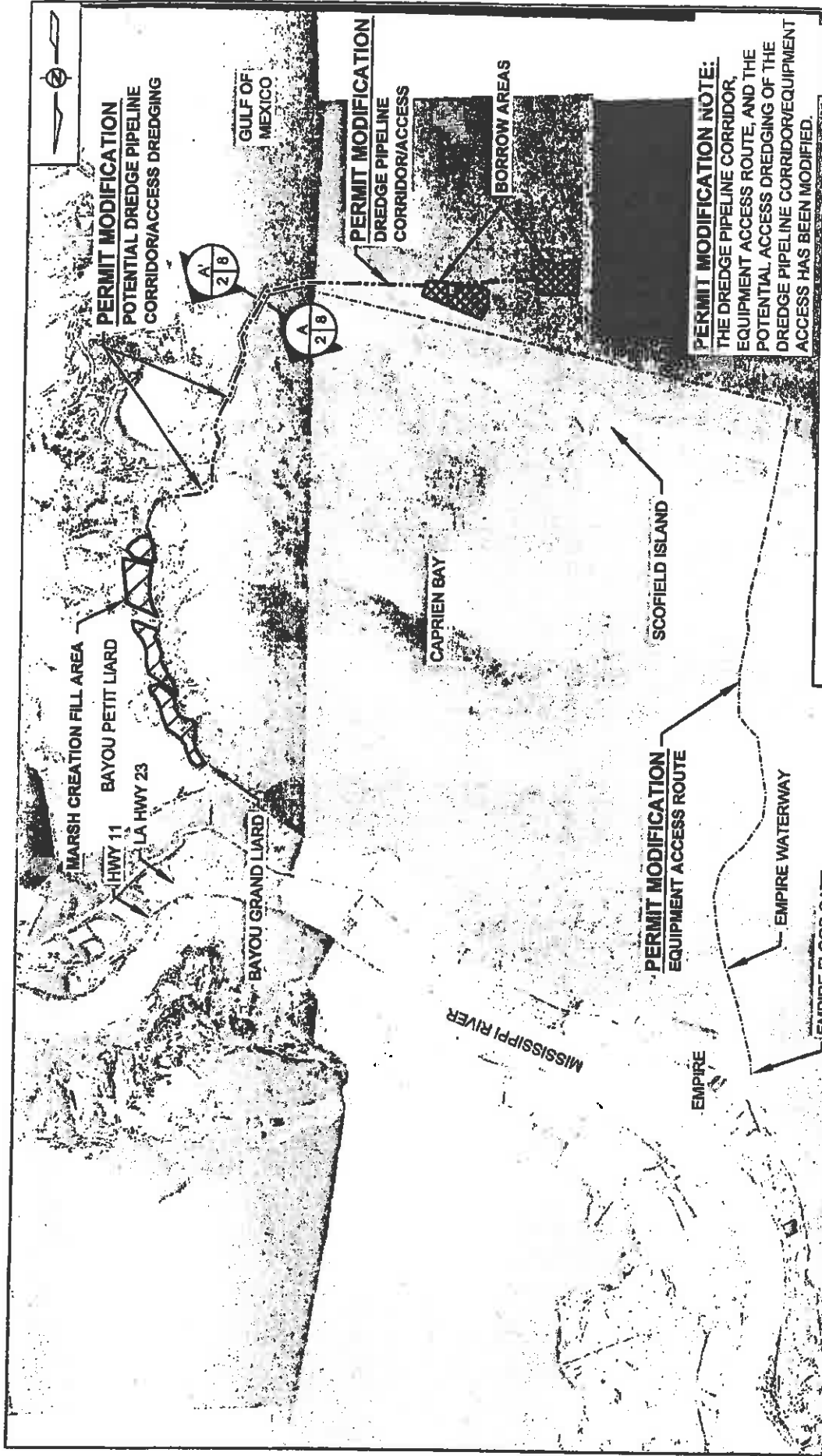
TITLE SHEET

DATE: NOVEMBER 2011

SHEET 1 OF 30

STATE PROJECT NUMBER: BA-68

FEDERAL PROJECT NUMBER:








PERMIT MODIFICATION
POTENTIAL DREDGE PIPELINE
CORRIDOR/ACCESS DREDGING

PERMIT MODIFICATION
DREDGE PIPELINE
CORRIDOR/ACCESS

BORROW AREAS

PERMIT MODIFICATION NOTE:
 THE DREDGE PIPELINE CORRIDOR,
 EQUIPMENT ACCESS ROUTE, AND THE
 POTENTIAL ACCESS DREDGING OF THE
 DREDGE PIPELINE CORRIDOR/EQUIPMENT
 ACCESS HAS BEEN MODIFIED.

- LEGEND**
-  MARSH CREATION FILL AREA
 -  BORROW AREA
 -  DREDGE PIPELINE CORRIDOR/EQUIPMENT ACCESS
 -  POTENTIAL DREDGE PIPELINE CORRIDOR/ EQUIPMENT ACCESS DREDGING
 -  EQUIPMENT ACCESS ROUTE

NOTE:
 BACKGROUND IMAGERY WAS TAKEN IN 2010.



<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803</p>	<p>DESIGNED BY: TYE FITZGERALD APPROVED BY: RULDOPH SIMONEAUX 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>	<p>STATE PROJECT NUMBER: BA-88 FEDERAL PROJECT NUMBER: G:\Users\Autocad\BASINS\BA-88 Grand Liard Marsh and Ridge Restoration\Permitting\Joint Permit\2013 Mod\02 Project Layout.dwg, 2/26/2013 9:05:30 AM</p>	<p>DATE: NOVEMBER 2011 (MOD. 11/5/2013) SHEET 2 OF 30</p>
<p>COASTAL PROTECTION AND RESTORATION AUTHORITY 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>		<p>GRAND LIARD MARSH AND RIDGE RESTORATION</p>	<p>PLAN VIEW</p>

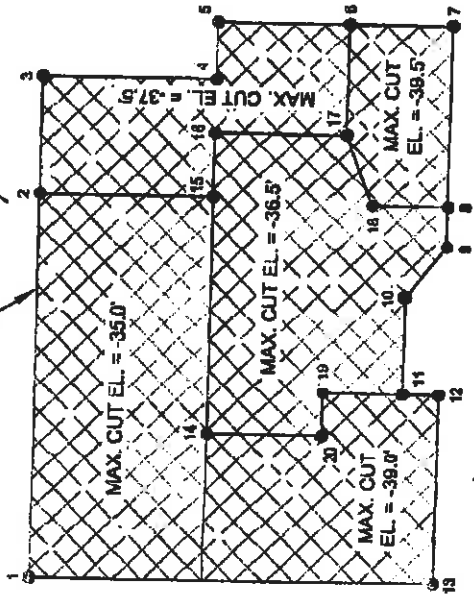
WEST BORROW AREA

	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
1	29° 13' 20.36"	89° 33' 44.11"	11	29° 12' 59.20"	89° 33' 32.02"
2	29° 13' 20.02"	89° 33' 18.78"	12	29° 12' 57.11"	89° 33' 32.08"
3	29° 13' 19.81"	89° 33' 10.98"	13	29° 12' 57.03"	89° 33' 44.52"
4	29° 13' 09.94"	89° 33' 11.13"	14	29° 13' 10.28"	89° 33' 34.61"
5	29° 13' 09.89"	89° 33' 07.37"	15	29° 13' 10.06"	89° 33' 18.95"
6	29° 13' 02.43"	89° 33' 07.50"	16	29° 13' 09.99"	89° 33' 14.74"
7	29° 12' 56.52"	89° 33' 07.62"	17	29° 13' 01.05"	89° 33' 14.88"
8	29° 12' 56.69"	89° 33' 19.65"	18	29° 13' 03.70"	89° 33' 19.55"
9	29° 12' 56.73"	89° 33' 22.29"	19	29° 13' 03.74"	89° 33' 31.62"
10	29° 12' 58.11"	89° 33' 25.59"	20	29° 13' 03.74"	89° 33' 34.74"

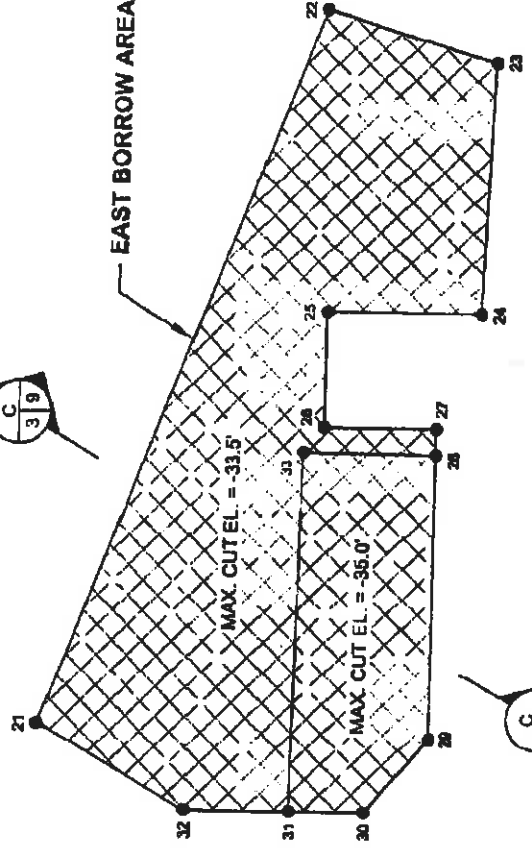
EAST BORROW AREA

	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
21	29° 13' 37.18"	89° 32' 26.61"	28	29° 13' 14.40"	89° 32' 08.96"
22	29° 13' 20.75"	89° 31' 39.94"	29	29° 13' 14.66"	89° 32' 27.70"
23	29° 13' 11.18"	89° 31' 43.47"	30	29° 13' 18.30"	89° 32' 32.55"
24	29° 13' 11.85"	89° 31' 59.80"	31	29° 13' 22.59"	89° 32' 32.47"
25	29° 13' 20.61"	89° 31' 59.65"	32	29° 13' 28.65"	89° 32' 32.36"
26	29° 13' 20.71"	89° 32' 07.19"	33	29° 13' 21.93"	89° 32' 08.78"
27	29° 13' 14.38"	89° 32' 07.30"			

WEST BORROW AREA



EAST BORROW AREA



LEGEND
 BORROW AREA

- NOTES:**
1. THE WEST BORROW AREA CONTAINS APPROXIMATELY 4.68 M CUBIC YARDS OF MATERIAL.
 2. THE EAST BORROW AREA CONTAINS APPROXIMATELY 5.28 M CUBIC YARDS OF MATERIAL.



GULF OF MEXICO

GULF OF MEXICO

APPLICATION BY:

NATIONAL MARINE FISHERIES SERVICES
 C/O U.S. MILITARY SCIENCE BUILDING - ROOM 268
 BATON ROUGE, LOUISIANA 70803

COASTAL PROTECTION AND RESTORATION AUTHORITY
 439 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND RIDGE RESTORATION

BORROW AREA LAYOUT

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

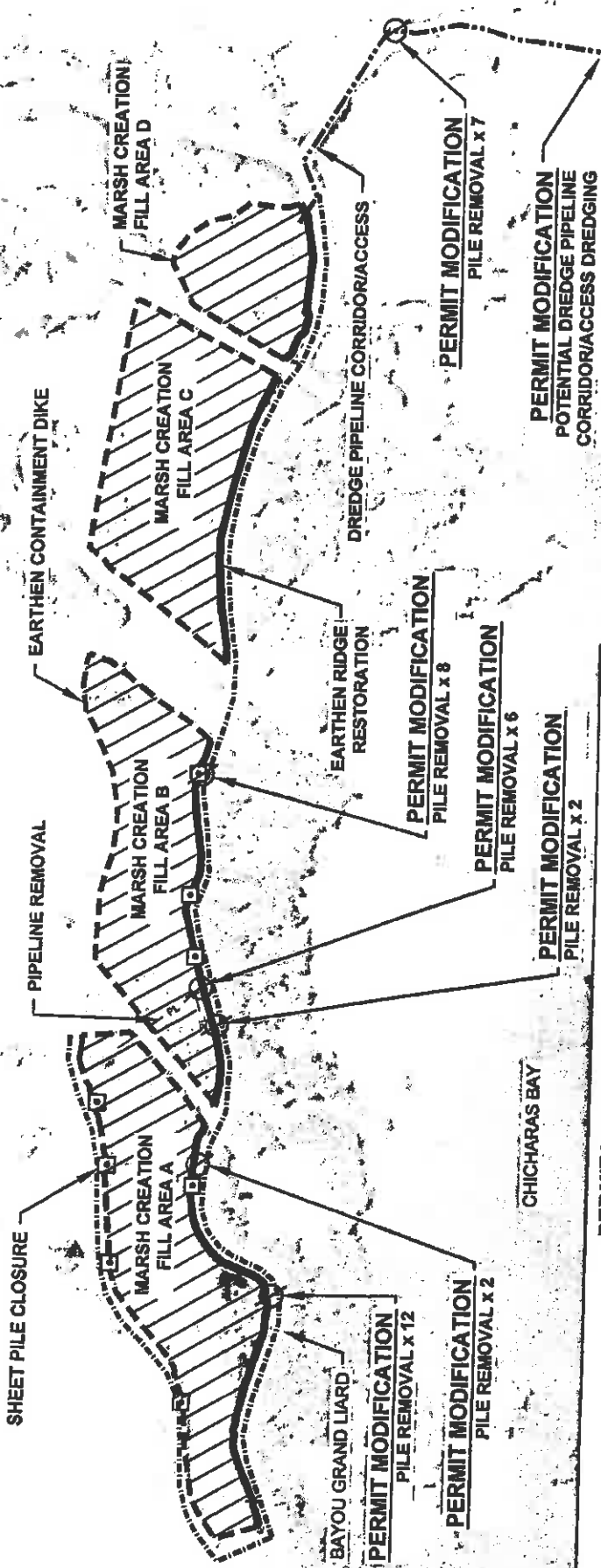
APPROVED BY: RUILDOPH SIMONEAUX

STATE PROJECT NUMBER BA-68

FEDERAL PROJECT NUMBER:

DATE: NOVEMBER 2011

SHEET 3 OF 30



LEGEND

- MARSH CREATION FILL AREA
- EARTHEN RIDGE RESTORATION
- EARTHEN CONTAINMENT DIKE
- DREDGE PIPELINE CORRIDOR/ACCESS
- POTENTIAL DREDGE PIPELINE CORRIDOR/ACCESS
- EQUIPMENT ACCESS ROUTE
- PIPELINE REMOVAL
- SHEET PILE CLOSURE
- PILE REMOVAL

PERMIT MODIFICATION PILE REMOVAL

	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE		
1	29° 18' 20.61"	89° 28' 39.15"	14	29° 18' 06.73"	89° 28' 23.64"	27	29° 17' 19.14"	89° 28' 08.94"
2	29° 18' 20.57"	89° 28' 39.12"	15	29° 17' 49.32"	89° 28' 20.93"	28	29° 17' 19.14"	89° 28' 08.93"
3	29° 18' 20.52"	89° 28' 39.10"	16	29° 17' 49.28"	89° 28' 20.90"	29	29° 17' 19.14"	89° 28' 08.92"
4	29° 18' 20.50"	89° 28' 39.06"	17	29° 17' 45.26"	89° 28' 17.11"	30	29° 17' 19.11"	89° 28' 08.88"
5	29° 18' 20.49"	89° 28' 39.05"	18	29° 17' 45.26"	89° 28' 17.15"	31	29° 15' 43.25"	89° 28' 07.99"
6	29° 18' 20.48"	89° 28' 39.07"	19	29° 17' 45.16"	89° 28' 17.43"	32	29° 15' 43.18"	89° 28' 08.05"
7	29° 18' 20.44"	89° 28' 39.05"	20	29° 17' 45.15"	89° 28' 17.47"	33	29° 15' 43.18"	89° 28' 07.96"
8	29° 18' 20.40"	89° 28' 39.02"	21	29° 17' 44.34"	89° 28' 17.78"	34	29° 15' 43.14"	89° 28' 07.89"
9	29° 18' 20.34"	89° 28' 38.99"	22	29° 17' 44.30"	89° 28' 17.72"	35	29° 15' 43.13"	89° 28' 07.99"
10	29° 18' 20.31"	89° 28' 38.97"	23	29° 17' 19.31"	89° 28' 08.96"	36	29° 15' 43.10"	89° 28' 07.92"
11	29° 18' 20.31"	89° 28' 38.97"	24	29° 17' 19.26"	89° 28' 08.98"	37	29° 15' 43.05"	89° 28' 07.96"
12	29° 18' 20.27"	89° 28' 38.94"	25	29° 17' 19.21"	89° 28' 08.99"			
13	29° 18' 07.00"	89° 28' 23.64"	26	29° 17' 19.16"	89° 28' 08.99"			

APPLICATION BY:
 NATIONAL MARINE FISHERIES SERVICES
 C/O LSU, MILITARY SCIENCE BUILDING - ROOM 268
 BATON ROUGE, LOUISIANA 70803

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RULDOPH SIMONEAUX

DATE: NOVEMBER 2011 (MOD. 1/17/2013)

DRAWN BY: KRISTI CANTU

STATE PROJECT NUMBER: BA-88

FEDERAL PROJECT NUMBER:

SHEET 4 OF 30

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND RIDGE RESTORATION

MARSH CREATION AREA LAYOUT

MARSH CREATION AREA A	
LATITUDE	LONGITUDE
1	29° 18' 48.42"
2	89° 28' 45.94"
3	89° 28' 40.42"
4	89° 28' 31.13"
5	89° 28' 30.50"
6	89° 28' 16.11"
7	89° 28' 11.86"
8	89° 28' 11.47"
9	89° 28' 08.06"
10	89° 28' 07.21"
11	89° 28' 02.66"
12	89° 28' 09.36"
13	89° 28' 23.20"
14	89° 28' 23.16"
15	89° 28' 22.41"
16	89° 28' 22.96"
17	89° 28' 24.09"

NOTES:

- DREDGING OF EQUIPMENT ACCESS/BORROW CHANNEL EAST OF FILL AREA A WILL BE PERFORMED FOR FLOTATION ACCESS OF SHEET PILE DRIVING EQUIPMENT AND SHALL NOT EXCEED THE TEMPLATE SHOWN ON SHEET 14. SPOIL SHALL BE USED TO CONSTRUCT THE EASTERN EARTHEN CONTAINMENT DIKE ALIGNMENT OF FILL AREA A.
- THE PRIMARY FILL FOR THE EARTHEN CONTAINMENT DIKES WILL BE THE SPOIL OF THE EQUIPMENT ACCESS DREDGING. IN ADDITION TO THE EQUIPMENT ACCESS DREDGING, DREDGING FROM THE INTERIOR OF FILL AREA A MAY BE REQUIRED TO COMPLETE SOME PORTIONS OF THE REQUIRED EARTHEN CONTAINMENT DIKE TEMPLATE SHOWN ON SHEET 14.



