GENERAL NOTES

1. TYPE OF CONSTRUCTION IS CLASSIFICATION II HEAVY CONSTRUCTION SHORELINE PROTECTION.


3. MEAN LOW WATER (MLW) EQUALS 1.1 FT. NAVD 88, AND MEAN HIGH WATER(MHW) EQUALS 19.8 FT. NAVD 88.

4. AERIAL IMAGES USED FOR PROJECT DRAWING BACKGROUNDS ARE EITHER 2005 DOQQ IMAGES OR 2008 AERIALS FLOWN FOR THIS PROJECT. SOURCE OF AERIAL IS NOTED ON EACH DRAWING.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NAVIGATING FROM A NAVIGABLE WATER BODY TO THE SITE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR NAVIGATING WITHIN THE LIMITS OF THE PROJECT SITE AND DREDGING ONLY WITHIN THE LIMITS OF THE FLOTATION AND ACCESS CHANNELS. THE CP, PROJECT ENGINEER OR INSPECTOR SHALL MONITOR EQUIPMENT OPERATIONS DURING CONSTRUCTION.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL LAND OWNERS, UTILITIES, AND PIPELINE OPERATORS FIVE (5) WORKING DAYS PRIOR TO MOBILIZATION. ALL PIPELINES SHALL BE INITIALLY MARKED WITH BUNDLES BY THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN BUNDLES DURING CONSTRUCTION AND SHALL HAVE ADEQUATE NAVIGATION EQUIPMENT ON THEIR VESSELS TO AVOID DREDGING IN RESTRICTED AREAS. PIPELINE OPERATORS KNOWING TO HAVE PIPELINES IN THE VICINITY ARE SHOWN ON ALL PLAN VIEW SHEETS. THE CONTRACTOR SHALL CALL LOUISIANA-ONE-CALL AND PIPELINE SAFETY (225) 342-3417. FIVE (5) WORKING DAYS PRIOR TO MOBILIZATION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THE PIPELINES SHOWN IN THE VICINITY OF THE FLOTTABLE METHODS TO BE USED ON THEIR PIPELINES AND TO NOTIFY THE CONTRACTOR OF ANY TRENCHES USED. NO EXCAVATION IS ALLOWED WITHIN ANY AREA RESTRICTED BY THE PIPELINE COMPANIES AND SET FORTH ON THE PLANS. PIPELINE LOCATIONS SHOWN ON THE PLANS ARE BASED ON SURVEYS PERFORMED FOR NICS IN 2002.

PIPOLINE CONTACT INFORMATION:

ENTERPRISE PRODUCTS (LPG) WILLIAMS PIPELINE SERVICES
CONTACT CONTACT
PH. (800) 508-0829 PH. (800) 440-8415

7. THE PROJECT FEATURES AND QUANTITIES SHOWN ARE BASED ON FIELD SURVEYS PERFORMED IN 2003 FOR THE DESIGN OF THIS PROJECT. ACTUAL FIELD CONDITIONS MAY HAVE CHANGED SINCE THE DESIGN SURVEYS WERE PERFORMED. PRE-CONSTRUCTION SURVEYS, PERFORMED BY THE CONTRACTOR, WILL BE USED BY THE ENGINEER TO UPDATE THESE CONSTRUCTION PLANS. THE ENGINEER WILL USE THESE UPDATED CROSS SECTIONS AS FINAL BASELINE CONDITIONS OF THE TIL AND EXCAVATION AREAS IN THE PLANS PRIOR TO CONSTRUCTION. THE ALIGNMENT FOR THE ROCK BREAKWATER MAY BE REVISED BY THE ENGINEER BEFORE CONSTRUCTION TO REFLECT CHANGES IN THE FIELD CONDITIONS.

8. INITIAL PLACEMENT OF TEMPORARY NAVIGATION SIGNS SHALL BE 10' OUTSIDE OF THE SPoil PLACEMENT. TEMPORARY NAVIGATION SIGNS AND PULPINS SHALL BE REMOVED PRIOR TO MOBILIZATION.

