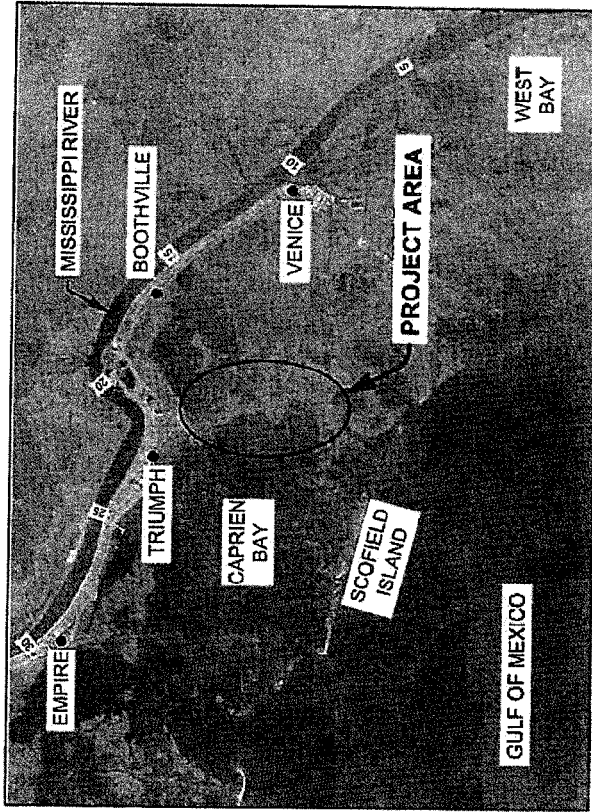
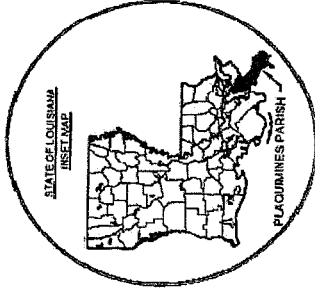


INDEX TO SHEETS

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1	TITLE SHEET
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4	MARSH CREATION AREA A LAYOUT
5	MARSH CREATION AREA B LAYOUT
6	MARSH CREATION AREA C & D LAYOUT
7	POTENTIAL ACCESS DREDGING TYPICAL SECTION
8	BORROW AREA TYPICAL SECTIONS
9	MARSH CREATION AREA A TYPICAL SECTION D-D'
10	MARSH CREATION AREA B TYPICAL SECTION E-E''
11	MARSH CREATION AREA C TYPICAL SECTION F-F''
12	MARSH CREATION AREA D TYPICAL SECTION G-G'
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22	B-15 SHEET PILE CLOSURE PLAN VIEW
23	B-15 SHEET PILE CLOSURE DETAIL
24	B-16 SHEET PILE CLOSURE PLAN VIEW
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STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

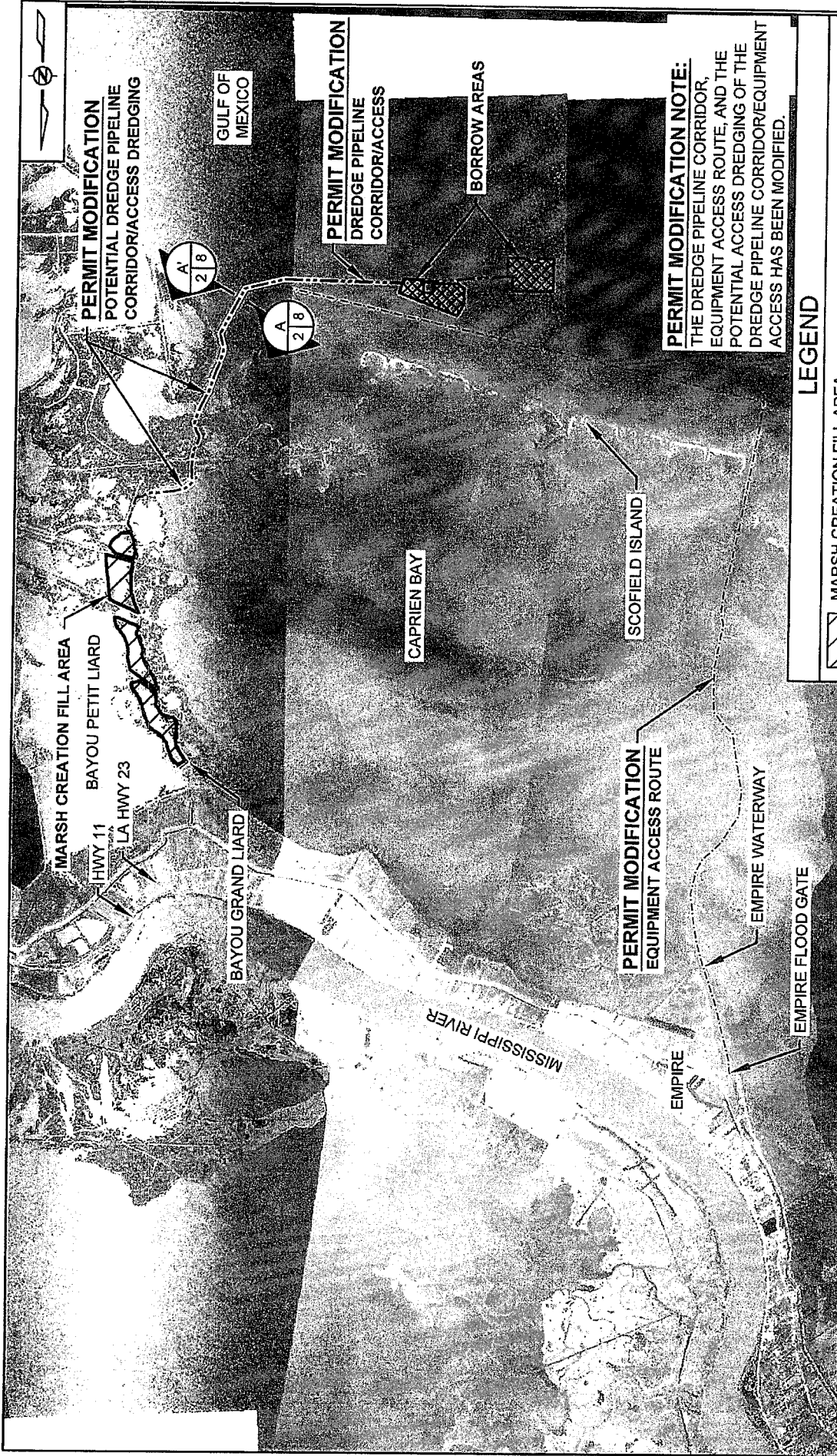
**GRAND LIARD MARSH AND
RIDGE RESTORATION**
BA-68
PLAQUEMINES PARISH



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 MARINE SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803	OFFICE OF COASTAL PROTECTION AND RESTORATION 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION	TITLE SHEET
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUIDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011



NOTE:
BACKGROUND IMAGERY WAS TAKEN IN 2010.



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

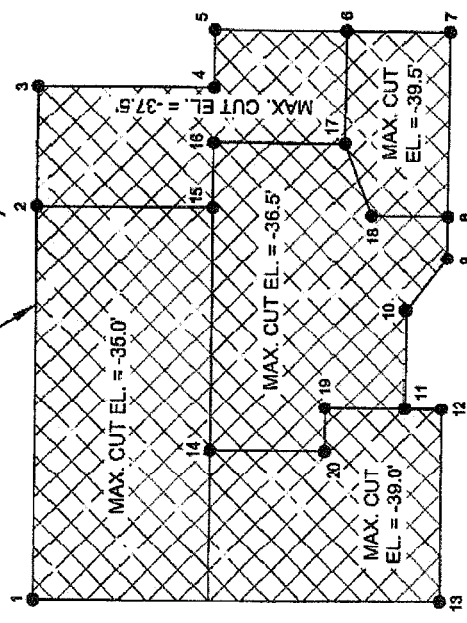
- MARSH CREATION FILL AREA
- BORROW AREA
- DREDGE PIPELINE CORRIDOR/EQUIPMENT ACCESS
- POTENTIAL DREDGE PIPELINE CORRIDOR/ EQUIPMENT ACCESS DREDGING
- EQUIPMENT ACCESS ROUTE

<p>COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>		<p>GRAND LIARD MARSH AND RIDGE RESTORATION</p>	
<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803</p>		<p>PLAN VIEW</p>	
<p>DRAWN BY: KRISTI CANTU</p>	<p>DESIGNED BY: TYE FITZGERALD</p>	<p>STATE PROJECT NUMBER: BA-68</p>	<p>DATE: NOVEMBER 2011 (MOD. 11/5/2013)</p>
<p>G:\Users\Autocad\BASINS\BA\BA-68 Grand Liard Marsh and Ridge Restoration\Permitting\Joint Permit\2013 Mod\02 Project Layout.dwg, 2/26/2013 9:05:30 AM</p>		<p>FEDERAL PROJECT NUMBER: SHEET 2 OF 30</p>	

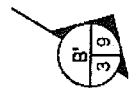
WEST BORROW AREA

	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' 32.06"
3	29° 13' 19.91"	89° 33' 10.96"	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' 18.96"
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' 19.56"
8	29° 12' 56.69"	89° 33' 19.65"	18	29° 13' 01.05"	89° 33' 19.56"
9	29° 12' 58.73"	89° 33' 22.29"	19	29° 13' 03.70"	89° 33' 31.92"
10	29° 12' 59.11"	89° 33' 25.59"	20	29° 13' 03.74"	89° 33' 34.74"

WEST BORROW AREA



GULF OF MEXICO



NOTES:

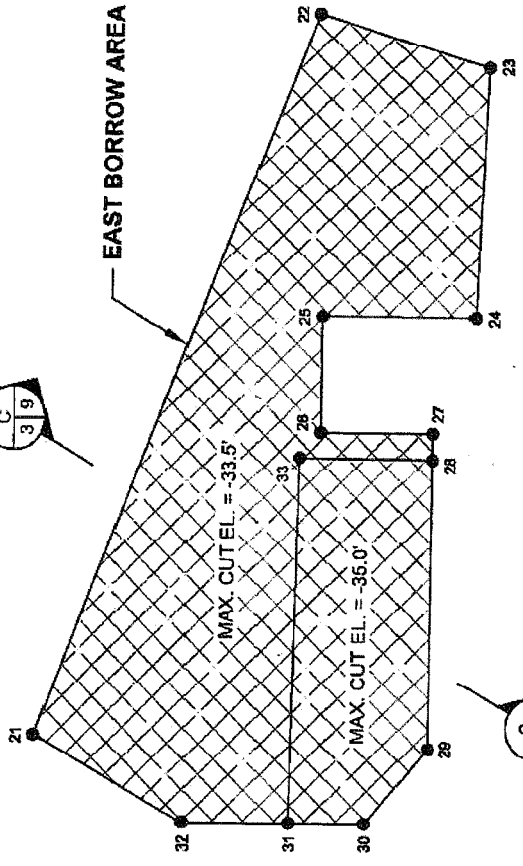
1. THE WEST BORROW AREA CONTAINS APPROXIMATELY 4.68 M CUBIC YARDS OF MATERIAL.
2. THE EAST BORROW AREA CONTAINS APPROXIMATELY 5.28 M CUBIC YARDS OF MATERIAL.



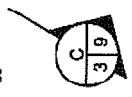
EAST BORROW AREA

	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE	
21	29° 13' 37.18"	89° 32' 26.61"	28	29° 13' 14.40"	89° 32' 08.98"
22	29° 13' 20.75"	89° 31' 39.94"	29	29° 13' 14.66"	89° 32' 27.70"
23	29° 13' 11.19"	89° 31' 43.47"	30	29° 13' 18.30"	89° 32' 32.55"
24	29° 13' 11.95"	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' 07.15"	33	29° 13' 21.93"	89° 32' 08.79"
27	29° 13' 14.38"	89° 32' 07.30"			

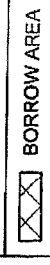
EAST BORROW AREA



GULF OF MEXICO



LEGEND



APPLICATION BY:
NATIONAL MARINE FISHERIES SERVICES
C/O US 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

BORROW AREA LAYOUT

DRAWN BY: KRISTI GANTU

DESIGNED BY: TYE FITZGERALD

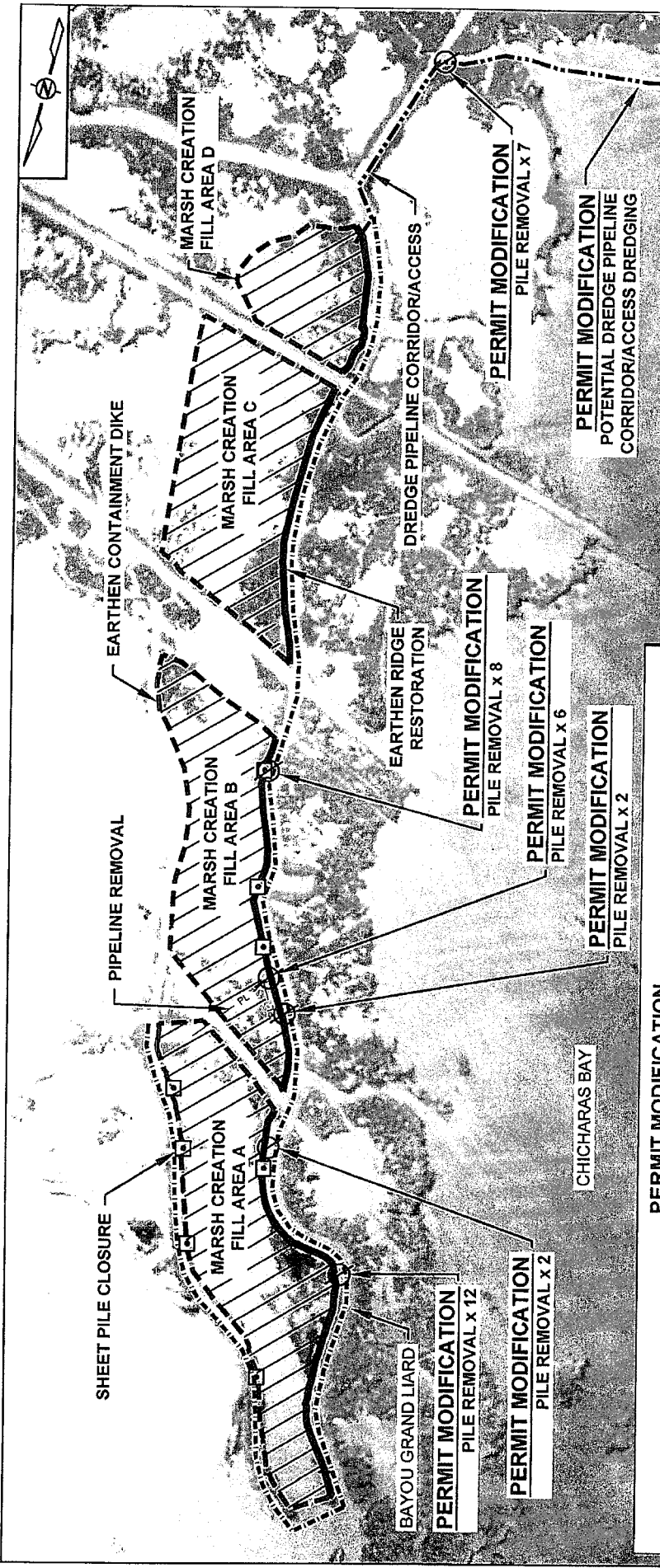
APPROVED BY: RULDOPH SIMONEAUX

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' 45.28"	89° 28' 17.11"	30	29° 17' 19.11"	89° 28' 08.88"
5	29° 18' 20.49"	89° 28' 39.06"	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' 43.19"	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 266
 BATON ROUGE, LOUISIANA, 70803

DESIGNED BY: TYE FITZGERALD
APPROVED BY: RUI DOPH SIMONEAUX
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DATE: NOVEMBER 2011 (MOD. 1/17/2013)
SHEET: 4 OF 30

STATE PROJECT NUMBER: BA-68
FEDERAL PROJECT NUMBER:

GRAND LIARD MARSH AND RIDGE RESTORATION
MARSH CREATION AREA LAYOUT

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.