SHEET PILE CLOSURE (B-12)
(SEE SHEETS 17 & 18 FOR DETAILS)

EQUIPMENT ACCESS/EARTHEN CONTAINMENT DIKE BORROW AREA

PERMIT MODIFICATION NOTE:
THE 2" GULF SOUTH PIPELINE SHALL BE CUT AND REMOVED BY THE CONTRACTOR.

EARTHEN CONTAINMENT DIKE
(SEE SHEET 14 FOR DETAILS)

SHEET PILE CLOSURE (B-11)
(SEE SHEET 16 FOR DETAILS)

EARTHEN RIDGE & CONTAINMENT DIKE SECONDARY BORROW AREA

EARTHEN RIDGE RESTORATION
(SEE SHEET 15 FOR DETAILS)

BAYOU GRAND LIARD

EQUIPMENT ACCESS ROUTE



SHEET PILE CLOSURE (B-14)
(SEE SHEETS 21 & 22 FOR DETAILS)

SHEET PILE CLOSURE (B-13)
(SEE SHEETS 19 & 20 FOR DETAILS)

PERMIT MODIFICATION
2" GULF SOUTH TO BE REMOVED

PERMIT MODIFICATION
PILE REMOVAL x 2 (SEE SHEET 2 FOR COORDINATES)

SHEET PILE CLOSURE (B-15)
(SEE SHEETS 23 & 24 FOR DETAILS)

LEGEND

- MARSH CREATION FILL AREA
- EARTHEN RIDGE & CONTAINMENT DIKE BORROW AREA
- EARTHEN RIDGE & CONTAINMENT DIKE SECONDARY BORROW AREA
- EQUIPMENT ACCESS/CONTAINMENT DIKE BORROW AREA
- EARTHEN RIDGE RESTORATION
- EARTHEN CONTAINMENT DIKE
- SHEET PILE CLOSURE
- EQUIPMENT ACCESS ROUTE
- PIPELINE REMOVAL
- SETTLEMENT PLATE
- PILE REMOVAL

FLOTATION/EARTHEN RIDGE BORROW AREA

PERMIT MODIFICATION
PILE REMOVAL x 13 (SEE SHEET 2 FOR COORDINATES)

APPLICATION BY:
NATIONAL MARINE FISHERIES SERVICES
C/O LSU MARINE SCIENCE BUILDING - ROOM 266
BATON ROUGE, LOUISIANA 70803

COASTAL PROTECTION AND RESTORATION AUTHORITY
430 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND RIDGE RESTORATION

MARSH CREATION AREA A LAYOUT

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RULDOPH SIMONEAUX

FEDERAL PROJECT NUMBER:

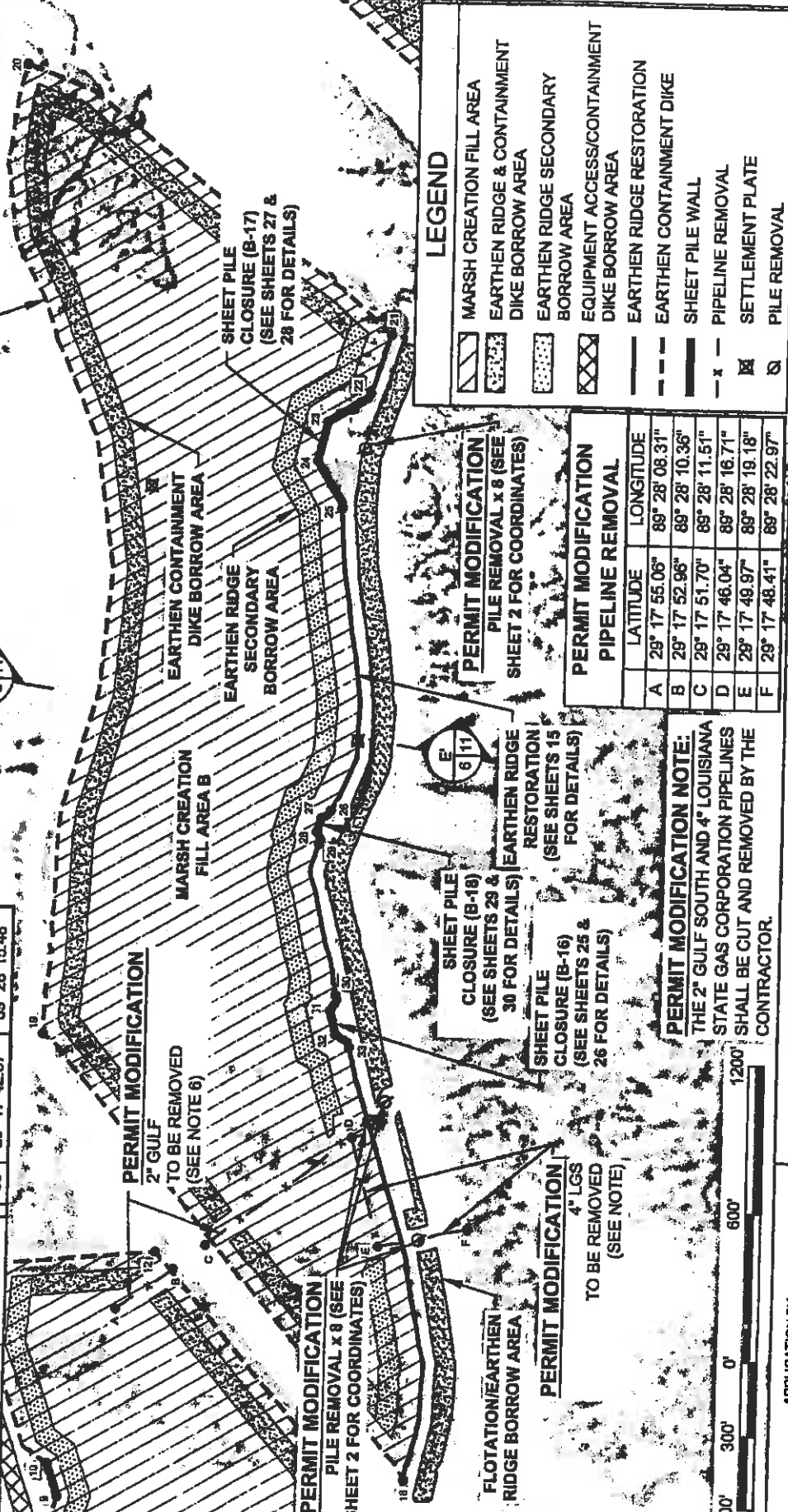
STATE PROJECT NUMBER: BA-88

DATE: NOVEMBER 2011 (MOD. 11/5/2013)

SHEET 5 OF 30

MARSH CREATION AREA B

	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE
18	29° 17' 56.75"	89° 28' 23.20"	26	29° 17' 33.53"
19	29° 17' 45.13"	89° 28' 01.81"	27	29° 17' 33.80"
20	29° 17' 07.89"	89° 27' 49.49"	28	29° 17' 34.50"
21	29° 17' 14.57"	89° 28' 08.78"	29	29° 17' 34.95"
22	29° 17' 17.00"	89° 28' 08.55"	30	29° 17' 40.68"
23	29° 17' 18.51"	89° 28' 07.03"	31	29° 17' 41.34"
24	29° 17' 20.14"	89° 28' 07.03"	32	29° 17' 42.22"
25	29° 17' 21.67"	89° 28' 08.64"	33	29° 17' 42.57"



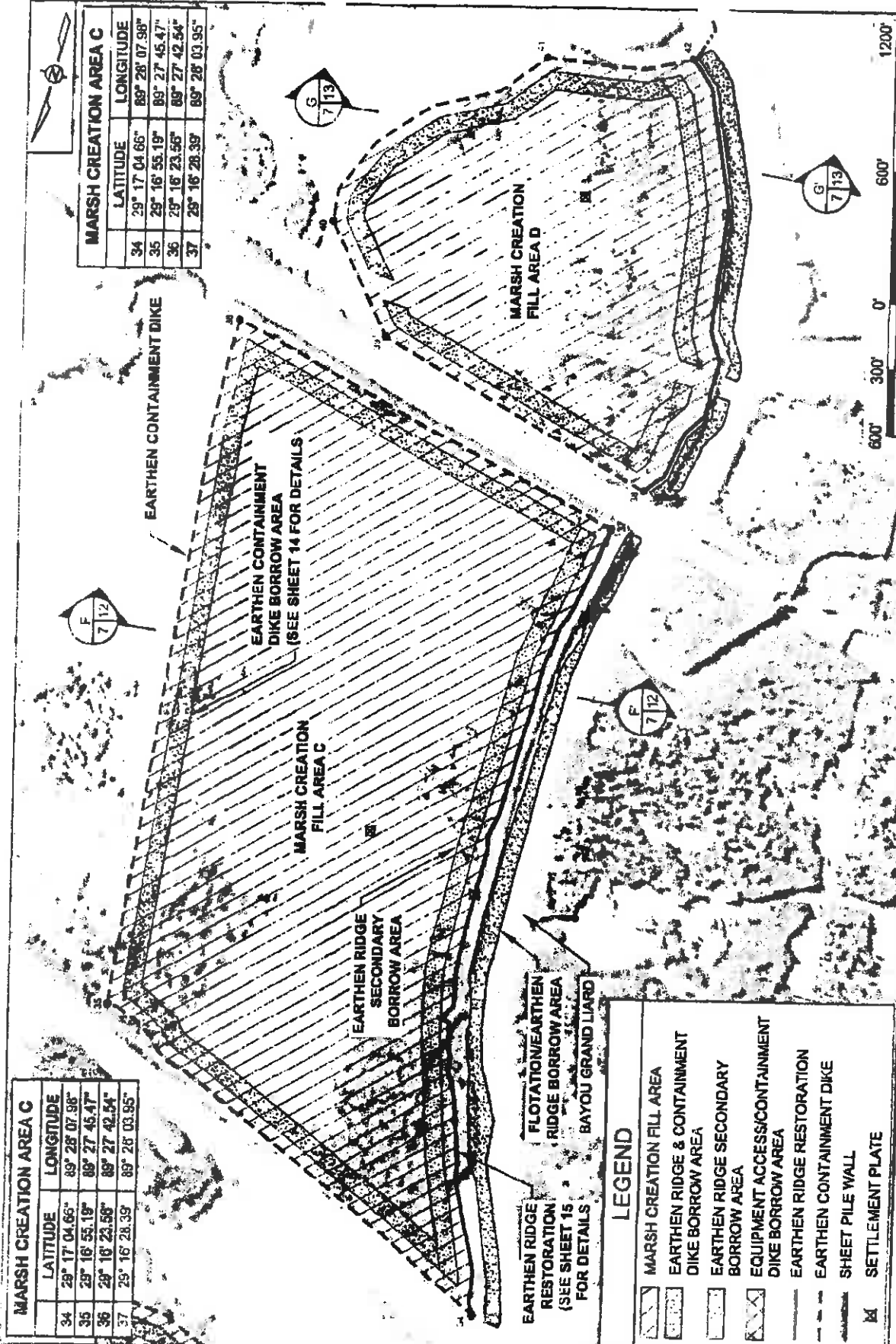
APPLICATION BY:
NATIONAL MARINE FISHERIES SERVICES
C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266
BATON ROUGE, LOUISIANA 70803

DESIGNED BY: TYE FITZGERALD
APPROVED BY: RULDOPH SIMONEAUX
BATON ROUGE, LOUISIANA 70801

GRAND LARD MARSH AND RIDGE RESTORATION
MARSH CREATION AREA B LAYOUT
STATE PROJECT NUMBER: BA-88
FEDERAL PROJECT NUMBER
DATE: NOVEMBER 2011 (MOD. 11/5/2013)
SHEET 6 OF 30

MARSH CREATION AREA C	
LATITUDE	LONGITUDE
34 29° 17' 04.66"	89° 28' 07.98"
35 29° 16' 55.19"	89° 27' 45.47"
36 29° 16' 23.56"	89° 27' 42.54"
37 29° 16' 28.39"	89° 28' 03.95"

MARSH CREATION AREA C	
LATITUDE	LONGITUDE
34 29° 17' 04.66"	89° 28' 07.98"
35 29° 16' 55.19"	89° 27' 45.47"
36 29° 16' 23.56"	89° 27' 42.54"
37 29° 16' 28.39"	89° 28' 03.95"



LEGEND	
[Symbol]	MARSH CREATION FILL AREA
[Symbol]	EARTHEN RIDGE & CONTAINMENT DIKE BORROW AREA
[Symbol]	EARTHEN RIDGE SECONDARY BORROW AREA
[Symbol]	EQUIPMENT ACCESS/CONTAINMENT DIKE BORROW AREA
[Symbol]	EARTHEN RIDGE RESTORATION
[Symbol]	EARTHEN CONTAINMENT DIKE
[Symbol]	SHEET PILE WALL
[Symbol]	SETTLEMENT PLATE

APPLICATION BY:
 NATIONAL MARINE FISHERIES SERVICES
 C/O LSU, MILITARY SCIENCE BUILDING - ROOM 268
 BATON ROUGE, LOUISIANA 70803

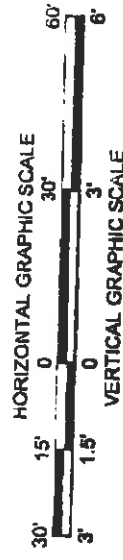
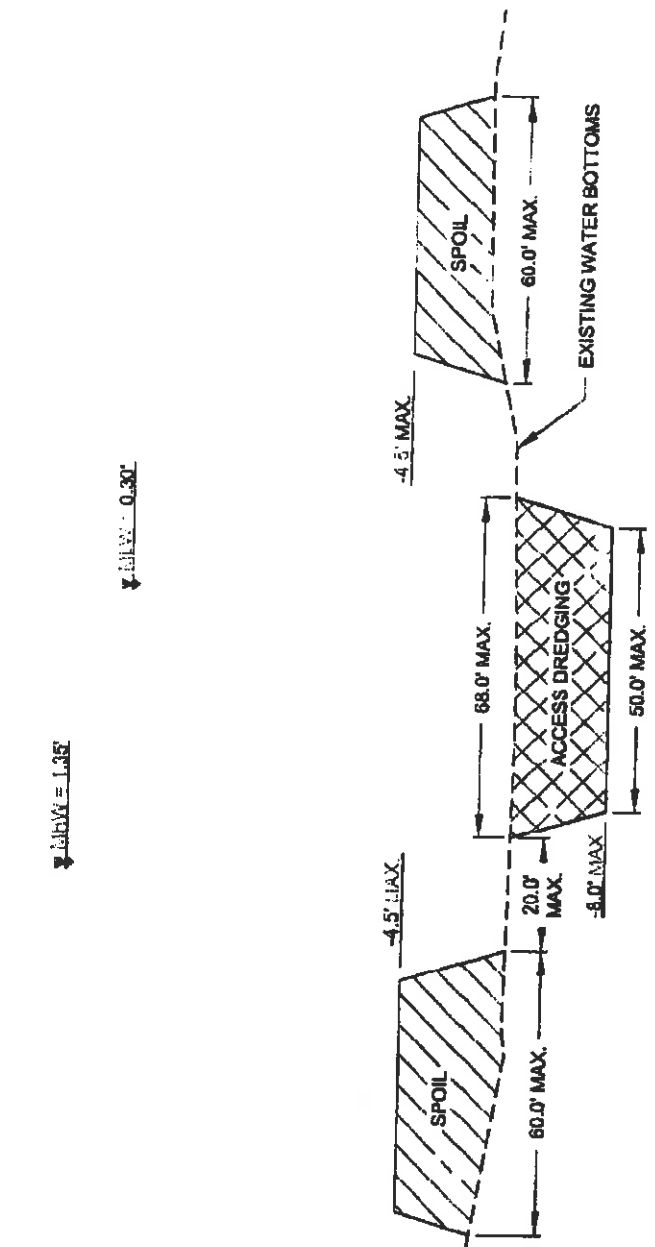
DESIGNED BY: TYE FITZGERALD
 APPROVED BY: RUDOLPH S MONEAUX
 499 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND RIDGE RESTORATION