9. ANY DAMAGE TO EXISTING U.S. COAST GUARD NAVIGATION AIDS OR PRIVATE NAVIGATION AIDS SHALL BE REPAIRED BY THE CONTRACTOR TO THE U.S. COAST GUARD STANDARDS AT THE EXPENSE OF THE CONTRACTOR.

10. THE ESTIMATED QUANTITIES SHOWN IN THE SUMMARY OF ESTIMATED QUANTITIES ARE FOR BIDDING PURPOSES ONLY AND CALCULATED ACCORDING TO THE CONDITIONS SURVEYED IN 2003 FOR THE DESIGN OF THIS PROJECT. THE QUANTITIES WERE CALCULATED USING THE END AREA METHOD OF SECTIONS AT THE BEGINNING, END, AND EVERY SURVEY TRANSECT ALONG ROCK BREAKWATER ALIGNMENT. THE ROCK QUANTITIES ASSUMED VARYING RATES OF SETTLEMENT FOR THE BREAKWATERS AS SHOWN IN THE FINAL DESIGN REPORT. AN IN-PLACE UNIT WEIGHT OF 1.85 TONS/CU YD WAS ASSUMED FOR ROCK. ACTUAL QUANTITIES WILL BE BASED ON BARGE DISPLACEMENT MEASUREMENTS. SEE THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. THE OWNER RESERVES THE RIGHT TO ADJUST QUANTITIES HIGHER OR LOWER WITHOUT ADJUSTMENT OF THE UNIT PRICE.

11. AVOID IMPACTS TO EXISTING VEGETATION FOR PROTECTION OF EXISTING VEGETATION, ACCESS TO OR MOVEMENT OUTSIDE OF THE DEFINED PROJECT SITE SHALL GENERALLY BE PROHIBITED WITHIN VEGETATED AREAS FOR PERSONNEL, OR MATERIAL, ACCESS OR STORAGE.

12. CLEARING OF TREES AND WOODY VEGETATION SHALL BE PERFORMED ON ALL AREAS WHERE SUCH MATERIALS ARE WITHIN THE PROPOSED LIMITS OF THE GEOTEXTILE FABRIC TO BE PLACED UNDER THE Dike. MAXIMUM CLEARS SHALL BE 3 FEET BEYOND THE LIMITS OF THE GEOTEXTILE FABRIC. ALL TREES AND WOODY VEGETATION SHALL BE CUT LEVEL WITH THE GROUND SURFACE, IN AREAS WHERE TREES ARE LOCATED IN THE WATER, THOSE TREES AND STUMPS SHALL BE REMOVED SUCH THAT NO WOOD MATERIAL PROJECTS ABOVE THE MUD LINE. ALL MATERIAL CLEARED SHALL BE PLACED ON THE MARSH SIDE OF THE Dike ALIGNMENT. THE MAXIMUM HEIGHT OF DEBRIS DISPOSAL PILE SHALL BE 4' NAVD 88. NO DIRECT PAYMENT WILL BE MADE FOR CLEARING.

13. THE DREDGE MATERIAL FROM FLOTATION CHANNELS MUST BE PERMANENTLY DEPOSITED ON THE MARSH SIDE OF THE Dike ALIGNMENT WHERE POSSIBLE. IN SOME REACHES, PLACEMENT OF THE SPoil BEHIND THE Dike ALIGNMENT MAY NOT BE POSSIBLE DUE TO THE PROXIMITY OF THE EXISTING BANKLINE TO THE Dike ALIGNMENT. IN THESE AREAS, DREDGE MATERIAL FROM FLOTATION CHANNELS SHALL BE TEMPORARILY DEPOSITED ON THE MARSH SIDE OF THE Dike ALIGNMENT. SPoil MATERIAL SHALL NOT BE DEPOSITED OUTSIDE OF THE CONSTRUCTION LIMITS SHOWN ON THE PLANS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. NO SPoil SHALL BE PLACED WITHIN 95 FEET OF THE NAVIGATION FAIRWAY OR WITHIN THE PIPELINE RIGHTS-OF-WAY. ALL SPoil PLACED WITHIN THE Dike STRUCTURAL LIMITS SHALL BE PLACED BACK IN THE FLOTATION CHANNEL AT THE END OF CONSTRUCTION. ALL REQUIRED MAINTENANCE OF THE ACCESS AND FLOTATION CHANNELS SHALL BE PERFORMED AT NO DIRECT PAY.