MARSH CREATION AREA A	
LATITUDE	LONGITUDE
1	29° 18' 49.42"
2	29° 18' 52.03"
3	29° 18' 36.25"
4	29° 18' 35.43"
5	29° 18' 21.69"
6	29° 18' 20.63"
7	29° 18' 10.69"
8	29° 18' 09.00"
9	29° 18' 02.90"
10	29° 18' 01.72"
11	29° 17' 54.47"
12	29° 17' 52.46"
13	28° 18' 01.61"
14	29° 18' 07.79"
15	29° 18' 09.29"
16	29° 18' 10.78"
17	29° 18' 11.38"
18	89° 28' 45.94"
19	89° 28' 40.42"
20	89° 28' 31.13"
21	89° 28' 30.50"
22	89° 28' 16.11"
23	89° 28' 15.38"
24	89° 28' 11.88"
25	89° 28' 11.47"
26	89° 28' 08.06"
27	89° 28' 07.21"
28	89° 28' 02.66"
29	89° 28' 09.36"
30	89° 28' 23.20"
31	89° 28' 23.16"
32	89° 28' 22.41"
33	89° 28' 22.96"
34	89° 28' 24.09"

PERMIT MODIFICATION NOTE:

THE 2" GULF SOUTH PIPELINE SHALL BE CUT AND REMOVED BY THE CONTRACTOR.



EQUIPMENT ACCESS/EARTHEN CONTAINMENT DIKE BORROW AREA

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

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

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

MARSH CREATION FILL AREA A

EARTHEN RIDGE & CONTAINMENT DIKE SECONDARY BORROW AREA

FLOTATION/EARTHEN RIDGE BORROW AREA

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

EARTHEN RIDGE RESTORATION (SEE SHEET 15 FOR DETAILS)

BAYOU GRAND LIARD

EQUIPMENT ACCESS ROUTE



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

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

MARSH CREATION AREA A LAYOUT

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

APPROVED BY: RULDOPH SIMONEAUX

FEDERAL PROJECT NUMBER:

STATE PROJECT NUMBER: BA-68

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

SHEET 5 OF 30



MARSH CREATION AREA B		
LATITUDE	LONGITUDE	LONGITUDE
18	29° 17' 58.75"	89° 28' 23.20"
19	29° 17' 45.13"	89° 28' 01.81"
20	29° 17' 07.89"	89° 27' 49.49"
21	29° 17' 14.57"	89° 28' 08.78"
22	29° 17' 17.00"	89° 28' 08.55"
23	29° 17' 18.51"	89° 28' 07.03"
24	29° 17' 20.14"	89° 28' 07.03"
25	29° 17' 21.67"	89° 28' 08.64"
26	29° 17' 33.53"	89° 28' 11.78"
27	29° 17' 33.90"	89° 28' 11.49"
28	29° 17' 34.50"	89° 28' 11.45"
29	29° 17' 34.95"	89° 28' 11.69"
30	29° 17' 40.68"	89° 28' 14.25"
31	29° 17' 41.34"	89° 28' 14.20"
32	29° 17' 42.22"	89° 28' 14.73"
33	29° 17' 42.57"	89° 28' 15.48"

EARTHEN CONTAINMENT DIKE
(SEE SHEET 14 FOR DETAILS)

PERMIT MODIFICATION
2" GULF
TO BE REMOVED
(SEE NOTE 6)

MARSH CREATION
FILL AREA B

EARTHEN CONTAINMENT
DIKE BORROW AREA

EARTHEN RIDGE
SECONDARY
BORROW AREA

SHEET PILE
CLOSURE (B-17)
(SEE SHEETS 27 &
28 FOR DETAILS)

PERMIT MODIFICATION
PILE REMOVAL x 8 (SEE
SHEET 2 FOR COORDINATES)

FLOTATION/EARTHEN
RIDGE BORROW AREA

PERMIT MODIFICATION
4" LGS
TO BE REMOVED
(SEE NOTE)

SHEET PILE
CLOSURE (B-16)
(SEE SHEETS 29 &
30 FOR DETAILS)

SHEET PILE
CLOSURE (B-16)
(SEE SHEETS 25 &
26 FOR DETAILS)

EARTHEN RIDGE
RESTORATION
(SEE SHEETS 15
FOR DETAILS)

PERMIT MODIFICATION
PILE REMOVAL x 8 (SEE
SHEET 2 FOR COORDINATES)

PERMIT MODIFICATION
PIPELINE REMOVAL

LATITUDE	LONGITUDE
A	29° 17' 55.06" 89° 28' 08.31"
B	29° 17' 52.96" 89° 28' 10.36"
C	29° 17' 51.70" 89° 28' 11.51"
D	29° 17' 46.04" 89° 28' 16.71"
E	29° 17' 49.97" 89° 28' 19.18"
F	29° 17' 48.41" 89° 28' 22.97"

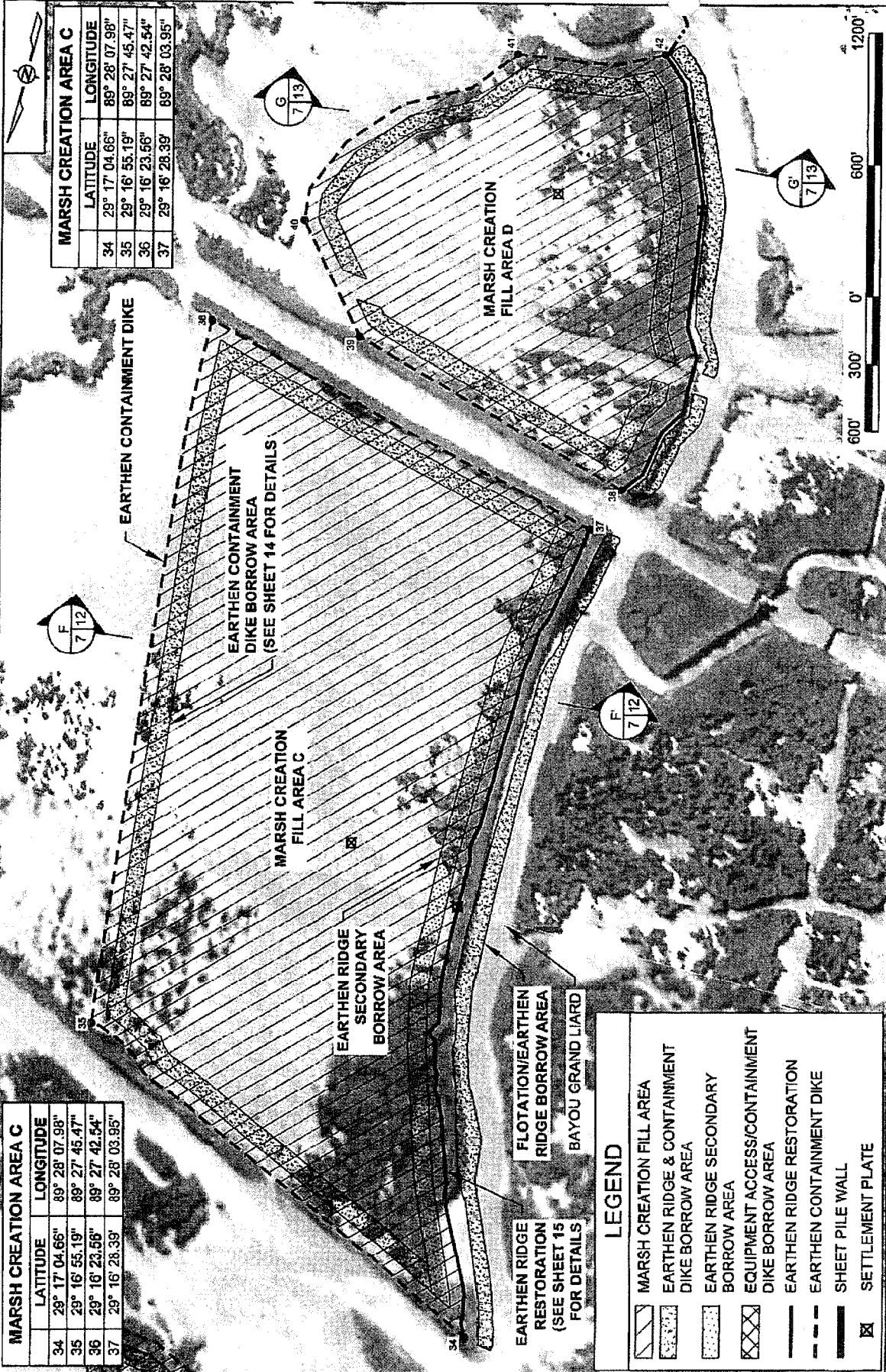
PERMIT MODIFICATION NOTE:
THE 2" GULF SOUTH AND 4" LOUISIANA
STATE GAS CORPORATION PIPELINES
SHALL BE CUT AND REMOVED BY THE
CONTRACTOR.



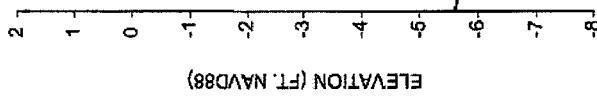
LEGEND

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

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	MARSH CREATION AREA B LAYOUT
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 (MOD. 11/9/2013) SHEET 6 OF 30

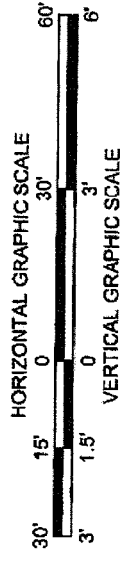
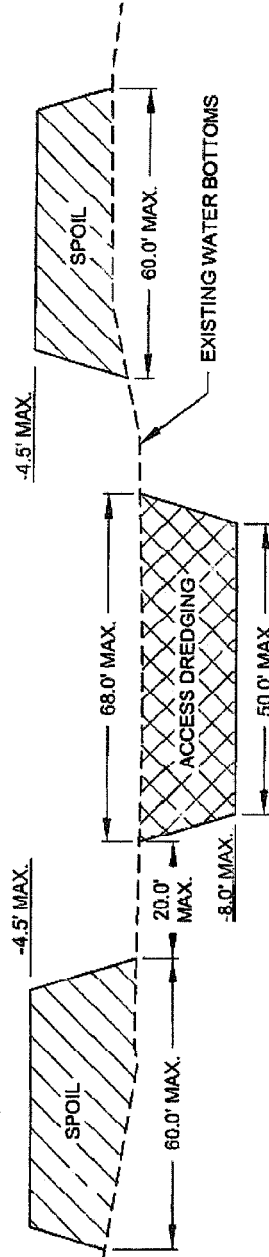


COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	MARSH CREATION AREA C & D LAYOUT
	DESIGNED BY: TYE FITZGERALD APPROVED BY: RUI DOPH SIMONEAUX	STATE PROJECT NUMBER: BA-88 FEDERAL PROJECT NUMBER:
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING, ROOM 266 BATON ROUGE, LOUISIANA 70803	DRAWN BY: KRISTI CANTU	



▽ MHW = 1.35'

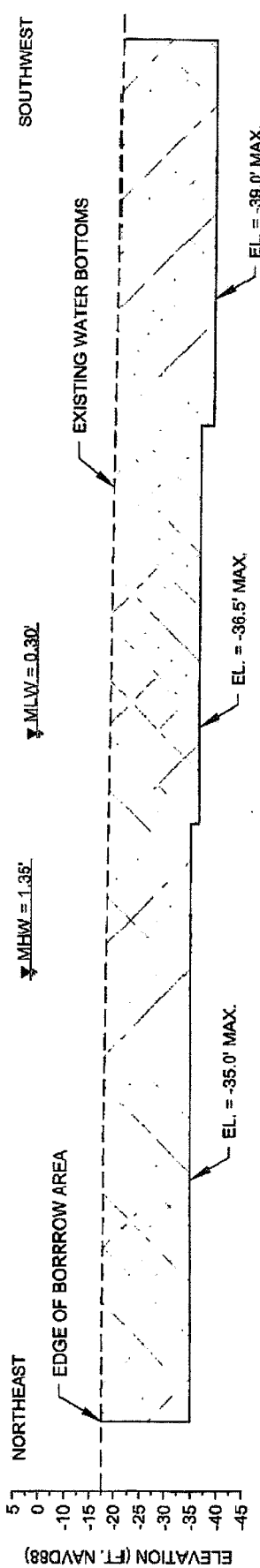
▽ MLW = 0.30'



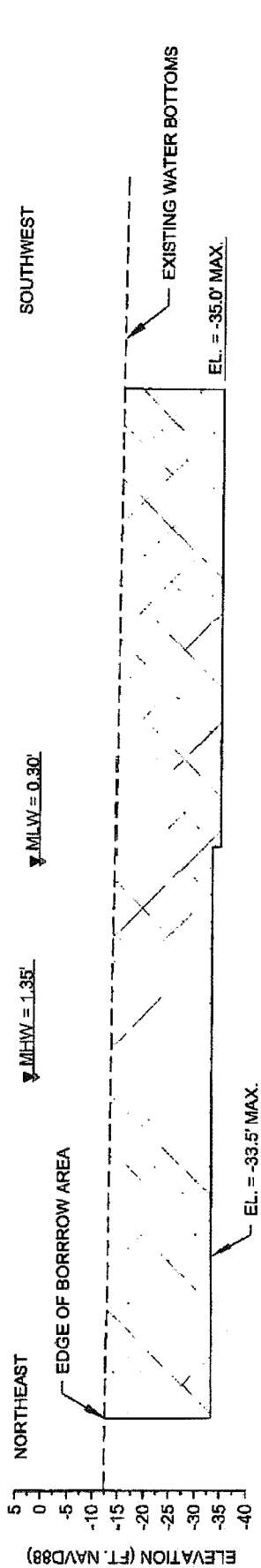
TYPICAL SECTION - POTENTIAL ACCESS DREDGING



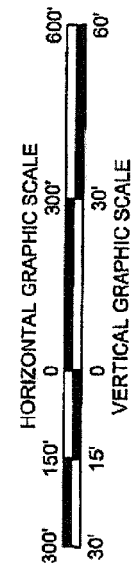
<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803</p>	<p>COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>	<p>GRAND LIARD MARSH AND RIDGE RESTORATION</p>	<p>POTENTIAL ACCESS DREDGING TYPICAL SECTION</p>
<p>DRAWN BY: KRISTI CANTU</p>	<p>DESIGNED BY: TYE FITZGERALD</p>	<p>STATE PROJECT NUMBER: BA-88</p>	<p>DATE: NOVEMBER 2011</p>
<p>APPROVED BY: RULDOPH SIMONEAUX</p>		<p>FEDERAL PROJECT NUMBER: SHEET 6 OF 30</p>	