MARSH CREATION AREA C & D LAYOUT

DRAWN BY: KRISTI CANTU	STATE PROJECT NUMBER BA-88	DATE: NOVEMBER 2011
	FEDERAL PROJECT NUMBER:	SHEET 7 OF 30

ELEVATION (FT. NAVD88)



TYPICAL SECTION - POTENTIAL ACCESS DREDGING

APPLICATION BY:
 NATIONAL MARINE FISHERIES SERVICES
 C/O LSU MILITARY SCIENCE BUILDING - ROOM 286
 BATON ROUGE, LOUISIANA 70803

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

GRAND LARD MARSH AND RIDGE RESTORATION

POTENTIAL ACCESS DREDGING TYPICAL SECTION

DRAWN BY: KRISTI CANTU

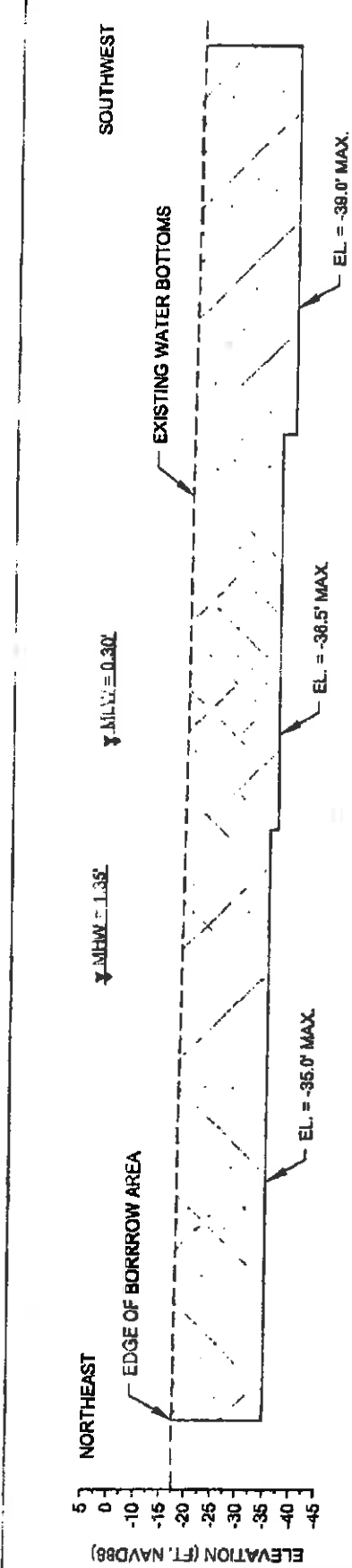
DESIGNED BY: TYE FITZGERALD

APPROVED BY: RULDOPH SIMONEAUX

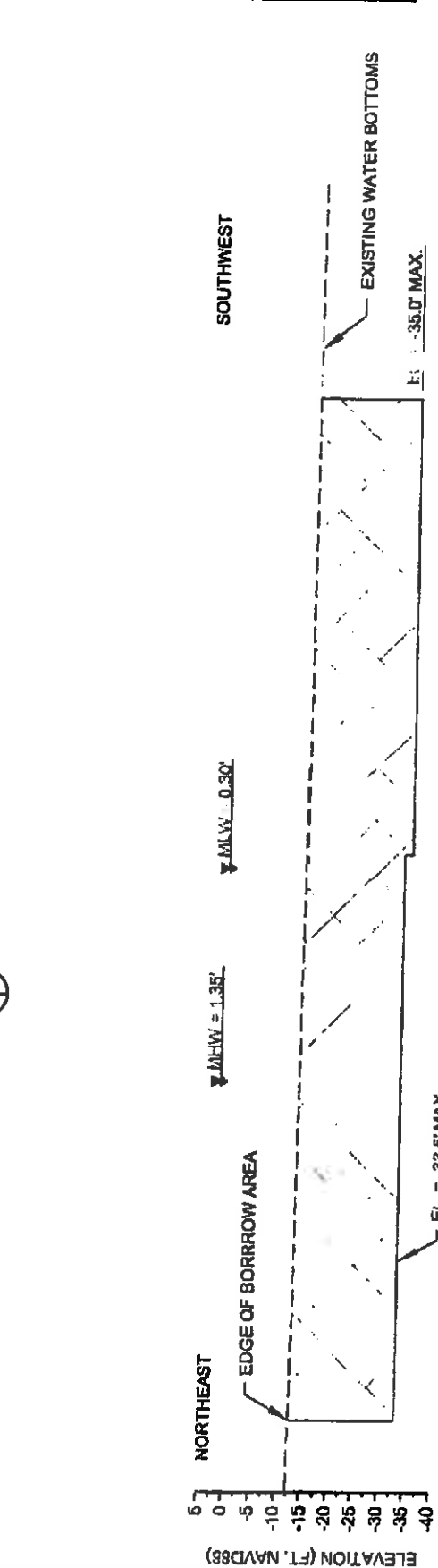
STATE PROJECT NUMBER: BA-88

DATE: NOVEMBER 2011

SHEET 6 OF 30



TYPICAL SECTION - WEST BORROW AREA



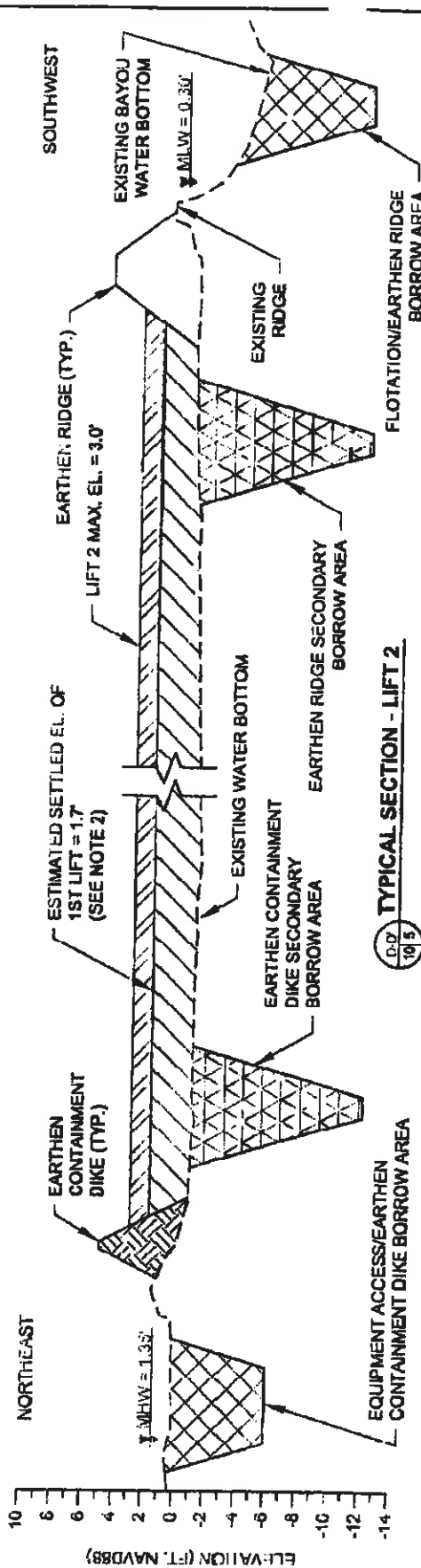
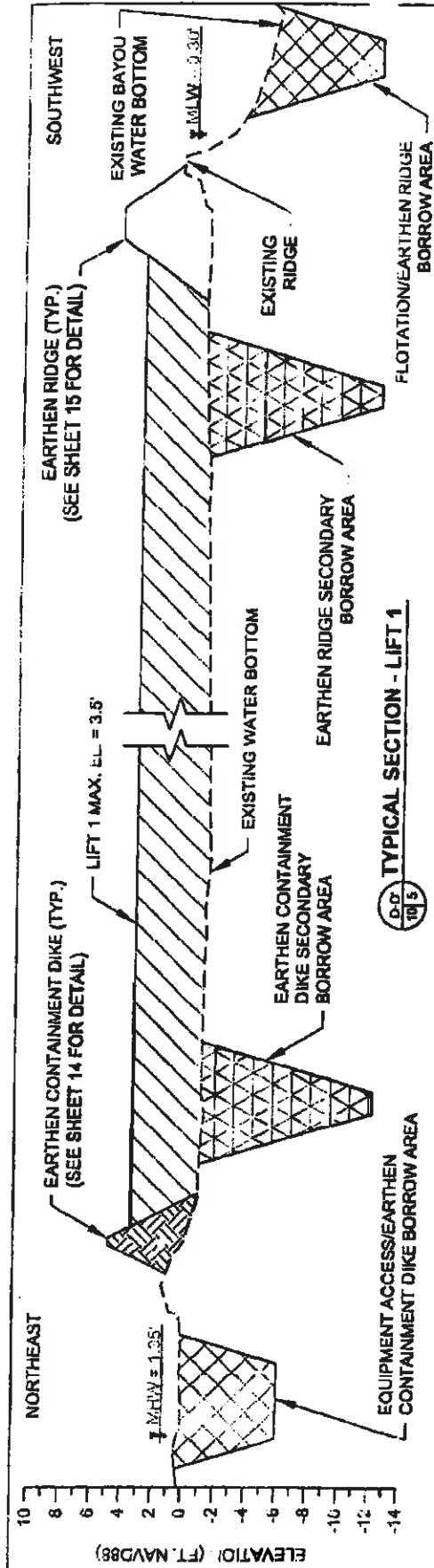
TYPICAL SECTION - EAST BORROW AREA

NOTES:

1. THE WEST BORROW AREA CONTAINS APPROXIMATELY 4.88 M CUBIC YARDS OF MATERIAL.
2. THE EAST BORROW AREA CONTAINS APPROXIMATELY 5.28 M CUBIC YARDS OF MATERIAL.



NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803	GRAND LIARD MARSH AND RIDGE RESTORATION	BORROW AREA TYPICAL SECTIONS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUDOLPH SIMONEAUX 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801
APPLICATION BY:		STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER:
DATE: NOVEMBER 2011		SHEET 9 OF 30



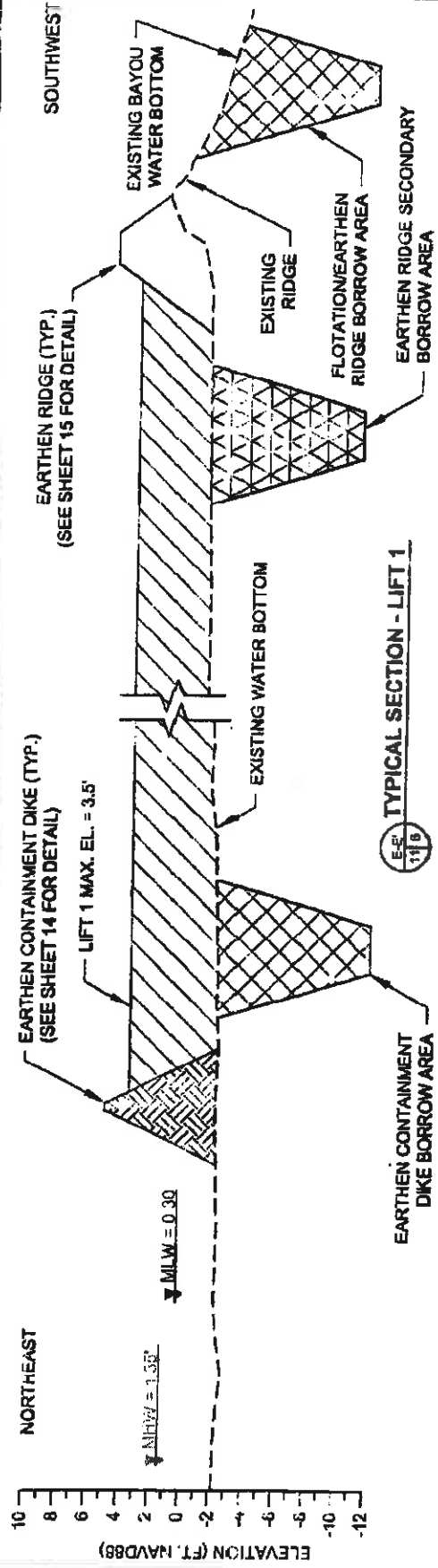
NOTES:

1. A TWO LIFT SYSTEM IS REQUIRED TO MEET DESIGN HEIGHT.
2. CONSTRUCTION OF LIFT 2 OF AREA A SHALL NOT BEGIN UNTIL LIFT 1 OF AREAS A, B, C, AND D HAVE BEEN COMPLETED.
3. DISCHARGE SHALL BE DIRECTED TO RETAIN AS MUCH MATERIAL AS POSSIBLE.

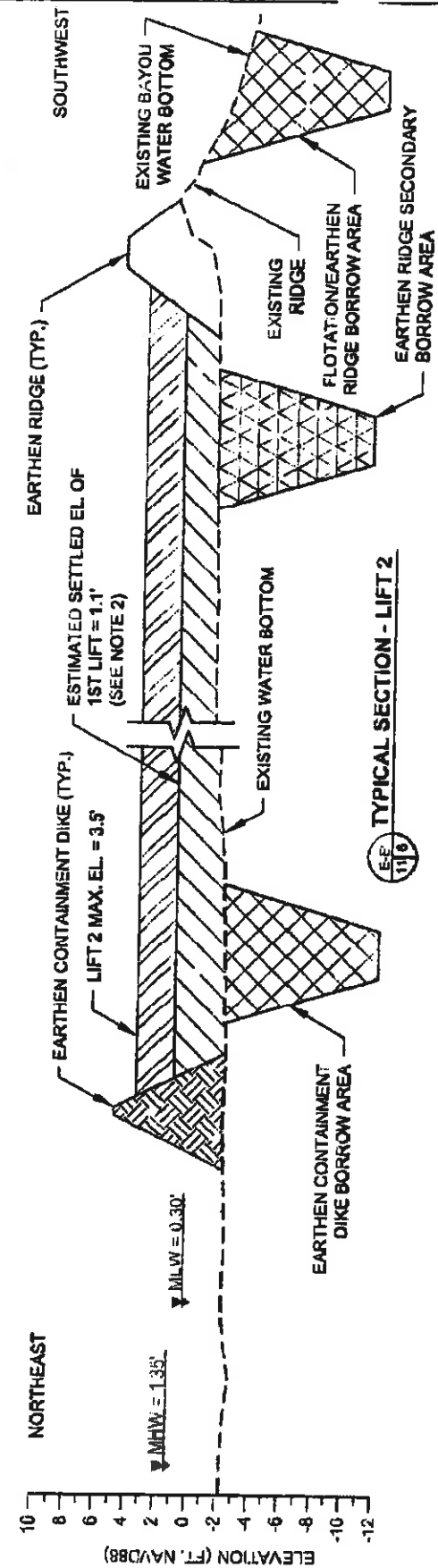
HORIZONTAL GRAPHIC SCALE: 100' 50' 0' 100'

VERTICAL GRAPHIC SCALE: 200' 10' 5' 0' 10' 20'

APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES 670 161, MILITARY SCIENCE BUILDING - ROOM 268 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION	MARSH CREATION AREA A TYPICAL SECTION D-D'
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RILDORPH S MOKEAUX	STATE PROJECT NUMBER: BA-98	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:		SHEET 10 OF 30	