AS BUILT DRAWING

OFFICE OF COASTAL PROTECTION & RESTORATION
ENGINEERING BRANCH
LA GRACIE, SUITE 100
BATON ROUGE, LOUISIANA 70801

T. B. SMITH & LESHER
ENGINEERING
LA GRACIE, SUITE 100
BATON ROUGE, LOUISIANA 70801

BREACH CLOSURES ALONG THE GULF INTRA-COASTAL WATERWAY (GIWW) IN TERREBONNE PARISH, LA
STATE PROJECT NUMBER: TR-4159H
FEDERAL PROJECT NUMBER: NA
DATE: 8/31/209
SUMMARY OF ESTIMATED QUANTITIES & NOTES

DRAWN BY: KRP
DESIGNED BY: KRP
APPROVED BY: KRP
SHEET 2 OF 10

<table>
<thead>
<tr>
<th>ITEM No.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>BASE BID ESTIMATED QUANTITY</th>
<th>INSTALLATED QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MOBILIZATION &amp; MOBILIZATION</td>
<td>LUMP</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>CONSTRUCTION SURVEYS</td>
<td>LUMP</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>ACCESS AND FLOTATION CHANNELS</td>
<td>LUMP</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>250 LB. CLASS ROCK</td>
<td>TON</td>
<td>83,500</td>
<td>96,348</td>
</tr>
<tr>
<td>5</td>
<td>LIGHTWEIGHT AGGREGATE, ENCASPULATED</td>
<td>CU. YD.</td>
<td>8,000</td>
<td>11,519.86</td>
</tr>
<tr>
<td>6</td>
<td>WOVEN GEOTEXTILE FABRIC</td>
<td>SQ. YD.</td>
<td>60,300</td>
<td>48,504</td>
</tr>
<tr>
<td>7</td>
<td>SETTLEMENT PLATES</td>
<td>EA.</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>TEMPORARY WARNING SIGNS</td>
<td>EA.</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>9</td>
<td>PERMANENT WARNING SIGNS</td>
<td>EA.</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

1. MEAN LOW WATER (MLW) EQUALS 1.1 FT. NAVD 88, AND MEAN HIGH WATER (MHW) EQUALS 19.8 FT. NAVD 88.

4. AERIAL IMAGES USED FOR PROJECT DRAWING REFERENCE ARE EITHER 2005 DOQQ IMAGES OR 2008 AERIALS FLOWN FOR THIS PROJECT. SOURCE OF AERIAL IS NOTED ON EACH DRAWING.
NOTES:
1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTHERN ZONE - NAD83 HPGN DATUM. US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ELEVATIONS ARE BASED ON NAVD 88 US SURVEY FEET (GEOID 99) AS DERIVED FROM PROJECT CONTROL.
3. TOPOGRAPHIC SURVEY DATA ACQUISITION PERFORMED WITH RTK AND CONVENTIONAL SURVEY METHODS.
4. THE DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
5. FINAL SURVEY DATA ACQUISITION WAS PERFORMED MARCH 29, 2010.
NOTES:
1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 H/PXN DATUM. US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ELEVATIONS ARE BASED ON NAVD 88 US SURVEY FEET (SGVD96) AS DERIVED FROM PROJECT CONTROL.
3. TOPOGRAPHIC SURVEY DATA ACQUISITION PERFORMED WITH RTK AND CONVENTIONAL SURVEY METHODS.
4. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
5. FINAL SURVEY DATA ACQUISITION WAS PERFORMED MARCH 25, 2010.

