

## **Section 408 Requests Engineering Criteria and Requirements**

- Sheets 1 to 9** - These nine sheets address surface crossings of both river and hurricane levees by utilities and pipelines, and penetrations of floodwalls by utilities and pipelines
  
- Sheet 10** - Power Line Service, Crossing Over Levee
  
- Sheet 11** - Limits of Permissible Excavation in River, Mississippi River
  
- Sheet 12** - Limits of Permissible Stockpile on Riverbanks
  
- Sheet 13** - Limits of Permissible River Side Borrow Pits, Mississippi and Atchafalaya Rivers
  
- Sheet 14** - USACE Levee Standards, Concrete Slope Pavement Details, Louisiana
  
- Sheet 15** - Repair Procedures Required when Penetrating Revetments with Piles, Caissons, and/or Pile Clusters
  
- Sheet 16** - Permit Requirements for Construction of Utilities (Piers, Dolphins, Bulkheads, Pilings, Wharves, and Other Structures Adjacent to Authorized Navigation Channels)
  
- Sheet 17** - Permit Requirements for Construction of Utilities across Navigation Channels Having Less Than 30' of Depth
  
- Sheet 18** - Permit Requirements for Construction of Utilities, Mississippi River
  
- Sheet 19** - Permit Requirements for Construction of Utilities Based on May 2010 Criteria (Atchafalaya Basin Main Channel)
  
- Sheet 20** - Permit Requirements for Construction of Utilities for May 2010 Criteria (Calcasieu River)
  
- Sheet 21** - Gulf Intracoastal Waterway, Permit Requirements for Constructing Bulkheads, Structures, Slips, etc., along Algiers Navigation Canal
  
- Letter 1** - General Criteria for Pipeline and Utility Line Burial in Waterways within the New Orleans District, Corps of Engineers (3 page letter with 1 enclosure)









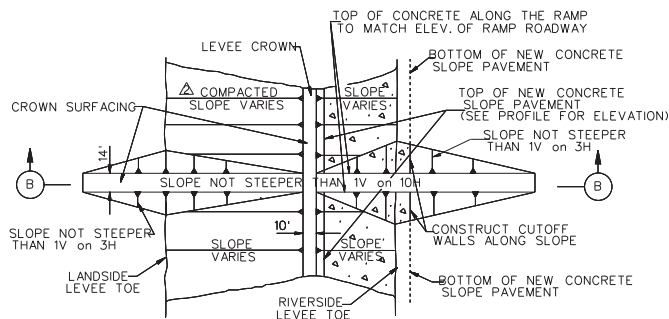
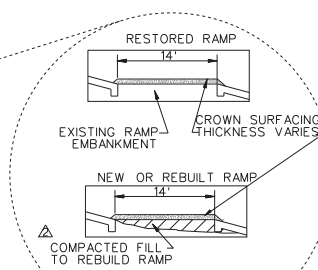
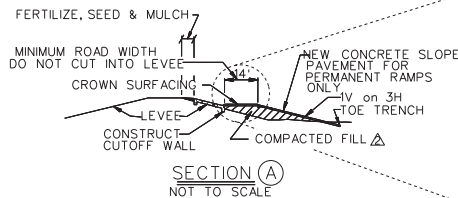
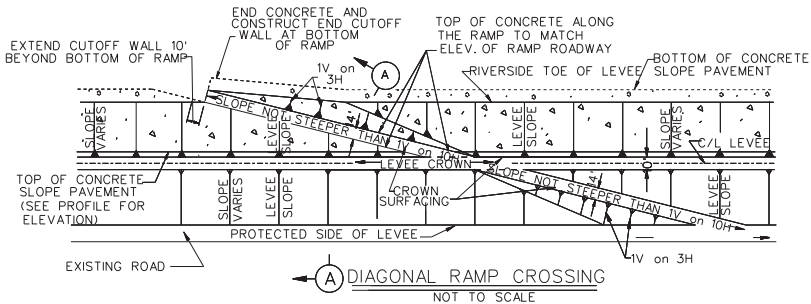