EE 11/9
TYPICAL SECTION - LIFT 1

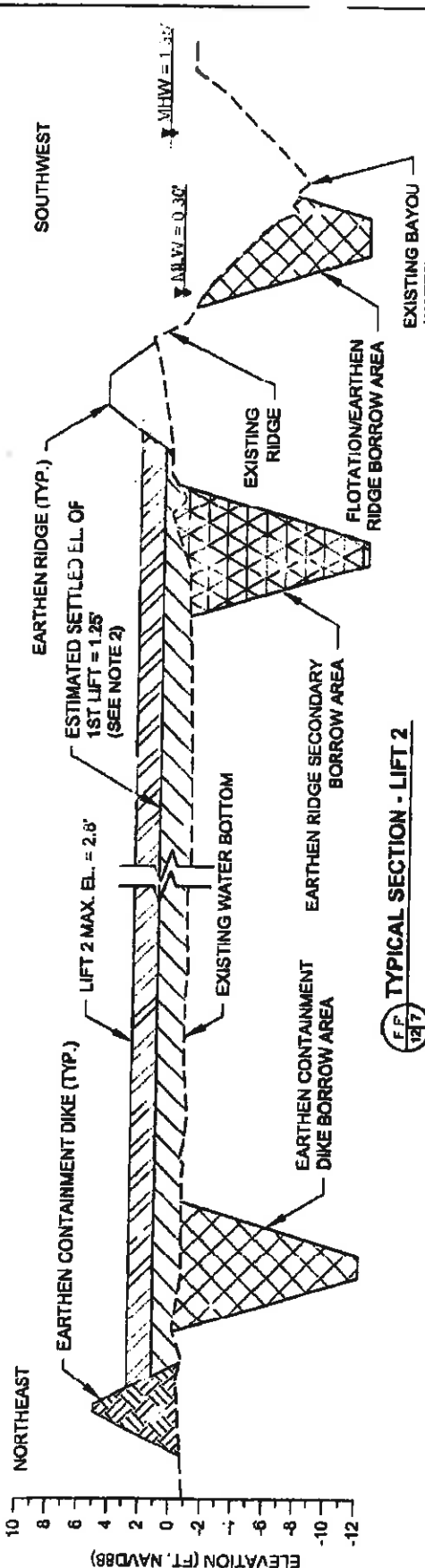
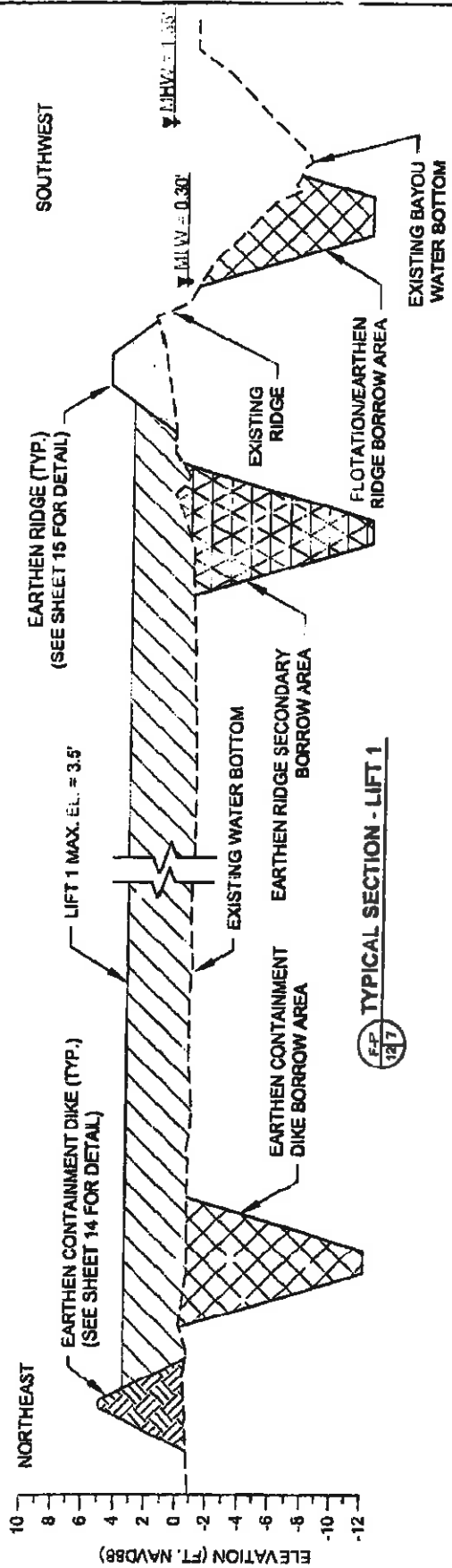


EE 11/9
TYPICAL SECTION - LIFT 2



NOTES:
 1. A TWO LIFT SYSTEM IS REQUIRED TO MEET DESIGN HEIGHT.
 2. CONSTRUCTION OF LIFT 2 OF AREA B SHALL NOT BEGIN UNTIL LIFT 2 OF AREA A HAS BEEN COMPLETED.
 3. DISCHARGE SHALL BE DIRECTED TO RETAIN AS MUCH MATERIAL AS POSSIBLE.

APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING, ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 459 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION MARSH CREATION AREA B TYPICAL SECTION E-E	DRAWN BY: KRISTI CANTU DESIGNED BY: TYE FITZGERALD APPROVED BY: RUI DOPH SIMONEAUX STATE PROJECT NUMBER: BA-08 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 11 OF 30
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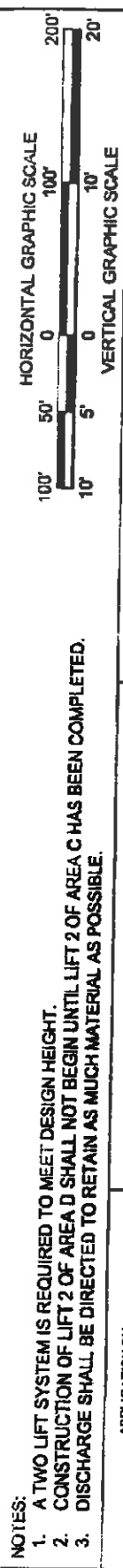
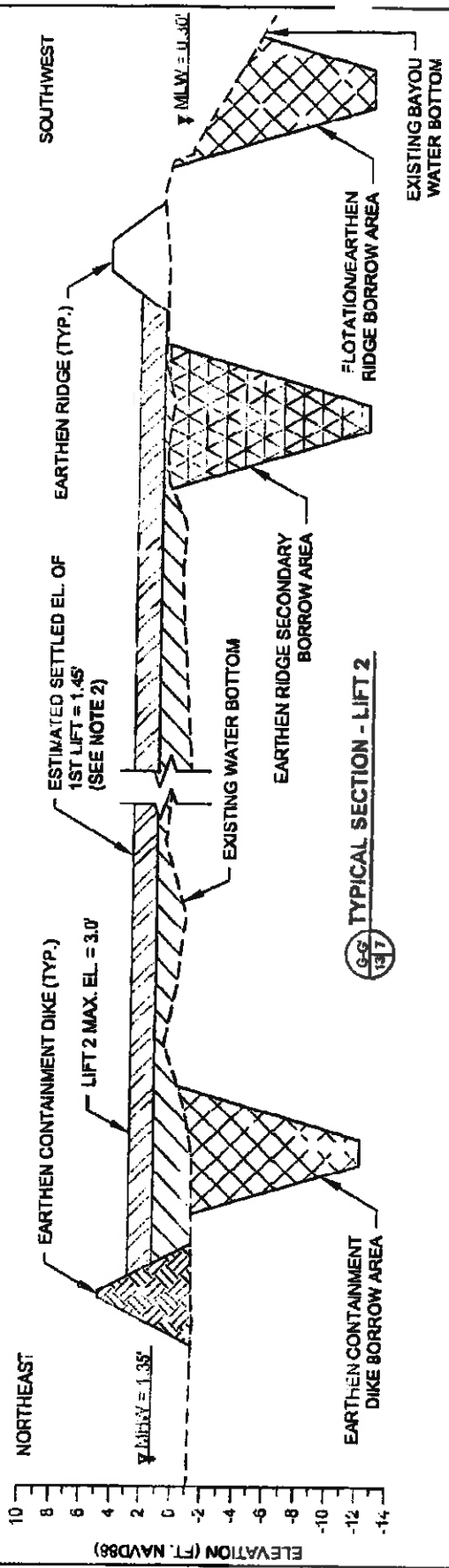
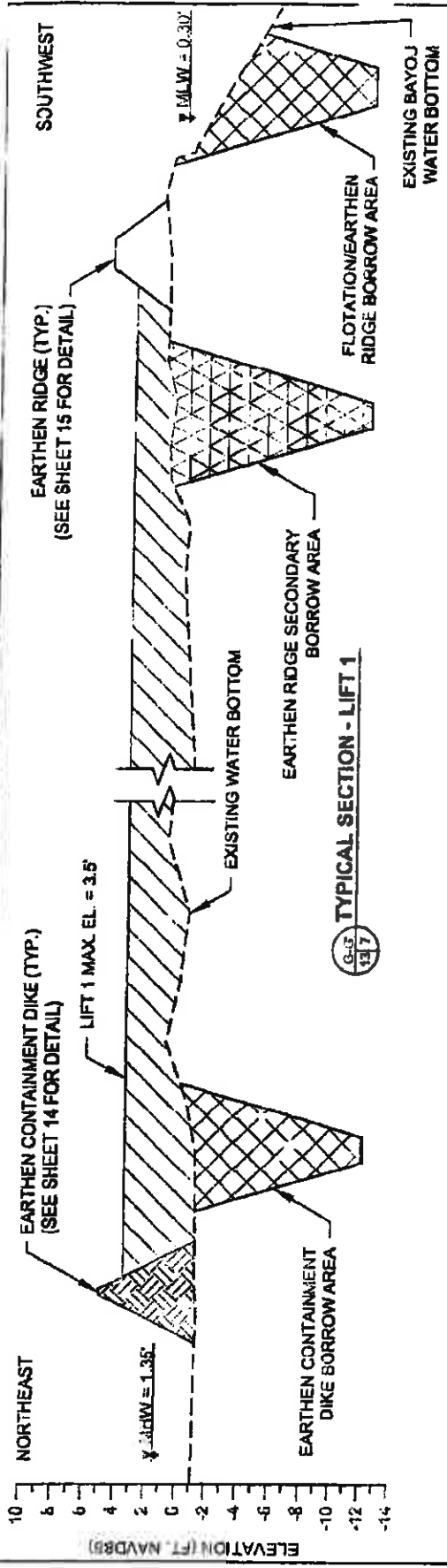
NOTES:

1. A TWO LIFT SYSTEM IS REQUIRED TO MEET DESIGN HEIGHT.
2. CONSTRUCTION OF LIFT 2 OF AREA C SHALL NOT BEGIN UNTIL LIFT 2 OF AREA B HAS BEEN COMPLETED.
3. DISCHARGE SHALL BE DIRECTED TO RETAIN AS MUCH MATERIAL AS POSSIBLE.

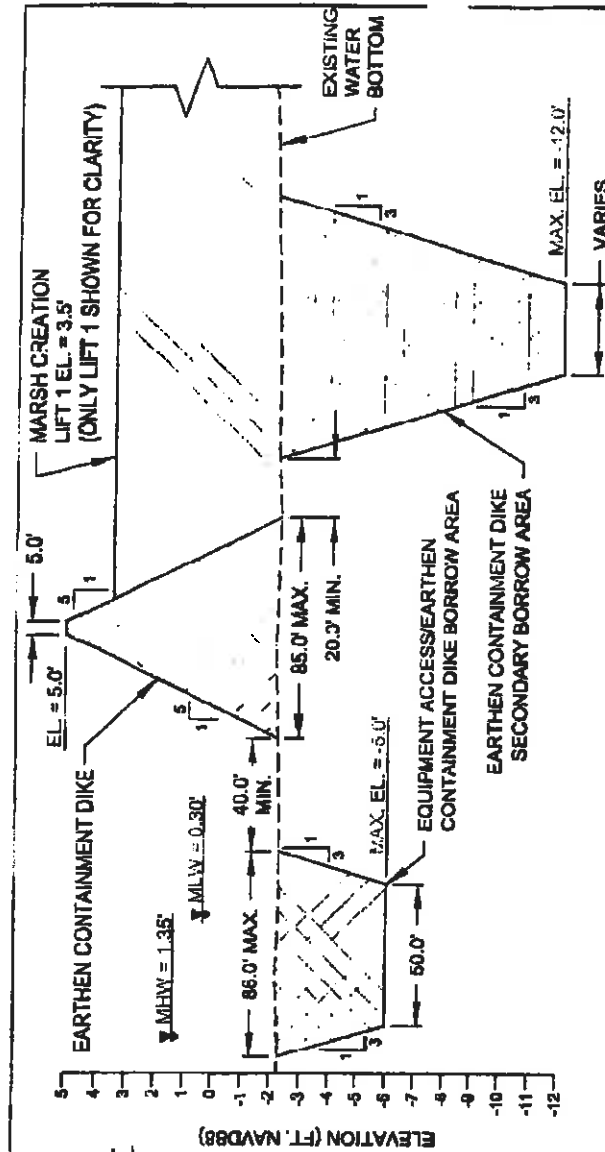
HORIZONTAL GRAPHIC SCALE: 100' 50' 0' 100'

VERTICAL GRAPHIC SCALE: 10' 5' 0' 10' 20'

<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES CO. LSU MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803</p>	<p>COASTAL PROTECTION AND RESTORATION AUTHORITY 480 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>	<p>GRAND LIARD MARSH AND RIDGE RESTORATION</p>	<p>MARSH CREATION AREA C TYPICAL SECTION F-F</p>
<p>DESIGNED BY: KRISTI CANTU</p>	<p>APPROVED BY: RUDOLPH SIMONEAUX</p>	<p>STATE PROJECT NUMBER: BA-68</p>	<p>DATE: NOVEMBER 2011</p>
<p>FEDERAL PROJECT NUMBER: SHEET 12 OF 30</p>			

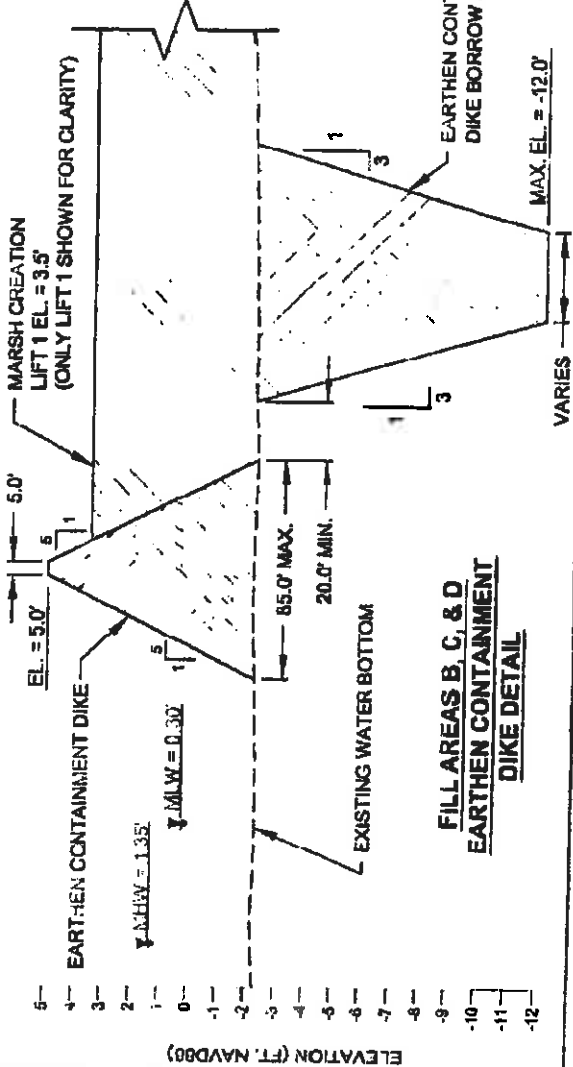


APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O USL MILITARY SERVICE BUILDING - ROOM 286 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 480 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION MARSH CREATION AREA D TYPICAL SECTION G-G	DESIGNED BY: TYE FITZGERALD APPROVED BY: RUDOLPH SIMONEAUX
DRAWN BY: KRISTI CANTU	STATE PROJECT NUMBER: BA-08 FEDERAL PROJECT NUMBER:	DATE: NOVEMBER 2011 SHEET 13 OF 30	DATE: NOVEMBER 2011 SHEET 13 OF 30



FILL AREA A
EARTHEN CONTAINMENT
DIKE DETAIL

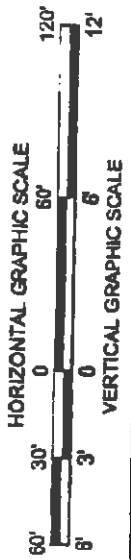
ELEVATION (FT. NAVD83)



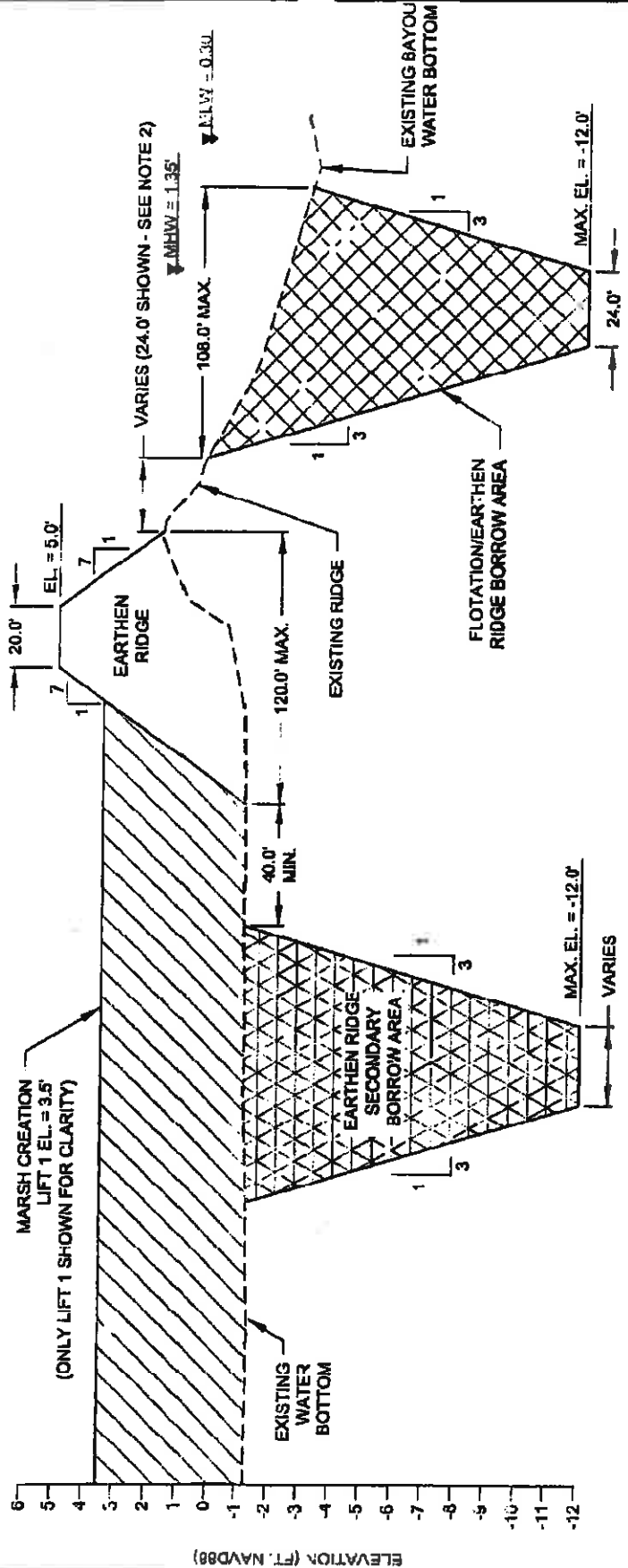
FILL AREAS B, C, & D
EARTHEN CONTAINMENT
DIKE DETAIL

ELEVATION (FT. NAVD83)

- NOTES:
1. CONTAINMENT DIKES SHALL BE CONSTRUCTED USING IN-SITU MATERIAL. SEE SHEETS 6-7 FOR EARTHEN CONTAINMENT DIKE LOCATIONS. NO DREDGING WILL BE ALLOWED WITHIN 20' OF THE CONTAINMENT DIKE TO EARTHEN CONTAINMENT DIKE BORROW AREA FOR CELLS B, C, AND D AND WITHIN 20' OF THE SECONDARY CONTAINMENT DIKE BORROW AREA FOR CELL A.