LEGEND
- FINAL SURVEY CROSS-SECTION
- DIKE TEMPLATE
- NAT GROUND

PREPARED BY: HYDROTELLA TECHNOLOGIES, LLC - 1129 HUVAL LANE, BREWS BRIDGE, LA. 70517

Office of Coastal Protection & Restoration
Engineering Branch
1224 East Canal Street
Bacon Bridge, Louisiana 70091

Breach Closures Along the Gulf Intracoastal Waterway (GIWW) in Terrebonne Parish, LA

Prepared for: Office of Coastal Protection & Restoration

State Project No.: 15-018N

Federal Project No.: NA

Date: 02/29/08

Sheet: 1 of 30
NOTES:
1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE NETWORK DATUM, US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ELEVATIONS ARE BASED ON NAVD 88 US SURVEY FEET (GEOD 89) AS DERIVED FROM PROJECT CONTROL.
3. TOPOPHANIC SURVEY DATA ACQUISITION PERFORMED WITH RTK AND CONVENTIONAL SURVEY METHODS.
4. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
5. FINAL SURVEY DATA ACQUISITION WAS PERFORMED MARCH 28, 2010.

LEGEND
- FINAL SURVEY CROSS-SECTION
- DIKE TEMPLATE
- NATURAL GROUND
NOTES:
1. A MINIMUM OF TWO TEMPORARY WARNING SIGNS SHALL BE PLACED AT OUTLINE AS APPROVED BY THE ENGINEER. SPACING SHALL NOT EXCEED 500'. SEE SHEET 22 FOR WARNING SIGN DETAILS.
2. OUT-IN LOCATIONS FOR FLATTOP ACCESS CHANNEL EXCAVATION MAY BE RELOCATED AS PROVIDED FOR IN THE SPECIFICATIONS.
3. NO SPoil SHALL BE PLACED WITHIN 50 FEET OF THE DW 1 NAVIGATION PADDY OR WITHIN PIPELINE RIGHTS-OF-WAY. SPoil SHALL BE PLACED BETWEEN THE FLATTOP CHANNEL AND THE NAVIGATION PADDY OR BETWEEN THE DW 1 AND THE BANKLINE. IF PLACEMENT IN THESE AREAS IS NOT POSSIBLE, THE SPoil MAY BE PLACED IN PREVIOUSLY EXCAVATED FLATTOP CHANNELS.
4. A COMPOSITE DIkE SECTION IS PLACED REQUIRED FROM REVIDED STA ONE TO STA 4.120. 5.000 SEGMENT NO. 2A. SEE SHEET 24 FOR DETAILS.
5. SEE SHEET 24 FOR BASELINE, BORING, SETTLEMENT PLATE, AND WARNING SIGN COORDINATES.

**LEGEND**
- REVISED DIKE ALIGNMENT
- BASELINE ALIGNMENT P.I.
- PROJECT BASELINE & DIKE CENTERLINE
- PIPELINE
- TEMPORARY SPoil DISPOSAL
- FLOTATION / ACCESS DREDGING
- SOIL BORING NUMBER & LOCATION
- SETTLEMENT PLATE
- MARSH
- EXISTING CONTOUR LINE
- TREE LINE
- BANK LINE
- TOE OF DIKE
- 100' 50' 0' 100' 200'
Profile View of Revised Centerline

NOTES:
1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 HPGR DATUM. US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ELEVATIONS ARE BASED ON NAVD 88 US SURVEY FEET (GECID 95) AS DERIVED FROM PROJECT CONTROL.
3. TOPOGRAPHIC SURVEY DATA ACQUISITION PERFORMED WITH RTK AND CONVENTIONAL SURVEY METHODS.
4. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
5. FINAL SURVEY DATA ACQUISITION WAS PERFORMED APRIL 14, 2010.

