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SH. NO. **DESCRIPTION**

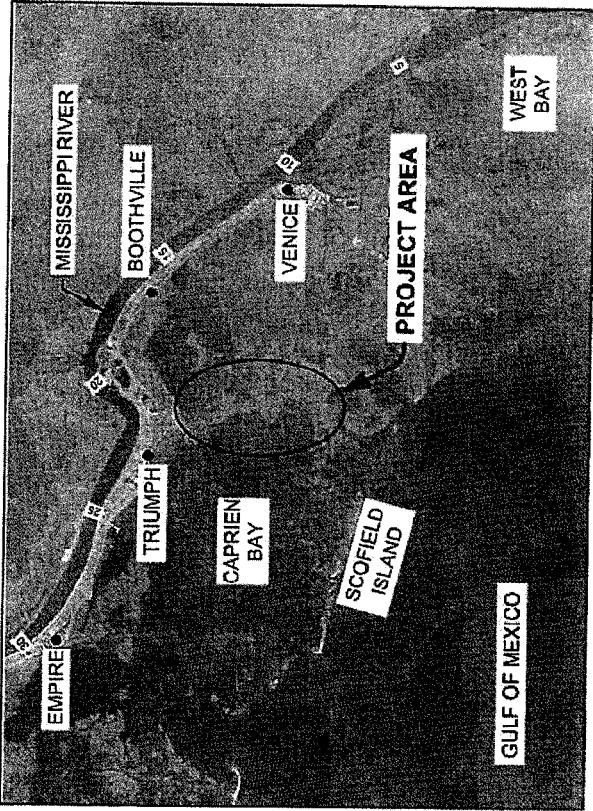
| | |
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**STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY**

**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

**OFFICE OF COASTAL PROTECTION
AND RESTORATION**

TITLE SHEET

GRAND LIARD MARSH AND
RIDGE RESTORATION

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

DRAWN BY: KRISTI CANTU

DESIGNED BY: TYE FITZGERALD

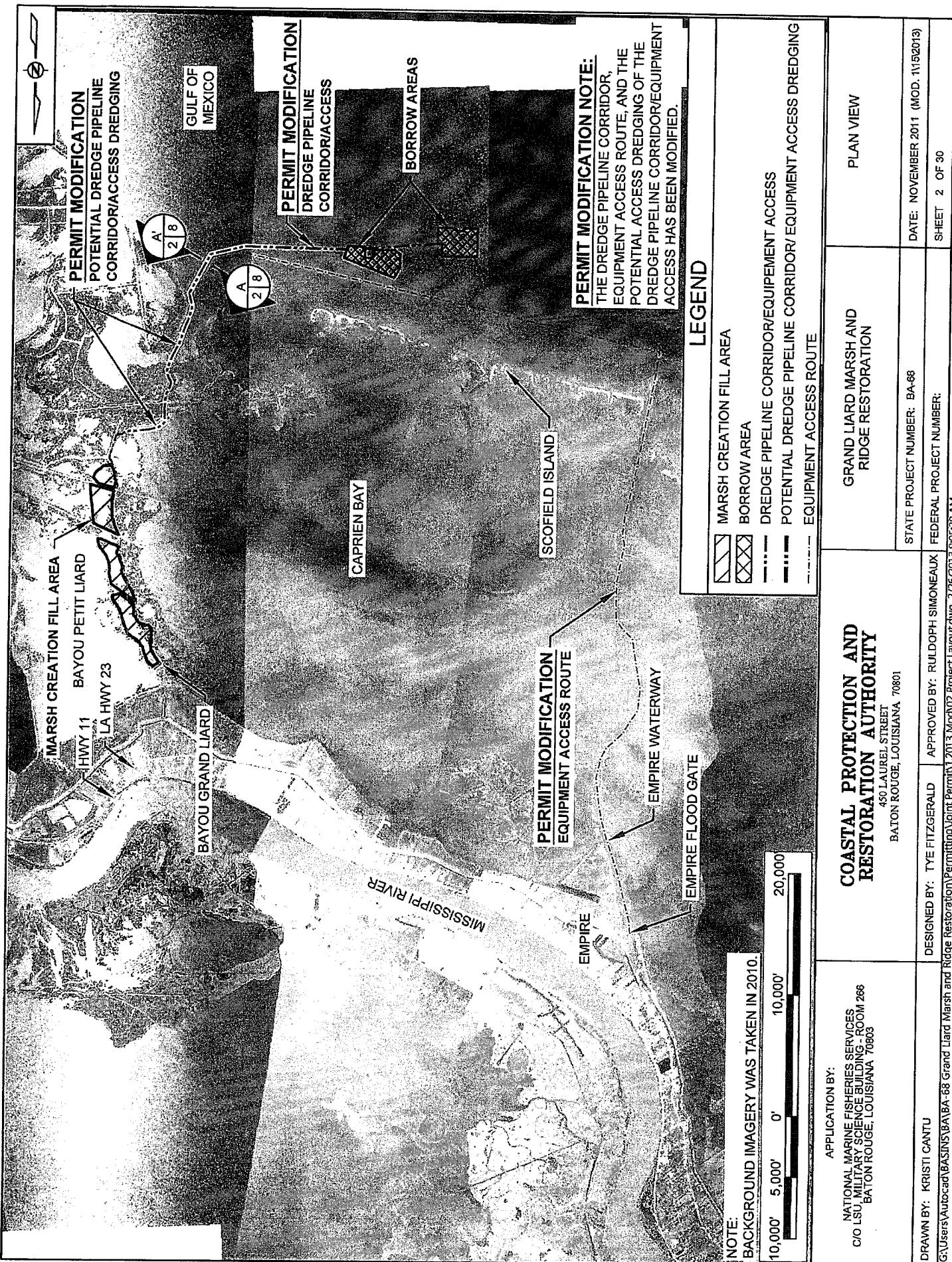
APPROVED BY: RUDOLPH SIMONEAUX

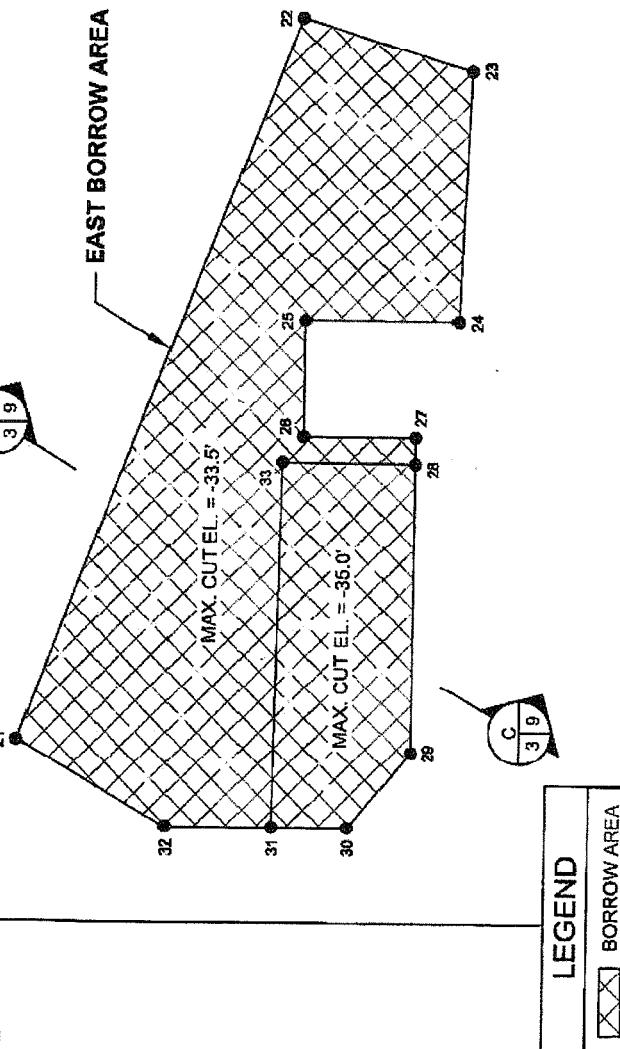
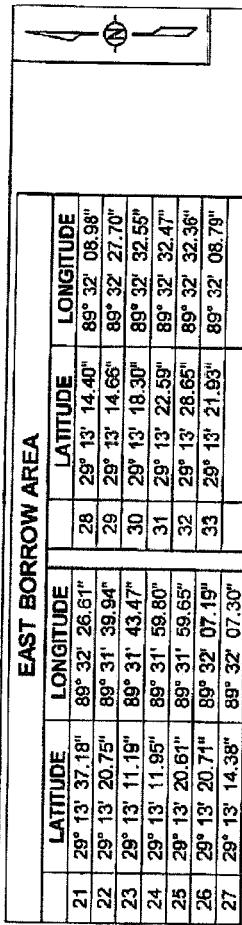
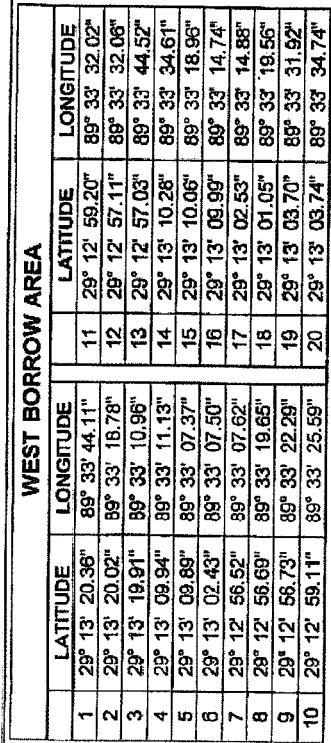
STATE PROJECT NUMBER: BA-68

FEDERAL PROJECT NUMBER:

DATE: NOVEMBER 2011

SHEET 1 OF 30





- 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.

1000' 500' 0' 1000' 2000'

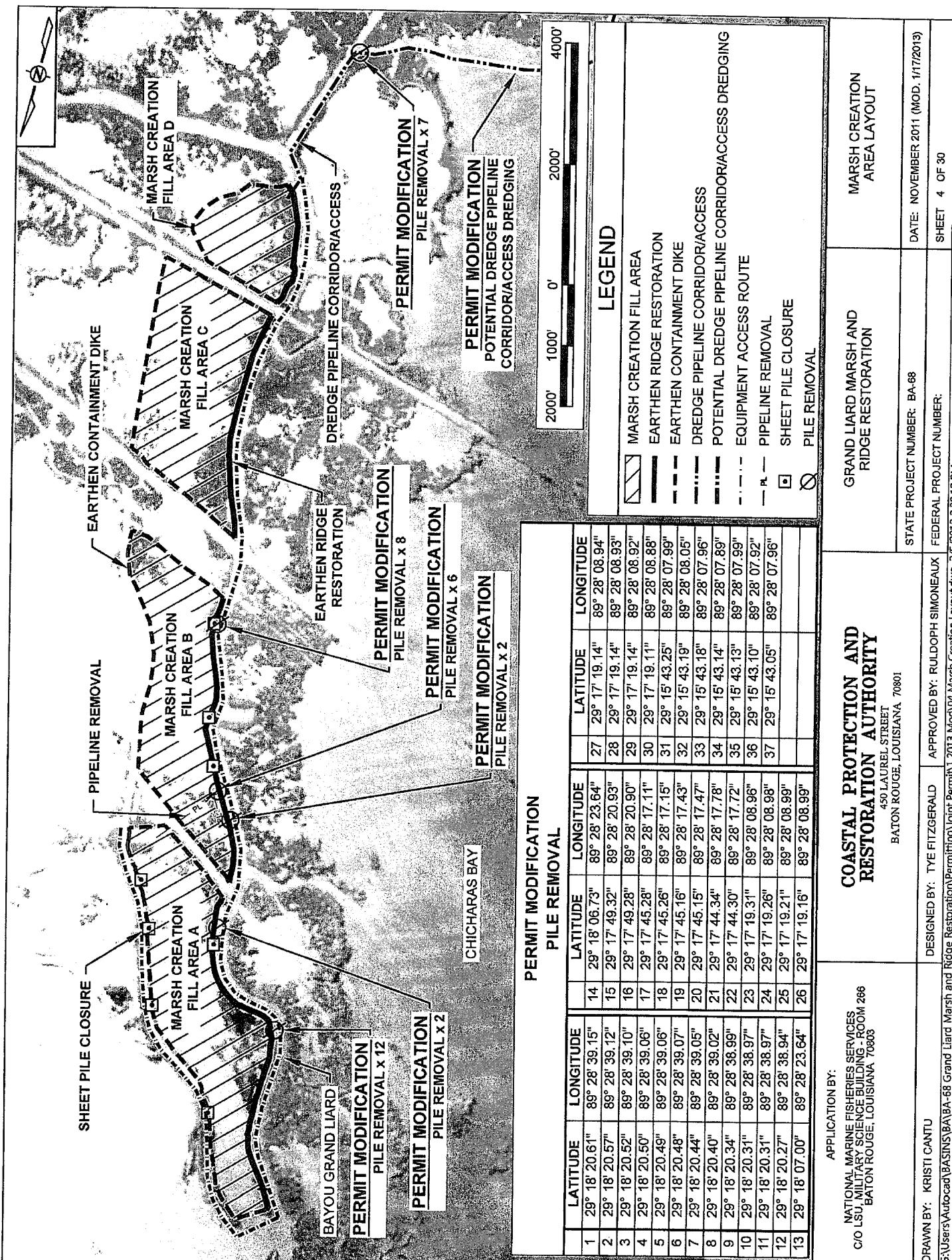
APPLICATION BY:
C/O LSU MILITARY SCIENCE SERVICES BUILDING - ROOM 268
BATON ROUGE, LOUISIANA 70803