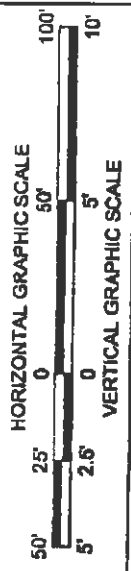


APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING - ROOM 26-6 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	EARTHEN CONTAINMENT DIKE DETAILS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUDOLPH SIMONEAUX	STATE PROJECT NUMBER: BA-98 FEDERAL PROJECT NUMBER:
DATE: NOVEMBER 2011			SHEET: 14 OF 30



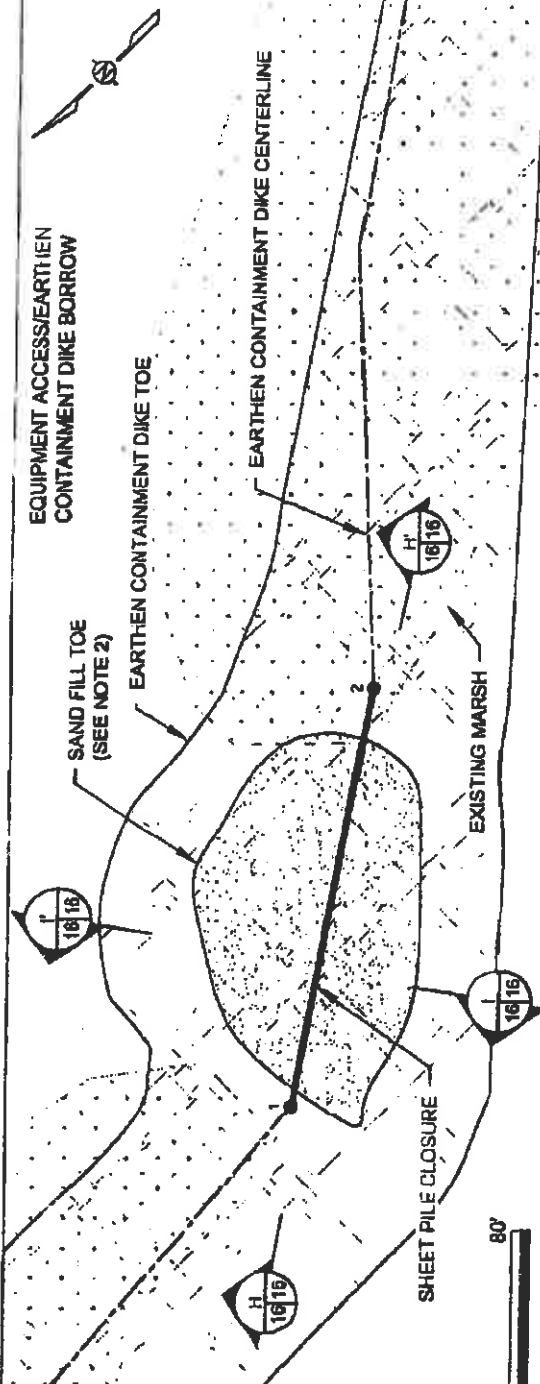
EARTHEN RIDGE DETAIL
 1" = 60' HORIZONTAL
 1" = 5' VERTICAL

- NOTES:**
1. EARTHEN RIDGES SHALL BE CONSTRUCTED USING IN-SITU MATERIAL. SEE SHEETS 5-7 FOR EARTHEN RIDGE LOCATIONS.
 2. THE DISTANCE FROM THE BAYOU CUT TO TOE OF RIDGE VARIES. NO DREDGING WILL BE ALLOWED WITHIN 20' OF THE TOE OF RIDGE FOR CELLS B, AND D AND WITHIN 38' OF THE TOE OF RIDGE FOR CELLS A AND C AS RECOMMENDED BY THE GEOTECHNICAL ANALYSIS.
 3. NO DREDGING WILL BE ALLOWED WITHIN 40' FEET OF THE RIDGE TO SECONDARY EARTHEN RIDGE BORROW AREA. NO DREDGING WILL BE ALLOWED WITHIN 20' OF THE CONTAINMENT DIKE TO EARTHEN CONTAINMENT DIKE BORROW AREA FOR CELLS B, C, AND D AND WITHIN 20' OF THE SECONDARY CONTAINMENT DIKE BORROW AREA FOR CELL A.



NATIONAL MARINE FISHERIES SERVICES C/O U.S. MILITARY SCIENCE BUILDING - ROOM 268 BATON ROUGE, LOUISIANA 70803	APPLICATION BY: GRAND LIARD MARSH AND RIDGE RESTORATION	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	EARTHEN RIDGE DIKE DETAILS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 16 OF 30
STATE PROJECT NUMBER: BA-68	FEDERAL PROJECT NUMBER:		

B-11 SHEET PILE ALIGNMENT		
LATITUDE	LONGITUDE	
1 29° 18' 35.26"	89° 28' 31.14"	
2 29° 18' 35.43"	89° 28' 30.51"	

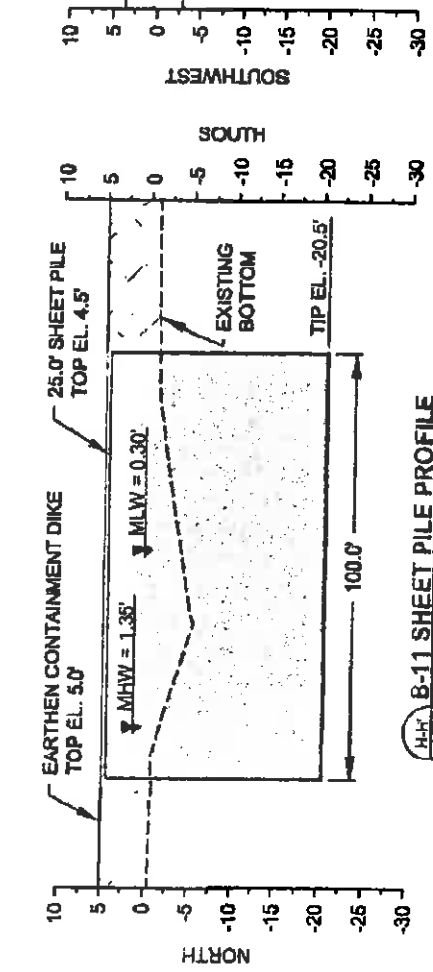


MARSH CREATION FILL NOT SHOWN FOR CLARITY

B-11 SHEET PILE PLAN VIEW

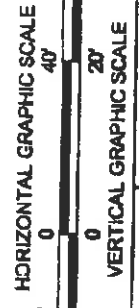


B-11 SHEET PILE PROFILE

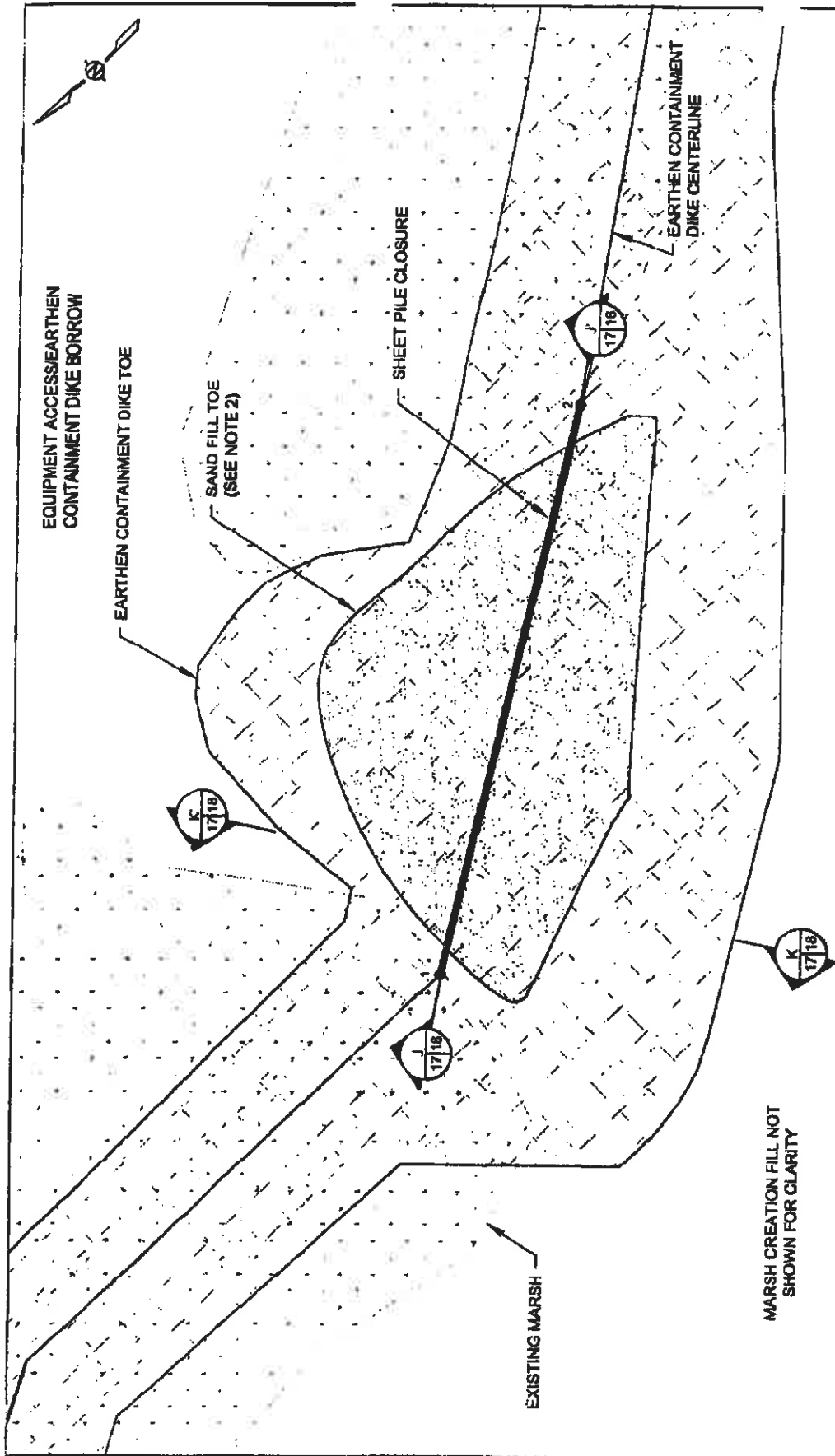


B-11 SHEET PILE SECTION

NOTES:
 1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING - ROOM 2548 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION	B-11 SHEET PILE CLOSURE DETAIL
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RILDDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:			



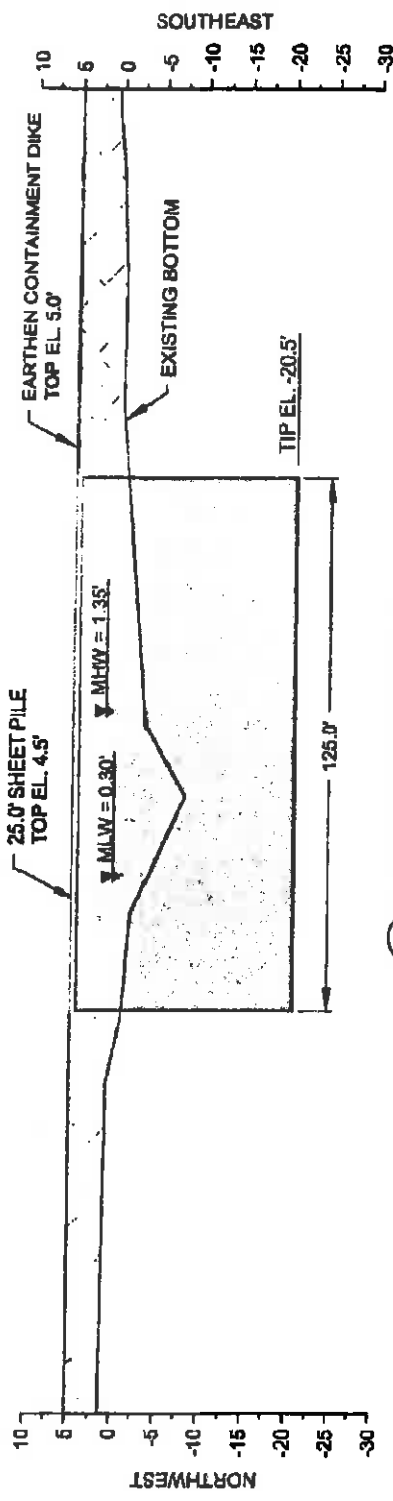
B-12 SHEET PILE ALIGNMENT		
	LATITUDE	LONGITUDE
1	29° 18' 21.69"	89° 28' 16.11"
2	29° 18' 20.63"	89° 28' 15.38"

- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

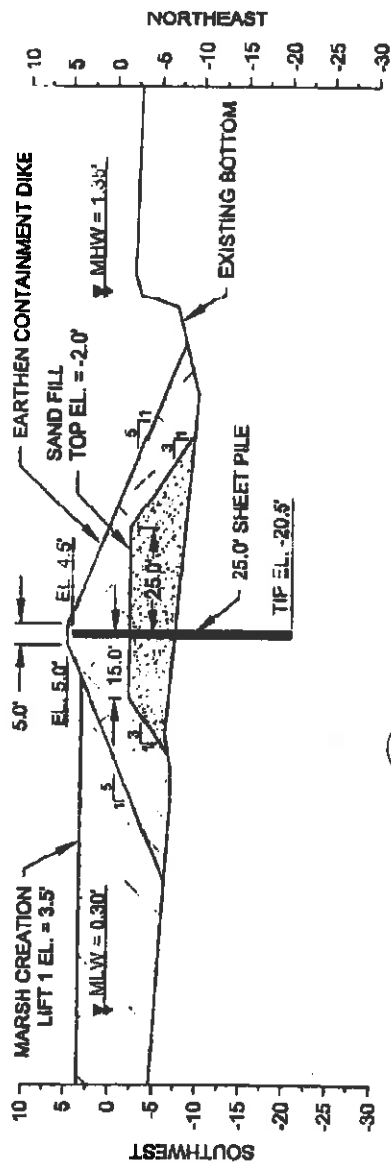
B-12 SHEET PILE PLAN VIEW



NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 264 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 439 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LARD MARSH AND RIDGE RESTORATION	B-12 SHEET PILE CLOSURE PLAN VIEW
	DRAWN BY: KRISTI GANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RILDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-88
			FEDERAL PROJECT NUMBER:	SHEET 17 OF 30