TYPICAL SECTION - WEST BORROW AREA

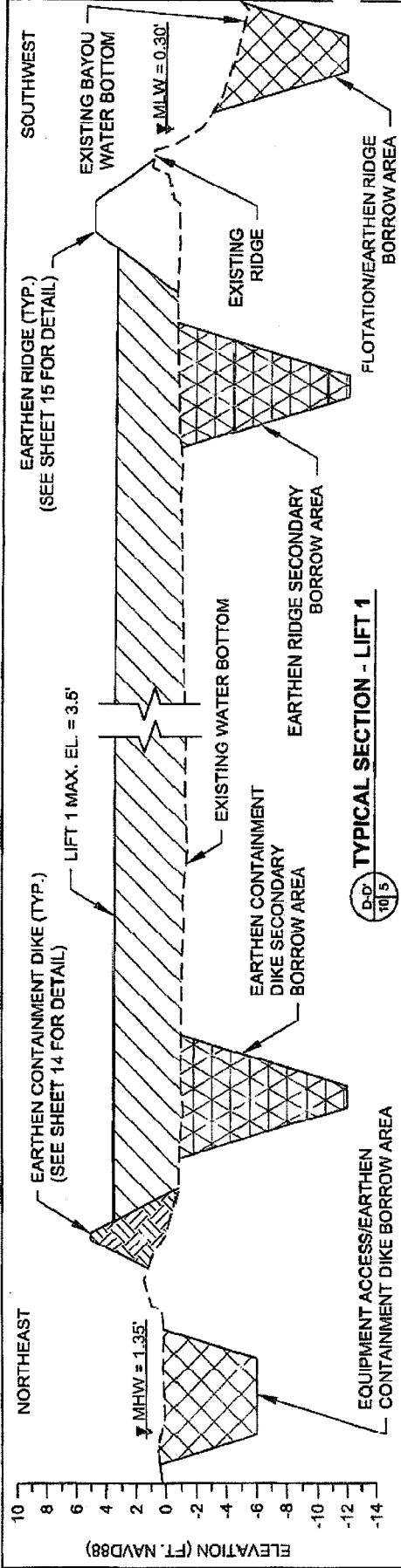


TYPICAL SECTION - EAST BORROW AREA



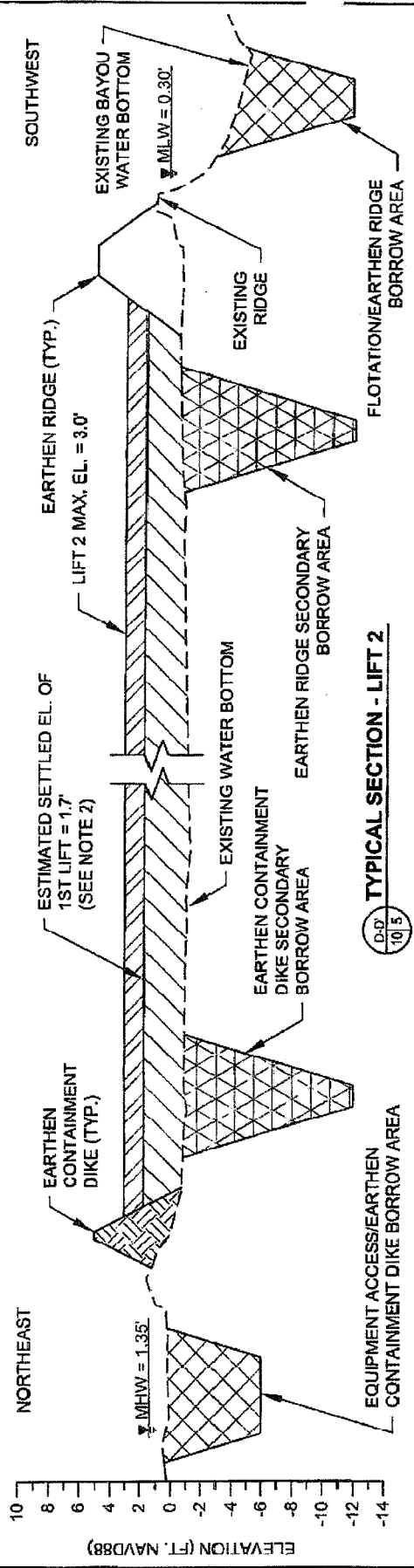
- NOTES:
1. THE WEST BORROW AREA CONTAINS APPROXIMATELY 4.88 M CUBIC YARDS OF MATERIAL.
 2. THE EAST BORROW AREA CONTAINS APPROXIMATELY 5.28 M CUBIC YARDS OF MATERIAL.

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	BORROW AREA TYPICAL SECTIONS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUILOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 9 OF 30



TYPICAL SECTION - LIFT 1

D.P. 10/5

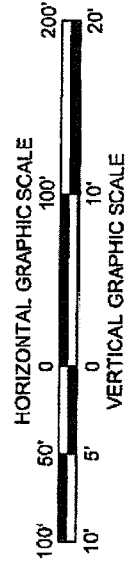


TYPICAL SECTION - LIFT 2

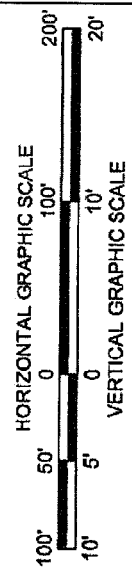
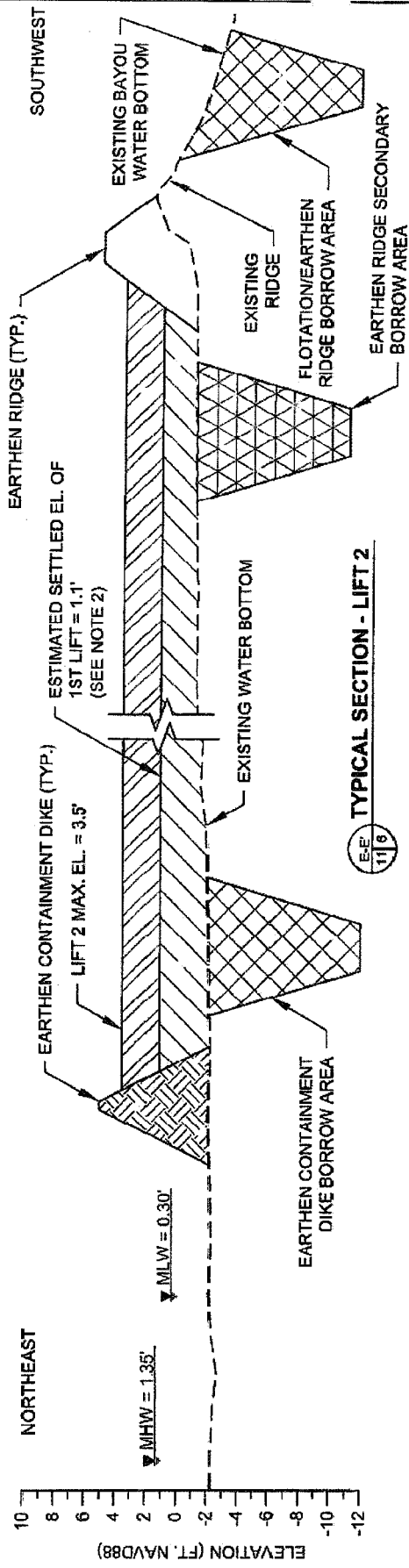
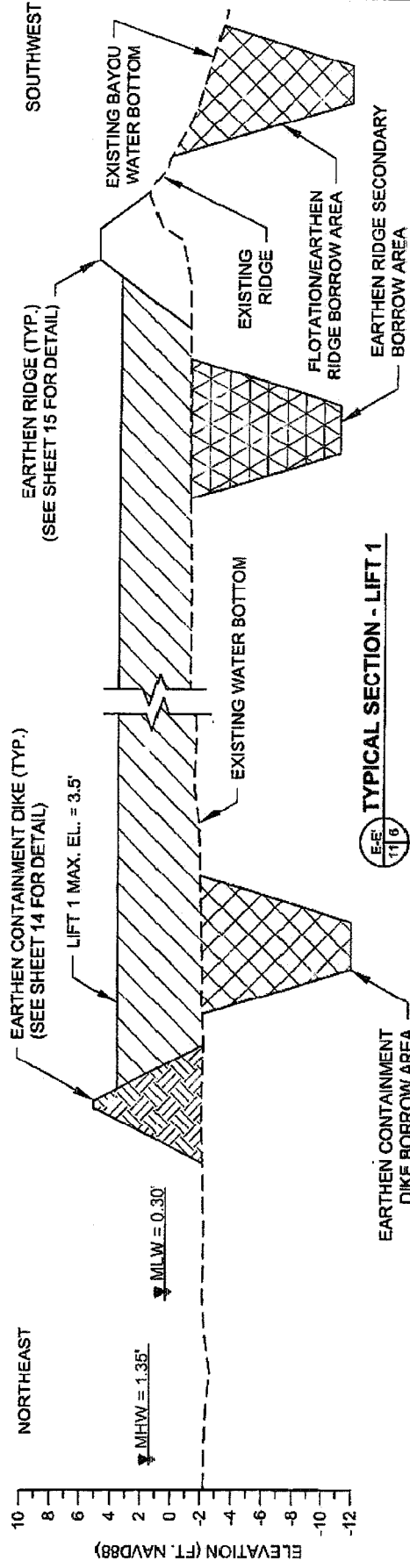
D.P. 10/5

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.



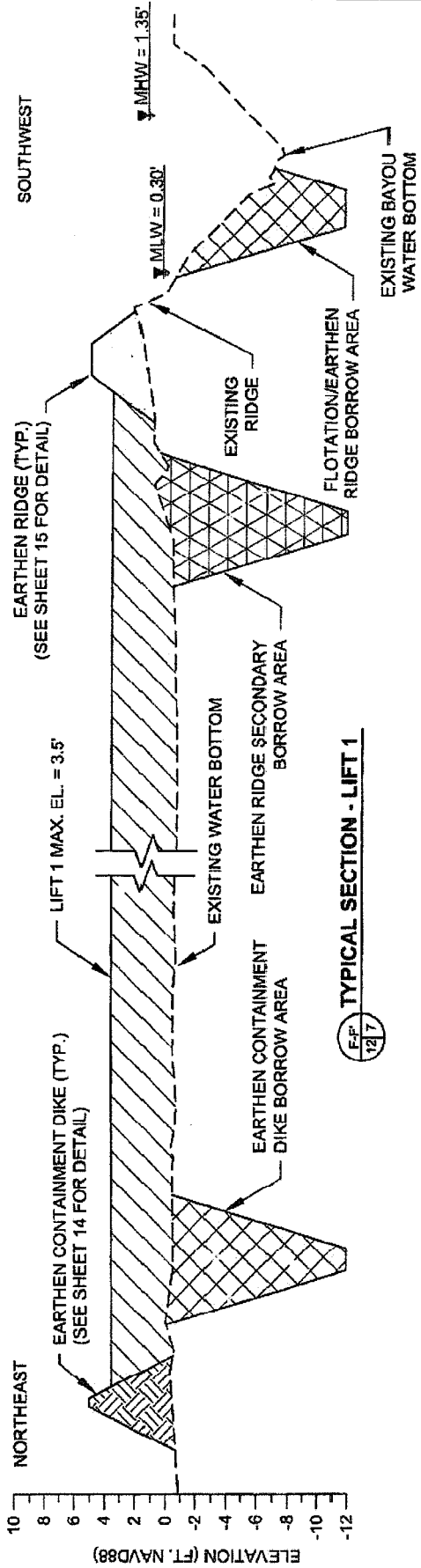
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING, ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	MARSH CREATION AREA A TYPICAL SECTION D-D
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER:
DATE: NOVEMBER 2011			SHEET 10 OF 30



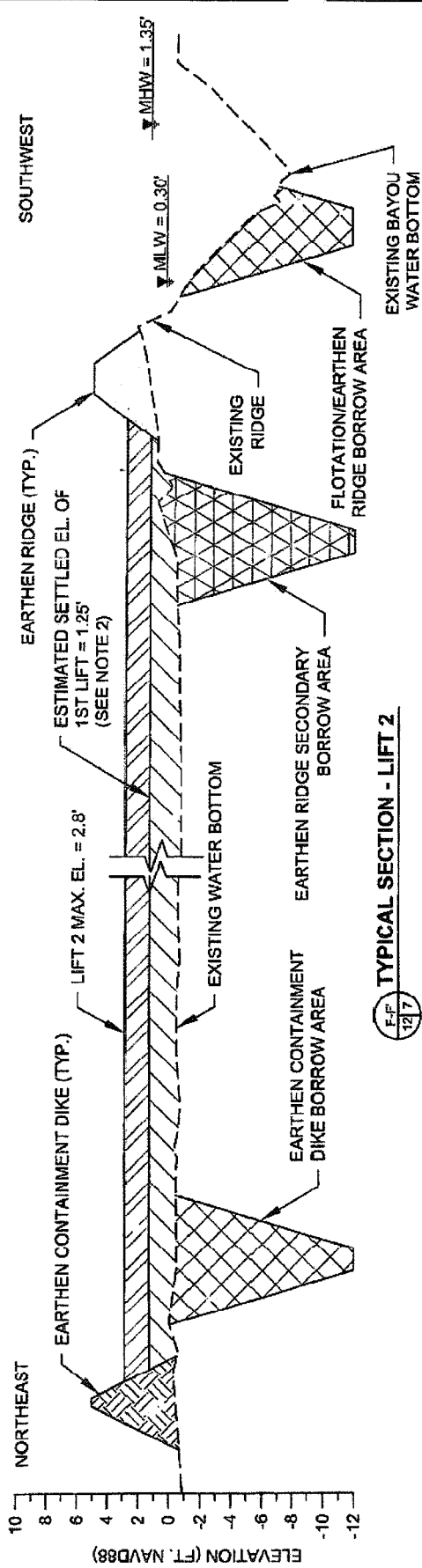
NOTES:

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.

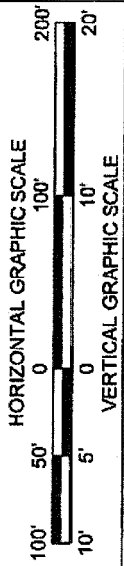
<p>APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING, ROOM 266 BATON ROUGE, LOUISIANA 70803</p>	<p>COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801</p>	<p>GRAND LIARD MARSH AND RIDGE RESTORATION MARSH CREATION AREA B TYPICAL SECTION E-E</p>
<p>DESIGNED BY: KRISTI CANTU</p>	<p>DESIGNED BY: TYE FITZGERALD</p>	<p>APPROVED BY: RULDOPH SIMONEAUX</p>
<p>DATE: NOVEMBER 2011</p>	<p>STATE PROJECT NUMBER: BA-68</p>	<p>FEDERAL PROJECT NUMBER: SHEET 11 OF 30</p>



TYPICAL SECTION - LIFT 1
 F-F 12/7

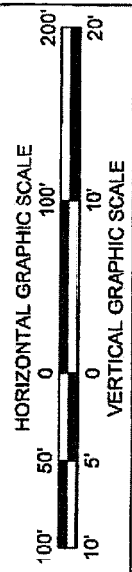
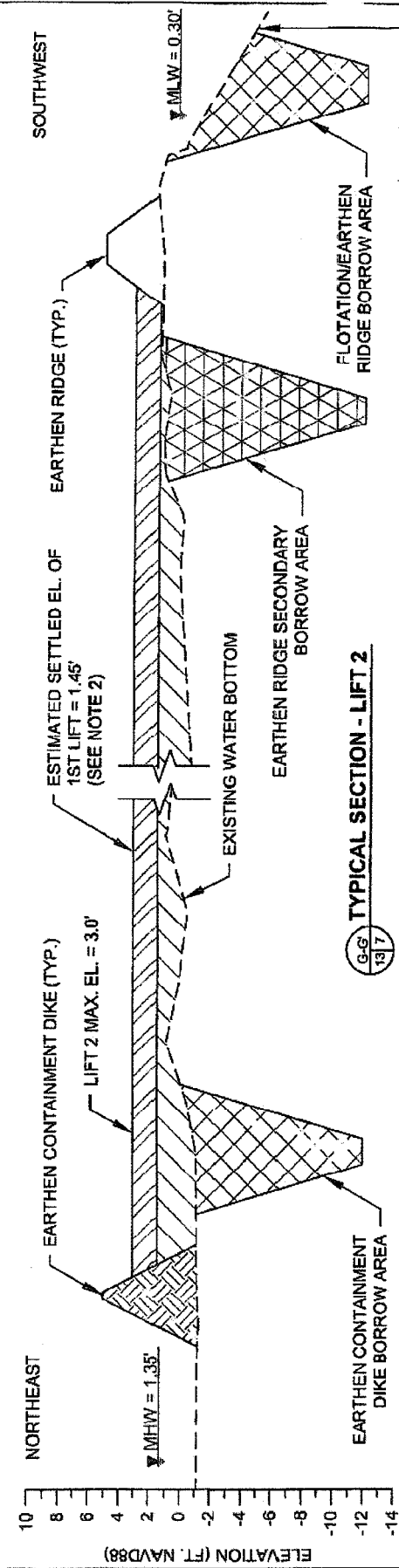
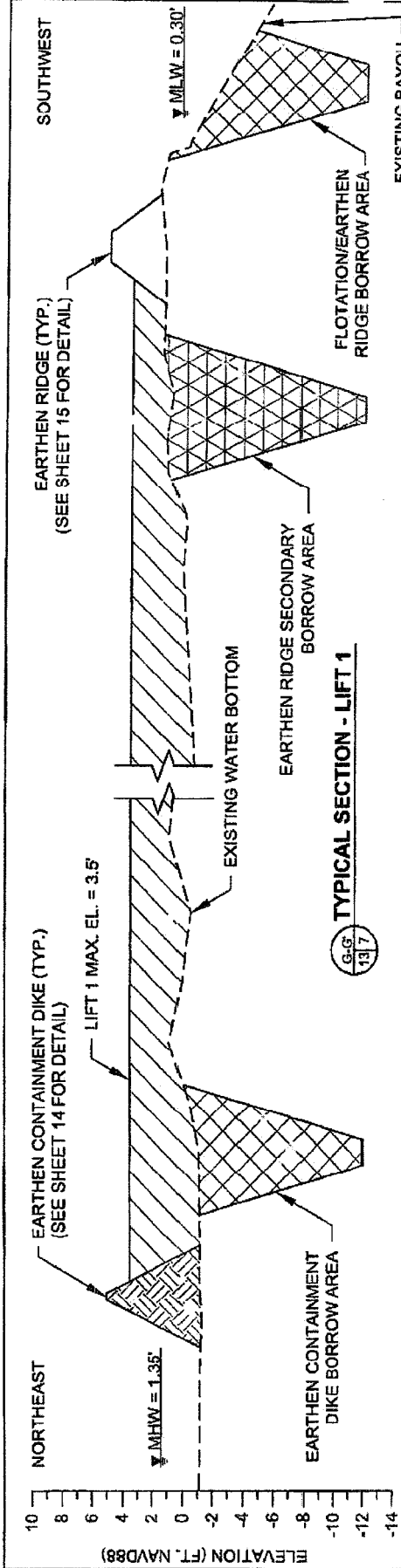


TYPICAL SECTION - LIFT 2
 F-F 12/7



- 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.

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 MARSH CREATION AREA C TYPICAL SECTION F-F	DATE: NOVEMBER 2011 SHEET 12 OF 30
DESIGNED BY: TYE FITZGERALD	APPROVED BY: RUILOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER:	DRAWN BY: KRISTI CANTU

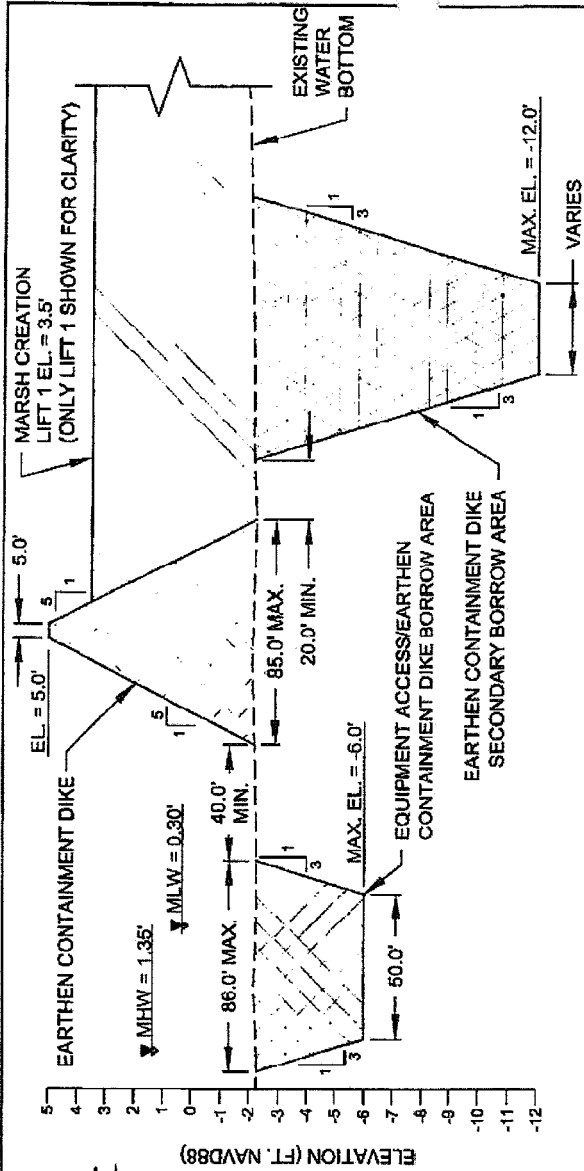


NOTES:

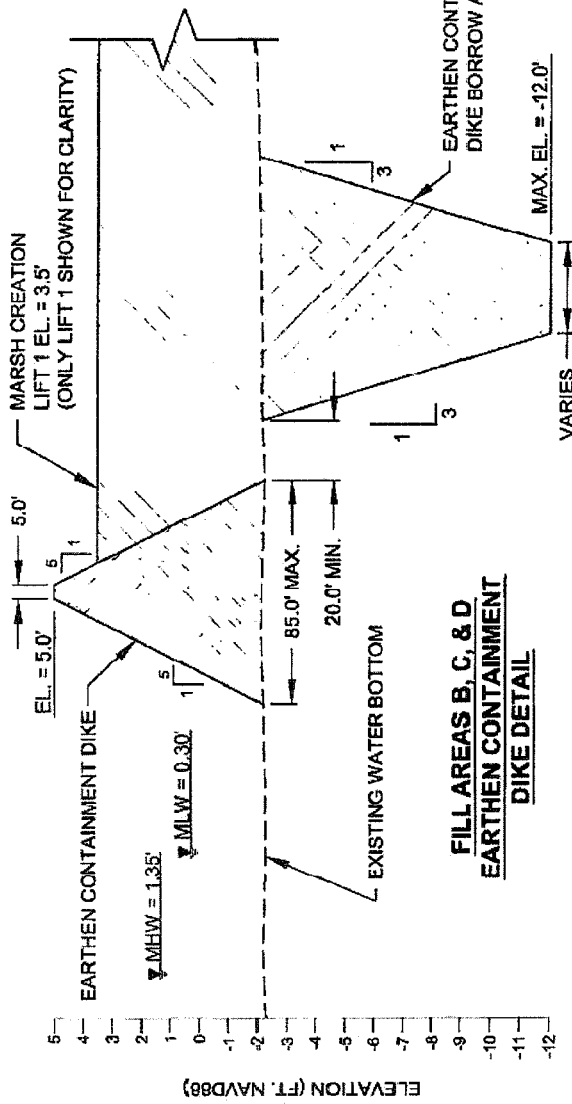
1. A TWO LIFT SYSTEM IS REQUIRED TO MEET DESIGN HEIGHT.
2. CONSTRUCTION OF LIFT 2 OF AREA D SHALL NOT BEGIN UNTIL LIFT 2 OF AREA C HAS BEEN COMPLETED.
3. DISCHARGE SHALL BE DIRECTED TO RETAIN AS MUCH MATERIAL AS POSSIBLE.

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	MARSH CREATION AREA D TYPICAL SECTION G-G
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 13 OF 30

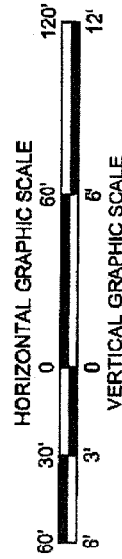
**FILL AREA A
EARTHEN CONTAINMENT
DIKE DETAIL**



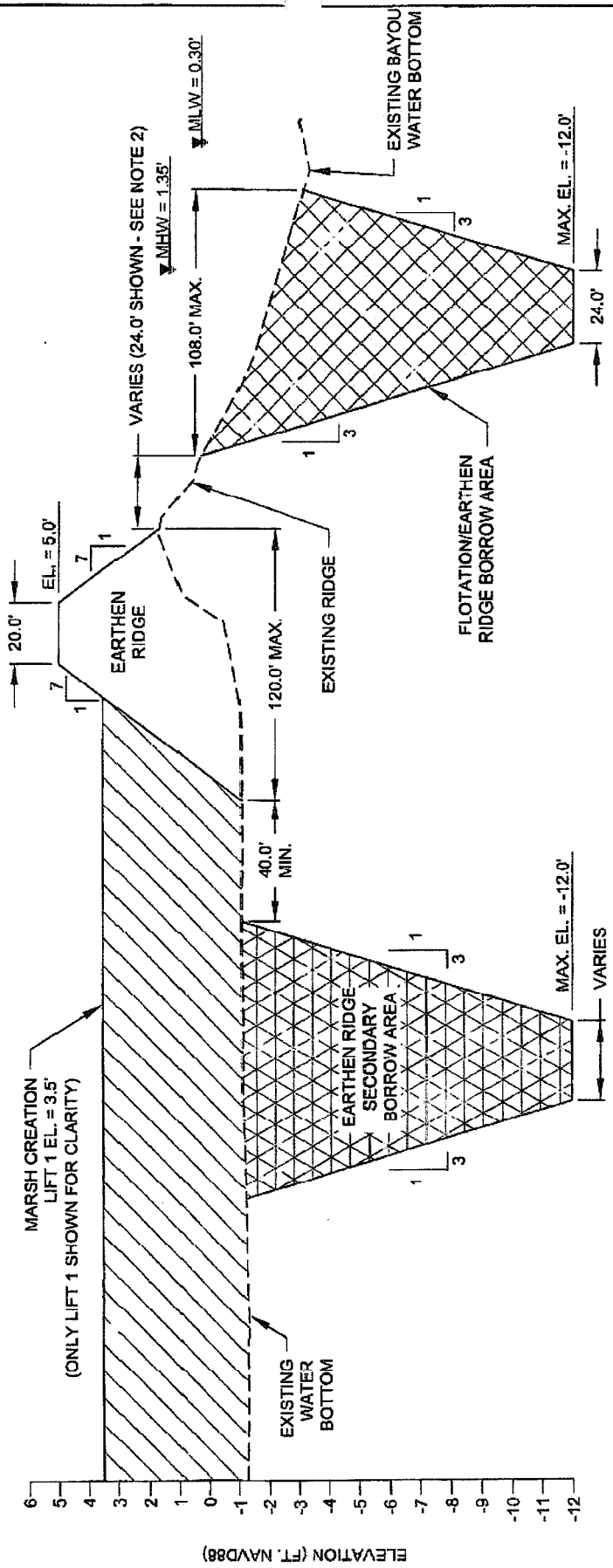
**FILL AREAS B, C, & D
EARTHEN CONTAINMENT
DIKE DETAIL**



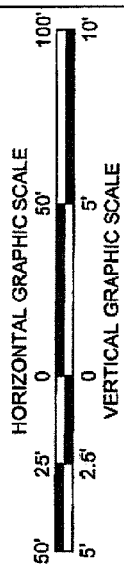
- NOTES:**
1. CONTAINMENT DIKES SHALL BE CONSTRUCTED USING IN-SITU MATERIAL. SEE SHEETS 5-7 FOR EARTHEN CONTAINMENT DIKE LOCATIONS.
 2. NO DREDGING WILL BE ALLOWED WITHIN 20' OF THE CONTAINMENT DIKE TO EARTHEN CONTAINMENT DIKE BORROW AREA FOR CELLS B, C, AND D AND WITHIN 20' OF THE SECONDARY CONTAINMENT DIKE BORROW AREA FOR CELL A.



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES BAYOU 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	EARTHEN CONTAINMENT DIKE DETAILS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 STATE PROJECT NUMBER: BA-6B FEDERAL PROJECT NUMBER: SHEET: 14 OF 30



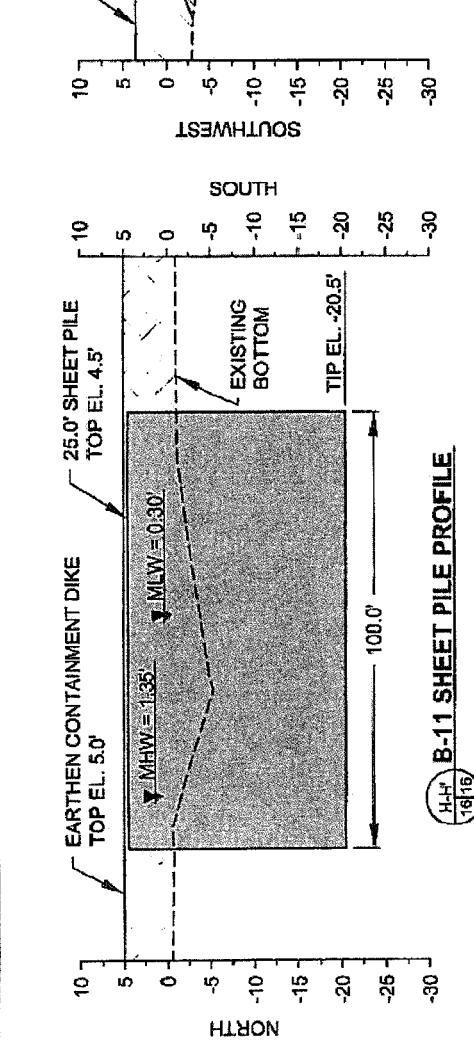
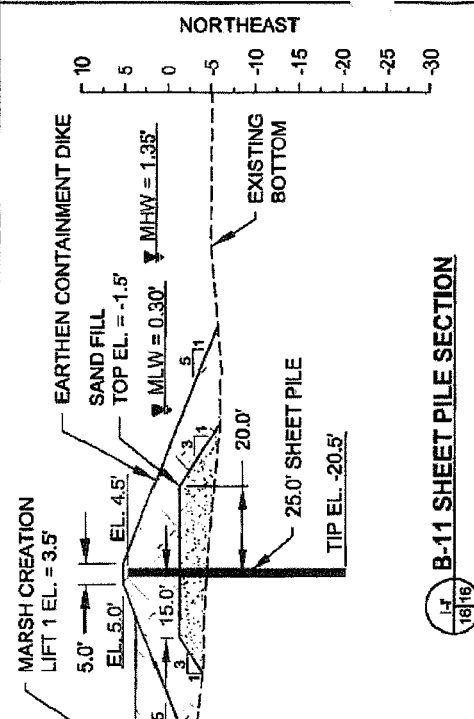
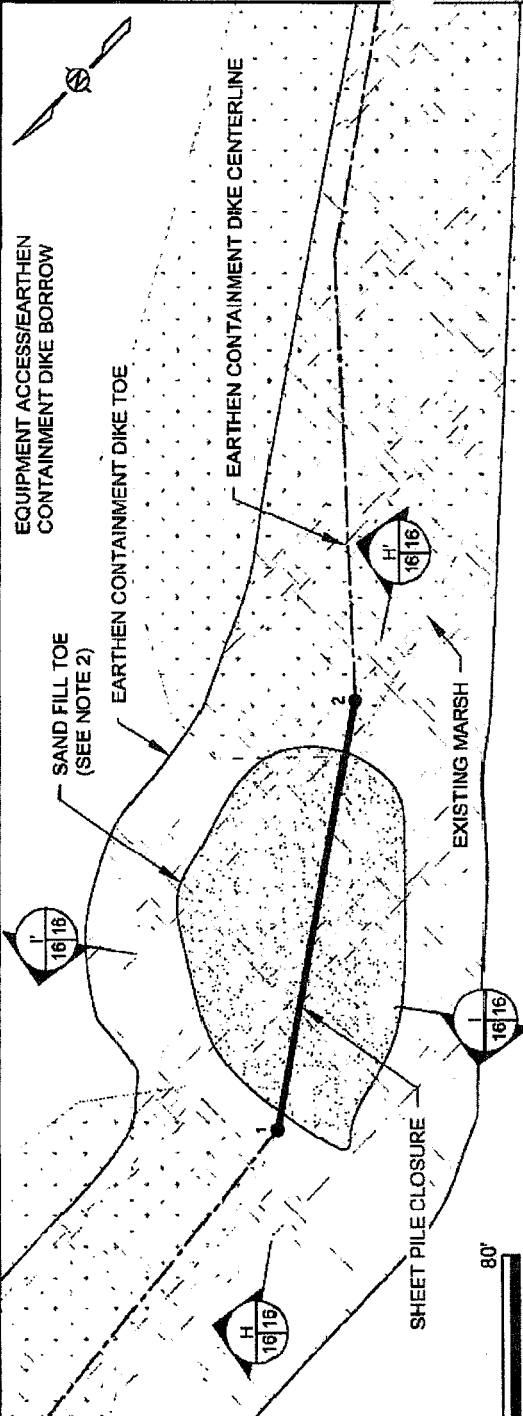
EARTHEN RIDGE DETAIL
 1" = 50' HORIZONTAL
 1" = 5' VERTICAL



- NOTES:**
1. EARTHEN RIDGES SHALL BE CONSTRUCTED USING IN-SITU MATERIAL. SEE SHEETS 5-7 FOR EARTHEN RIDGE LOCATIONS. 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 35' OF THE TOE OF RIDGE FOR CELLS A AND C AS RECOMMENDED BY THE GEOTECHNICAL ANALYSIS.
 2. 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.

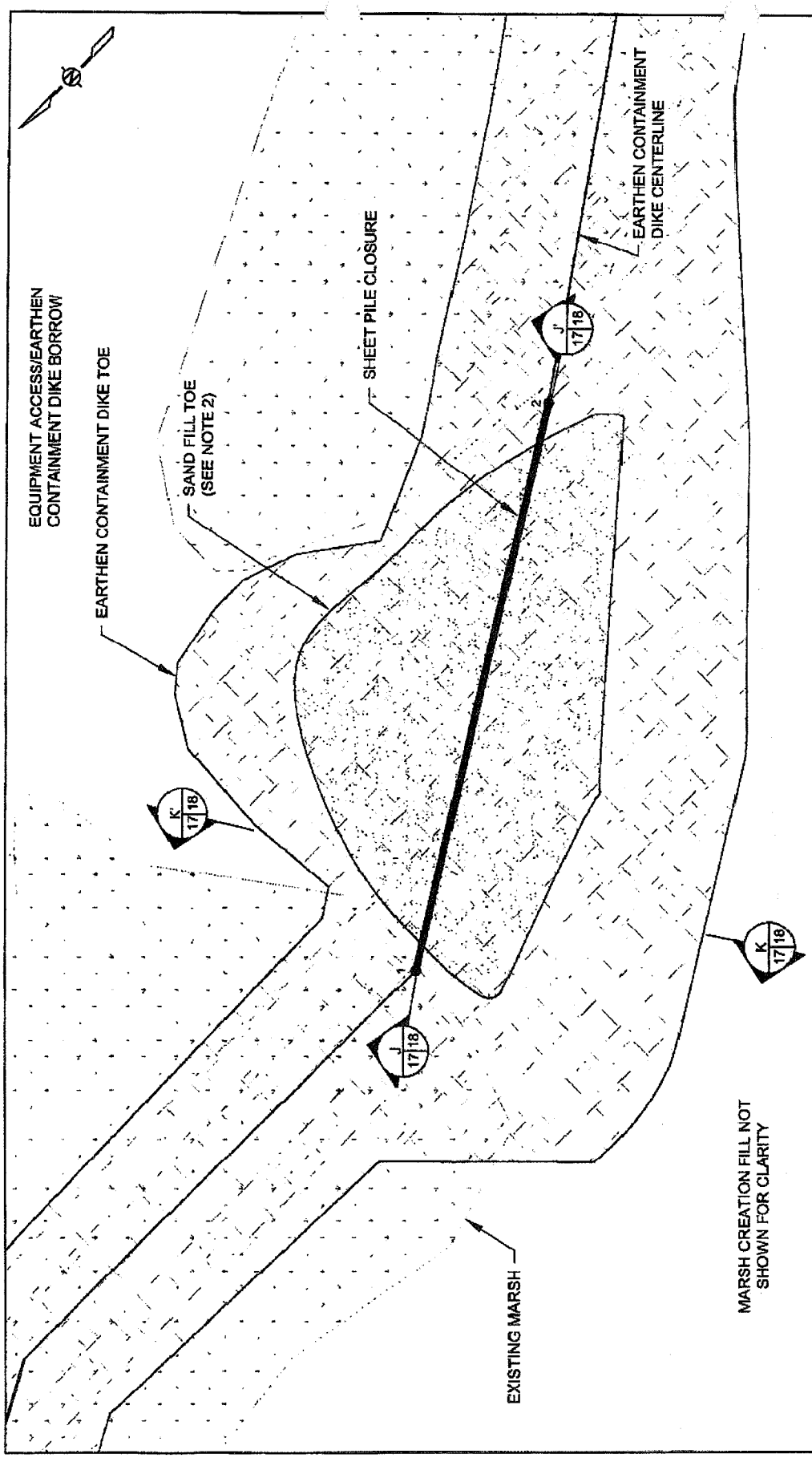
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 268 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	EARTHEN RIDGE DIKE DETAILS
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 15 OF 30
STATE PROJECT NUMBER: BA-68		FEDERAL PROJECT NUMBER:	

B-11 SHEET PILE ALIGNMENT	
LATITUDE	LONGITUDE
1 29° 18' 36.26"	89° 28' 31.14"
2 29° 18' 35.43"	89° 28' 30.51"



- 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 266 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
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
	APPROVED BY: RULDOPH SIMONEAUX	FEDERAL PROJECT NUMBER:	SHEET 16 OF 30



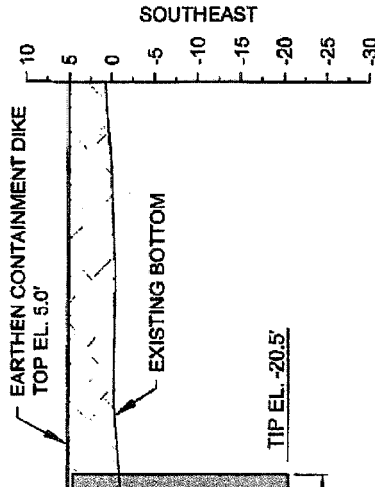
B-12 SHEET PILE ALIGNMENT	
LATITUDE	LONGITUDE
1 29° 18' 21.69"	89° 28' 16.11"
2 29° 18' 20.63"	89° 28' 15.38"

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

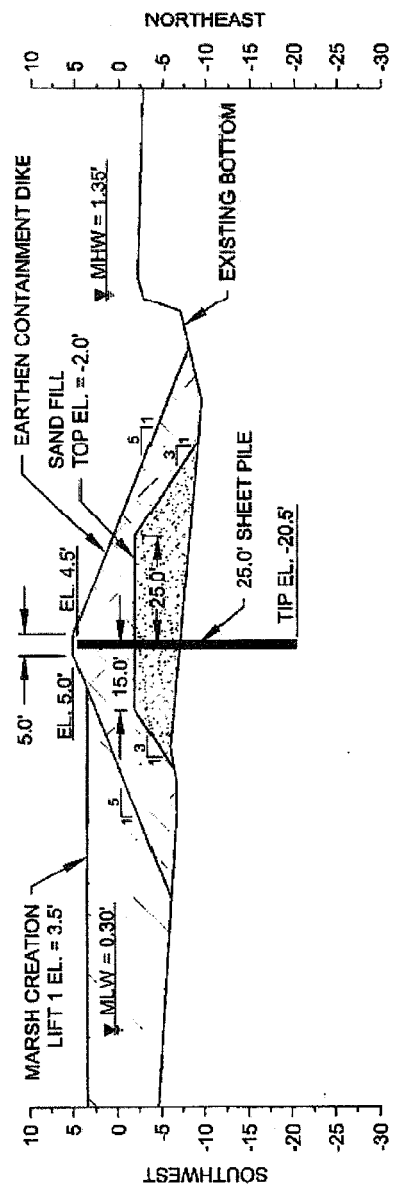
B-12 SHEET PILE PLAN VIEW



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MARINE 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-12 SHEET PILE CLOSURE PLAN VIEW
	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-88	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:			
				SHEET 17 OF 30

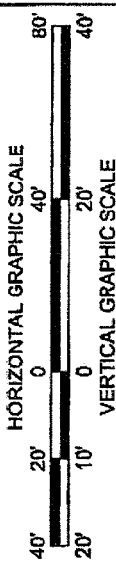


B-12 SHEET PILE PROFILE

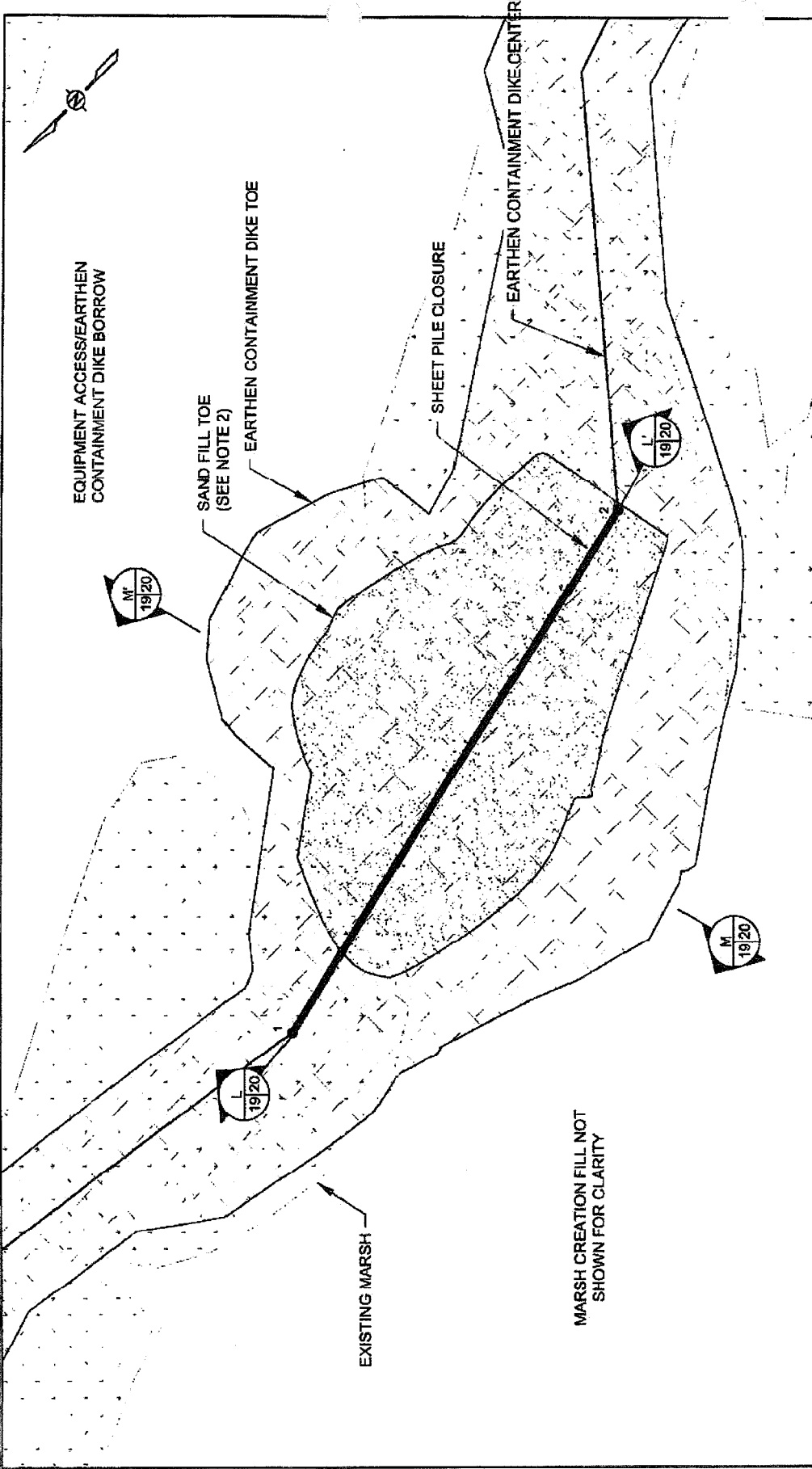


B-12 SHEET PILE SECTION

- 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 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-12 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 18 OF 30
STATE PROJECT NUMBER: BA-66		FEDERAL PROJECT NUMBER:	



B-13 SHEET PILE ALIGNMENT

	LATITUDE	LONGITUDE
1	29° 18' 10.70"	89° 28' 11.89"
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 OFF-SITE 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 268
 BATON ROUGE, LOUISIANA 70803

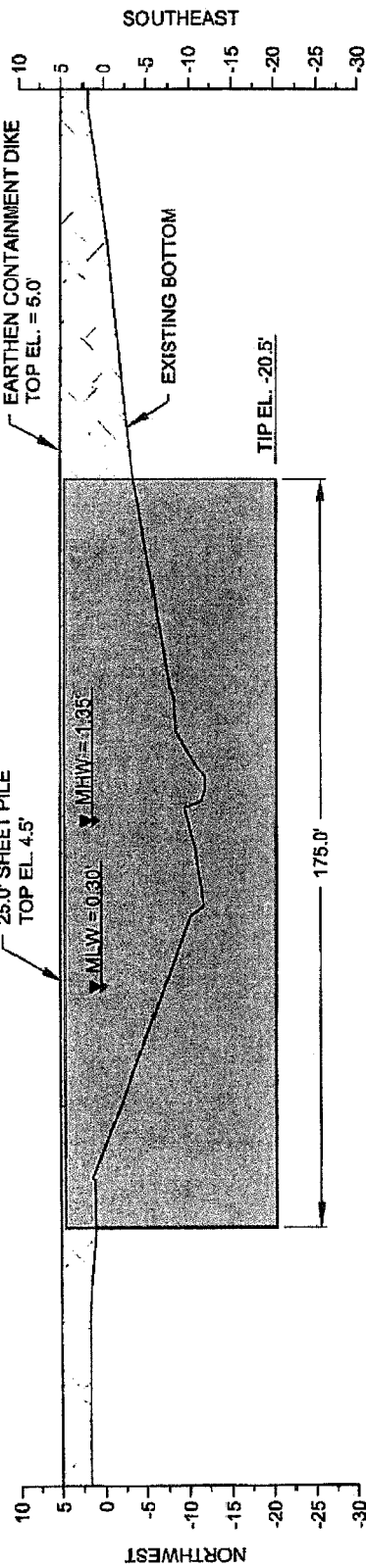
COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: TYE FITZGERALD
 APPROVED BY: RULDOPH SIMONEAUX

STATE PROJECT NUMBER: BA-68
 FEDERAL PROJECT NUMBER:
 DATE: NOVEMBER 2011
 SHEET 19 OF 30

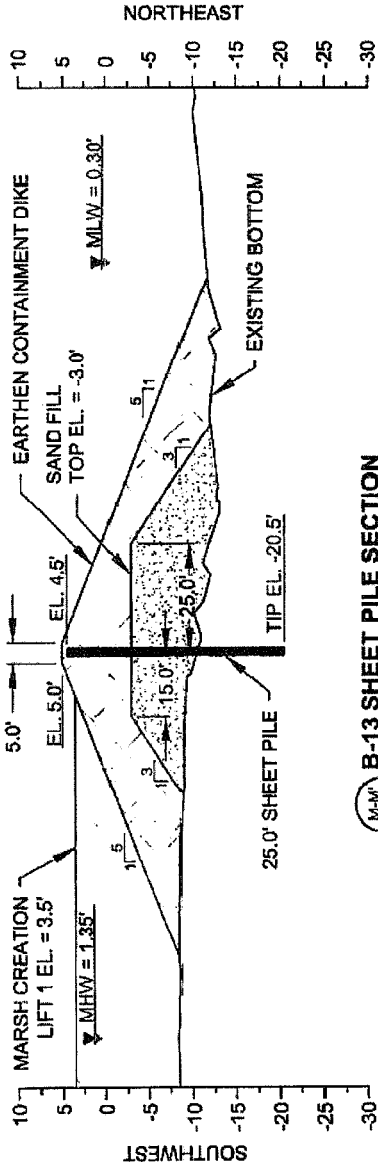
GRAND LIARD MARSH AND RIDGE RESTORATION
 B-13 SHEET PILE CLOSURE PLAN VIEW

DRAWN BY: KRISTI CANTU



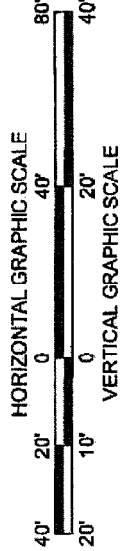
B-13 SHEET PILE PROFILE

L-1
20/19



B-13 SHEET PILE SECTION

M-1
20/19



- 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.