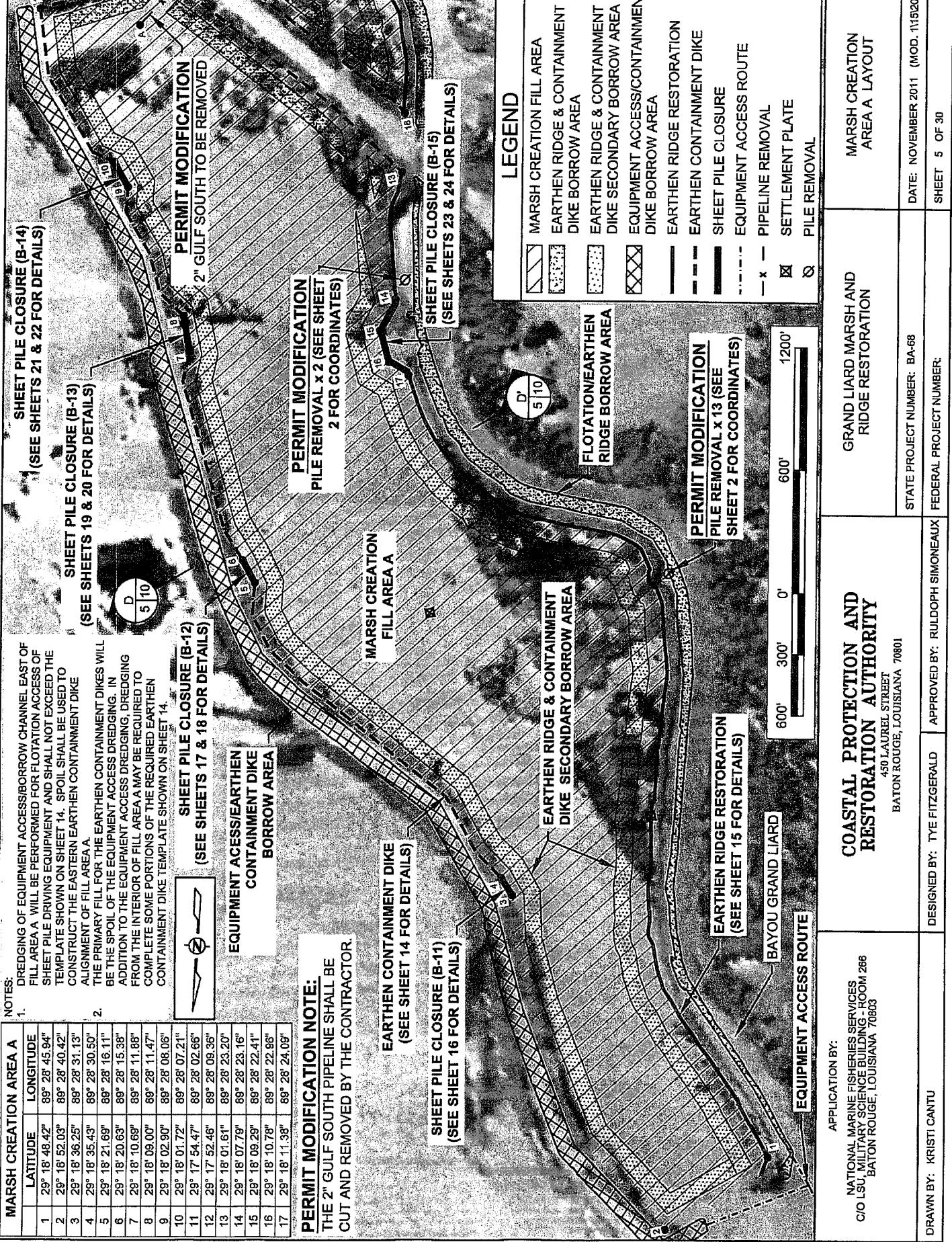
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

GRAND LIARD MARSH AND RIDGE RESTORATION
BORROW AREA LAYOUT

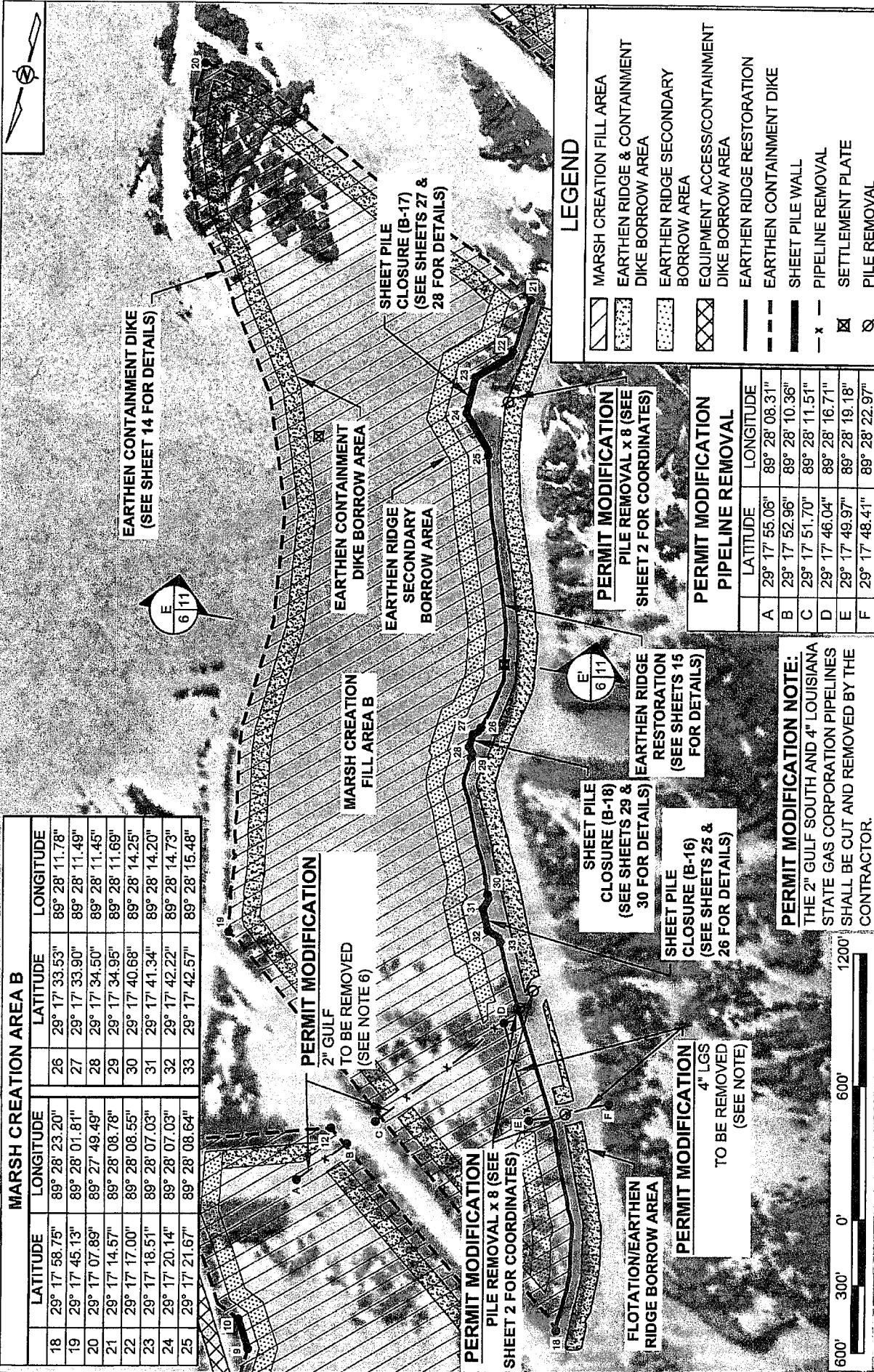
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FEDERAL PROJECT NUMBER:

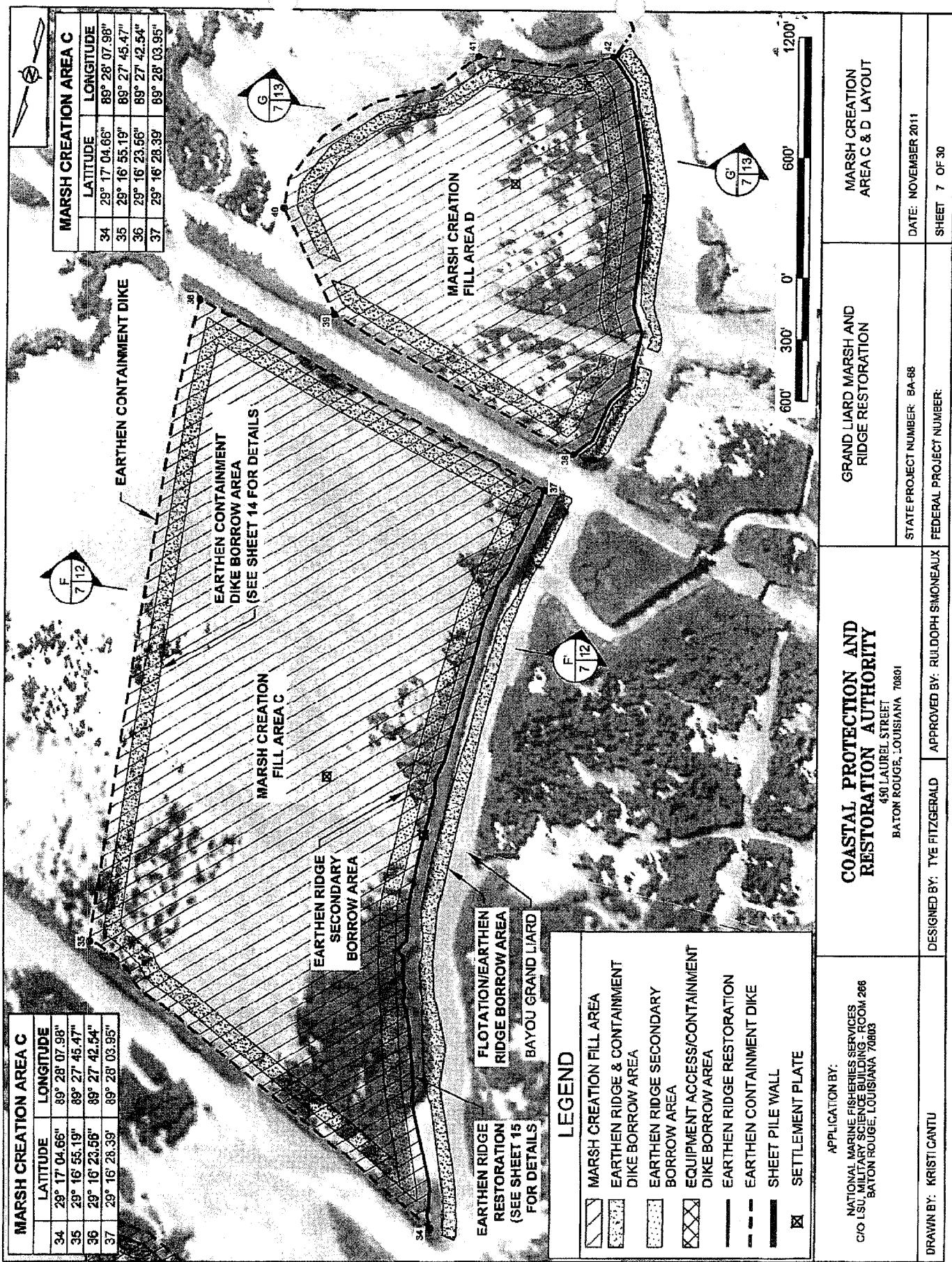
DATE: NOVEMBER 2011
SHEET 3 OF 30

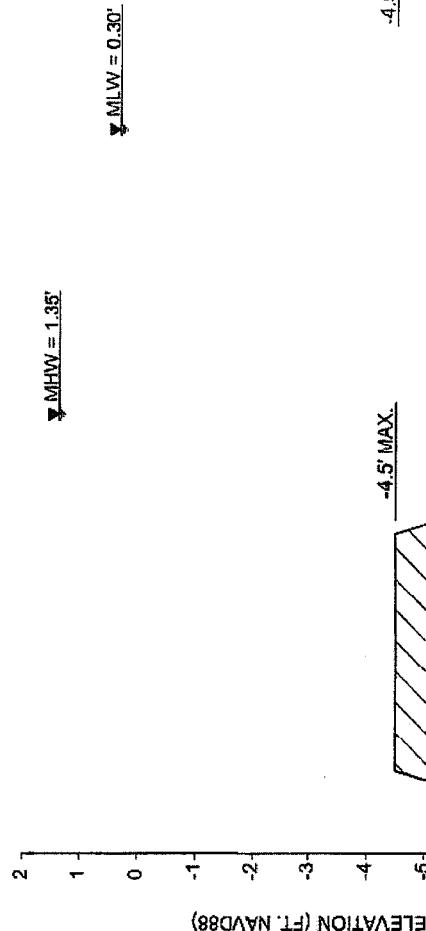




| MARSH CREATION AREA B | | | |
|-----------------------|----------------|--------------------|----------------|
| LATITUDE | LONGITUDE | LATITUDE | LONGITUDE |
| 18° 29' 17" 58.75" | 89° 28' 23.20" | 26° 29' 17" 33.53" | 89° 28' 11.78" |
| 19° 28' 17" 45.13" | 89° 28' 01.81" | 27° 29' 17" 33.90" | 89° 28' 11.49" |
| 20° 28' 17" 07.89" | 89° 27' 49.48" | 28° 29' 17" 34.50" | 89° 28' 11.45" |
| 21° 28' 17" 14.57" | 89° 28' 03.78" | 29° 29' 17" 34.95" | 89° 28' 11.69" |
| 22° 28' 17" 17.00" | 89° 28' 08.55" | 30° 29' 17" 40.68" | 89° 28' 14.25" |
| 23° 28' 17" 18.51" | 89° 28' 07.03" | 31° 29' 17" 41.34" | 89° 28' 14.20" |
| 24° 28' 17" 20.14" | 89° 28' 07.03" | 32° 29' 17" 42.22" | 89° 28' 14.73" |
| 25° 28' 17" 21.67" | 89° 28' 08.64" | 33° 29' 17" 42.57" | 89° 28' 15.48" |