1417 B-12 SHEET PILE PROFILE

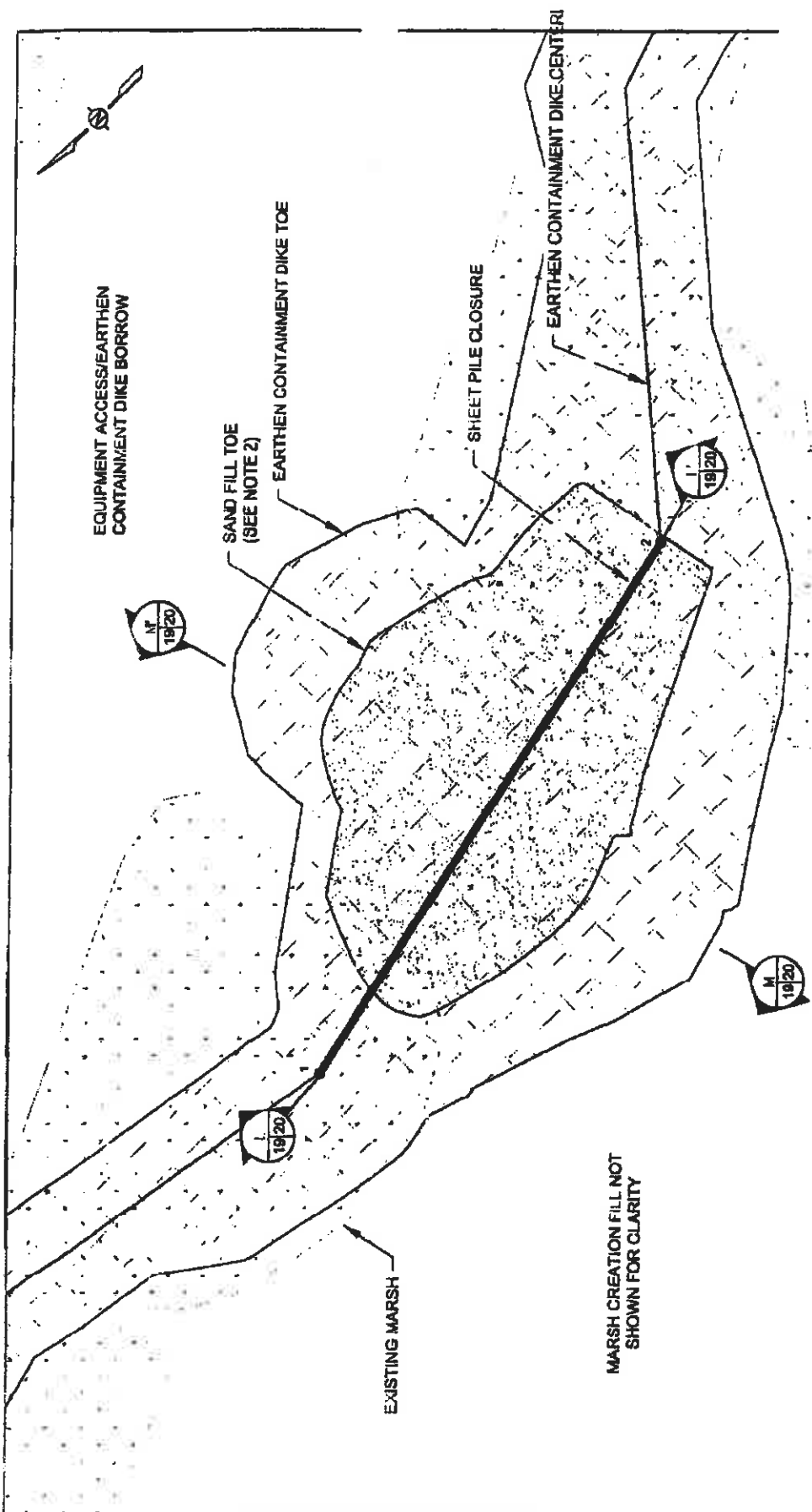


1417 B-12 SHEET PILE SECTION

- NOTES:
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LBL MILITARY SCIENCE BUILDING ROOM 265 BATON ROUGE, LOUISIANA 70803	GRAND LARD MARSH AND RIDGE RESTORATION	B-12 SHEET PILE CLOSURE DETAIL
DESIGNED BY: KRISTI CANTU	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
APPROVED BY: TYE FITZGERALD	FEDERAL PROJECT NUMBER:	SHEET 18 OF 30



B-13 SHEET PILE ALIGNMENT

	LATITUDE	LONGITUDE
1	29° 18' 10.70"	89° 28' 11.88"
2	29° 18' 09.00"	89° 28' 11.47"

NOTES:

1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
3. SEE SHEET 5 FOR SHEET PILE LOCATION.

B-13 SHEET PILE PLAN VIEW

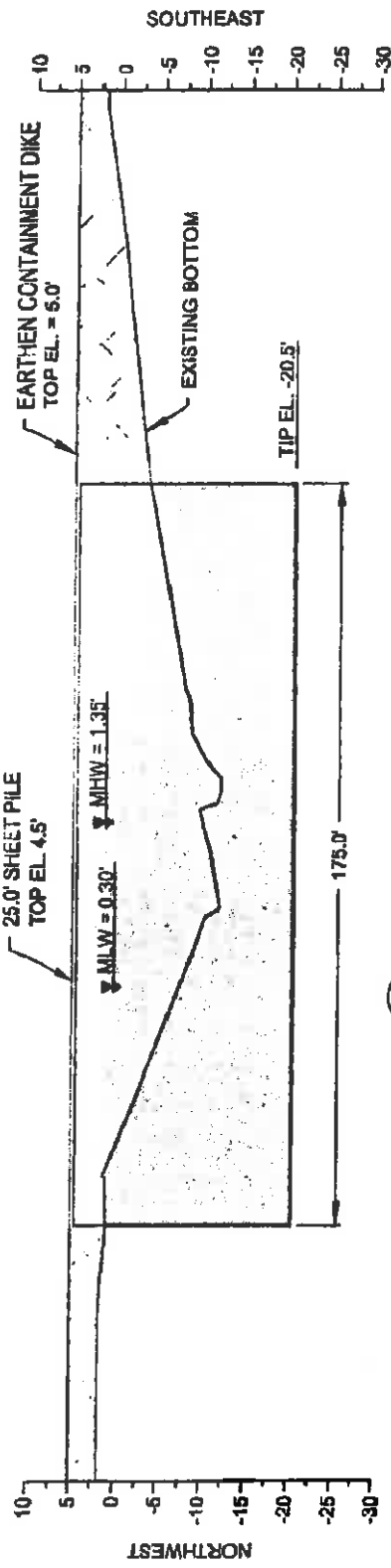


APPLICATION BY:
 NATIONAL MARINE FISHERIES SERVICES
 C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266
 BATON ROUGE, LOUISIANA 70803

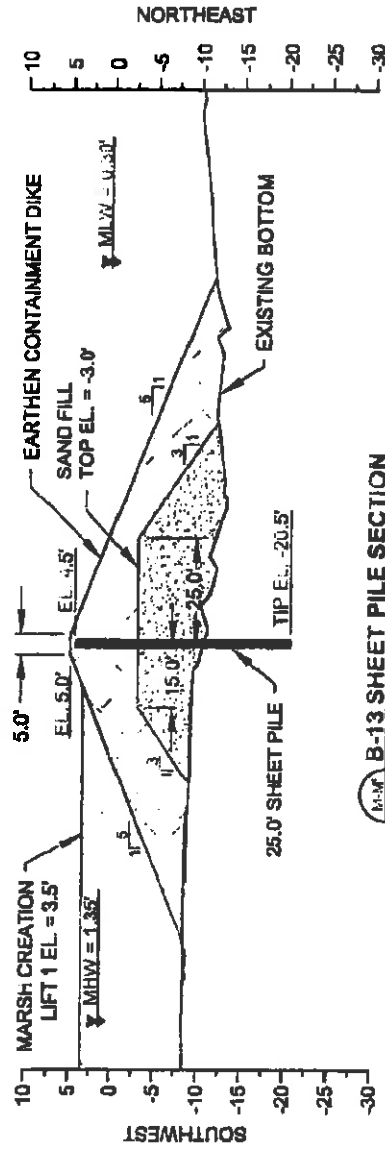
DESIGNED BY: TYE FITZGERALD
 APPROVED BY: RALDOPH SIMONEAUX
 COASTAL PROTECTION AND RESTORATION AUTHORITY
 439 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

STATE PROJECT NUMBER: BA-86
 FEDERAL PROJECT NUMBER:

DATE: NOVEMBER 2011
 SHEET 19 OF 30



B-13 SHEET PILE PROFILE

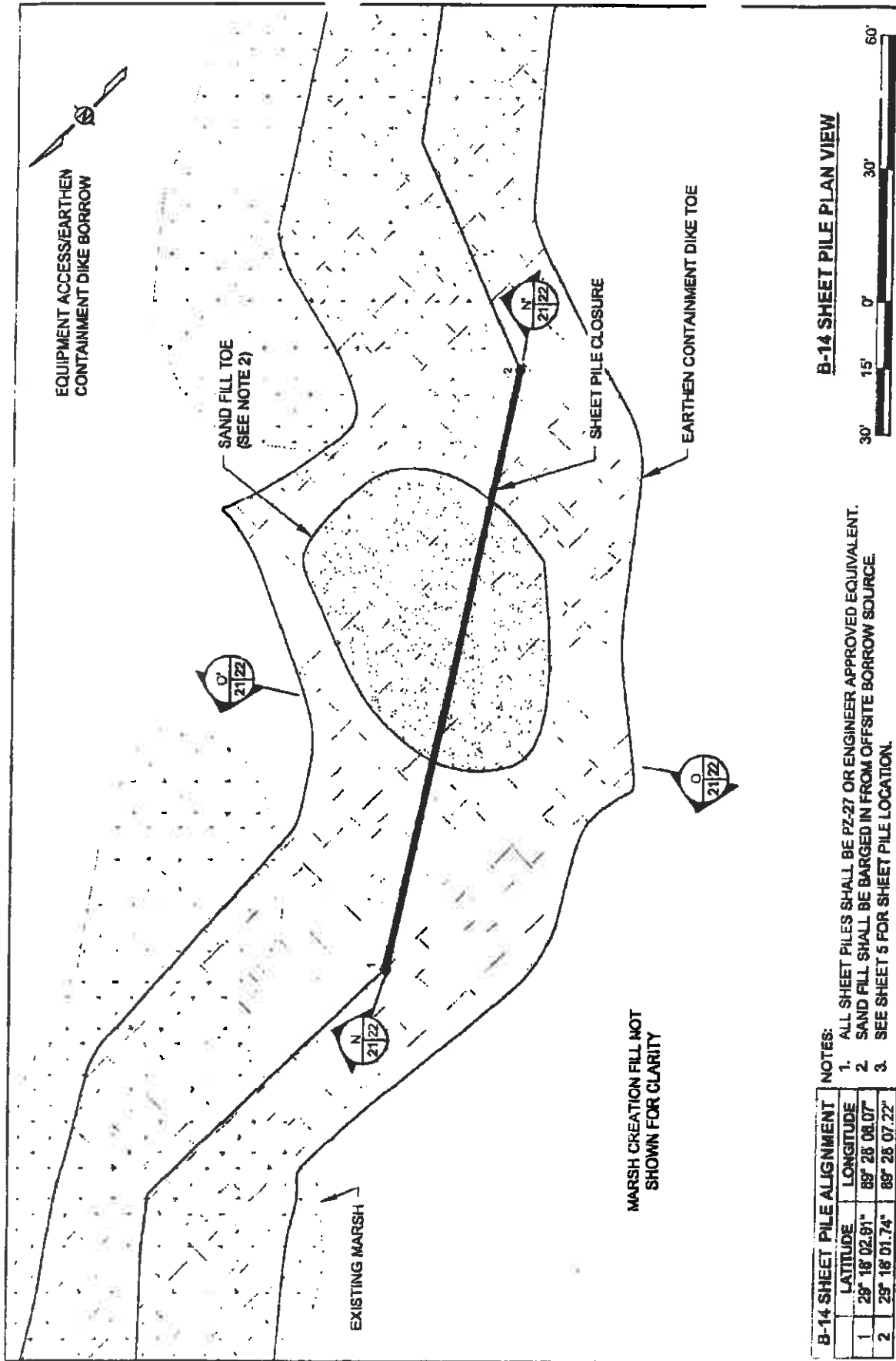


B-13 SHEET PILE SECTION



- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING ROOM 25-8 BATON ROUGE, LOUISIANA 70803</p>	<p>DESIGNED BY: TYE FITZGERALD</p>	<p>APPROVED BY: RULDOPH SIMONEAUX 459 LAISSEZ STREET BATON ROUGE, LOUISIANA 70801</p>	<p>STATE PROJECT NUMBER: BA-88</p>	<p>FEDERAL PROJECT NUMBER</p>	<p>DATE: NOVEMBER 2011 SHEET 26 OF 30</p>
<p>COASTAL PROTECTION AND RESTORATION AUTHORITY</p>		<p>GRAND LIARD MARSH AND RIDGE RESTORATION</p>		<p>B-13 SHEET PILE CLOSURE DETAIL</p>	



EQUIPMENT ACCESS/EARTHEN CONTAINMENT DIKE BORROW

SAND FILL TOE (SEE NOTE 2)

SHEET PILE CLOSURE

EARTHEN CONTAINMENT DIKE TOE

EXISTING MARSH

MARSH CREATION FILL NOT SHOWN FOR CLARITY

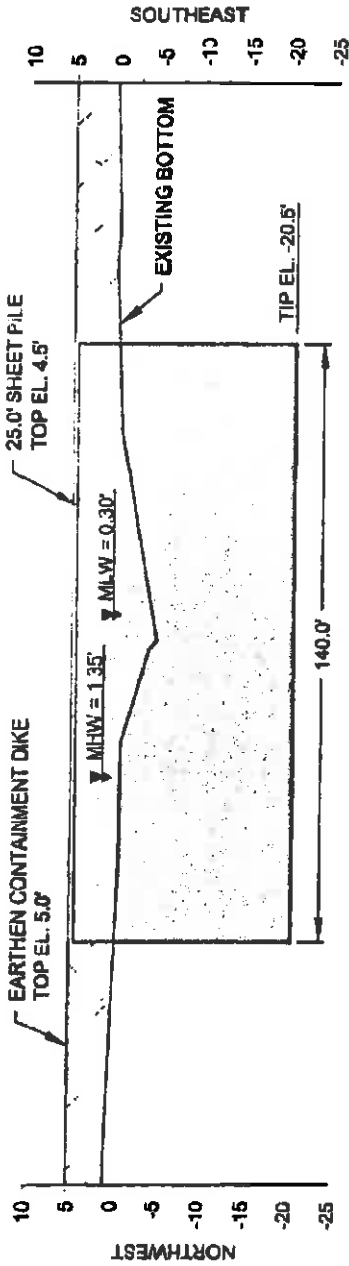
B-14 SHEET PILE PLAN VIEW

- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

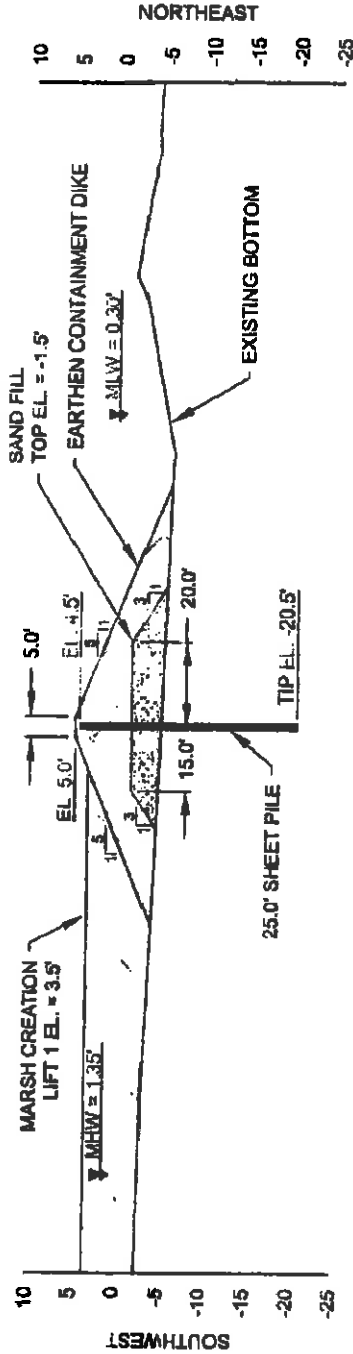
B-14 SHEET PILE ALIGNMENT	
LATITUDE	LONGITUDE
1 29° 18' 02.81"	89° 28' 08.07"
2 29° 18' 01.74"	89° 28' 07.22"



NATIONAL MARINE FISHERIES SERVICES C/O L&J MILITARY SCIENCE BUILDING - ROOM 286 BATON ROUGE, LOUISIANA 70805	COASTAL PROTECTION AND RESTORATION AUTHORITY 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION	B-14 SHEET PILE CLOSURE PLAN VIEW
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-08	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:	SHEET 21 OF 30		