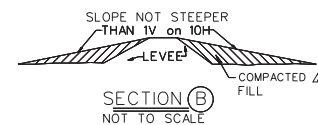








PERPENDICULAR RAMP CROSSING  
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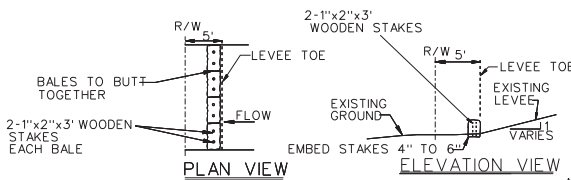


**EMBANKMENT REQUIREMENTS**

COMPACTED FILL: (LEVEE ACCESS ROADS AND FOOTINGS)  
 THE MATERIALS FOR COMPACTED FILL SHALL BE PLACED OR SPREAD IN LAYERS, THE FIRST OR BOTTOM LAYER AND THE LAST TWO LAYERS NOT MORE THAN 6 INCHES IN THICKNESS AND ALL LAYERS BETWEEN THE FIRST AND THE LAST TWO LAYERS NOT MORE THAN 12 INCHES IN THICKNESS PRIOR TO COMPACTION. THE FIRST AND EACH SUCCESSIVE LAYER OF COMPACTED FILL MATERIAL SHALL BE COMPACTED TO AT LEAST 90 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR DENSITY) AT A MOISTURE CONTENT WITHIN THE LIMITS OF PLUS 5 TO MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT DETERMINED FROM THE STANDARD PROCTOR DENSITY TEST ASTM D 698.

**NOTES:**

1. A 10' MIN. DISTANCE (OR AS OTHERWISE REQUIRED) BETWEEN THE LEVEE TOE AND THE PIPELINE SUPPORT IS REQUIRED TO AVOID PENETRATION OF CONCRETE SLOPE PAVEMENT.
2. CONCRETE SLOPE PAVEMENT IS REQUIRED WHEN SPREAD FOOTINGS REST ON LEVEE SLOPE. PAVEMENT MUST EXTEND 5' EACH SIDE OF FOOTINGS.
3. IN ABSENCE OF FOOTING ON LEVEE, LANDSIDE SLOPE PAVING WILL NOT BE REQUIRED. RIVERSIDE SLOPE PAVING WILL BE REQUIRED WHEN NECESSARY FOR EROSION CONTROL.
4. SMOOTH TRANSITIONS SHALL BE CONSTRUCTED BETWEEN THE LEVEE ENLARGEMENT AND THE EXISTING LEVEE.
5. ALL FRESH FILLS SHALL BE SODDED OR FERTILIZED AND SEEDDED AND SHALL BE MAINTAINED UNTIL A HEALTHY GROWTH IS OBTAINED.
6. THE CROWN OF THE ENLARGED LEVEE AND THE LEVEE ACCESS RAMPS SHALL BE SURFACED WITH CRUSHED STONE (7" IN THICKNESS, (LOOSE MEASUREMENT) FOR EXISTING CROWN AND RAMPS AND 9" FOR NEW CONSTRUCTION) FOR THE FULL WIDTH (10' MIN.) AND LENGTH OF THE ENLARGED LEVEE OR RAMP. THE CRUSHED STONE SURFACING SHALL MEET THE REQUIREMENTS OF LSSRB SECTION 1003.04 (a), 2000 EDITION.
7. SEE NOTE 7, DRAWING 2 FOR FILL AND COMPACTION REQUIREMENTS.
8. A PIPELINE MARKER SHALL BE PLACED AND MAINTAINED AT EACH LEVEE TOE IN LINE WITH THE PIPELINE CROSSING AND INDICATE OWNER, SIZE, NUMBER OF LINES, PRODUCT AND ADDRESSES FOR CONTACTING OWNER.



BALED HAY EROSION CONTROL  
NOT TO SCALE

NOTE:  
 AFTER REMOVAL OF HAYBALES, FERTILIZE, SEED AND MULCH THE AREA OCCUPIED BY THE HAYBALES AND AREAS DISTURBED AS A RESULT OF REMOVING THE HAYBALES.