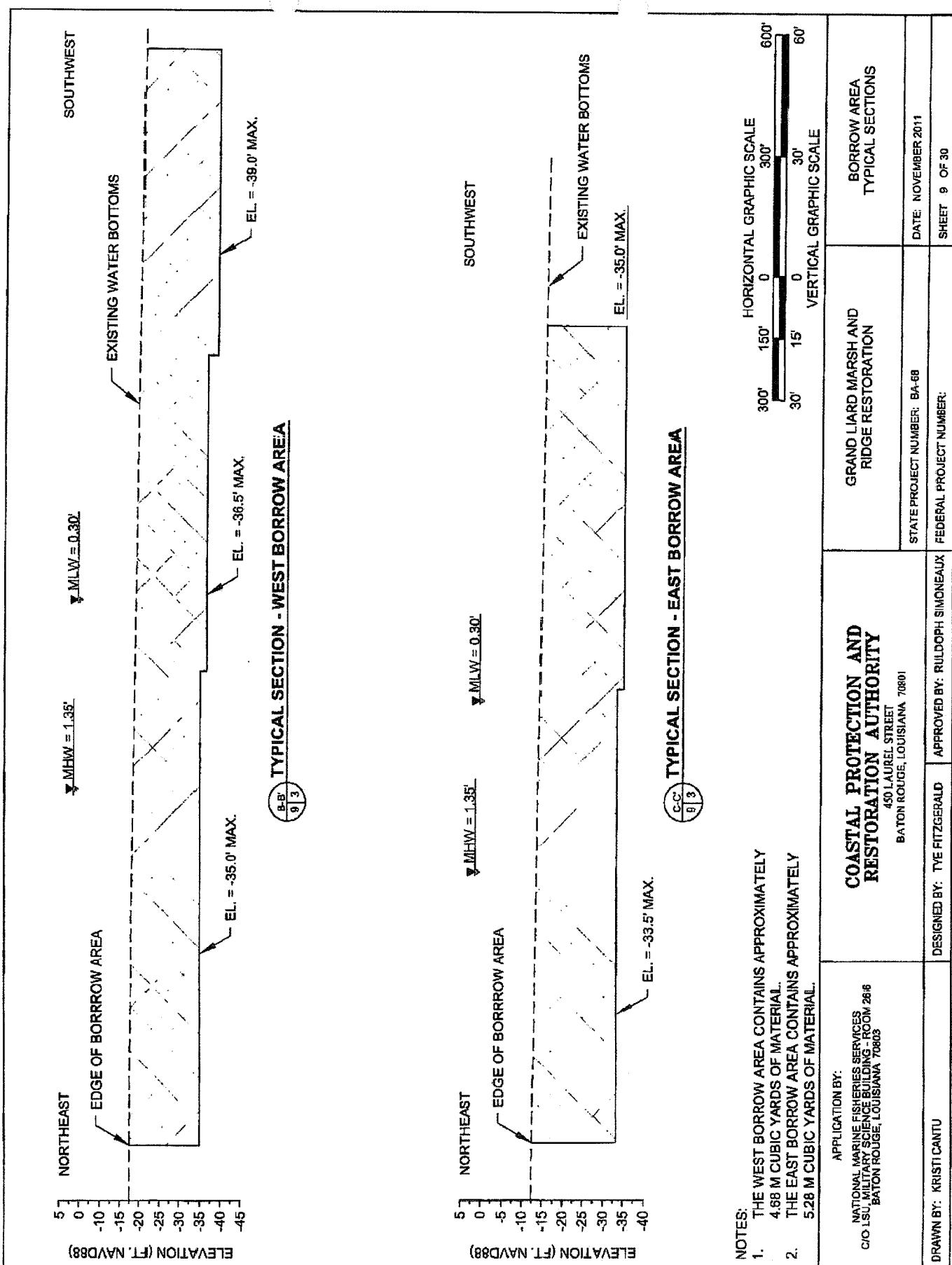


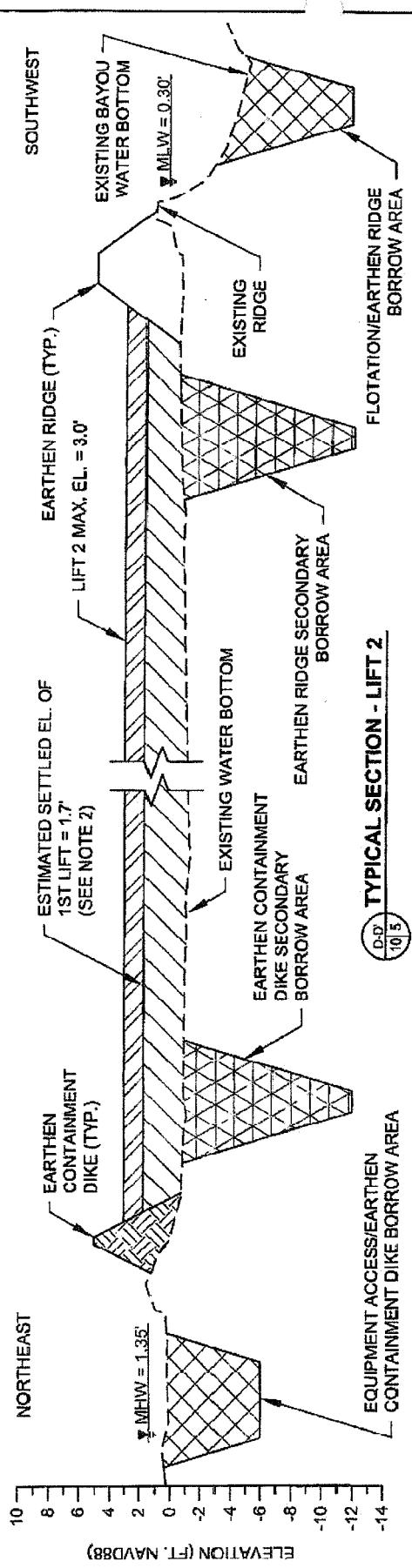
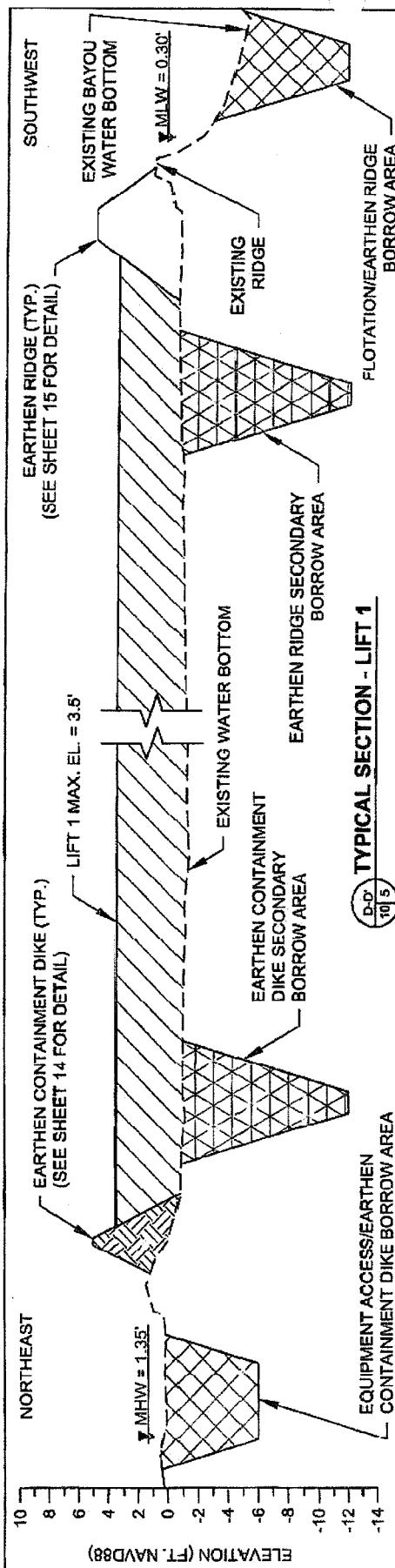


TYPICAL SECTION - POTENTIAL ACCESS DREDGING

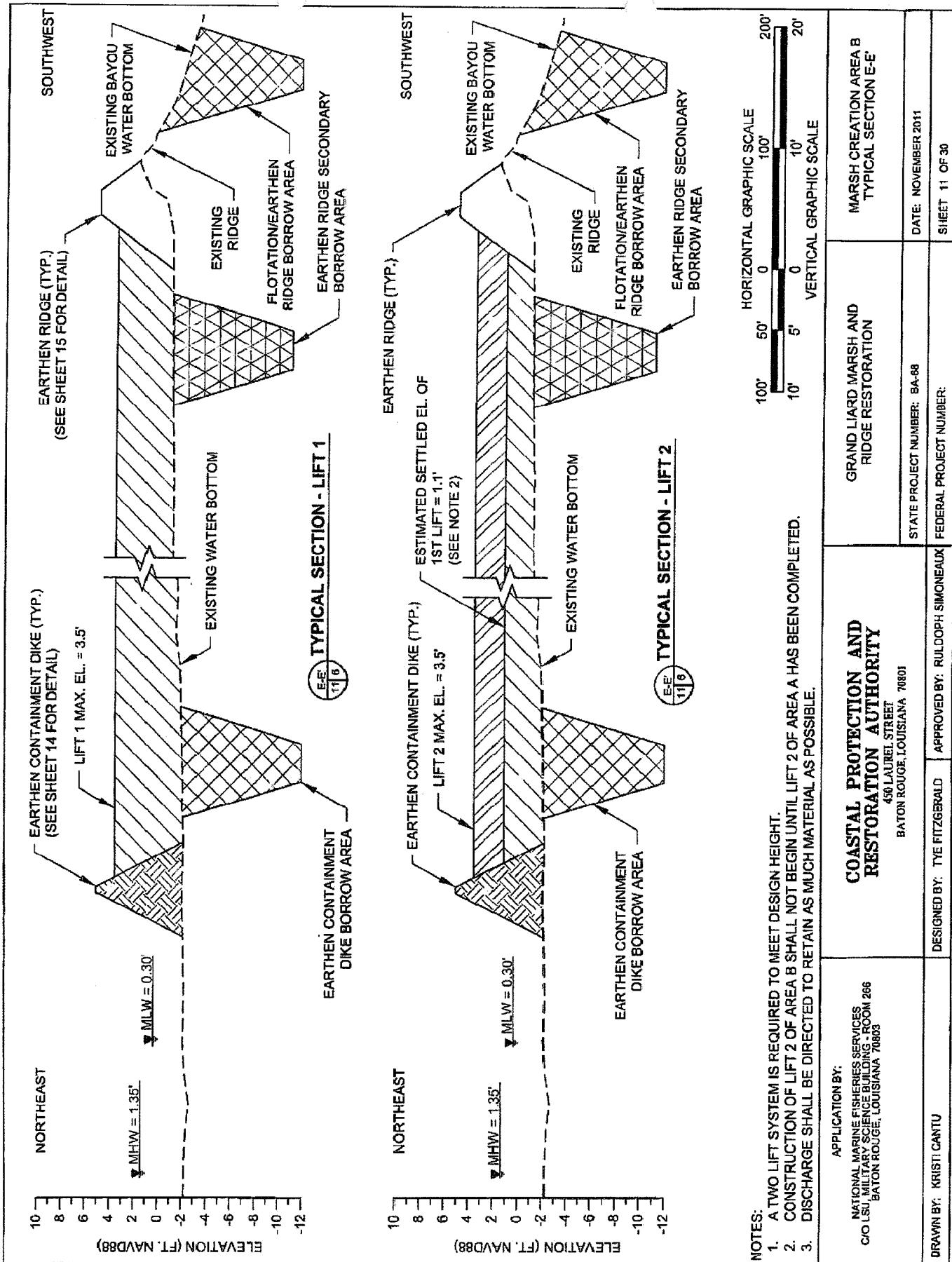
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9 1/2

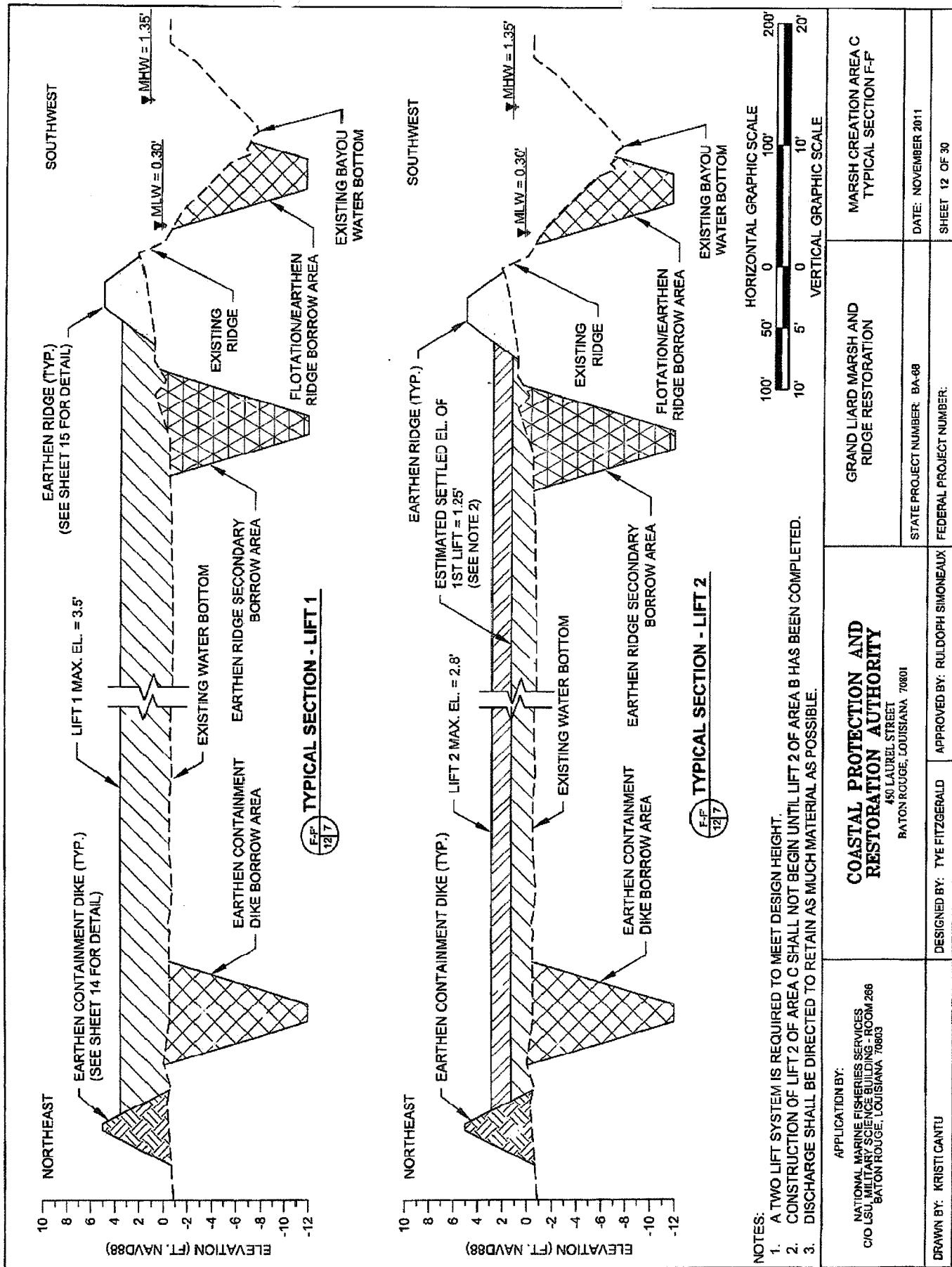
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| APPLICATION BY: | COASTAL PROTECTION AND RESTORATION AUTHORITY | GRAND LIARD MARSH AND RIDGE RESTORATION | POTENTIAL ACCESS DREDGING TYPICAL SECTION |
| NATIONAL MARINE FISHERIES SERVICES CIO LSU, MILITARY SCIENCE BUILDING, ROOM 286 BATON ROUGE, LOUISIANA 70803 | 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 | STATE PROJECT NUMBER: BA-88 | DATE: NOVEMBER 2011 |
| DRAWN BY: KRISTI CANTU | DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | FEDERAL PROJECT NUMBER: SHEET 6 OF 30 |