B-14 SHEET PILE PROFILE



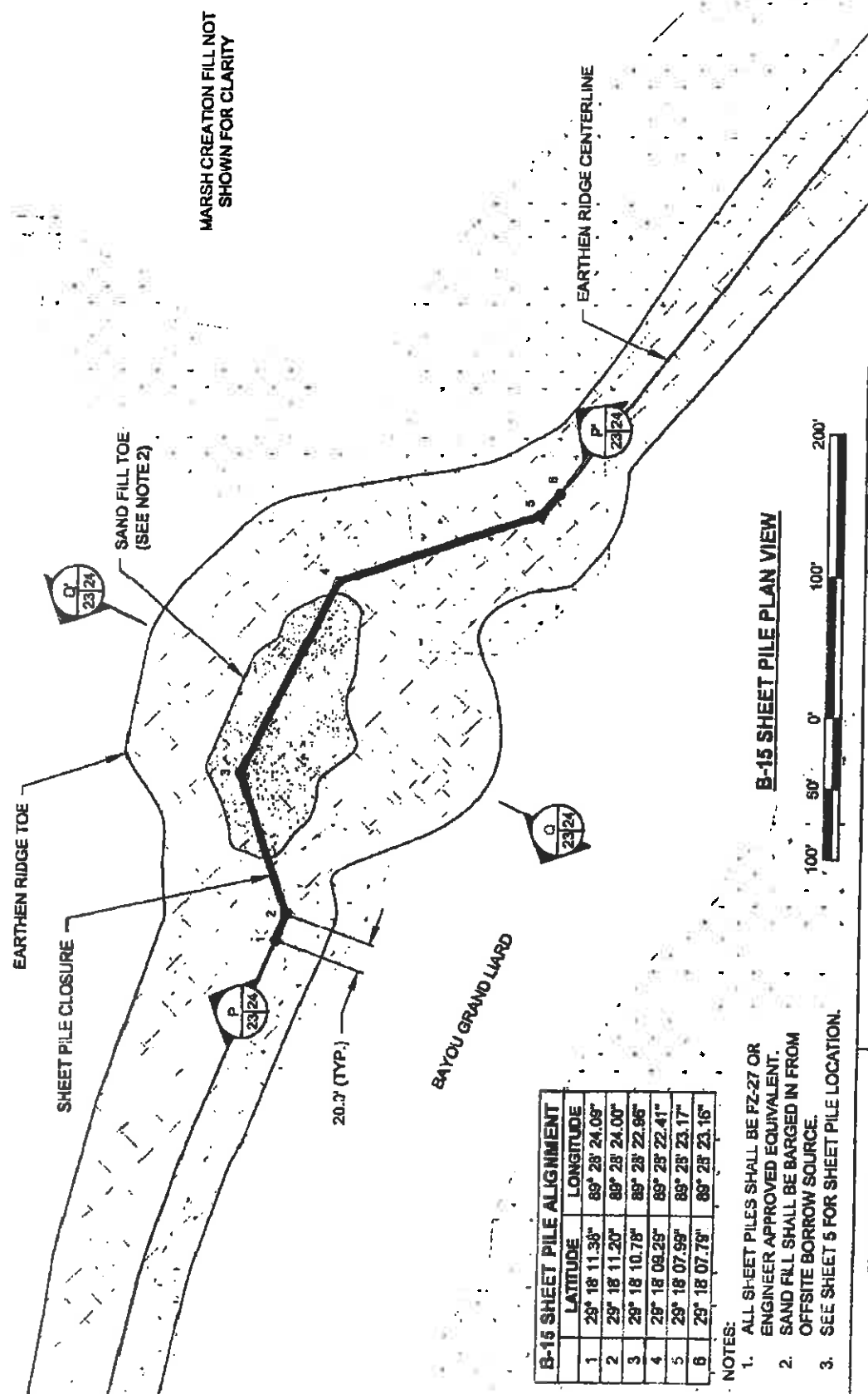
B-14 SHEET PILE SECTION

- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.



NATIONAL MARINE FISHERIES SERVICES C/O USF MILITARY SCIENCE BUILDING - ROOM 286 BATON ROUGE, LOUISIANA 70825	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION	B-14 SHEET PILE CLOSURE DETAIL
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUILOPH SIMONEAUX	STATE PROJECT NUMBER: BA-98	FEDERAL PROJECT NUMBER:

DRAWN BY: KRISTI CANTU



B-15 SHEET PILE ALIGNMENT	
LATITUDE	LONGITUDE
1 29° 18' 11.38"	89° 28' 24.09"
2 29° 18' 11.20"	89° 28' 24.00"
3 29° 18' 10.78"	89° 28' 22.96"
4 29° 18' 08.25"	89° 28' 22.41"
5 29° 18' 07.99"	89° 28' 23.17"
6 29° 18' 07.79"	89° 28' 23.16"

- NOTES:
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

B-15 SHEET PILE PLAN VIEW

APPLICATION BY:

NATIONAL MARINE FISHERIES SERVICES
 C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266
 BATON ROUGE, LOUISIANA 70803

COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RUDOLPH SIMONEAUX

GRAND LIARD MARSH AND RIDGE RESTORATION

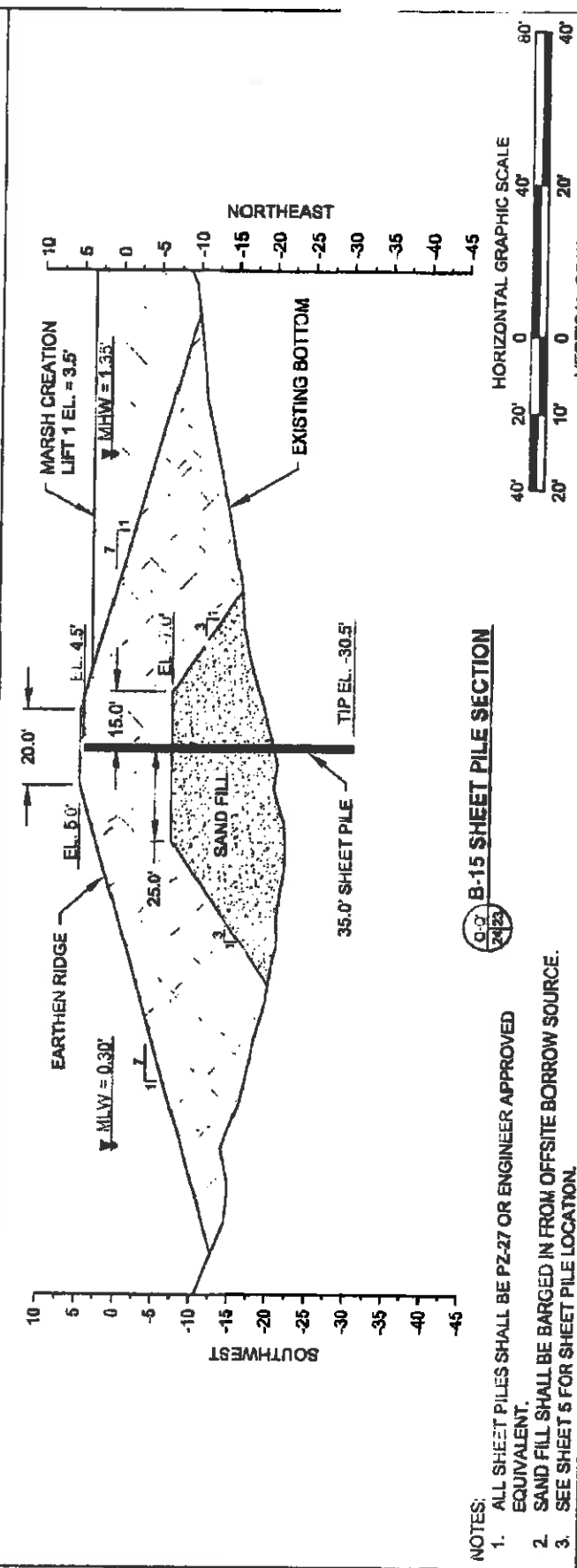
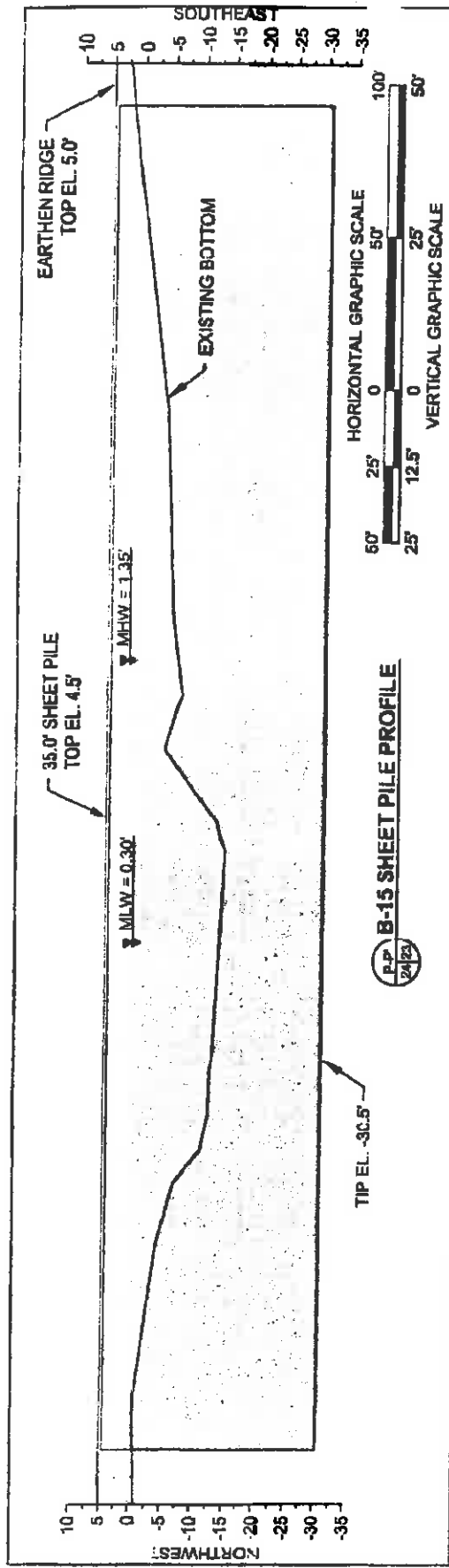
B-15 SHEET PILE CLOSURE PLAN VIEW

STATE PROJECT NUMBER: BA-68

DATE: NOVEMBER 2011

FEDERAL PROJECT NUMBER:

SHEET 23 OF 30

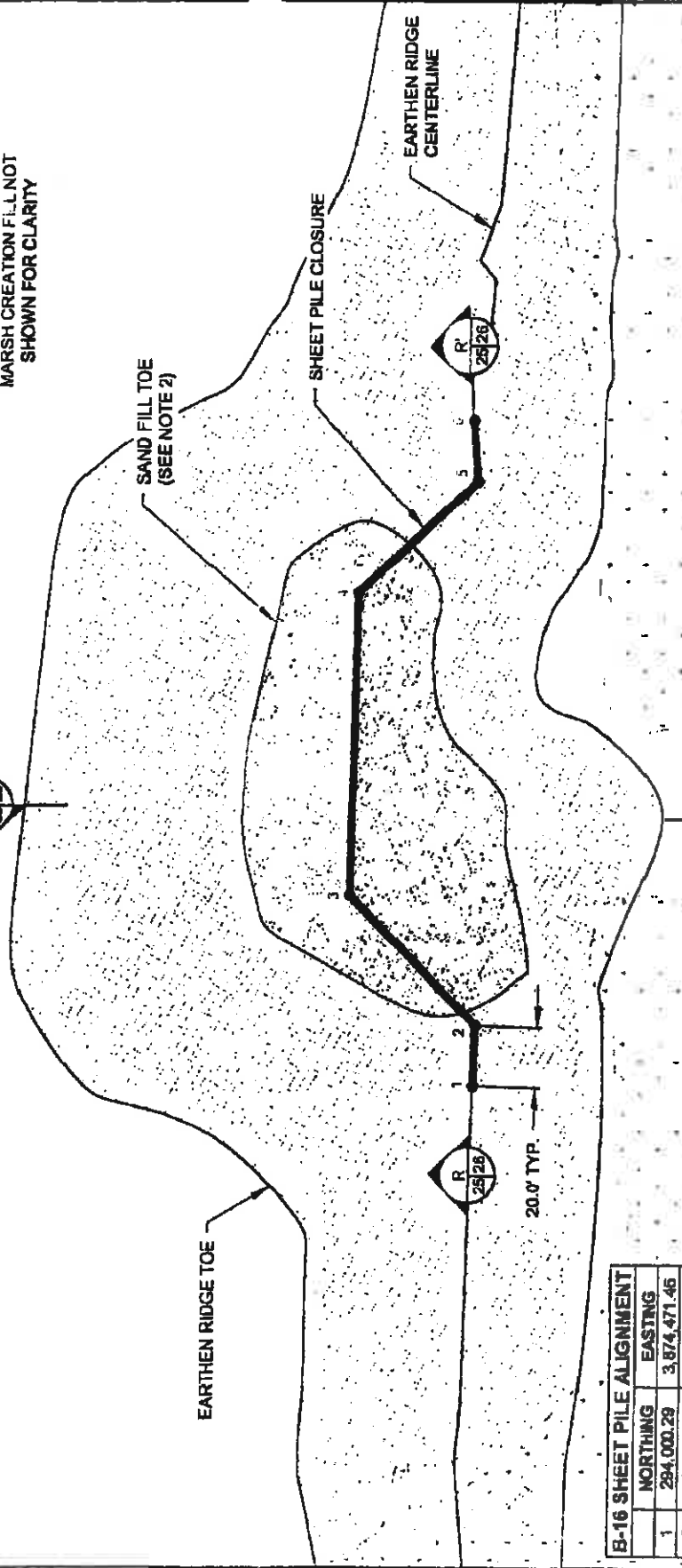


- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING - ROOM 26-6 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-15 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOF SIMONEAUX	DATE: NOVEMBER 2011 SHEET 24 OF 30
STATE PROJECT NUMBER: BA-68		FEDERAL PROJECT NUMBER:	



MARSH CREATION FILL NOT SHOWN FOR CLARITY



B-16 SHEET PILE ALIGNMENT

	NORTHING	EASTING
1	294,000.29	3,874,471.46
2	293,982.70	3,874,480.98
3	293,968.09	3,874,537.97
4	293,878.42	3,874,565.08
5	293,827.66	3,874,571.28
6	293,811.15	3,874,582.59

NOTES:

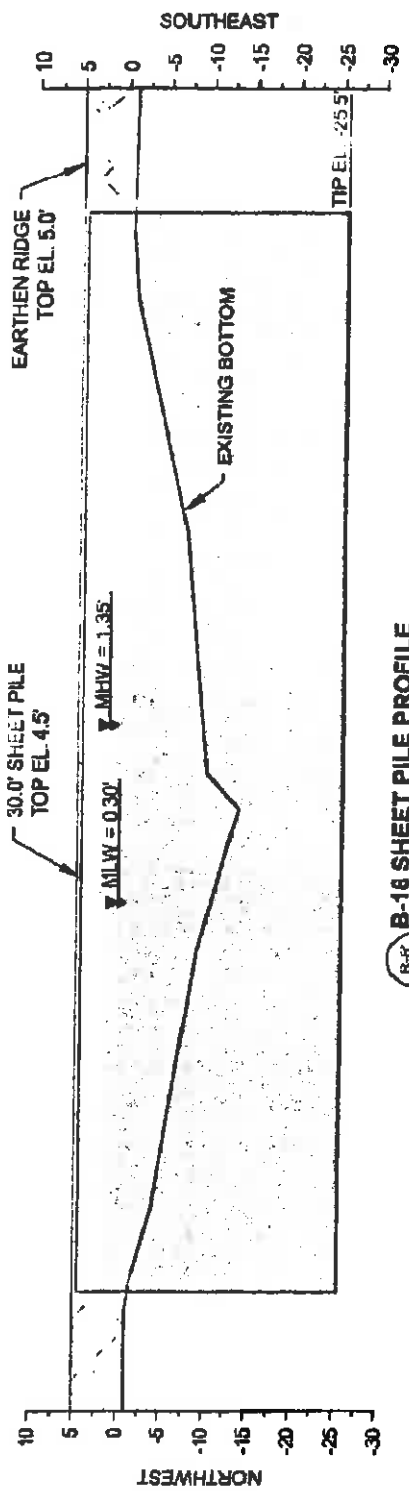
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
3. SEE SHEET 6 FOR SHEET PILE LOCATION.

BAYOU GRAND LIARD

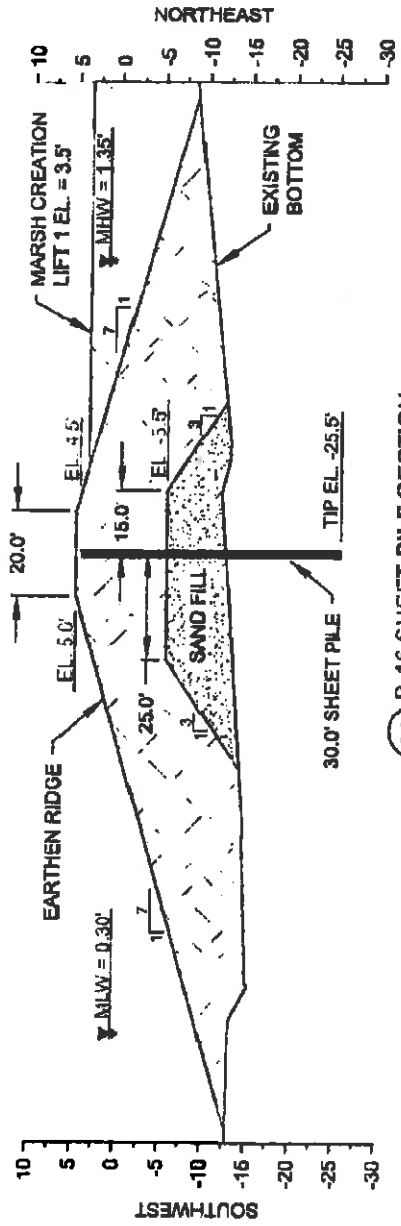
B-16 SHEET PILE PLAN VIEW



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING, ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-16 SHEET PILE CLOSURE PLAN VIEW
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER:	DATE: NOVEMBER 2011 SHEET 25 OF 30

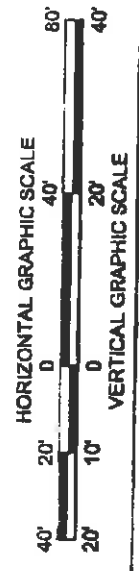


B-16 SHEET PILE PROFILE
 1" = 40' HORIZONTAL
 1" = 20' VERTICAL



B-16 SHEET PILE SECTION
 1" = 40' HORIZONTAL
 1" = 20' VERTICAL

NOTES:
 1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.