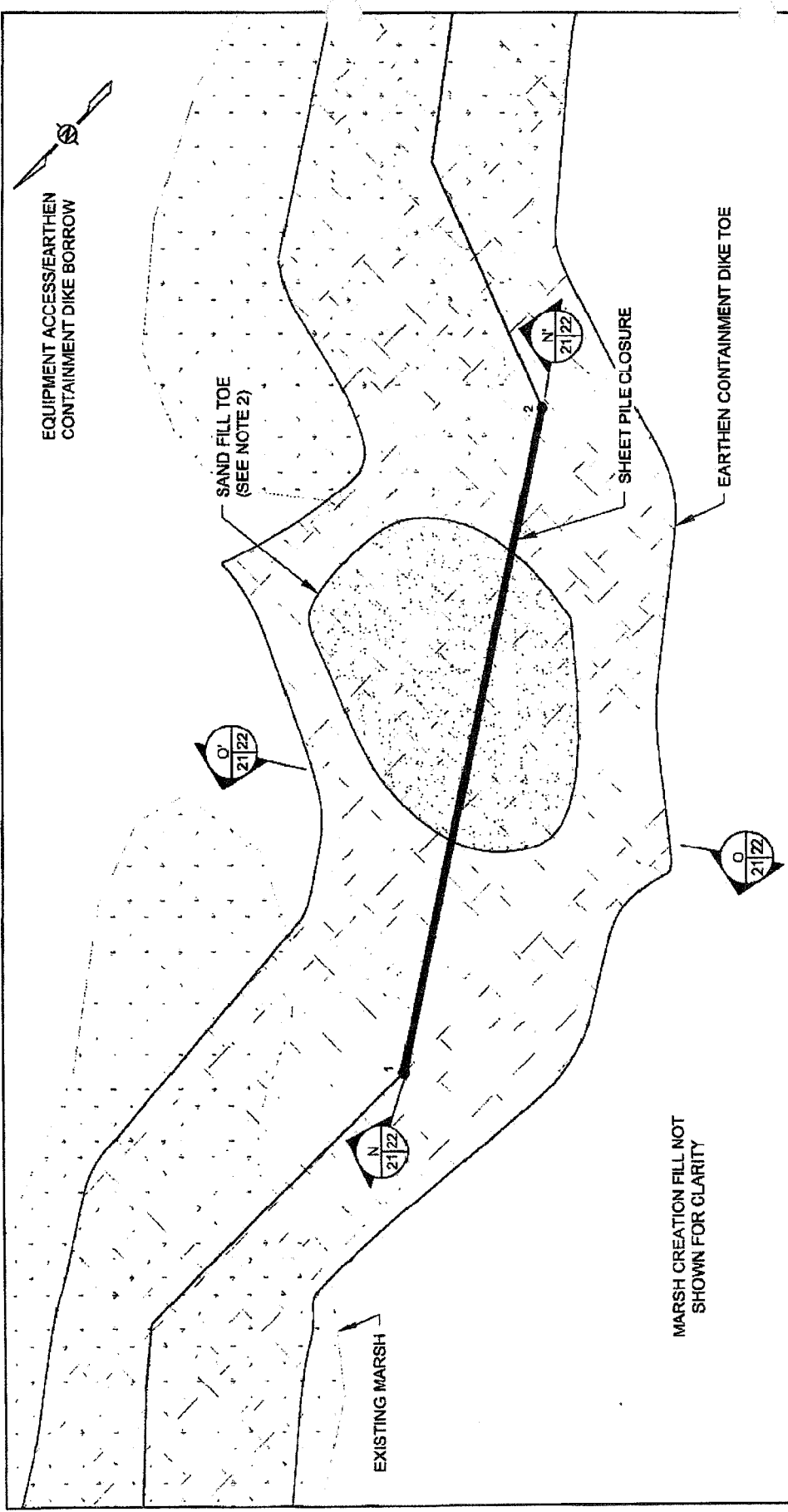
APPLICATION BY:
NATIONAL MARINE FISHERIES SERVICES
C/O LSU MILITARY SCIENCE BUILDING - ROOM 266
BATON ROUGE, LOUISIANA 70803

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

DESIGNED BY: TYE FITZGERALD
APPROVED BY: RULDOPH SIMONEAUX

STATE PROJECT NUMBER: BA-68
DATE: NOVEMBER 2011
FEDERAL PROJECT NUMBER:
SHEET 20 OF 30

GRAND LIARD MARSH AND RIDGE RESTORATION
B-13 SHEET PILE CLOSURE DETAIL



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' 02.91"	89° 28' 08.07"
2	29° 18' 01.74"	89° 28' 07.22"

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

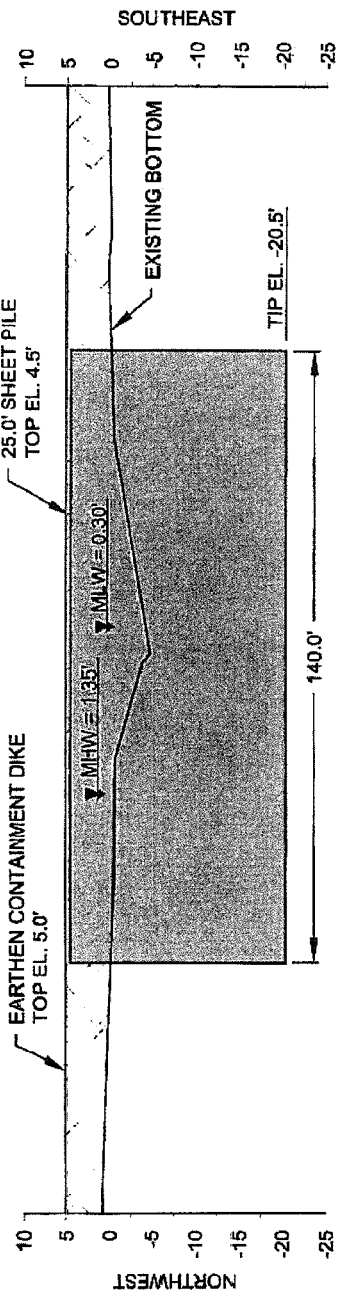
COASTAL PROTECTION AND RESTORATION AUTHORITY
 450 LAUREL STREET
 BATON ROUGE, LOUISIANA 70801

DESIGNED BY: TYE FITZGERALD
 APPROVED BY: RULDOPH SIMONEAUX

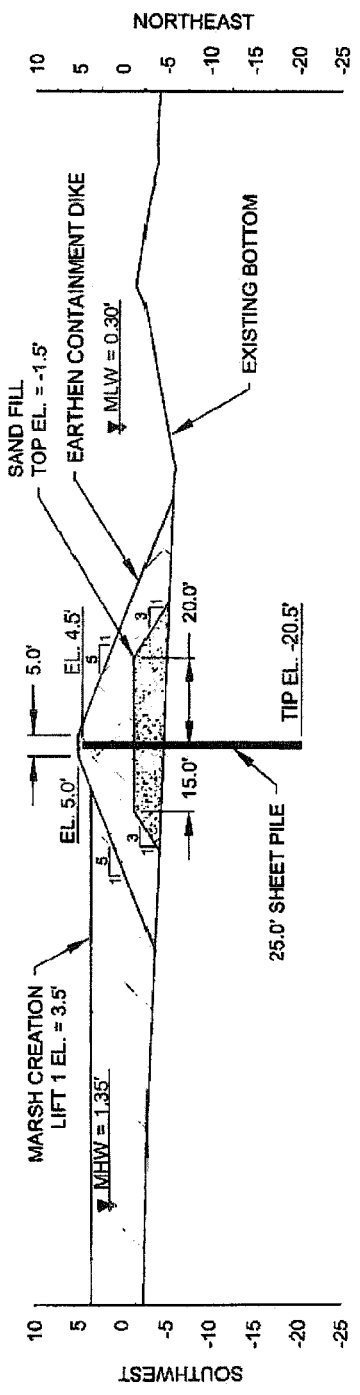
STATE PROJECT NUMBER: BA-68
 FEDERAL PROJECT NUMBER:
 DATE: NOVEMBER 2011
 SHEET 21 OF 30

GRAND LIARD MARSH AND RIDGE RESTORATION
 B-14 SHEET PILE CLOSURE PLAN VIEW

DRAWN BY: KRISTI CANTU

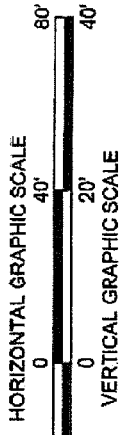


B-14 SHEET PILE PROFILE

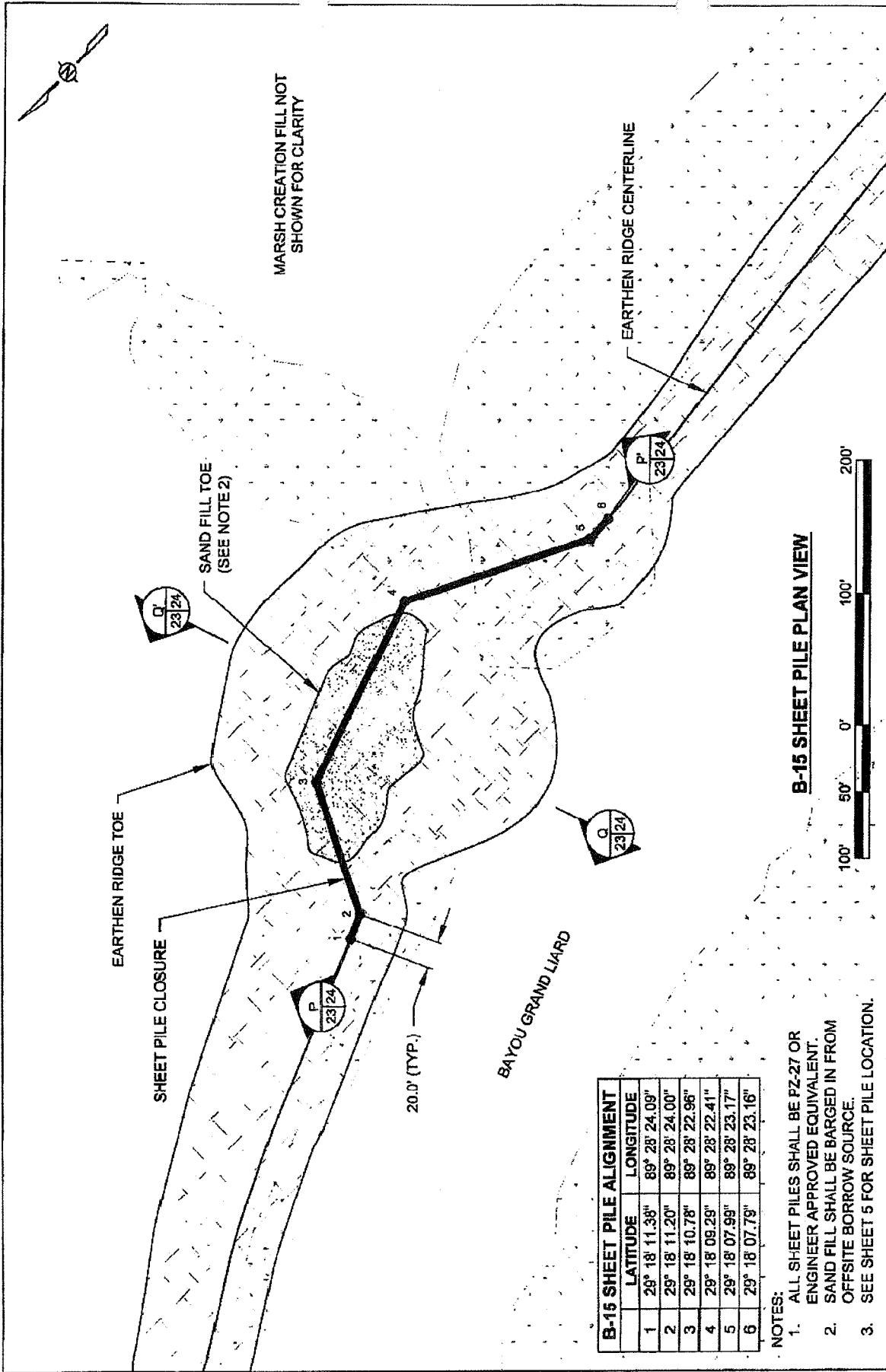


B-14 SHEET PILE SECTION

- 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.



APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 288 BATON ROUGE, LOUISIANA 70803	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: RUILDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:			SHEET 22 OF 30

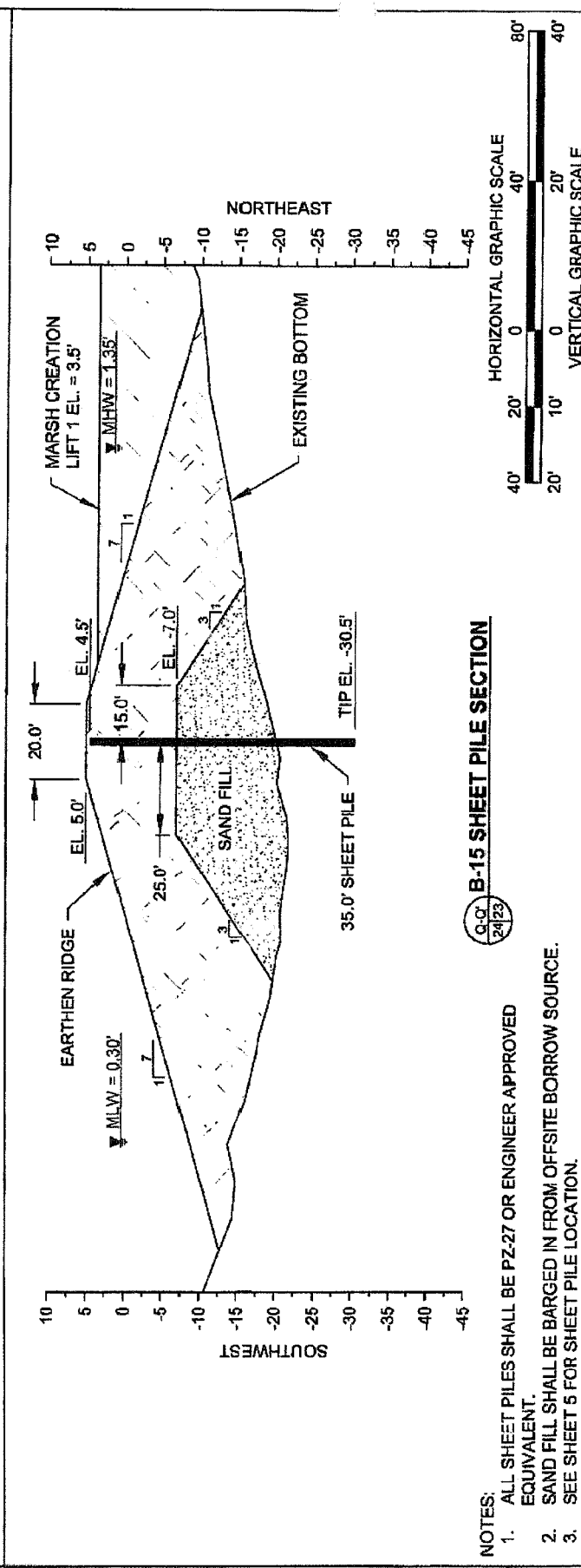
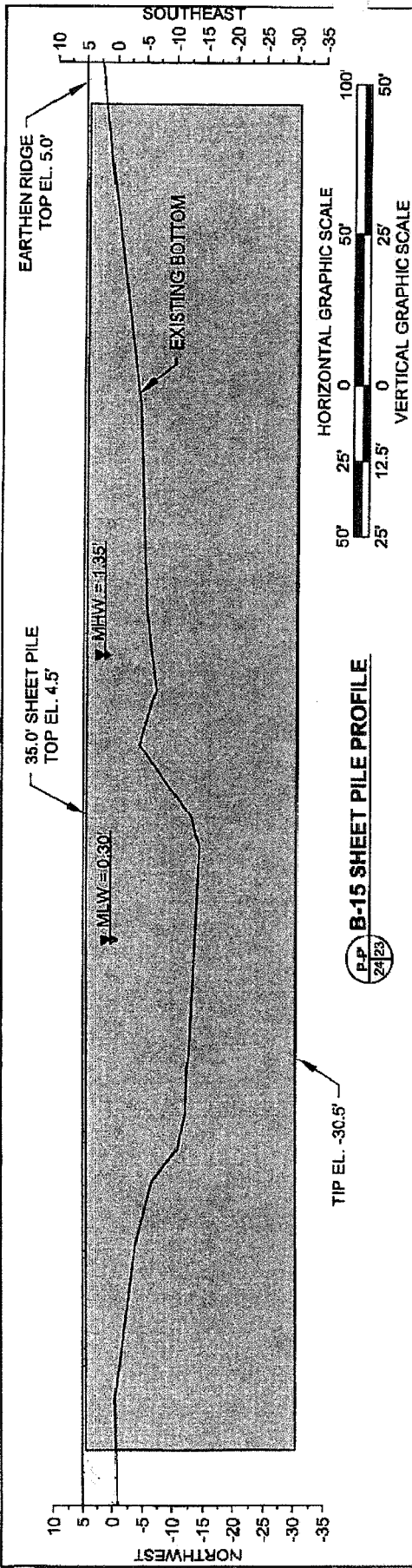


B-15 SHEET PILE ALIGNMENT	
LATITUDE	LONGITUDE
1 29° 18' 11.38"	89° 28' 24.09"
2 29° 18' 11.20"	89° 28' 24.00"
3 29° 18' 10.78"	89° 28' 22.96"
4 29° 18' 09.29"	89° 28' 22.41"
5 29° 18' 07.95"	89° 28' 23.17"
6 29° 18' 07.79"	89° 28' 23.16"

- 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

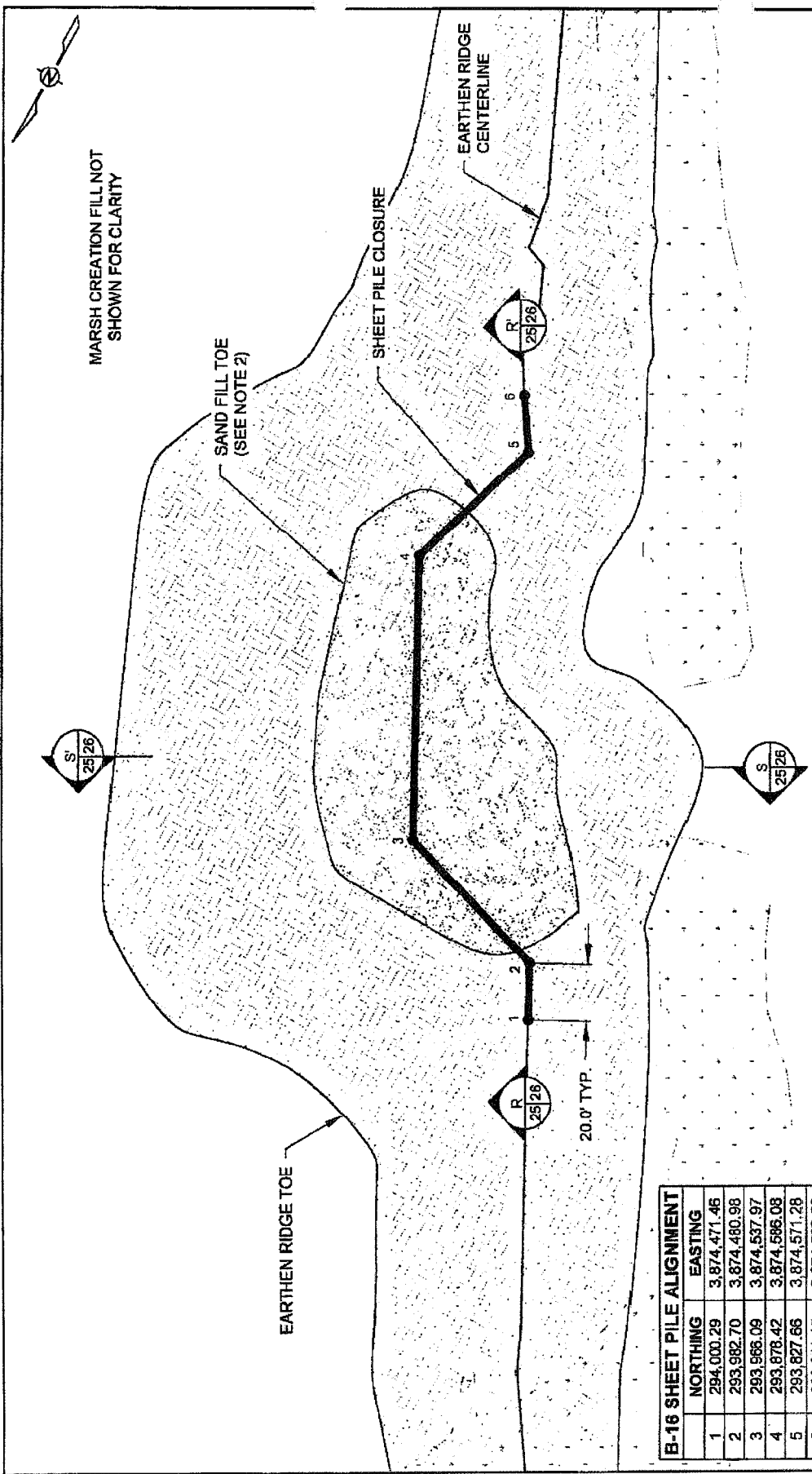
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU MARINE SCIENCES BUILDING ROOM 266 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-15 SHEET PILE CLOSURE PLAN VIEW
DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU	FEDERAL PROJECT NUMBER:	SHEET 23 OF 30	



B-15 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 BAYOU CENTER, 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-15 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 24 OF 30



MARSH CREATION FILL NOT SHOWN FOR CLARITY

SAND FILL TOE (SEE NOTE 2)

SHEET PILE CLOSURE

EARTHEN RIDGE CENTERLINE

EARTHEN RIDGE TOE

B-16 SHEET PILE ALIGNMENT	
NORTHING	EASTING
1	294,000.29 3,874,471.46
2	293,992.70 3,874,480.96
3	293,966.09 3,874,537.97
4	293,876.42 3,874,586.08
5	293,827.66 3,874,571.28
6	293,811.15 3,874,582.59

20.0' TYP.

BAYOU GRAND LIARD

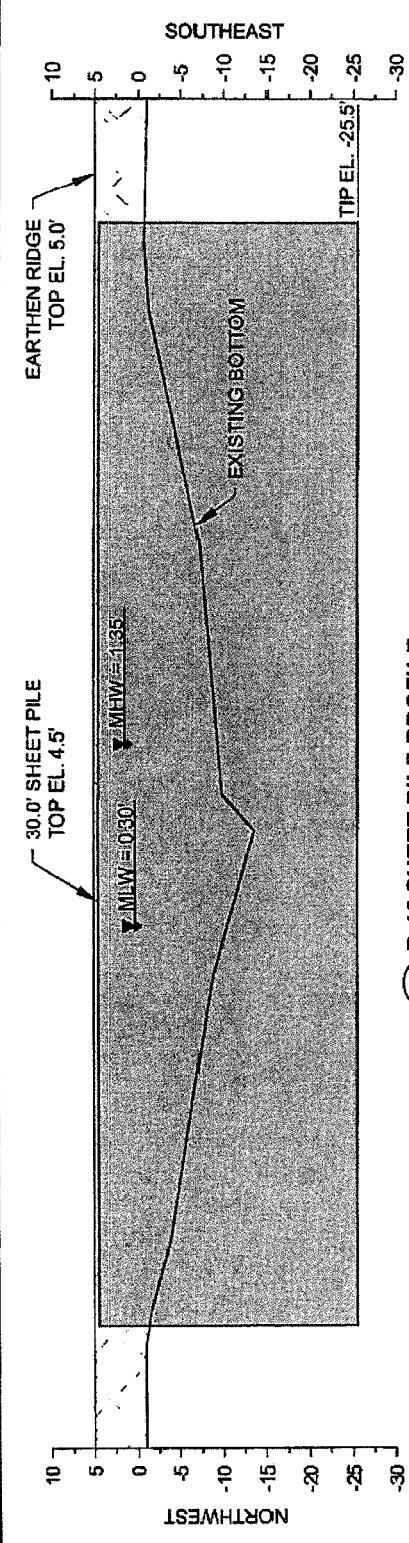
B-16 SHEET PILE PLAN VIEW



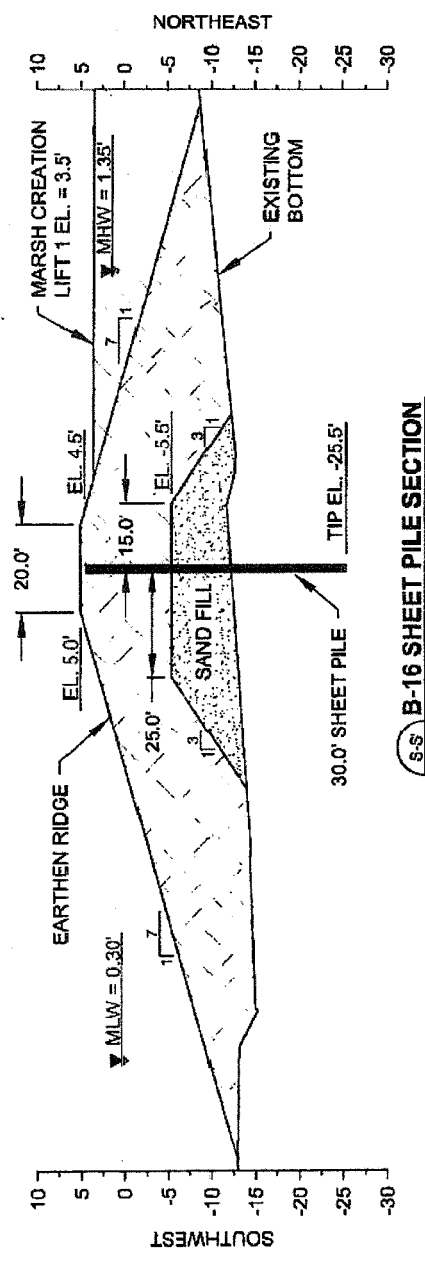
NOTES:

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

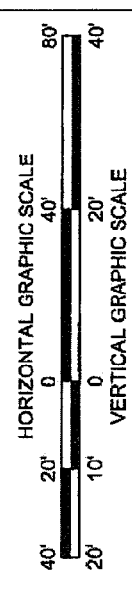
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 286 BATON ROUGE, LOUISIANA 70803		COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		GRAND LIARD MARSH AND RIDGE RESTORATION		B-16 SHEET PILE CLOSURE PLAN VIEW	
DRAWN BY: KRISTI CANTU		DESIGNED BY: TYE FITZGERALD		APPROVED BY: RUILOPH SIMONEAUX		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

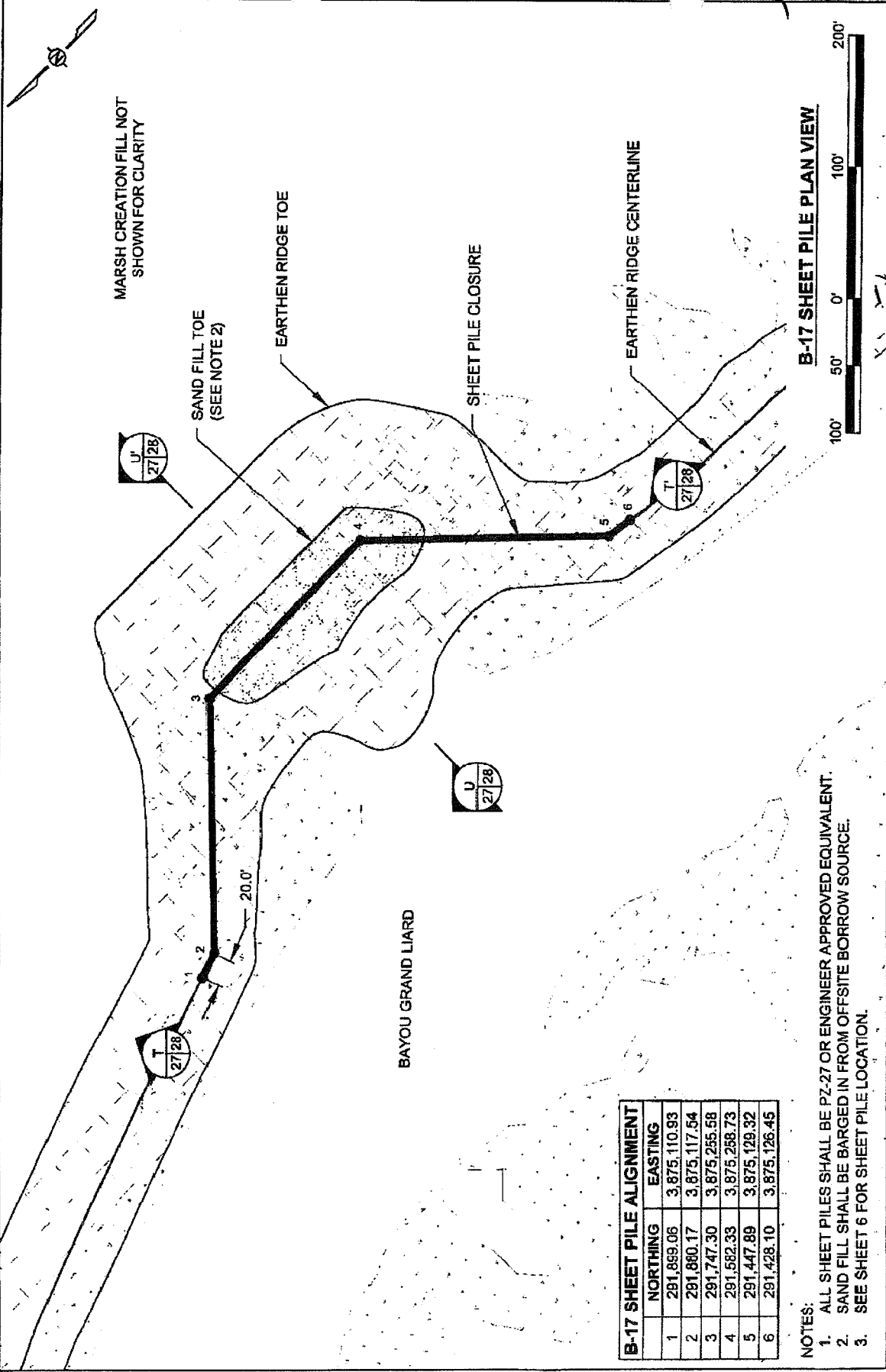


B-16 SHEET PILE SECTION
 1" = 40' HORIZONTAL
 1" = 20' VERTICAL



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 FISHERIES SERVICES CIVIL SERVICE CENTER BUILDING 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-16 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011 SHEET 26 OF 30



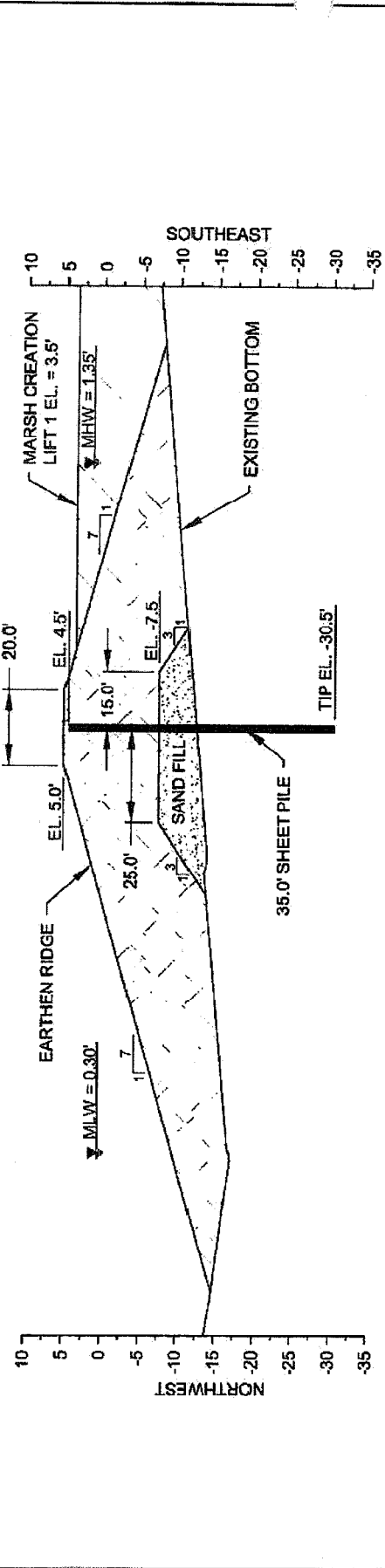
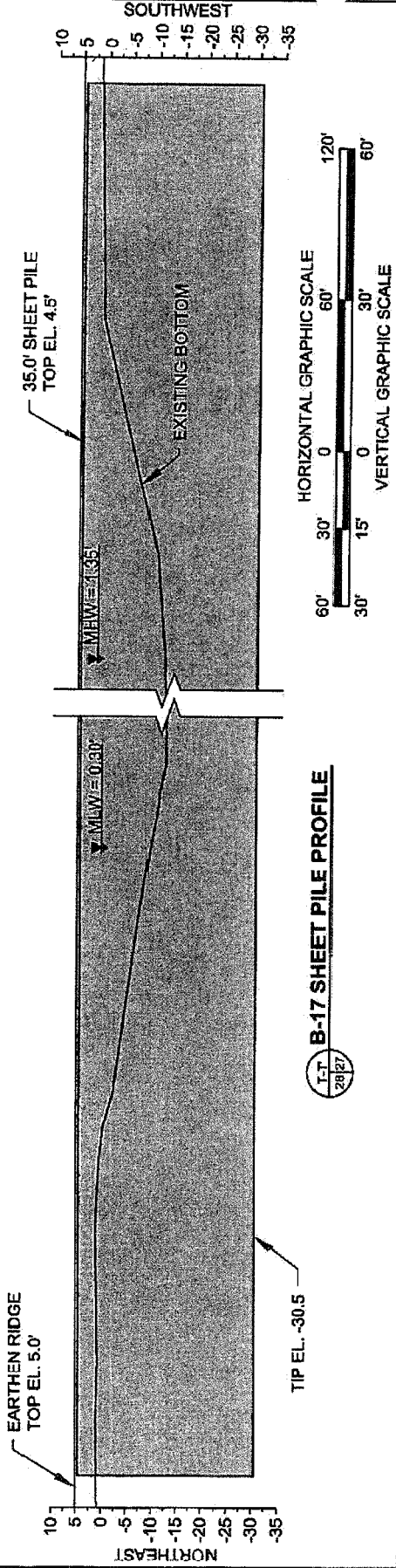
B-17 SHEET PILE ALIGNMENT

	NORTHING	EASTING
1	291,889.06	3,875,110.93
2	291,880.17	3,875,117.54
3	291,747.30	3,875,255.58
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 LSU MILITARY SCIENCE BUILDING, ROOM 286 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 PLAN VIEW
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	DATE: NOVEMBER 2011
STATE PROJECT NUMBER: BA-68		FEDERAL PROJECT NUMBER: 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.

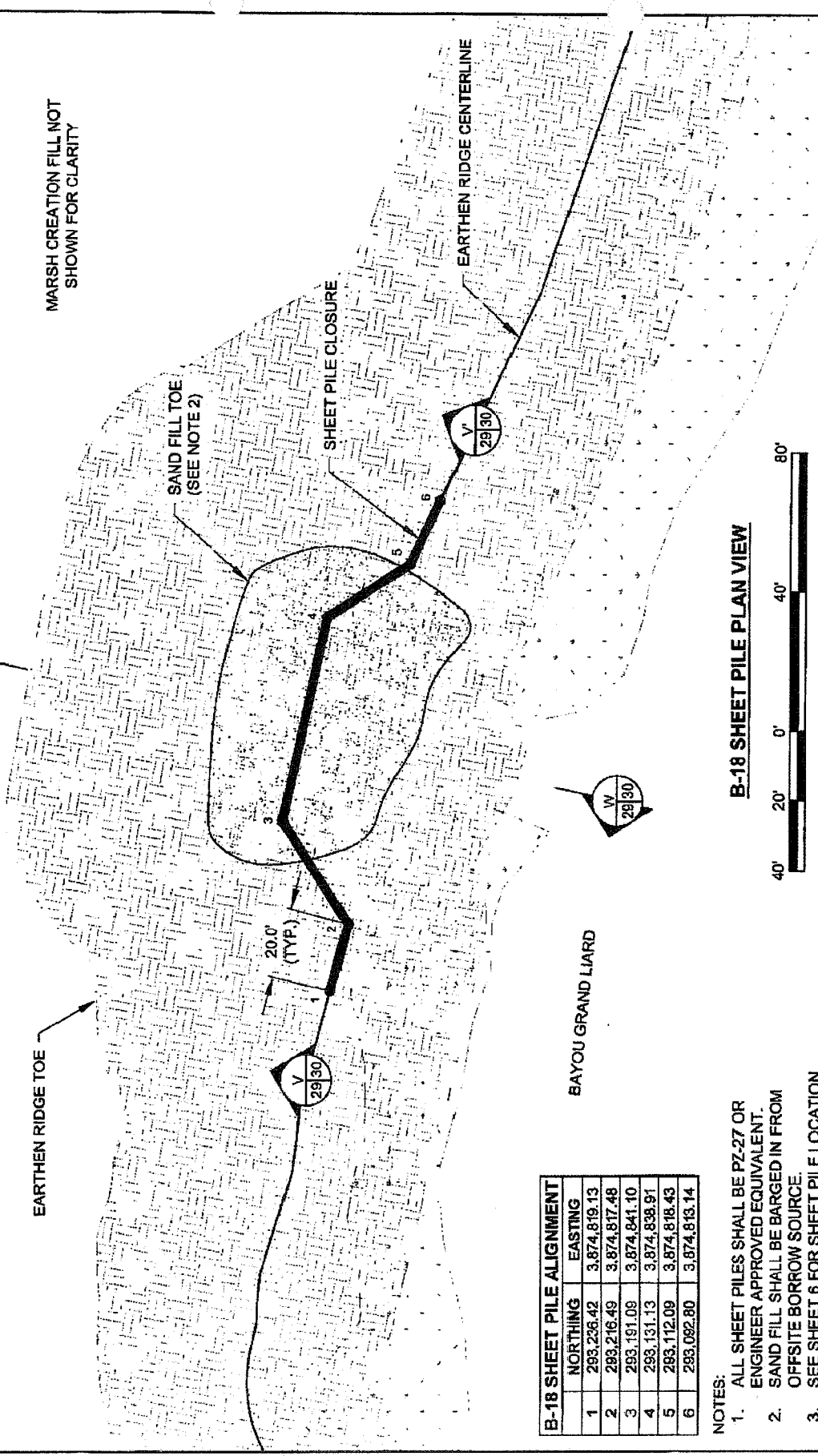
APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES C/O LSU, MILITARY SCIENCE BUILDING - ROOM 268 BATON ROUGE, LOUISIANA 70803	COASTAL PROTECTION AND RESTORATION AUTHORITY 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801	GRAND LIARD MARSH AND RIDGE RESTORATION	B-17 SHEET PILE CLOSURE DETAIL
DESIGNED BY: KRISTI CANTU	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-68	DATE: NOVEMBER 2011
DRAWN BY: KRISTI CANTU		FEDERAL PROJECT NUMBER: SHEET 28 OF 30	



MARSH CREATION FILL NOT SHOWN FOR CLARITY



EARTHEN RIDGE TOE

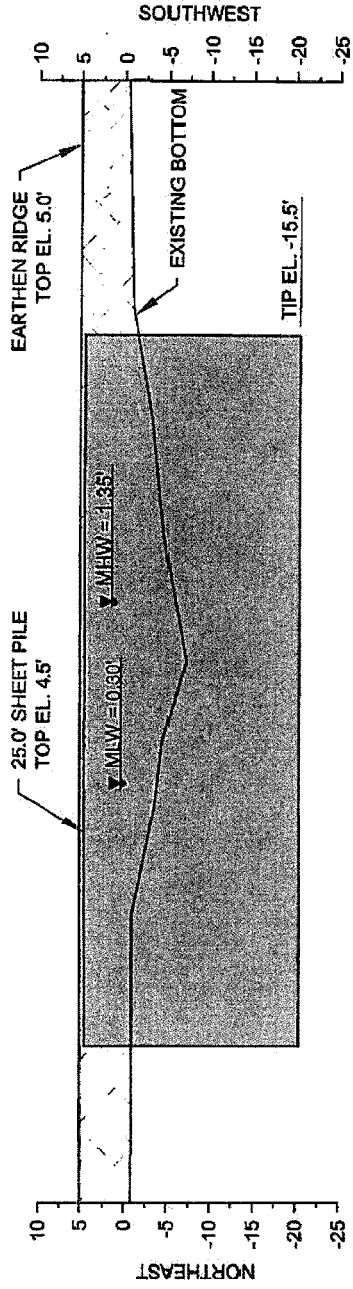


B-18 SHEET PILE PLAN VIEW

B-18 SHEET PILE ALIGNMENT	
NORTHING	EASTING
1	293,236.42 3,874,819.13
2	293,216.49 3,874,817.48
3	293,191.09 3,874,841.10
4	293,131.13 3,874,838.91
5	293,112.09 3,874,818.43
6	293,082.80 3,874,813.14

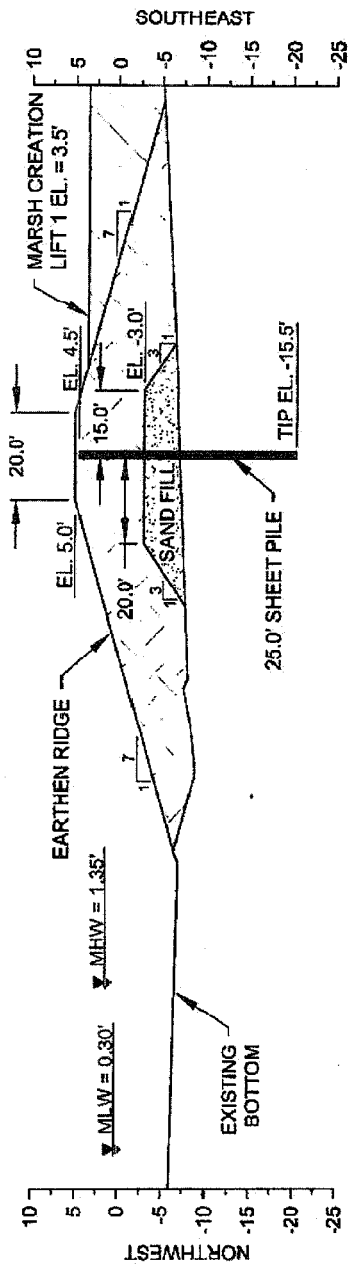
- NOTES:
1. ALL SHEET PILES SHALL BE PZ-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.

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-18 SHEET PILE CLOSURE PLAN VIEW
		DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX
DRAWN BY: KRISTI CANTU	STATE PROJECT NUMBER: BA-68	FEDERAL PROJECT NUMBER:	DATE: NOVEMBER 2011
			SHEET 28 OF 30



B-18 SHEET PILE PROFILE

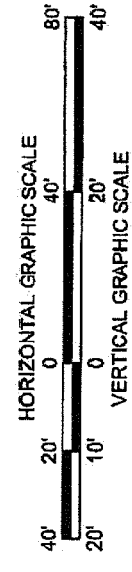
W-30V
30/29



B-18 SHEET PILE SECTION

W-30V
30/29

- 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 MARINE 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	B-18 SHEET PILE CLOSURE DETAIL
DRAWN BY: KRISTI CANTU	DESIGNED BY: TYE FITZGERALD	APPROVED BY: RULDOPH SIMONEAUX	STATE PROJECT NUMBER: BA-88 DATE: NOVEMBER 2011 FEDERAL PROJECT NUMBER: SHEET 30 OF 30

Grand Liard Marsh and Ridge Restoration, MVN-2011-3319-EOO, Proposed Modification #1

AUTHORIZED EXCAVATIONS & FILLS

10 a. PERMITTED EXCAVATIONS				
Construction Feature	Area (acre)	Volume (CY)	Habitat Type	Area (acre)
Grand Liard East Off Shore Borrow Area	158	5,280,000	Wetland N/VWB	0 158
Grand Liard West Off Shore Borrow Area	165	4,680,000	Wetland N/VWB	0 165
Off Shore Dredge Access Channel ¹	94	80,000	Wetland N/VWB	0 94
Earthen Ridge Borrow Area	48	467,653	Wetland N/VWB	10 38
Containment Dike Borrow Area	61	466,169	Wetland N/VWB	5 56
Total Permitted Excavations	525	10,973,822		

PROPOSED MODIFIED EXCAVATIONS				
Area (acre)	Volume (CY)	Habitat Type	Area (acre)	
158	5,280,000	Wetland N/VWB	0 158	
165	4,680,000	Wetland N/VWB	0 165	
119	186,215	Wetland N/VWB	0 119	
48	467,653	Wetland N/VWB	10 38	
61	466,169	Wetland N/VWB	5 56	
550	11,080,037			

CHANGES FROM AUTHORIZED				
CHANGE IN EXCAVATIONS				
Area (acre)	Volume (CY)	Habitat Type	Area (acre)	
0	0	Wetland N/VWB	0 0	
25	106,215	Wetland N/VWB	0 25	
0	0	Wetland N/VWB	0 0	
0	0	Wetland N/VWB	0 0	
25	106,215			

10 b. FILLS				
Construction Feature	Area (acre)	Volume ² (CY)	Habitat Type	Area (acre)
Marsh Creation Areas ³	432	2,667,377	Wetland N/VWB	51 381
Earthen Ridge (earthen fill)	24	173,242	Wetland N/VWB	14 10
Earthen Ridge (sand fill)		1,828	N/VWB	
Earthen Containment Dikes	50	212,959	Wetland N/VWB	37 17
Off Shore Access ⁴	93	80,000	N/VWB	93
Total Fills	599	3,135,406		

PROPOSED MODIFIED FILLS				
Area (acre)	Volume ² (CY)	Habitat Type	Area (acre)	
432	2,667,377	Wetland N/VWB	51 381	
24	173,242	Wetland N/VWB	14 10	
	20,730	N/VWB		
50	212,959	Wetland N/VWB	37 17	
125	186,215	N/VWB	125	
631	3,260,523			

CHANGE IN FILLS				
Area (acre)	Volume ² (CY)	Habitat Type	Area (acre)	
0	0	Wetland N/VWB	0 0	
0	0	Wetland N/VWB	0 0	
32	106,215	N/VWB	32	
32	125,117			

CONSTRUCTION EXCAVATIONS				
Construction Feature	Area (acre)	Volume (CY)	Habitat Type	Area (acre)
Grand Liard East Borrow Area ⁵ (req'd)		3,467,589		
Ridge Fill Borrow Area ⁶ (req'd)		350,140		
Containment Dikes ⁶		425,918		
Off Shore Access Channel ⁷ (outside Marsh Footprint)		80,000		
Total Construction Excavations		4,323,647		

PROPOSED CONSTRUCTED EXCAVATIONS				
Area (acre)	Volume (CY)	Habitat Type	Area (acre)	
	3,467,589			
	350,140			
	425,918			
	186,215			
4,429,862				

CHANGE IN CONSTRUCTED EXCAVATIONS				
Area (acre)	Volume (CY)	Habitat Type	Area (acre)	
	3,467,589			
	350,140			
	425,918			
	106,215			
106,215				

¹Excavated channel shall be back filled upon completion of this Project

²Fill volumes reported represent in-place quantities.

³Marsh Creation volume reported includes hydraulically backfilling Earthen Ridge and Containment Dike borrow areas excavated within the Marsh Creation Area footprint.

⁴Material shall be used to backfill the Off Shore Access Channel

⁵Assumes a cut-to-fill ratio of 1.3:1.

⁶Assumes a cut-to-fill ratio of 2.0:1.

⁷Access Channel volume represents volume available for excavation, but actual excavated volume may be less.