LEGEND
- - - - FINAL DIKE CENTERLINE
| | | | DIKE TEMPLATE |
| | | | BD SURVEY |

ASBUILT DRAWING
PREPARED BY: HYDROTECHNOLOGIES, LLC. 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70517

OFFICE OF COASTAL PROTECTION & RESTORATION
ENGINEERING BRANCH
92 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

BREACH CLOSURES ALONG THE GULF INTRACOASTAL WATERWAY (GICW)

DIKE CENTERLINE PROFILE SEGMENT NO. 2A

T. BAKER SMITH

STATE PROJECT NUMBER: 16-0161
FEDERAL PROJECT NUMBER: NA
DATE: 03/30/20
1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAVD 88 HIGH DATUM. US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.

2. ELAVATIONS ARE BASED ON NAVD 88 US SURVEY FEET - NAVD 88 AS DERIVED FROM PROJECT CONTROL.

3. TOPOGRAPHIC SURVEY DATA ACQUISITION PERFORMED WITH RTK AND CONVENTIONAL SURVEY METHODS.

4. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.

5. FINAL SURVEY DATA ACQUISITION WAS PERFORMED APRIL 14, 2010.

LEGEND
- FINAL DIKE CROSS-SECTIONS
- DIKE TEMPLATE
- BO SURVEY
1. A minimum of two temporary warning signs shall be placed at cut-ins as approved by the Engineer. Spacing shall not exceed 500'. See Sheet 25 for warning sign details.

2. Cut-in locations for flotation access channel excavation may be relocated as provided for in this specification.

3. No spoil shall be placed within 50 feet of the GWY navigation fairway or within pipeline rights-of-way. Spoil shall be placed between the flotation channel and the navigation fairway or between the dike and the bank line. Placement in these areas is not possible. The spoil may be placed in previously excavated flotation channels.

4. A composite dike section of required for revised STA 64+28 60+00 to STA 94+90 70+90 of segment 3B. See Sheet 24 for details.

5. The GWY structure limit line is beyond the limits of this plan sheet. See Sheets 5 for more information.

NOTE:
1. TREES WITHIN THE FOOTPRINT OF THE DIKE SHALL BE REMOVED AND PLACED ON THE MARSH SIDE OF THE STRUCTURE.
2. THE BERM DISTANCE SHALL BE 30' EXCEPT FOR THE FOLLOWING REACH WHICH SHALL BE 40' Segment 6 STA. 19+00 TO STA. 34+00.
3. THE DREDGE MATERIAL FROM FLOTATION CHANNELS MUST BE PERMANENTLY DEPOSITED ON THE MARSH SIDE OF THE DIKE ALIGNMENT WHERE POSSIBLE. IN SOME REACHES, PLACEMENT OF THE SPoil BEYOND THE DIKE ALIGNMENT MAY NOT BE POSSIBLE DUE TO THE PROXIMITY OF THE EXISTING BANKLINE TO THE DIKE ALIGNMENT. IN THESE AREAS, DREDGE MATERIAL FROM FLOTATION CHANNELS SHALL BE TEMPORARILY DEPOSITED ON THE GWW SIDE OF THE ACCESS CHANNEL. SPoil THAT IS PLACED TOWARDS THE GWW CHANNEL CENTERLINE SHALL BE BACK FILLED INTO THE ACCESS CHANNEL AFTER CONSTRUCTION OF THE DIKE IS COMPLETE. SPoil THAT IS PLACED ON THE MARSH SIDE OF THE DIKE SHALL BE PlACED ONLY IN OPEN WATER, AND TO THE ELEVATION TolerANCES SHOWN IN THE TYPICAL SECTION. NO SPoil SHALL BE PLACED BEYOND THE EXISTING BANK LINE OR ON EXISTING VEGETATED MARSHES.
4. FOR THE PURPOSE OF SPoil PLACEMENT BEHIND THE DIKE, THE EXISTING BANK LINE SHALL BE DEFINED AS THE POINT WHERE WATER MEETS LAND AT MEAN WATER ELEVATION.
5. THE CONTRACTOR WILL BE ALLOWED TO PLACE SPoil NEAR TREES AND WOODY SHRUBS THAT ARE LOCATED IN OPEN WATER BETWEEN THE EXISTING BANKLINE AND THE DIKE.