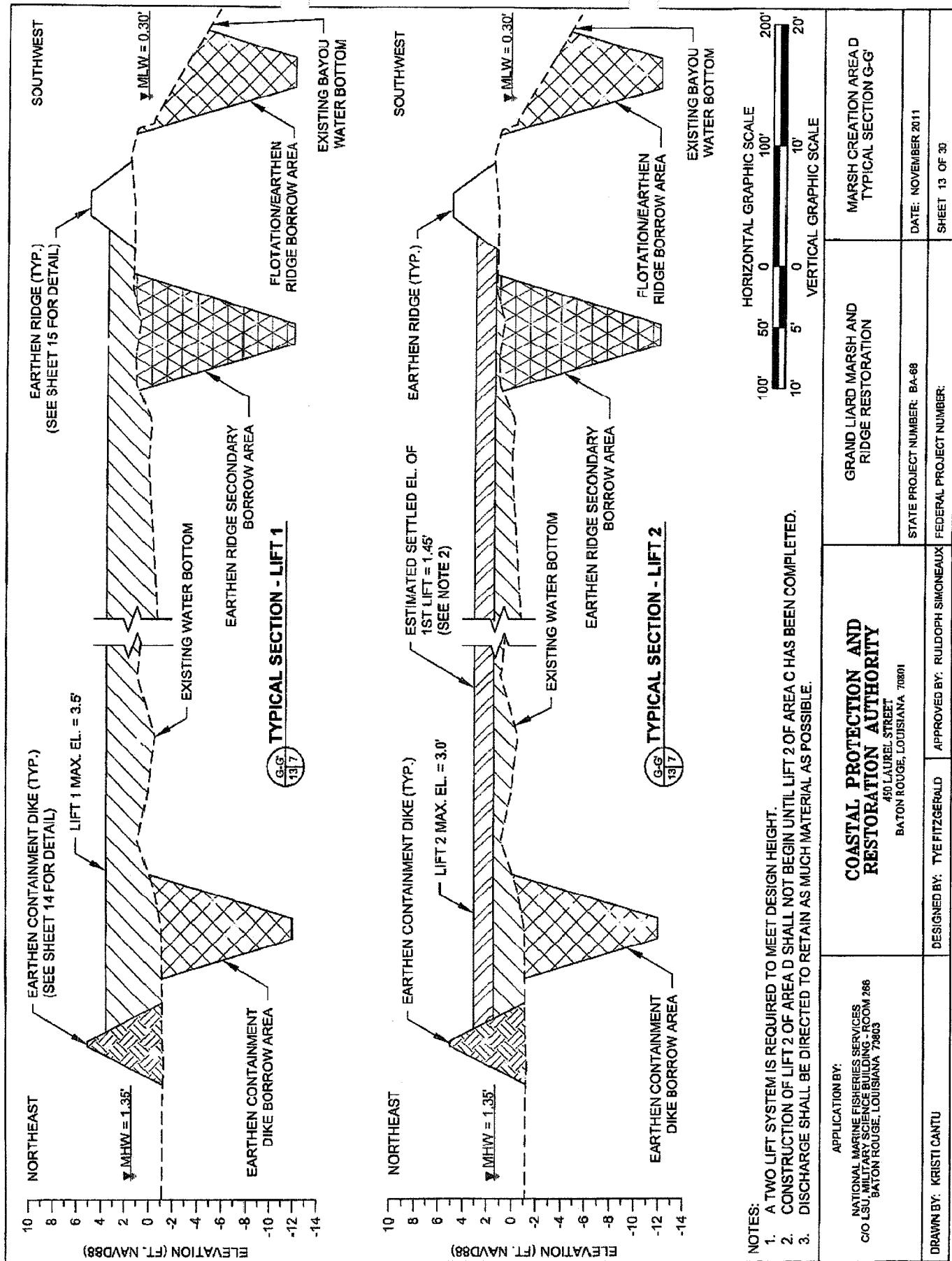


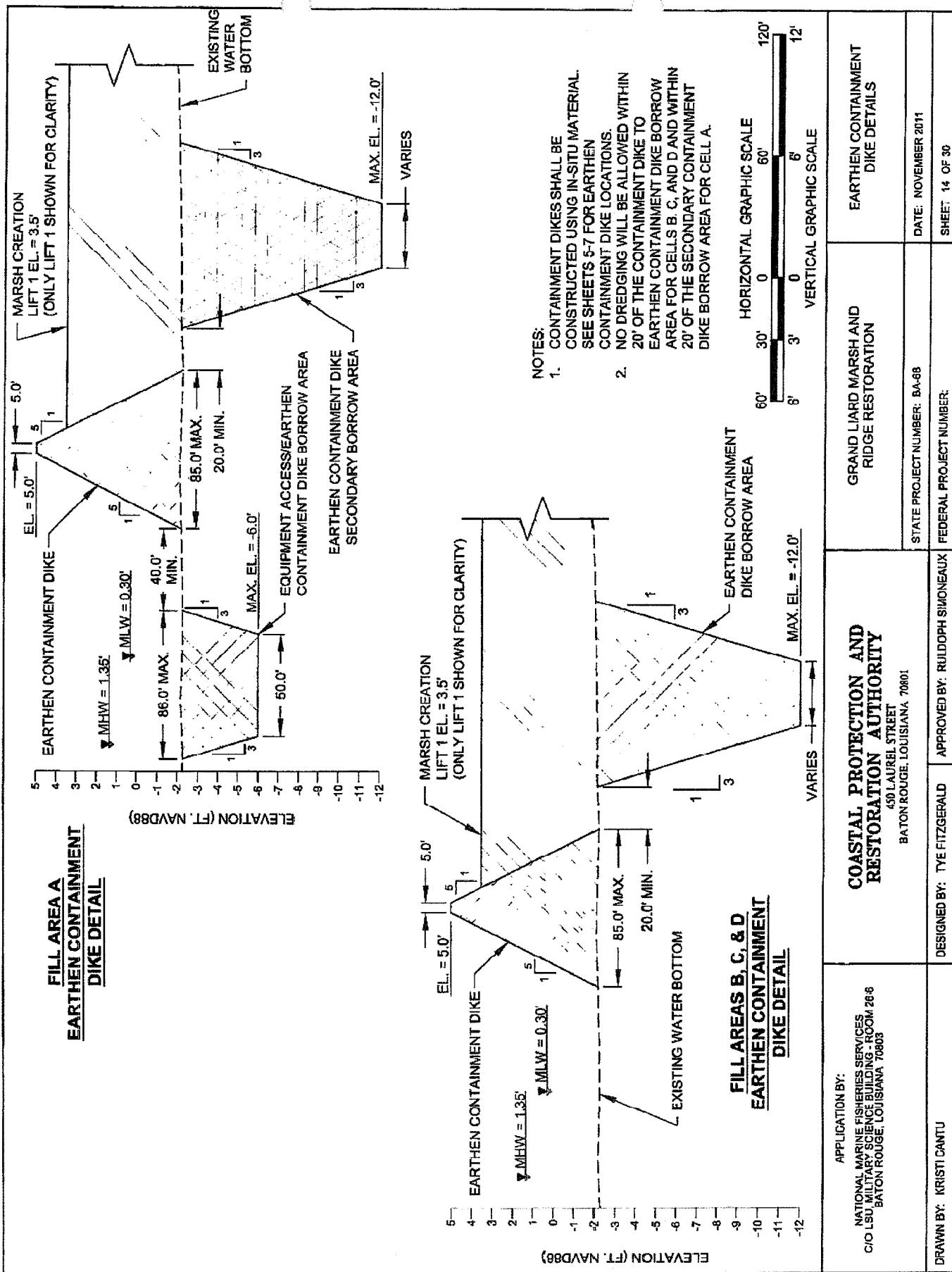


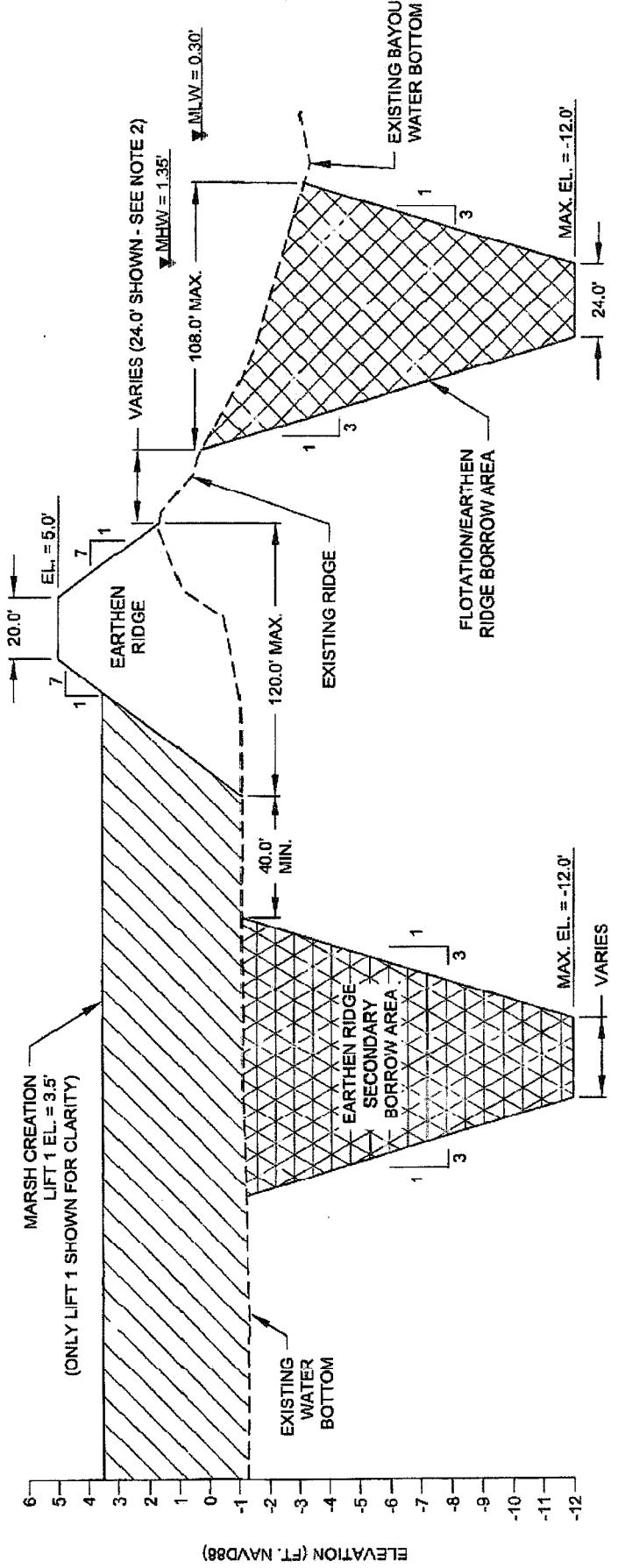
| | | | | |
|---|---|---|--|----------------|
| NOTES: | HORIZONTAL GRAPHIC SCALE | | VERTICAL GRAPHIC SCALE | |
| 1. A TWO LIFT SYSTEM IS REQUIRED TO MEET DESIGN HEIGHT. | 100' | 60' | 200' | 100' |
| 2. CONSTRUCTION OF LIFT 2 OF AREA A SHALL NOT BEGIN UNTIL LIFT 1 OF AREAS A, B, C, AND D HAVE BEEN COMPLETED. | 10' | 5' | 10' | 20' |
| 3. DISCHARGE SHALL BE DIRECTED TO RETAIN AS MUCH MATERIAL AS POSSIBLE. | 0' | 0' | 0' | 0' |
| APPLICATION BY: | COASTAL PROTECTION AND RESTORATION AUTHORITY | GRAND LIARD MARSH AND RIDGE RESTORATION | MARSH CREATION AREA A TYPICAL SECTION D-D' | |
| NATIONAL MARINE FISHERIES SERVICES C/O LS/L MILITARY SCIENCE BUILDING - ROOM 266 BATON ROUGE, LOUISIANA 70803 | 430 LAUREL STREET BATON ROUGE, LOUISIANA 70801 | STATE PROJECT NUMBER: BA-68 | DATE: NOVEMBER 2011 | |
| DRAWN BY: KRISTI CANTU | DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | FEDERAL PROJECT NUMBER: | SHEET 10 OF 30 |







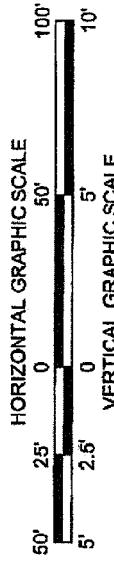
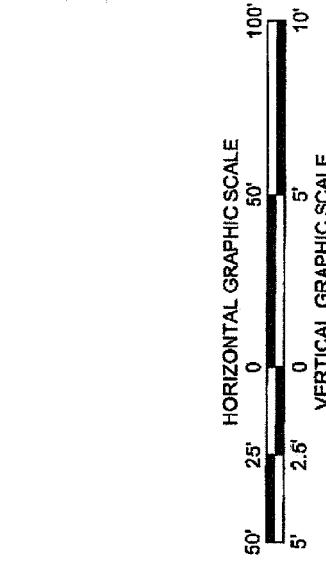




EARTHEN RIDGE DETAIL

1' = 50' HORIZONTAL
1' = 5' VERTICAL

- NOTES:
1. EARTHEN RIDGES SHALL BE CONSTRUCTED USING IN-SITU MATERIAL.
 2. SEE SHEETS 5-7 FOR EARTHEN RIDGE LOCATIONS.
 3. 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 C AS RECOMMENDED BY THE GEOTECHNICAL ANALYSIS.
 4. 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 CO. 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 | EARTHEN RIDGE DIKE DETAILS |
| DRAWN BY: KRISTI CANTU | DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | DATE: NOVEMBER 2011 SHEET 15 OF 30 |

| 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" |

EQUIPMENT ACCESS/EARTHEN
CONTAINMENT DIKE BORROW

SAND FILL TOE
(SEE NOTE 2)

EARTHEN CONTAINMENT DIKE TOE

EARTHEN CONTAINMENT DIKE CENTERLINE

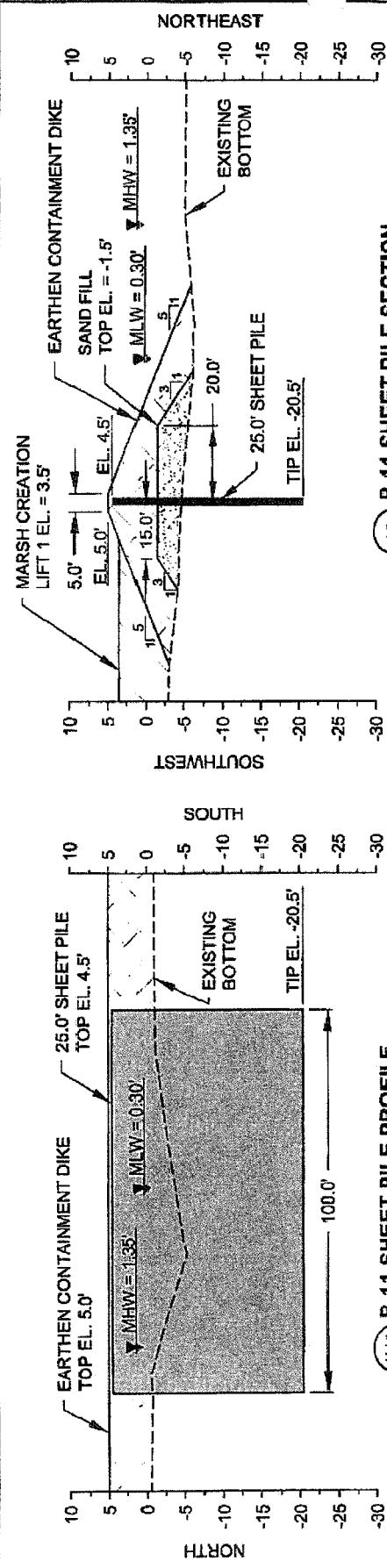
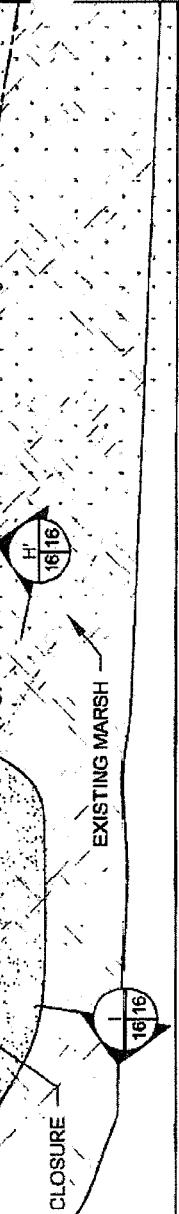
B-11 SHEET PILE PLAN VIEW



MARSH CREATION FILL NOT
SHOWN FOR CLARITY

SHEET PILE CLOSURE

EXISTING MARSH



B-11 SHEET PILE PROFILE

- 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.

HORIZONTAL GRAPHIC SCALE



VERTICAL GRAPHIC SCALE



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

B-11 SHEET PILE
CLOSURE DETAIL

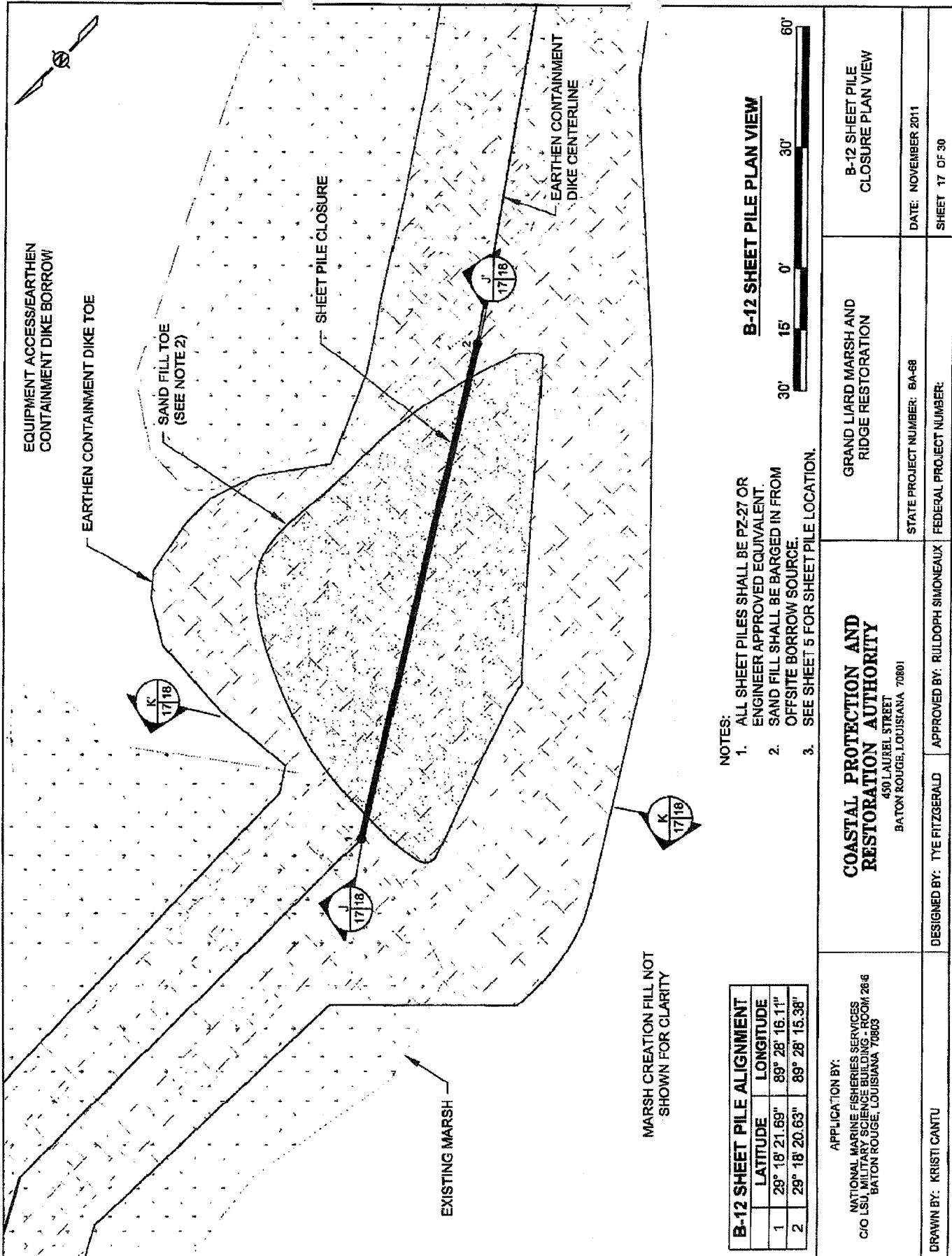
GRAND LIARD MARSH AND
RIDGE RESTORATION

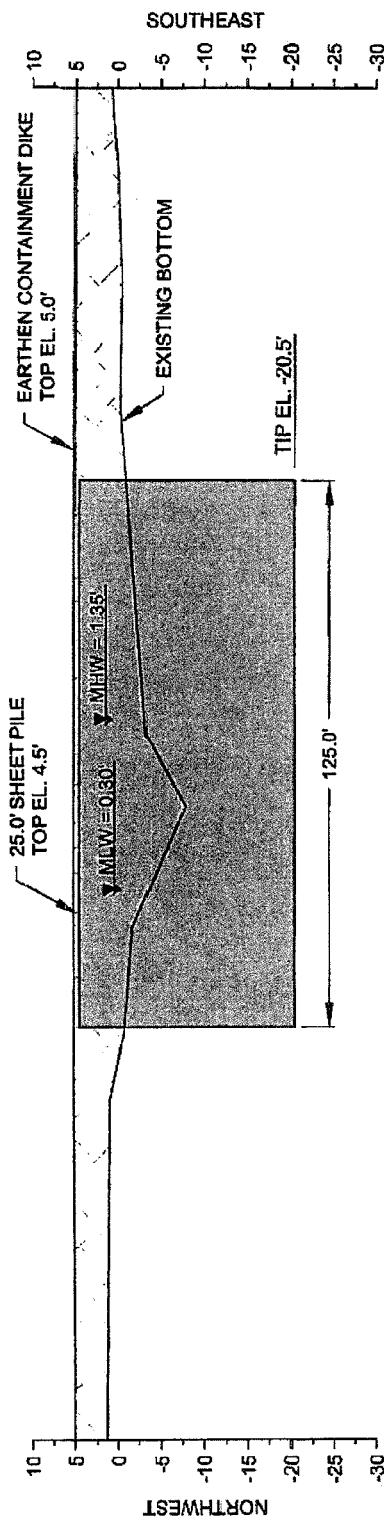
STATE PROJECT NUMBER: BA-68

FEDERAL PROJECT NUMBER:

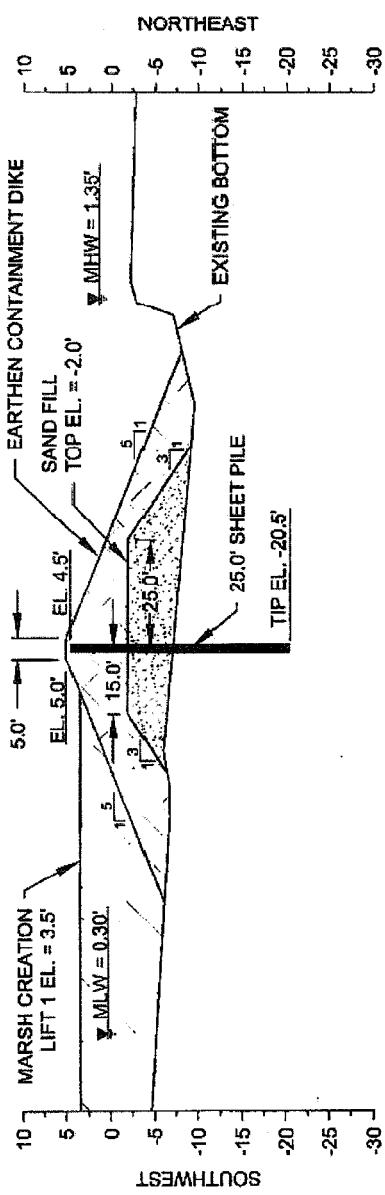
DATE: NOVEMBER 2011

SHEET 16 OF 30





B-12 SHEET PILE PROFILE
(18/17)



B-12 SHEET PILE SECTION
(18/17)

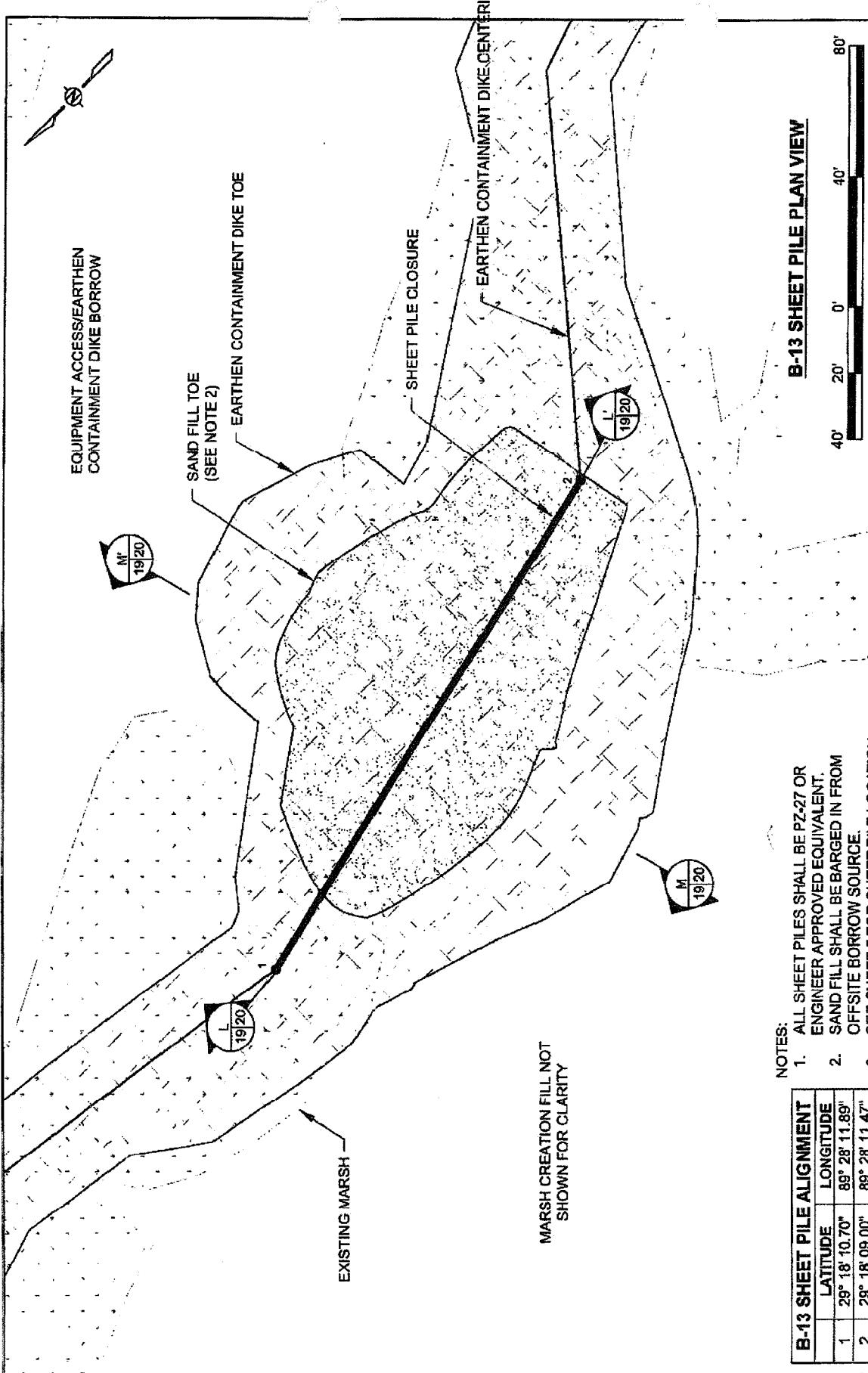
NOTES:

1. ALL SHEET PILES SHALL BE PZ27 OR ENGINEER APPROVED EQUIVALENT.
2. SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
3. SEE SHEET 5 FOR SHEET PILE LOCATION.

HORIZONTAL GRAPHIC SCALE
80'
40'
20'
0'

VERTICAL GRAPHIC SCALE
40'
20'
0'

| | |
|---|--|
| APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES CIO LSO, MILITARY SCIENCE BUILDING, ROOM 286 BATON ROUGE, LOUISIANA 70801 | COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 |
| DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX |
| DRAWN BY: KRISTI CANTU | STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 18 OF 30 |



B-13 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-13 SHEET PILE ALIGNMENT

| | LATITUDE | LONGITUDE |
|---|----------------|----------------|
| 1 | 29° 18' 10.70" | 89° 28' 11.89" |
| 2 | 29° 18' 09.00" | 89° 28' 11.47" |

APPLICATION BY:
NATIONAL MARINE FISHERIES SERVICES
CIO LSU, MILITARY SCIENCE BUILDING - ROOM 2658
BATON ROUGE, LOUISIANA 70803

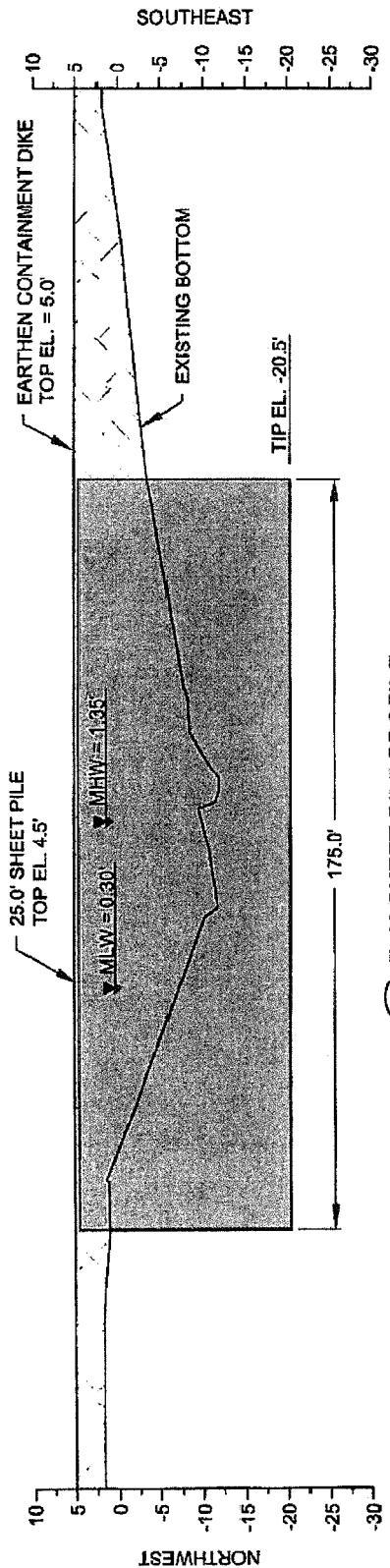
COASTAL PROTECTION AND
RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

B-13 SHEET PILE
CLOSURE PLAN VIEW



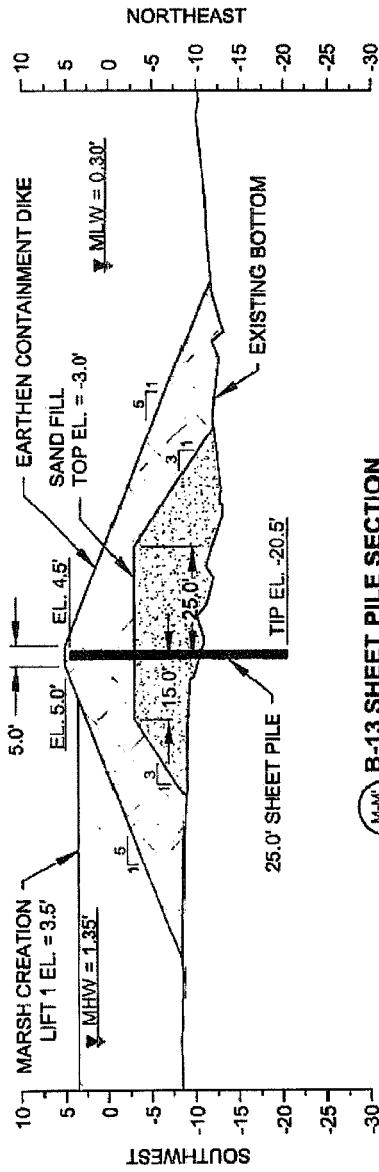
STATE PROJECT NUMBER: BA-68
FEDERAL PROJECT NUMBER:
DATE: NOVEMBER 2011

SHEET 19 OF 30



B-13 SHEET PILE PROFILE

M-W
2019



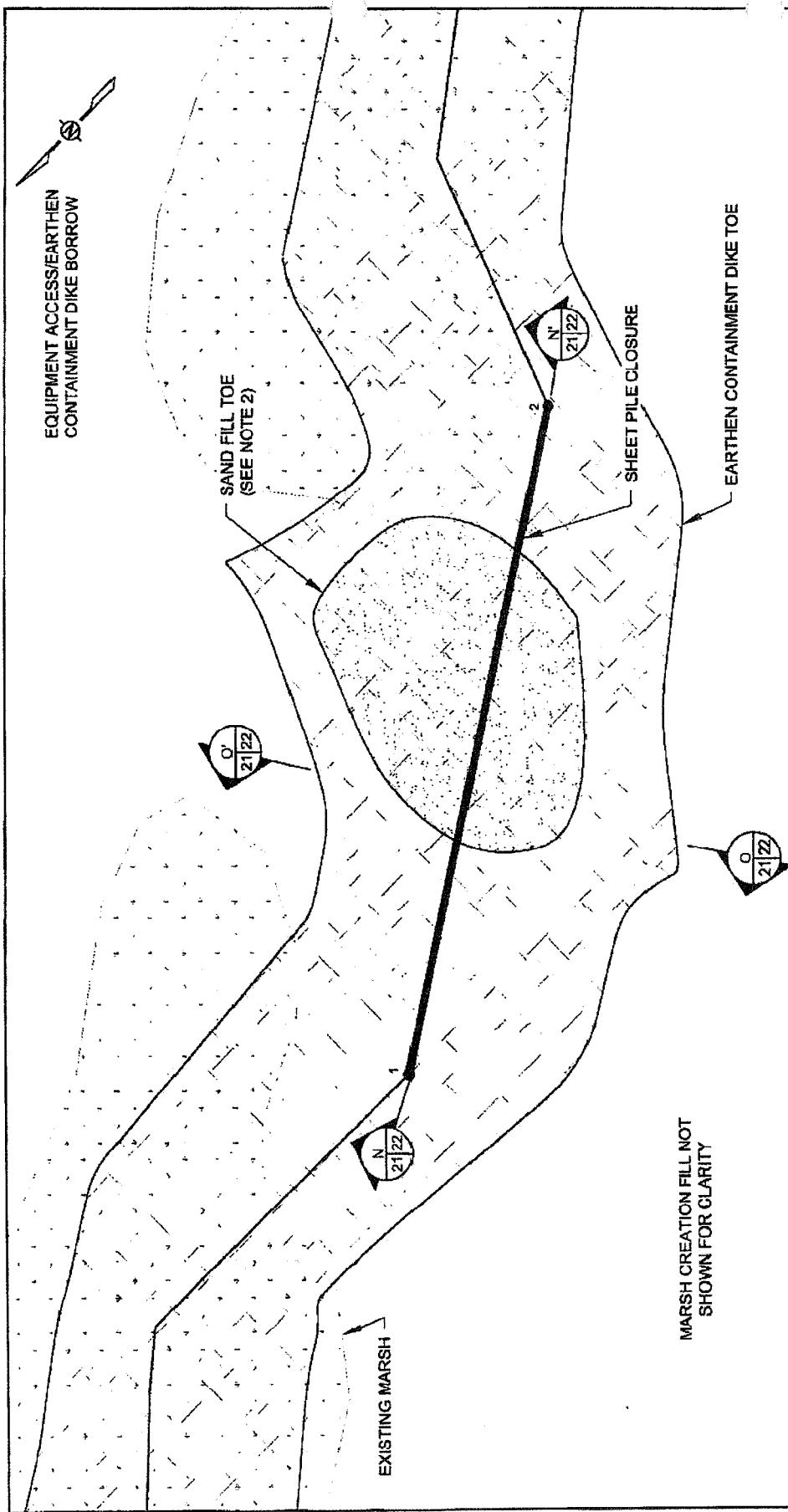
B-13 SHEET PILE SECTION

M-W
2019

NOTES:

1. ALL SHEET PILES SHALL BE P2-27 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 2616 BATON ROUGE, LOUISIANA 70803 | COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 | HORIZONTAL GRAPHIC SCALE 40' 0" |
| DESIGNED BY: KRISTI GANTU | APPROVED BY: TYE FITZGERALD | VERTICAL GRAPHIC SCALE 40' 0" |
| | | STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER: NOVEMBER 2011 DATE: NOVEMBER 2011 SHEET 20 OF 30 |



B-14 SHEET PILE PLAN VIEW

B-14 SHEET PILE ALIGNMENT

NOTES:

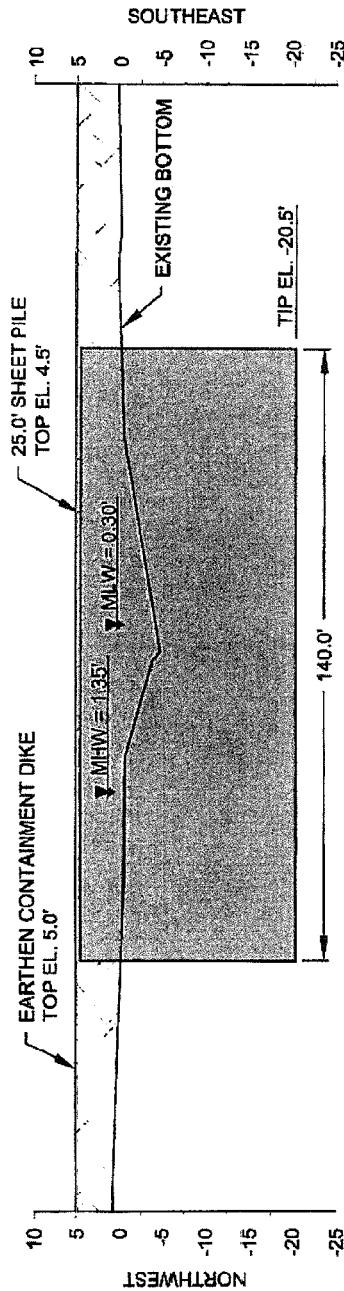
- ALL SHEET PILES SHALL BE P2-27 OR ENGINEER APPROVED EQUIVALENT.
- SAND FILL SHALL BE BARGED IN FROM OFFSITE BORROW SOURCE.
- SEE SHEET 5 FOR SHEET PILE LOCATION.



| | |
|---|---|
| APPLICATION BY: | COASTAL PROTECTION AND RESTORATION AUTHORITY |
| NATIONAL MARINE FISHERIES SERVICES C/O LSU MILITARY SCIENCE BUILDING, ROOM 268 BATON ROUGE, LOUISIANA 70801 | 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 |

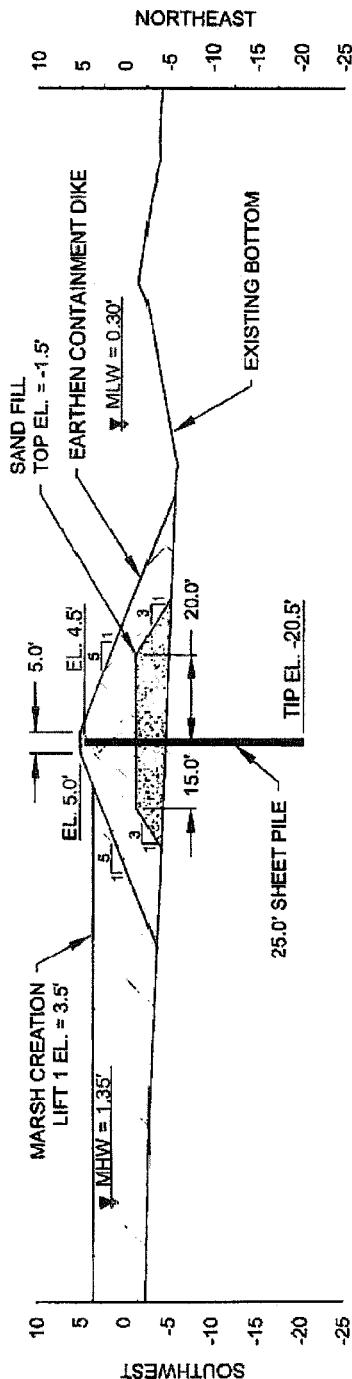
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| DRAWN BY: KRISTI CANTU | DESIGNED BY: TEE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | FEDERAL PROJECT NUMBER: |
| | | | |

| | |
|--------------------------------------|---------------------|
| STATE PROJECT NUMBER: BA-68 | DATE: NOVEMBER 2011 |
| B-14 SHEET PILE CLOSURE PLAN VIEW | |



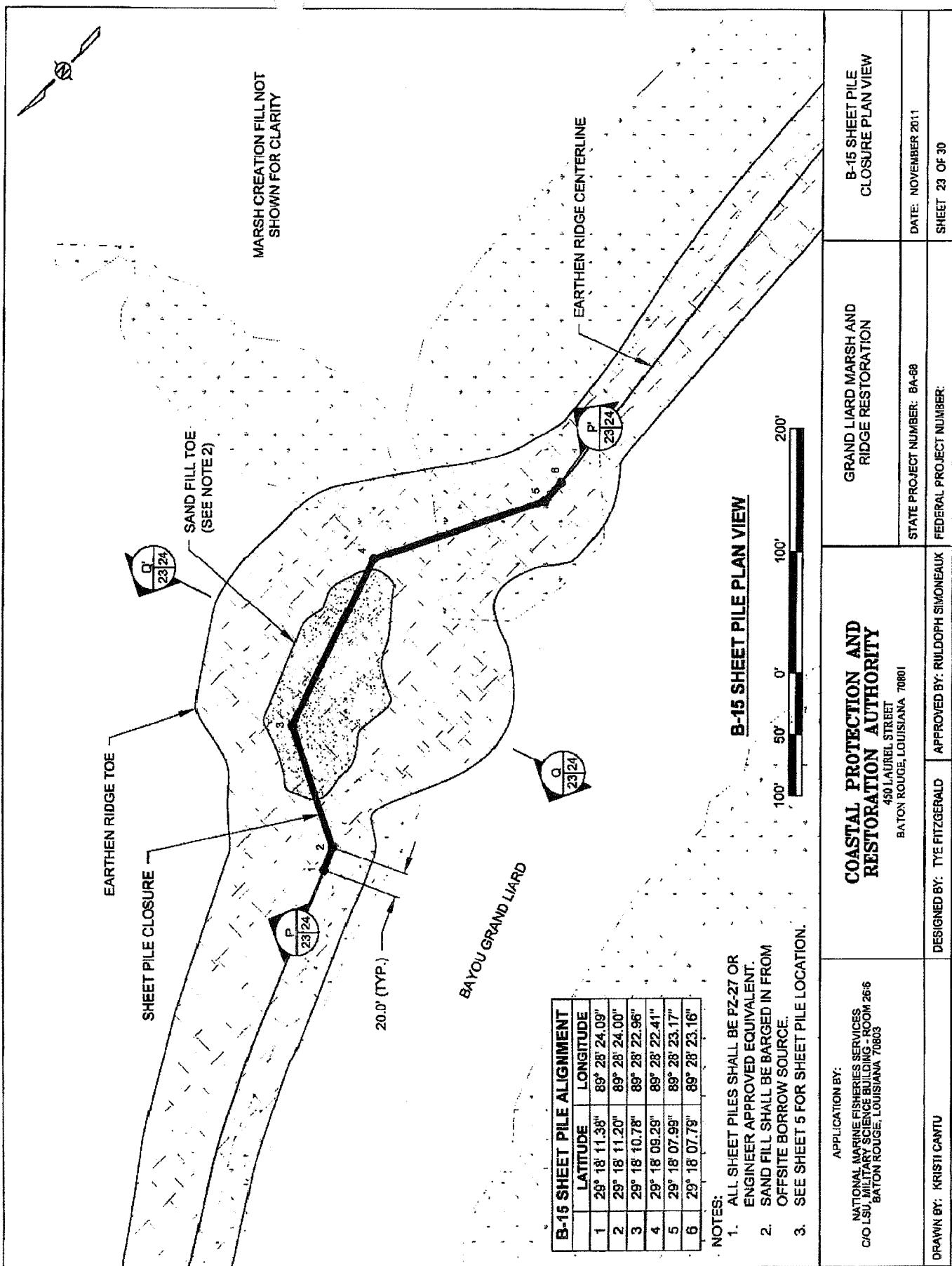
B-14 SHEET PILE SECTION

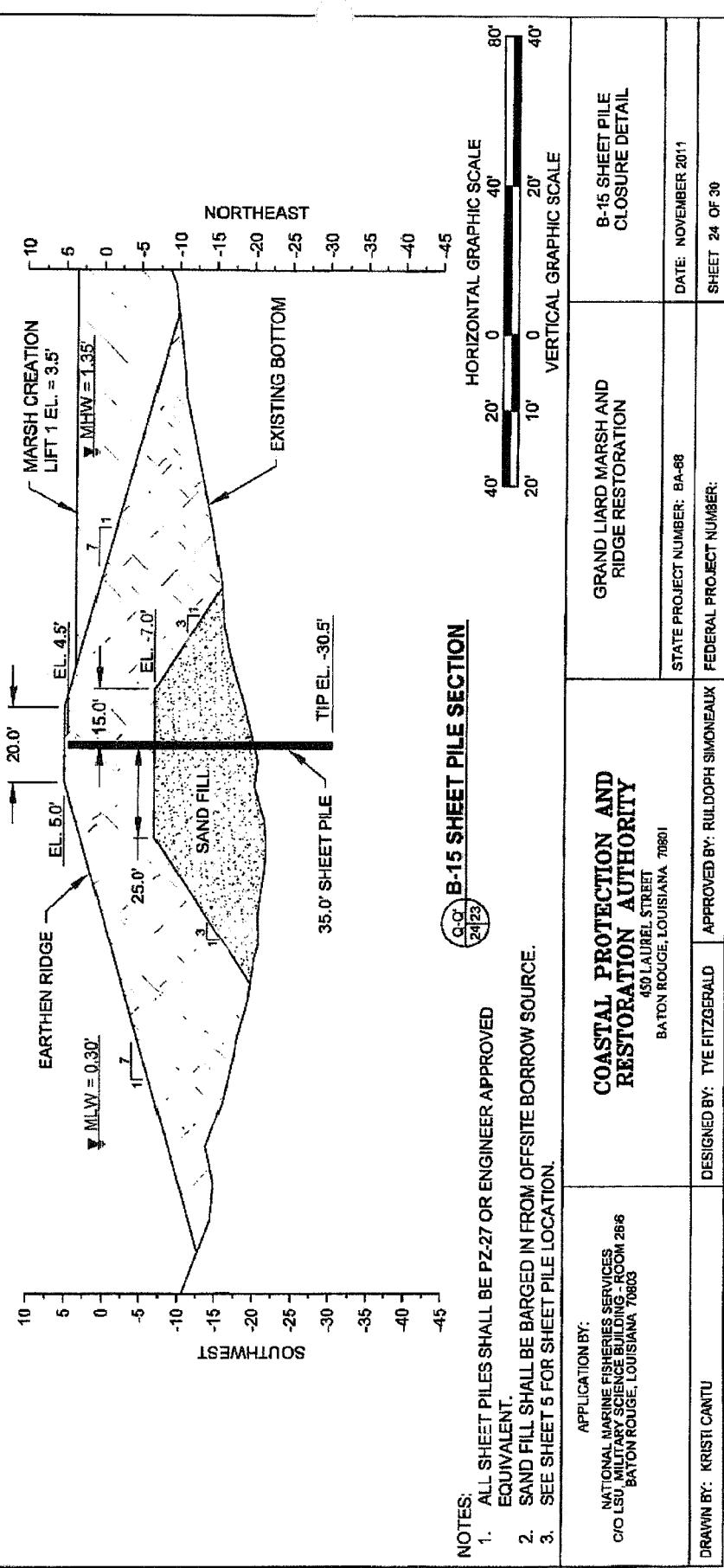
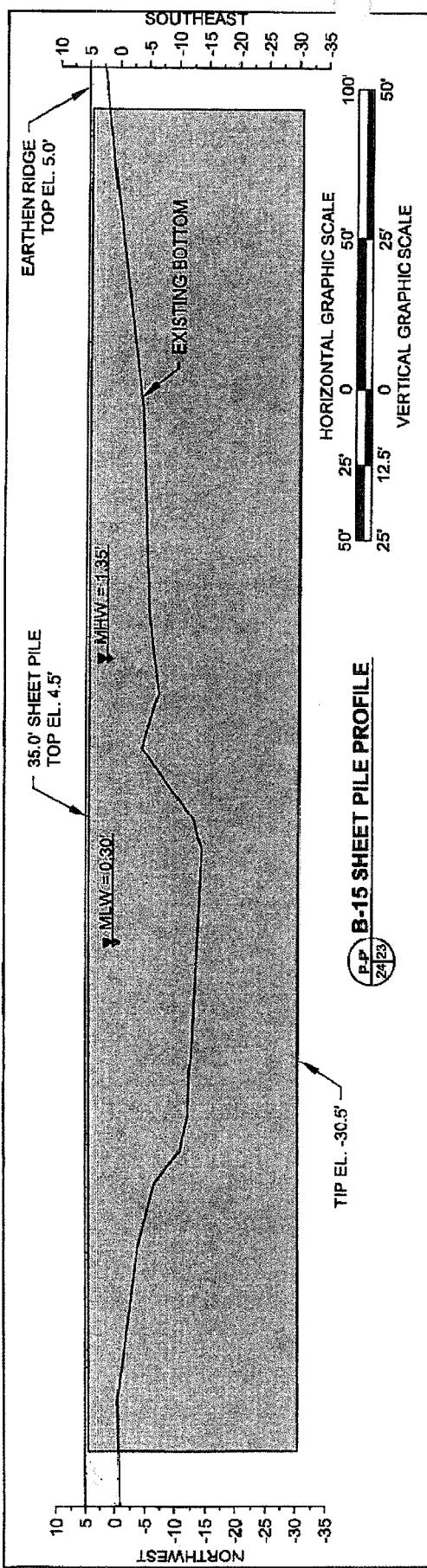
22(2)

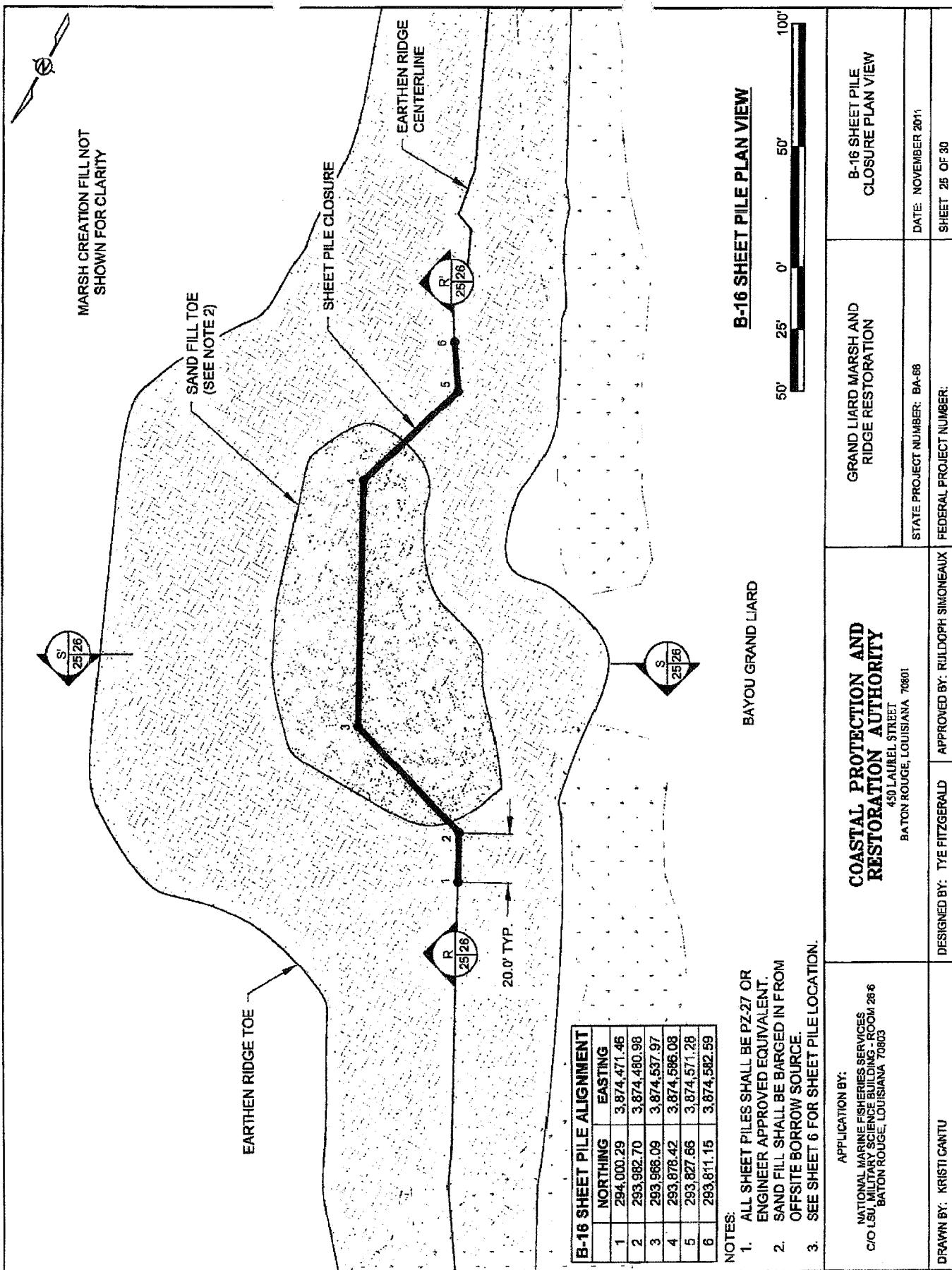


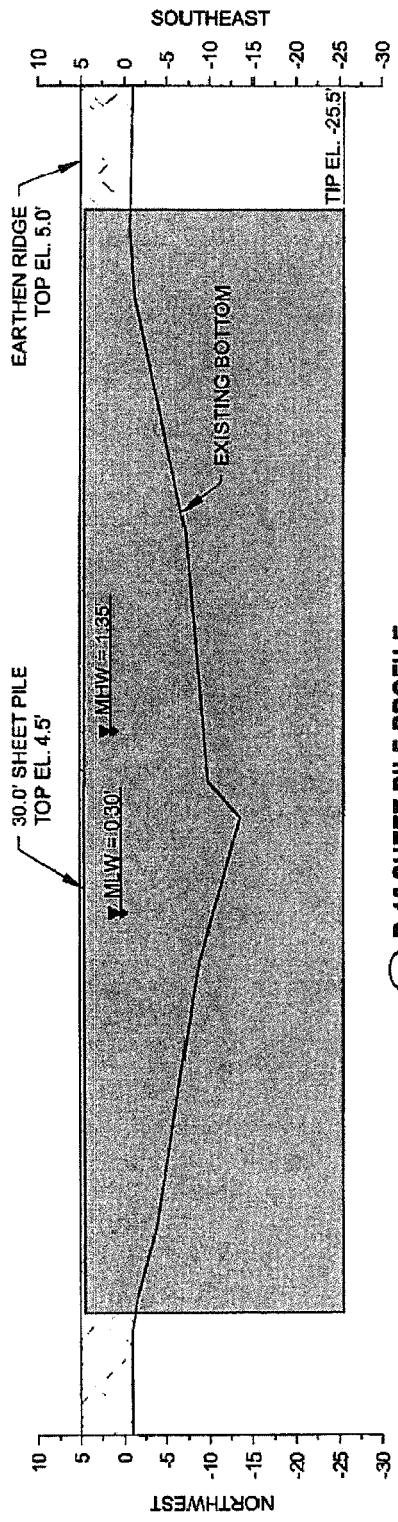
- NOTES:**
1. ALL SHEET PILES SHALL BE P2-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARDED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 5 FOR SHEET PILE LOCATION.

| | | | |
|--|--|---|--------------------------------|
| APPLICATION BY: NATIONAL MARINE FISHERIES SERVICES CIO LSU MILITARY SCIENCE BUILDING, ROOM 286 BATON ROUGE, LOUISIANA 70801 | COASTAL PROTECTION AND RESTORATION AUTHORITY | GRAND LIARD MARSH AND RIDGE RESTORATION | B-14 SHEET PILE CLOSURE DETAIL |
| DRAWN BY: KRISTI CANTU | DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | DATE: NOVEMBER 2011 |
| | | FEDERAL PROJECT NUMBER: | SHEET 22 OF 30 |