APPLICATION BY: NATIONAL MARINE SERVICES C/O USJ MILITARY SCIENCE BUILDING ROOM 25-6 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 499 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-16 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUI LDORPH SIMONEAUX	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 26 OF 30



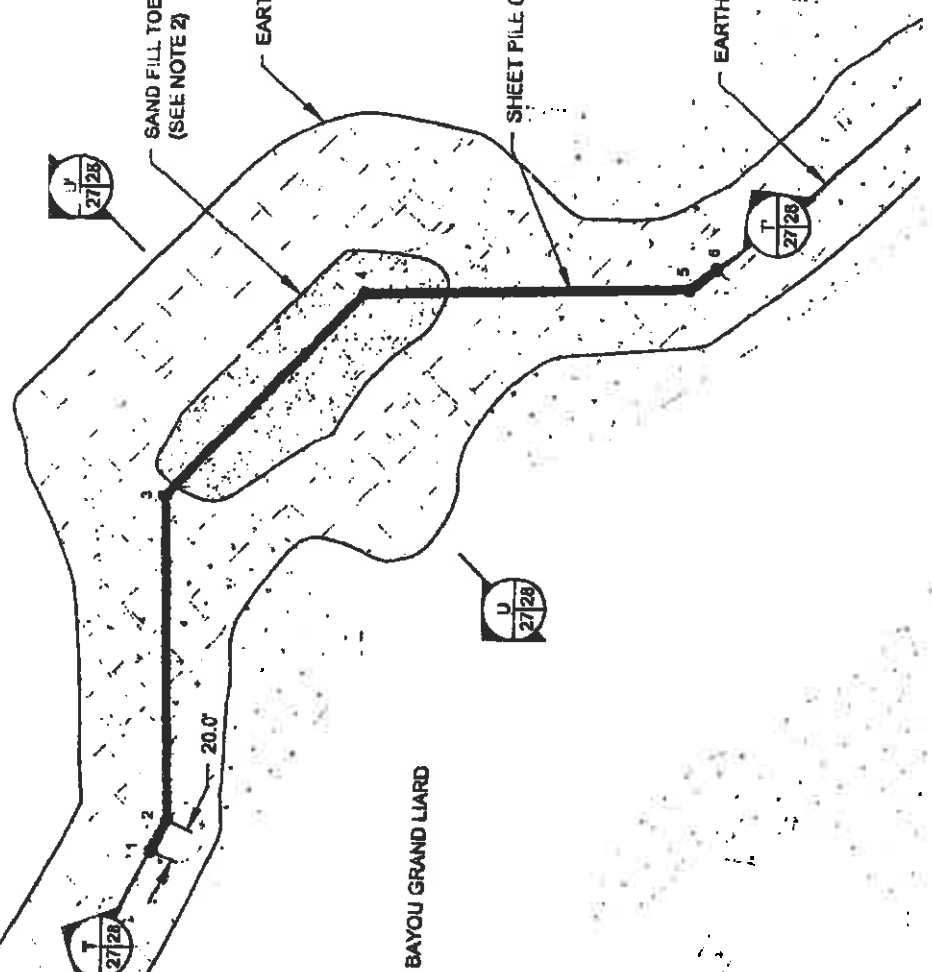
MARSH CREATION FILL NOT SHOWN FOR CLARITY

SAND FILL TOE (SEE NOTE 2)

EARTHEN RIDGE TOE

SHEET PILE CLOSURE

EARTHEN RIDGE CENTERLINE



B-17 SHEET PILE PLAN VIEW

B-17 SHEET PILE ALIGNMENT		
	NORTHING	EASTING
1	281,869.06	3,875,110.93
2	281,880.17	3,875,117.54
3	291,747.30	3,875,255.68
4	291,582.33	3,875,258.73
5	291,447.89	3,875,129.32
6	291,428.10	3,875,126.45

- NOTES:
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.

APPLICATION BY:

NATIONAL MARINE FISHERIES SERVICES
 C/O L&A MILITARY SCIENCE BUILDING, ROOM 265
 BATON ROUGE, LOUISIANA 70803

COASTAL PROTECTION AND RESTORATION AUTHORITY
 459 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DRAWN BY: KRISTI CAMTU

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RUDOLPH SIMONEAUX

GRAND LIARD MARSH AND RIDGE RESTORATION

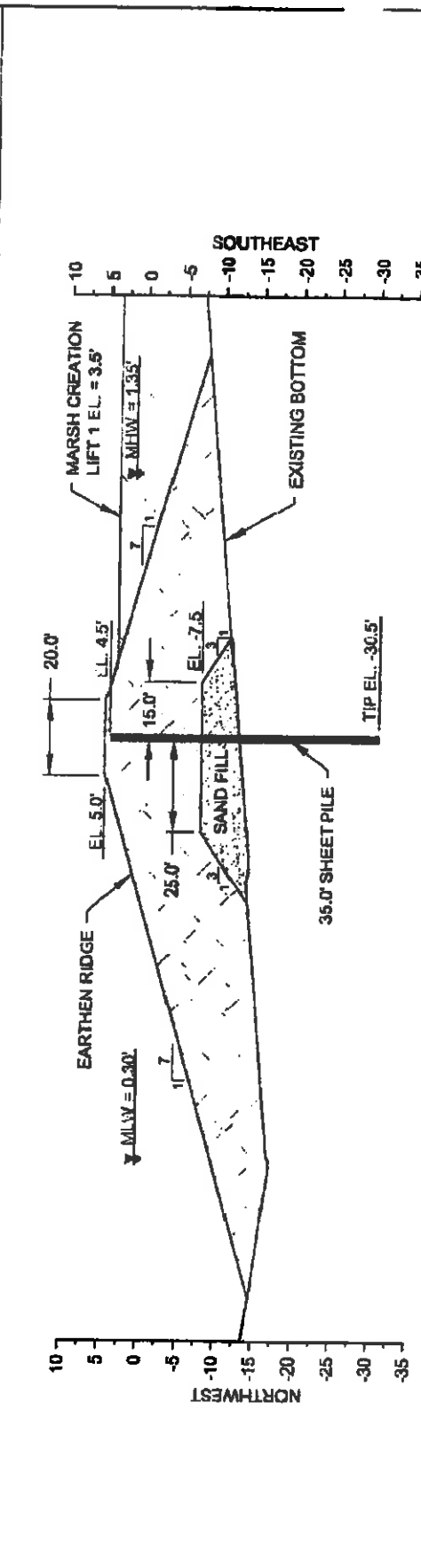
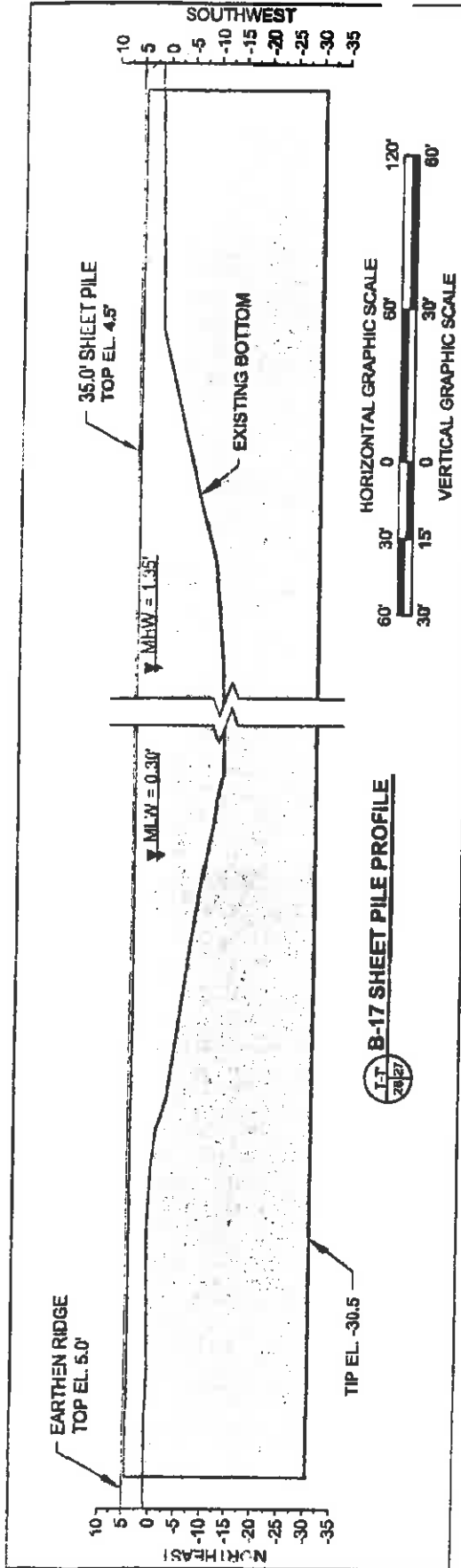
STATE PROJECT NUMBER: BA-48

FEDERAL PROJECT NUMBER:

B-17 SHEET PILE CLOSURE PLAN VIEW

DATE: NOVEMBER 2011

SHEET 27 OF 30

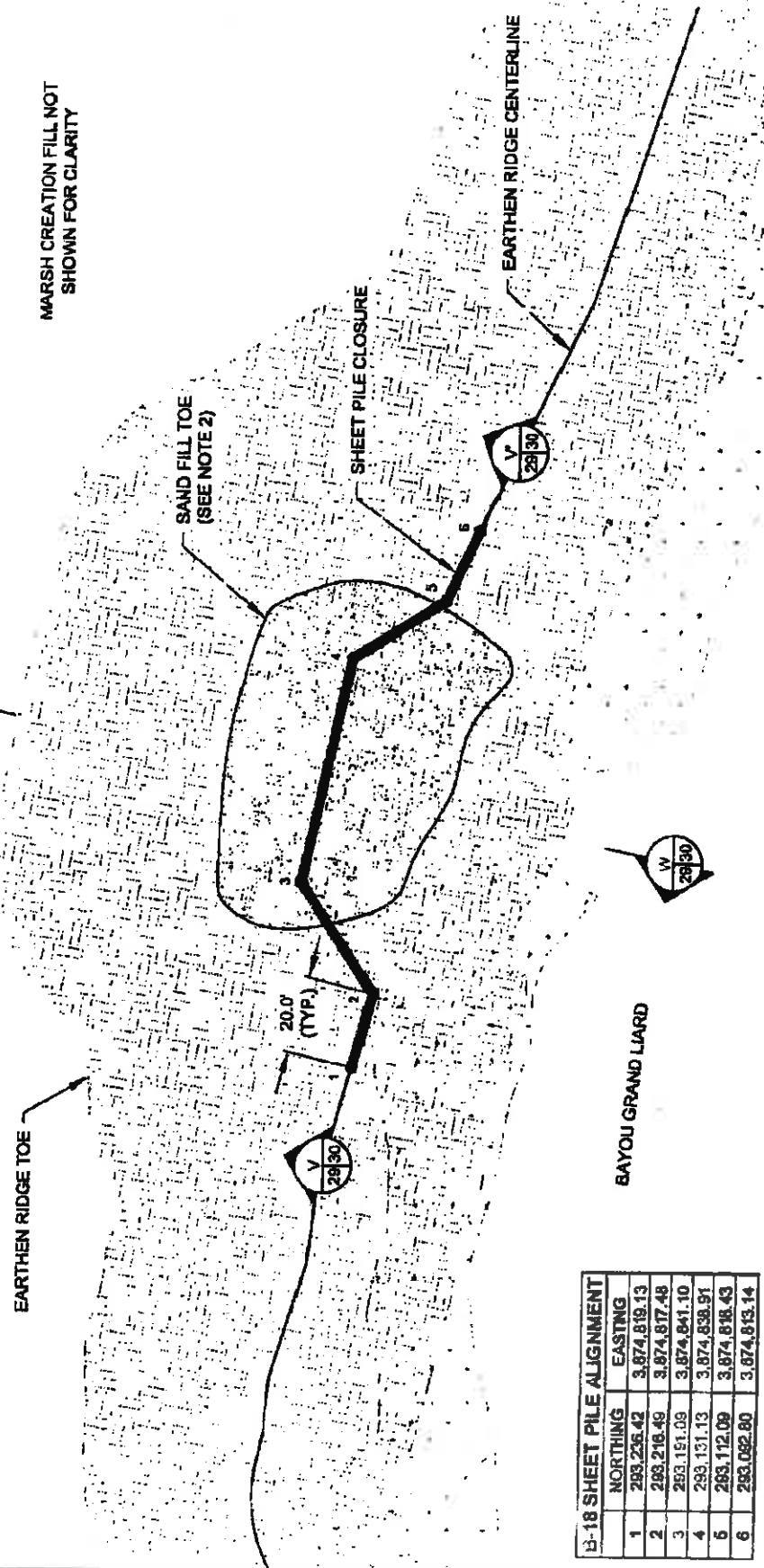


- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.

APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 28-6 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-17 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUDOLPH SIMONEAUX	STATE PROJECT NUMBER: BA-08 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 28 OF 30



MARSH CREATION FILL NOT SHOWN FOR CLARITY



B-18 SHEET PILE ALIGNMENT

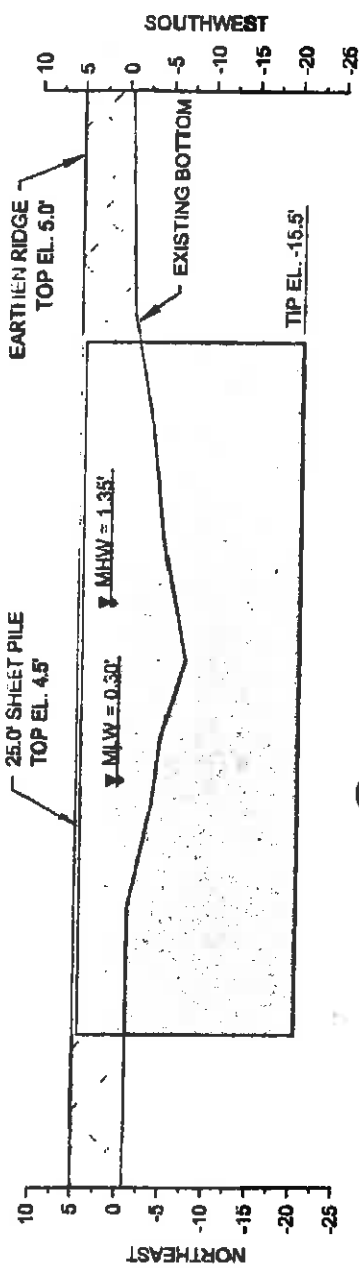
	NORTHING	EASTING
1	293,236.42	3,874,819.13
2	293,216.49	3,874,817.48
3	293,151.09	3,874,841.10
4	293,131.13	3,874,838.91
5	293,112.09	3,874,818.43
6	293,092.80	3,874,813.14

- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.

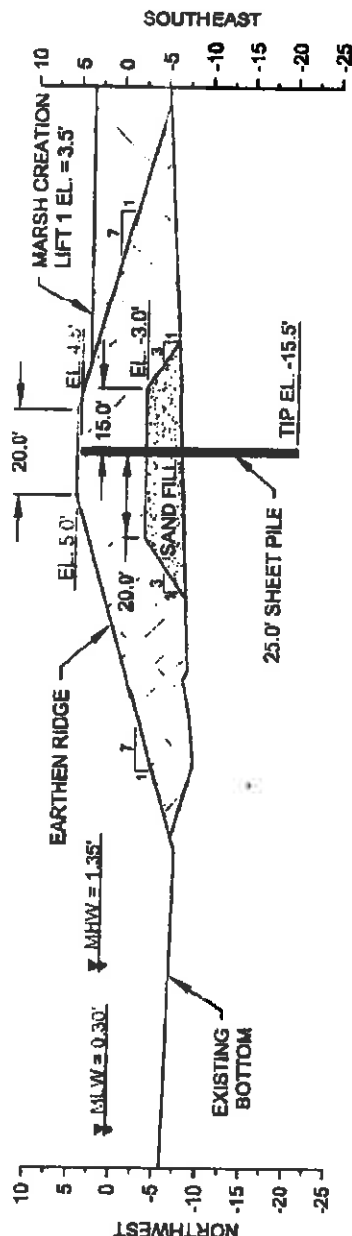
B-18 SHEET PILE PLAN VIEW



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 639 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LARD MARSH AND RIDGE RESTORATION	B-18 SHEET PILE CLOSURE PLAN VIEW
		DESIGNED BY: TVE FITZGERALD APPROVED BY: RUILOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 29 OF 30
DRAWN BY: KRISTI CANTU	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER:		



B-18 SHEET PILE PROFILE



B-18 SHEET PILE SECTION



- NOTES:**
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.

APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LARD MARSH AND RIDGE RESTORATION	B-18 SHEET PILE CLOSURE DETAIL DATE: NOVEMBER 2011 SHEET 30 OF 30
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RALDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-88 FEDERAL PROJECT NUMBER: