MOUTH OF PENCHANT CONTINENTAL LAND & FUR CO.

APACHE LOUISIANA MINERALS LLC

SUPERIOR CANAL

APACHE LOUISIANA MINERALS LLC

BAYOU DE CADE REVETMENT, SITES 4 & 5
LOUISIANA LAND & EXPLORATION CO.
LEGEND

- ACCESS DREDGE CHANNEL
- EARTHEN EMBANKMENT-REVENEMENT
- PIPELINE
- SOIL BORING

NOTICE:

If you are engaged in any drilling, trenching, or excavation which may cause injury to any existing or future utility lines, you shall notify the proper authorities in a timely manner.

NOTE:

AERIAL PHOTO DATE - 2005

BENCHMARK

HASSING, 3N 334857, 43 NAWD B3, 4300 NAVD88

BENCHMARK NOT FOUND ON THIS DRAWING

NOTE:

Shown pipelines and utilities are shown on the plans. It is possible that pipelines and utilities may exist that have not been shown. The contractor shall be on the alert for such pipelines and utilities and shall report them immediately to the contracting officer.

NOTE:

The Natural Resources Conservation Service does not guarantee the completeness and accuracy of the data shown. Apparent over-crop has been detailed from maps in the Office of the Parish Clerk of Court or the Tax Assessor, where an apparent property line is shown near the centerline of a channel. Its location is not definite.

"AS-BUILT"
DATUM: ALL HORIZONTAL COORDINATES - NAVD88
ALL ELEVATIONS - NAVD88

LEGEND

- FLOATION / DREDGE CHANNEL
- REVERTMENT
- HORIZONTAL PI
- EARTHEMB EMBANKMENT
- SOIL BORING

NOTE: SEE SHEET 7D FOR SOIL LOG

NOTE: NO EXCAVATION ALLOWED WITHIN 50' OF SHELL PIPELINES

NOTE: FACE OF ROCK REVERTMENT SHALL RE INTO THE EXISTING ROCK LOCATED OVER THE SHELL PIPELINE AS CONCULUSIONS IN BY NRCS

SITE #5 STRUCTURE

REVERTMENT REACH 1

REVERTMENT REACH 2

BAYOU DE CADE

DECAYE BORROW 3

AMENDMENT 5- WIDEN FLOATION CHANNEL TO 80'

REVERTMENT PLAN
REACH 1 & 2

SCALE IN FEET

100
0
100
200
300
400

NOTICE:
48-HOUR BEFORE PLUGGING TO ENSURE UTILITY LINES
NOTES:
1. EXCAVATION IS REQUIRED TO CONSTRUCT THE EARTHEN EMBANKMENT TO THE LINES AND GRADES SHOWN.
2. EXCAVATION FOR FLATNESS IN EXCESS OF THE MATERIAL REQUIRED FOR CONSTRUCTING THE EARTHEN
   EMBANKMENT IS OPTIONAL TO THE CONTRACTOR.
3. SURPLUS MATERIAL MAY BE PLACED ON THE BAYOU SIDE OF THE FLATNESS CHANNEL. SUCH MATERIAL
   SHALL BE PLACED BACK INTO THE ACCESS CHANNEL AT THE END OF CONSTRUCTION.
4. ADDITIONAL MATERIAL SHALL BE TAKEN FROM A DEEPER CUT WITHIN BAYOU DE CADE AT SECTIONS
   WHERE ACCESS CHANNELS EXCAVATION QUANTITIES ARE NOT SUFFICIENT FOR CONSTRUCTING THE
   REQUIRED EARTH EMBANKMENT FOR THE EARTHEN EMBANKMENT.
5. TEMPORARY WARNING SIGNS SHALL BE PLACED AT A MAXIMUM DISTANCE OF 500' C-C.

WORK LIMITS

NO GEOTEXTILE IS REQUIRED FOR REVESTMENT REACH 2

TYPICAL SECTION - REVESTMENT
BAYOU DE CADE SHORELINE

AMENDMENT#5 - WIDEN FLATNESS CHANNEL TO 80'

"AS-BUILT"

NOT TO SCALE

ROCK PLUG - STA 13+40 TO STA 15+40
BAYOU DE CADE -REACH 3
© EARTTHEN EMBANKMENT PROFILE – REACH 3
STA. 0+00 - STA. 20+00

© EARTTHEN EMBANKMENT PROFILE – REACH 3
STA. 20+00 - STA. 39+11

NOTICE:
48 hours before digging
TO LOCATE UTILITY LINES
AMENDMENT*5 - WIDEN FLOTATION CHANNEL TO 80'
AMENDMENT 5 - WIDEN FLOTATION CHANNEL TO 80'

NOTE:
CONTRACTOR SHALL ENSURE BEYOND EXCAVATION TEMPLATES
When borrow quantity is less than required for earth
embankment construction party foot path between revetment
and excavation is not to be disturbed.

NOTICE:
48 HOURS BEFORE DIGGING
CALL 811 TO LOCATE UTILITY LINES
NOTICE:
CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN EMBANKMENT CONSTRUCTION. THIRTY-FOOT BUMU BETWEEN REVETMENT AND EMBANKMENT IS NOT TO BE DISTURBED.

NOTICE:
48 HOURS BEFORE PLACING FOR CLEARANCE OF UTILITY LINES.
AMENDMENT*5- WIDEN FLOTATION CHANNEL TO 80'.
AMENDMENT 5 - WIDEN FLOTATION CHANNEL TO 80'
AMENDMENT-5- WIDEN FLOTATION CHANNEL TO 80'

NOTICE: CONTRACTOR SHALL EXCAVATE BEYOND EXCAVATION TEMPLATE WHEN BORROW QUANTITY IS LESS THAN REQUIRED FOR EARTHEN EMBANKMENT CONSTRUCTION. PARTY DOT DEM. BETWEEN HEAVEMENT AND EXCAVATION IS NOT TO BE DISTURBED.

NOTICE: 48 HOURS BEFORE BEGINNING TO LOCATE UTILITY LINES.

"AS-BUILT"
NOTE:
SEE SHEET 55 FOR SHEET PILE DETAIL

"AS-BUILT"

ISOMETRIC VIEW
SITE 5 - SHEET PILE WALL

STEEL SHEET PILE
MIN. THICKNESS - 0.375 INCHES
MIN. MOMENT OF INERTIA - 76.8 IN^4 / FT. WALL
ASTM A 572 GRADE 50

12" X 50' TIMBER BATTERY PILE @ 15° BATTER

STEEL SHEET PILE CAP
CLEX - 0.65 NAVIGATE

RAILING

BOAT BAY
SITE 5 - TYPICAL ROCK RIPRAP SECTION
BAYOU DE CADE

SITE 5 - SHEETPILE CENTERLINE PROFILE VIEW
BAYOU DE CADE
NOTE:
SEE SHEET 55 FOR SHEETPILE DETAIL

STEEL SHEETPILE

STEEL SHEETPILE CAP
ELEV. 10.8' NAVD88

12" X 50' TIMBER BATTER PILE @ 15' BATTER

WARNING SIGN (BOTH SIDES)

BOAT BAY

12" X 50' TIMBER BATTER PILE @ 15' BATTER

STEEL SHEETPILE

"AS-BUILT"

ISOMETRIC VIEW

SITE 4 - SHEETPILE WALL

STEEL SHEETPILE:
MINIMUM THICKNESS = 0.375 INCHES
MINIMUM MOMENT OF INERTIA = 70.8 IN. • FT. WALL
ASW 4 375 GRADE 50
ISOMETRIC VIEW
BRADY CANAL - SHEETPILE WALL

"AS-BUILT"
ROCK RIPRAP GRADATION

PERCENT LIGHTER BY WEIGHT  POUNDS

100  700
50-100  300
15-50  150
0-15  45

NORTHEAST

15
10
5
0
-5
-10
-15
50
25
0
-25
-50

SOUTHWEST

15
10
5
0
-5
-10
-15

"AS-BUILT"

SECTION VIEW - SHEETPILE D  
BRADY CANAL  43
GATE ATTACHMENT W/ PILES
SIDE VIEW

GATE ATTACHMENT W/ PILES
TOP VIEW

GATE ATTACHMENT
RIGHT VIEW

GATE ATTACHMENT
TOP VIEW

"AS-BUILT"
NOTES:

1. THE MINIMUM WEB AND FLANGE THICKNESS OF SHEET PILES SHALL BE 0.375".
2. MINIMUM MOMENT OF INERTIA IS 76 LB-FT² SHEET, WALL.
3. THE CONTRACTOR SHALL SUBMIT A METHOD OF CONNECTING THE PILE CAP TO THE SHEET PILE AND ALL DRAWINGS AND DOCUMENTS FOR APPROVAL 14 DAYS PRIOR TO FABRICATION.
5. ALL SHEET PILE DIMENSIONS ARE TYPICAL AND ARE SUBJECT TO CHANGE BASED ON MANUFACTURER/SUPPLIER.
6. SHEET PILE WILL BE DRIVEN IN THE THERMAL CONFIGURATION AS SHOWN.
7. ALL HOLES IN THE SHEET PILE SHALL BE DRILLED AND COATING REPAIRED.
8. HOLE 8" X 4" X 3/8" CLIPS ARE TO BE PLACED ON THE MID-SECTION OF EACH PILE AS SHOWN IN THE DRAWINGS.
9. 8" STRIPS OF 2" CONSPICUITY TAPE AT 12" O.C. FOR BOTH VERTICAL FACES OF PILE CAP FOR ENTIRE LENGTH FOR BRADY CANAL STRUCTURE ONLY.

NOTE:

1. THE CONTRACTOR SHALL PROVIDE PILE CAP LENGTHS NO LESS THAN 12' FOR ALL SPLICES.
NOTICE:
48 HOURS BEFORE DIGGING CALL 1-800-258-0002 TO LOCATE UTILITY LINES

ROCK RIPRAP GRADATION

PERCENT LIGHTER BY WEIGHT
100
90-100 50
30-50 100
0-15 50

AMENDMENT 1

TYPICAL SECTION - ROCK RIPRAP DIKE W/ FLOTATION CHANNEL
(NOT TO SCALE)

AMENDMENT 1

ALTERNATIVE METHOD - GEOTEXTILE PLACEMENT
(NOT TO SCALE)
PROFILE - WEST CONTAINMENT DKE

"AS-BUILT"

NOTICE:
48 HOURS BEFORE DIGGING 
CALL 1-888-272-9000 
TO LOCATE UTILITY LINES
PROFILE - EAST CONTAINMENT DIKE

NOTICE:
48 HOURS BEFORE DIGGING CALL 1-888-277-2222 TO LOCATE UTILITY LINES

"AS-BUILT"
MARSH CREATION SIDE

MARSH CREATION
FULL HEIGHT
EL. +2.0 IN SCH BBI

BURROW CANAL TO BE BACKFILLED
WITH DREDGE MATERIAL.

AS REQUIRED

WORK LIMITS

EXISTING BOTTOM

TYPICAL SECTION - EARTHEN CONTAINMENT DIKE

NOT TO SCALE

NOTES:
1. THE CONSTRUCTED SIDE SLOPES FOR THE EARTHEN
   CONTAINMENT DIKE SHALL BE AS REQUIRED TO CONTAIN
   THE DREDGE FILL MATERIAL.

"AS-BUILT"

NOTICE:
48 HOURS BEFORE DIGGING
CALL 1-800-377-3888
TO LOCATE UTILITY LINES
SETTLEMENT PLATE DETAILS
(NOT TO SCALE)

NOTE:
The settlement plate elevation shall be determined before placing rock and at end of construction.

ELEVATION VIEW

PLAN VIEW

TYPICAL ELEVATION

- SIDE SLOPE OF EAST ROCK DIKE = 4:1 FROM
  S1A.7H0 - S1A.7H0.5, TRANSITION TO S1I
  SIDE SLOPE @ S1A.8-8QD TO END. ALL OTHER
  ROCK SECTION SIDE SLOPES ARE 3:1.

"AS-BUILT"
DANGER

1/8" MARINE B/C GRADE VENEER PLYWOOD

SIGN SUPPORT AS APPROVED BY CONTRACTORS SUBMITTAL

ELEV. +9.0 NAVD

TEMPORARY WARNING SIGN DETAILS
TYPE 'A'

DANGER

OBSTRUCTION

DO NOT PROCEED

ELEVATION VIEW

ELEVATION VIEW

WARNING SIGN DETAILS

CONSPICUITY TAPE

ELEV. +9.0 NAVD

PLATE ALUMINUM

12" TIMBER PILE

3/4"x6" PLATE ALUMINUM

1 3/4" x 3" ALUMINUM STRIP

SAME AS SIGN STICK

3/8" x 8" 5/8" LAG SCREW

13 PER SIGN REQUIRED

1/1" 1/4" O.D. 5/8" BUSHINGS

1/8" NAVD

CONSPICUITY TAPE

ELEVATION VIEW

ELEVATION VIEW

CONNECTION DETAILS

ELEVATION VIEW

ELEVATION VIEW

PERMANENT WARNING SIGN DETAILS
TYPE 'B'

NOTE:
1. THE 2" BORDER ON THE WARNING SIGN SHALL BE A REFLECTIVE MATERIAL. REFLECTIVE MATERIAL SHALL BE BROWN OR BLACK. THE PROFILE PATTERN FOR THE WARNING SIGN SHALL BE BLACK. ALL WARNING SIGNS SHALL BE PLACED ON THE SHORELINE AS CONCERNED IN BY THE COIN.
2. "TEMPORARY WARNING SIGNS SHALL BE PLACED AT A MAXIMUM DISTANCE OF 500’ APART.

COAT TOP OF PILE WITH COAL TAR EPOXY PAINT PRIOR TO PLACING CAP
24"x24"x26 GA.
ALUMINUM FLASHING (ATTACH USING 8D. NAILS)

12" TIMBER PILE

TYPICAL TIMBER PILE CAP
(NOT TO SCALE)

"AS-BUILT"
WARNING SIGN DETAILS

PLAN

ELEVATION

SIDE

CONNECTION DETAILS

ELEVATION

SIDE

PERMANENT WARNING SIGN DETAILS

TYPE 'C'

TYPE 'D'

NOTES:
1. SIGNS SHALL BE CONSTRUCTED USING 1/16" PLATE 5052 ALUMINUM.
2. ALUMINUM FLASHING SHALL BE 26 GA ATTACHED USING STAINLESS STEEL NAILS.
3. SEE CONSTRUCTION SPECIFICATION 13-806.
4. TACK WELD ALL THROUGH BOLTS AFTER INSTALLATION TO PREVENT REMOVAL.
5. TEFLOM OR NEOPRENE WASHERS SHALL BE PLACED BETWEEN STEEL PIPE AND ALUMINUM SIGNS.
6. THE SIGN SUPPORTS SHALL BE PAINTED AS SPECIFIED IN CONSTRUCTION SPECIFICATION 82.
7. TACK WELD NUTS TO BOLTS. WHERE APPLICABLE.
# Unified Soil Classification System

## Major Divisions

<table>
<thead>
<tr>
<th>Group</th>
<th>Symbol</th>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravels</td>
<td>Class</td>
<td>GM</td>
<td>Well-graded gravel, gravel-sand mixture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GP</td>
<td>Poorly graded gravel, gravel-sand mixture</td>
</tr>
<tr>
<td>Coarse-Grained Soils</td>
<td></td>
<td>GM</td>
<td>Silty gravel, gravel-sand-silt mixture</td>
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<tr>
<td></td>
<td></td>
<td>GC</td>
<td>Clayey gravel, gravel-sand-clay mixture</td>
</tr>
<tr>
<td>Sands</td>
<td>Class</td>
<td>SW</td>
<td>Well-graded sand, gravely sand</td>
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<tr>
<td></td>
<td></td>
<td>SP</td>
<td>Poorly graded sand, gravely sand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SM</td>
<td>Silty sand, sand-silt mixture</td>
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<tr>
<td></td>
<td></td>
<td>SC</td>
<td>Clayey sand, sand-clay mixture</td>
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<tr>
<td>Fine-Grained Soils</td>
<td></td>
<td>ML</td>
<td>Silty with little or no plasticity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CL</td>
<td>Clayey silt, silt with slight to medium plasticity</td>
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<tr>
<td></td>
<td></td>
<td>CM</td>
<td>Clay, high plasticity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OH</td>
<td>Organic clay of medium to high plasticity</td>
</tr>
<tr>
<td>Highly Organic Soils</td>
<td></td>
<td>PT</td>
<td>Peat, muck, swamp soil</td>
</tr>
</tbody>
</table>

##SOIL PROFILE LEGEND

- **Terrebonne Parish, Louisiana**
- **TE-34**
- **Penchant Basin**

**Revisions**

- **Date:** 12/27/92
- **Drawing Name:** LA276w

**State:** Louisiana

**NRCS:**

- **County:** Terrebonne
- **Contractor:** J. J. Sisson, III
- **Reg. No.:** 0039
- **Registered Professional Engineer:** R. D. Rice