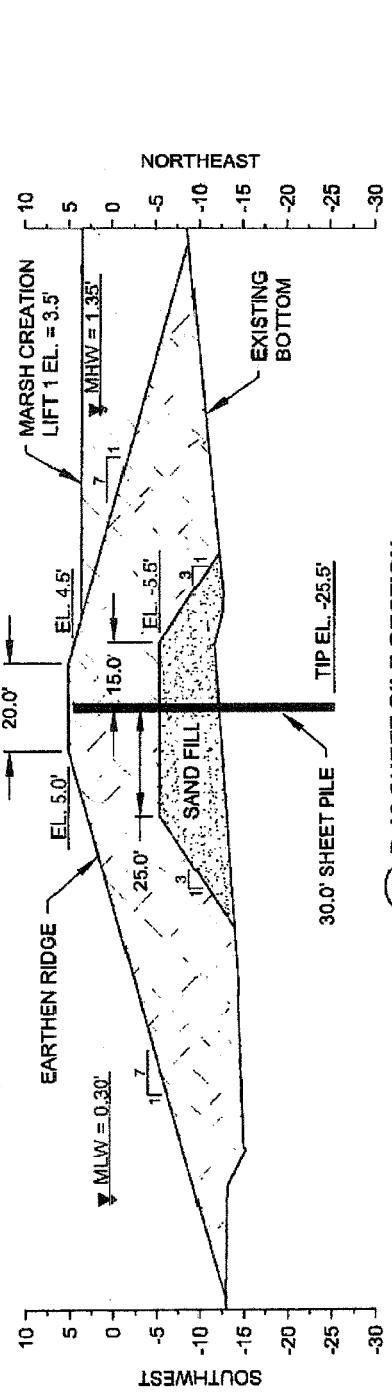






B-16 SHEET PILE PROFILE

**R.F.
28/25**

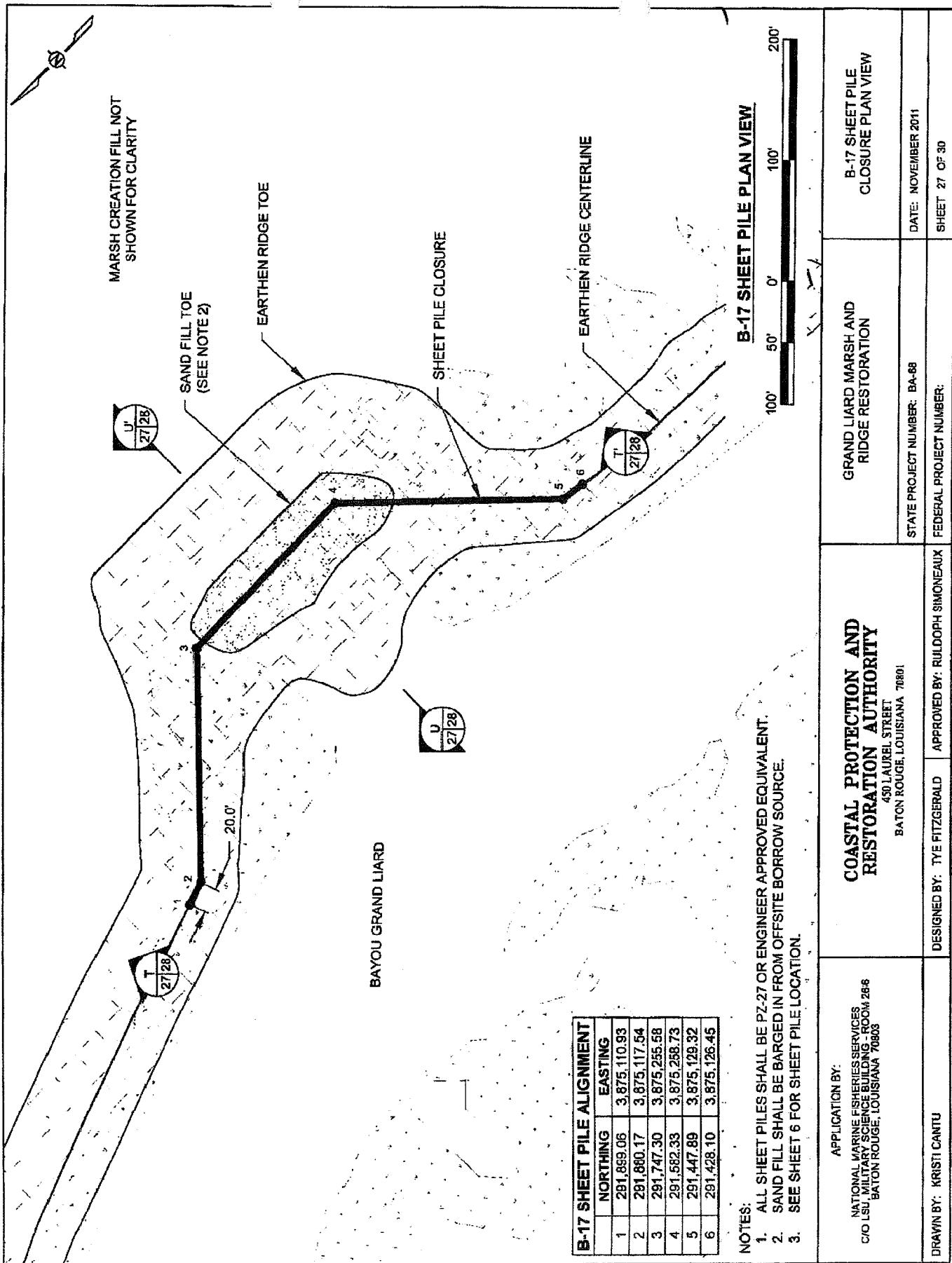


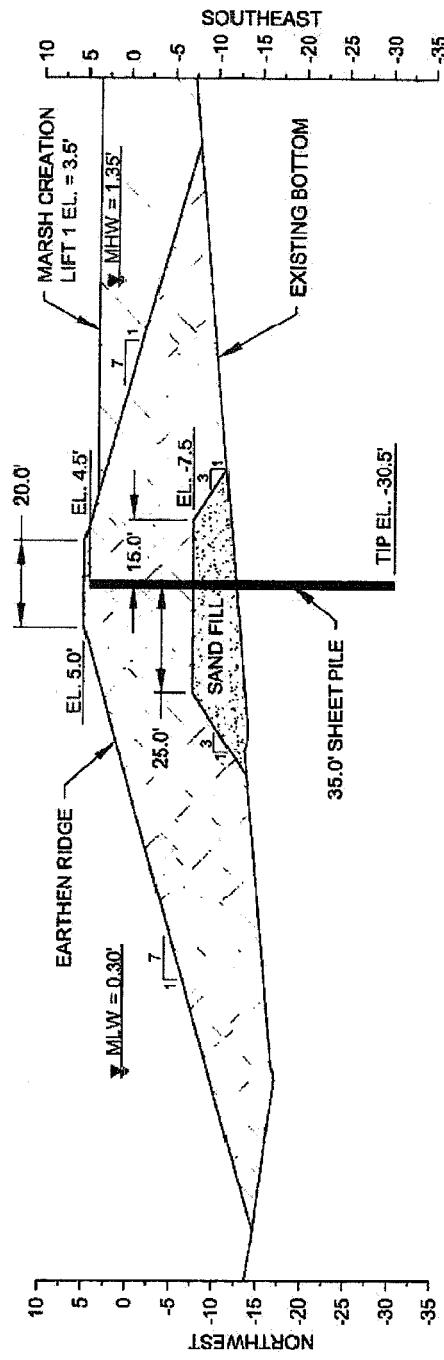
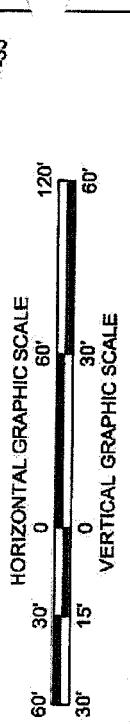
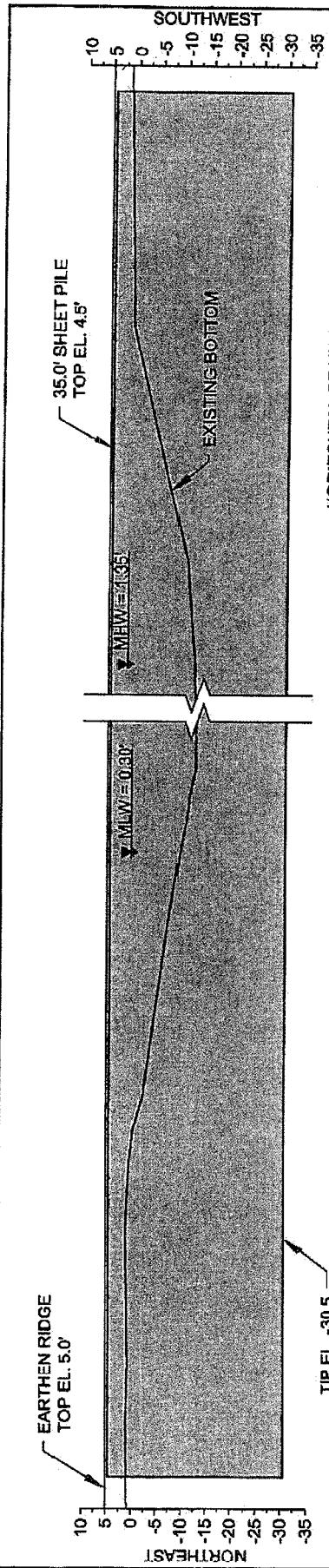
B-16 SHEET PILE SECTION

**S.S.
25/25**

- 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: | COASTAL PROTECTION AND RESTORATION AUTHORITY | GRAND LARD MARSH AND RIDGE RESTORATION | B-16 SHEET PILE CLOSURE DETAIL |
|------------------------|--|--|--------------------------------|
| DRAWN BY: KRISTI CANTU | DESIGNED BY: THE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | FEDERAL PROJECT NUMBER: BA-38 |
| | | | DATE: NOVEMBER 2011 |
| | | | SHEET 26 OF 30 |





| | | |
|-----------------------|--|---|
| NOTES: | 1. ALL SHEET PILES SHALL BE P2-27 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: | COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801 | B-17 SHEET PILE CLOSURE DETAIL |
| DRAWN BY: KRIST GANTU | DESIGNED BY: TYE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX STATE PROJECT NUMBER: BA-68 FEDERAL PROJECT NUMBER: DATE: NOVEMBER 2011 SHEET 28 OF 30 |



MARSH CREATION FILL NOT
SHOWN FOR CLARITY



EARTHEN RIDGE TOE

SAND FILL TOE
(SEE NOTE 2)

20.0'
(TYP.)

SHEET PILE CLOSURE

EARTHEN RIDGE CENTERLINE



BAYOU GRAND LIARD

| B-18 SHEET PILE ALIGNMENT | | | |
|---------------------------|------------|--------------|---------|
| | | NORTHING | EASTING |
| 1 | 293.238.42 | 3,874,819.13 | |
| 2 | 293.216.49 | 3,874,817.48 | |
| 3 | 293.191.08 | 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.

B-18 SHEET PILE PLAN VIEW



B-18 SHEET PILE
CLOSURE PLAN VIEW

GRAND LIARD MARSH AND
RIDGE RESTORATION

COASTAL PROTECTION AND
RESTORATION AUTHORITY

450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

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

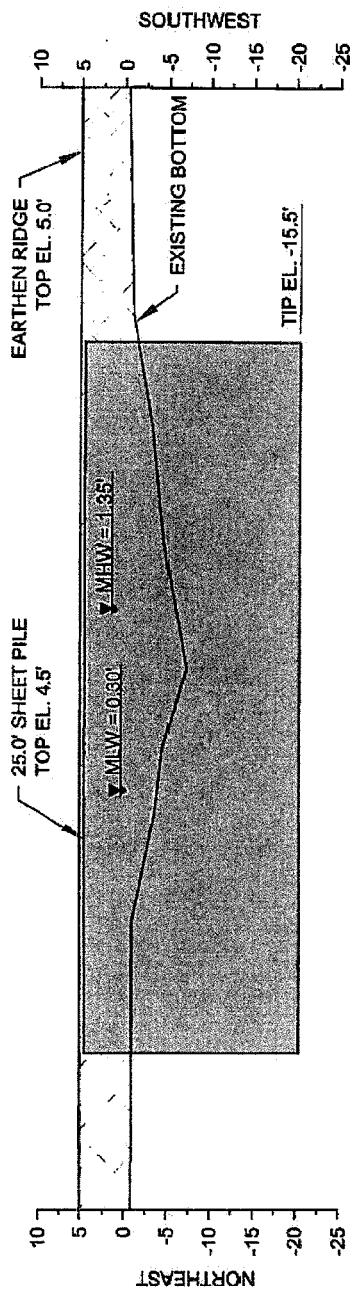
DATE: NOVEMBER 2011

SHEET 28 OF 30

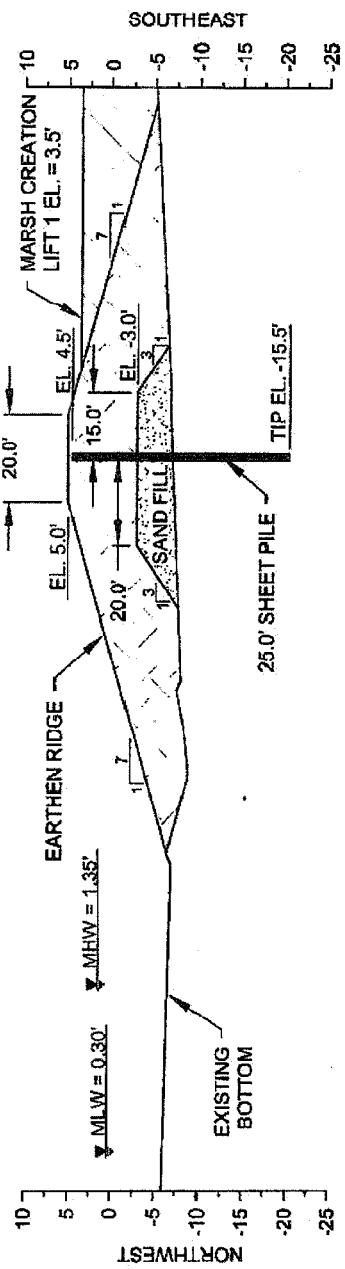
STATE PROJECT NUMBER: BA-68

FEDERAL PROJECT NUMBER:

DRAWN BY: KRISTI CANTU
DESIGNED BY: TYE FITZGERALD
APPROVED BY: RUDOLPH SIMONEAUX

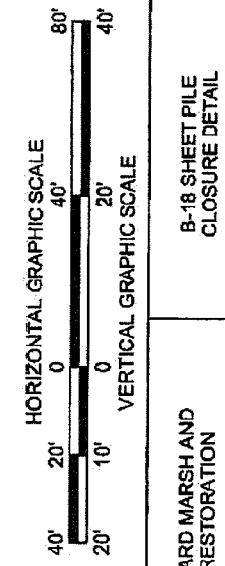


B-18 SHEET PILE PROFILE
(30-29)



B-18 SHEET PILE SECTION
(30-29)

- NOTES:
1. ALL SHEET PILES SHALL BE P2-27 OR ENGINEER APPROVED EQUIVALENT.
 2. SAND FILL SHALL BE BARDED IN FROM OFFSITE BORROW SOURCE.
 3. SEE SHEET 6 FOR SHEET PILE LOCATION.



B-18 SHEET PILE SECTION
(30-29)

| | | | |
|------------------------|---|---|---|
| APPLICATION BY: | 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: TIE FITZGERALD | APPROVED BY: RUDOLPH SIMONEAUX | FEDERAL PROJECT NUMBER: STATE PROJECT NUMBER: BA-68 DATE: NOVEMBER 2011 SHEET 30 OF 30 |

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

| AUTHORIZED EXCAVATIONS & FILLS | | | | | PROPOSED MODIFICATION | | | | CHANGES FROM AUTHORIZED | | | | |
|---|-------------|-------------------------------|--------------|-------------|----------------------------------|--------------------------|--------------|-------------|-----------------------------------|-------------------------|--------------|-------------|--|
| 10 a. PERMITTED EXCAVATIONS | | PROPOSED MODIFIED EXCAVATIONS | | | | CHANGE IN EXCAVATIONS | | | | CHANGES FROM AUTHORIZED | | | |
| Construction Feature | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | |
| Grand Liard East Off Shore Borrow Area | 158 | 5,280,000 | Wetland NVWB | 0 | 158 | 5,280,000 | Wetland NVWB | 0 | 0 | 0 | Wetland NVWB | 0 | |
| Grand Liard West Off Shore Borrow Area | 165 | 4,680,000 | Wetland NVWB | 0 | 165 | 4,680,000 | Wetland NVWB | 0 | 0 | 0 | Wetland NVWB | 0 | |
| Off Shore Dredge Access Channel ¹ | 94 | 80,000 | Wetland NVWB | 0 | 119 | 186,215 | Wetland NVWB | 0 | 25 | 106,215 | Wetland NVWB | 0 | |
| Earthen Ridge Borrow Area | 48 | 467,653 | Wetland NVWB | 10 | 48 | 467,653 | Wetland NVWB | 10 | 0 | 0 | Wetland NVWB | 0 | |
| Containment Dike Borrow Area | 61 | 466,169 | Wetland NVWB | 5 | 61 | 466,169 | Wetland NVWB | 5 | 0 | 0 | Wetland NVWB | 0 | |
| Total Permitted Excavations | 525 | 10,973,822 | | | 550 | 11,080,037 | | | 25 | 106,215 | | | |
| 10 b. FILLS | | | | | PROPOSED MODIFIED FILLS | | | | CHANGE IN FILLS | | | | |
| Construction Feature | Area (acre) | Volume ² (CY) | Habitat Type | Area (acre) | Area (acre) | Volume ² (CY) | Habitat Type | Area (acre) | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | |
| Marsh Creation Areas ³ | 432 | 2,667,377 | Wetland NVWB | 51 | 432 | 2,667,377 | Wetland NVWB | 51 | 0 | 0 | Wetland NVWB | 0 | |
| Earthen Ridge (earthen fill) | 24 | 173,242 | Wetland | 14 | 24 | 173,242 | Wetland | 14 | 0 | 18,902 | Wetland NVWB | 0 | |
| Earthen Ridge (sand fill) | | | | | | | | | 0 | 0 | Wetland NVWB | 0 | |
| Earthen Containment Dikes | 50 | 212,959 | Wetland NVWB | 37 | 50 | 212,959 | Wetland NVWB | 37 | 0 | 0 | Wetland NVWB | 0 | |
| Off Shore Access ⁴ | 93 | 80,000 | NVWB | 93 | 125 | 186,215 | NVWB | 125 | 32 | 106,215 | NVWB | 32 | |
| Total Fills | 599 | 3,135,406 | | | 631 | 3,260,523 | | | 32 | 125,117 | | | |
| CONSTRUCTION EXCAVATIONS | | | | | PROPOSED CONSTRUCTED EXCAVATIONS | | | | CHANGE IN CONSTRUCTED EXCAVATIONS | | | | |
| Construction Feature | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | Area (acre) | Volume (CY) | Habitat Type | Area (acre) | |
| Grand Liard East Borrow Area ⁵ (reqd) | | 3,467,589 | | | | 3,467,589 | | | 3,467,589 | | | | |
| Ridge Fill Borrow Area ⁶ (reqd) | | 350,140 | | | | 350,140 | | | 350,140 | | | | |
| Containment Dikes ⁶ | | 425,918 | | | | 425,918 | | | 425,918 | | | | |
| Off Shore Access Channel ⁷ (outside Marsh Footprint) | | 80,000 | | | | 186,215 | | | 106,215 | | | | |
| Total Construction Excavations | | 4,323,647 | | | | | | | | 4,429,862 | | | |

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.