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
 CORPUS ENGINEERING CENTER  
 NEW ORLEANS, LA 70115  
 DESIGNED BY: [Name] DATE: [Date]  
 CHECKED BY: [Name] DATE: [Date]  
 SCALE: [Scale]  
 SUBMITTED BY: [Name] DATE: [Date]  
 DESIGN FILE NAME: [Name] PROJECT NUMBER: [Number]  
 DESIGN FILE NUMBER: [Number] DRAWING NUMBER: [Number]  
 CALCULATION NO.: [Number]  
 DATE: [Date]

PIPELINE CROSSINGS OVER LEVEES AND FLOODWALLS  
 SURFACE CROSSINGS  
 TYPICAL FOR RIVER LEVEES  
 MBR, INER, ATOH, INER, AND RED RIVER LEVEES

FILE NUMBER  
 H-8-29027  
 DWG. 6 OF 7





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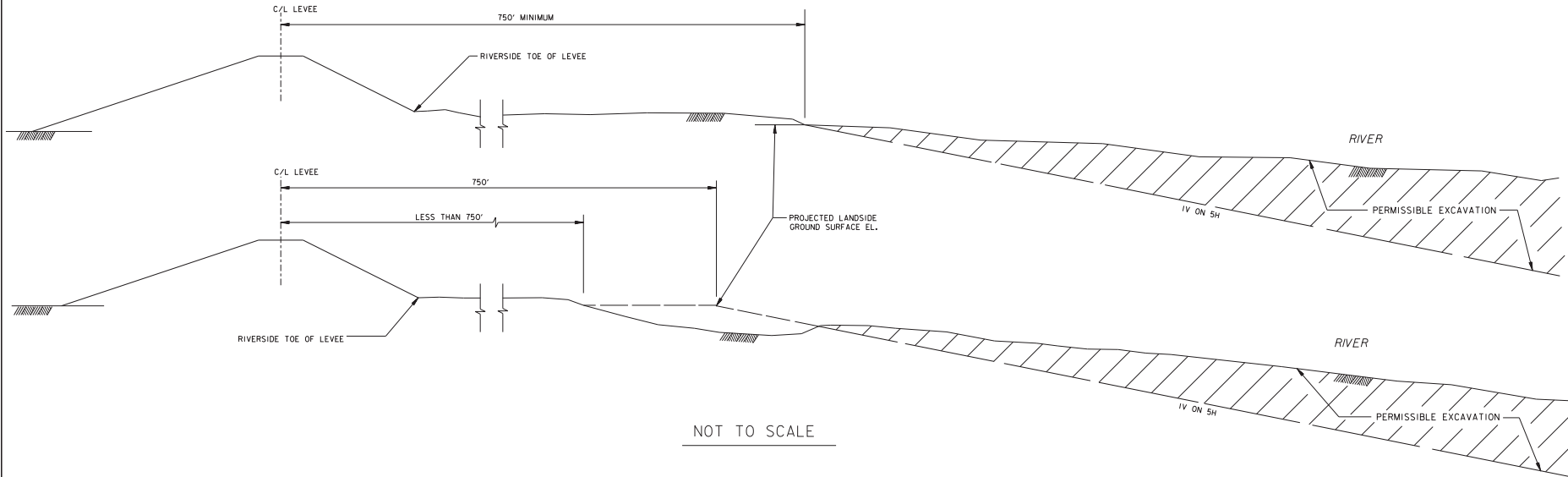
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LANDSIDE

RIVERSIDE



NOT TO SCALE

NOTES:

1. NORMALLY, DREDGING WILL NOT BE PERMITTED CLOSER THAN 4,000 FEET TO THE UPSTREAM SIDE OF BRIDGES CROSSING THE MISSISSIPPI RIVER.
2. EXCAVATION MADE WITHIN THE PERMISSIBLE AREA SHALL HAVE AVERAGE SLOPES NOT STEEPER THAN 1 ON 5. BOX CUTS ARE PERMITTED TO A MAXIMUM DEPTH OF 6 FEET.
3. EXCAVATION SHALL PROCEED FROM THE LANDSIDE TO THE RIVERSIDE LIMITS OF EXCAVATION TO MINIMIZE THE POSSIBILITY OF AN "OVERBURDEN FAILURE" OF THE BANK.

LIMITS OF PERMISSIBLE EXCAVATION IN RIVER



U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

Sheet 11

DRAWN BY: PHIL MARCHESE	PLOT SCALE: 1" = 10'	PLOT DATE: X	ICADD FILE: 491956.01.dgn
	DATE: MAY 2002	FILE NO. H-8-45755	

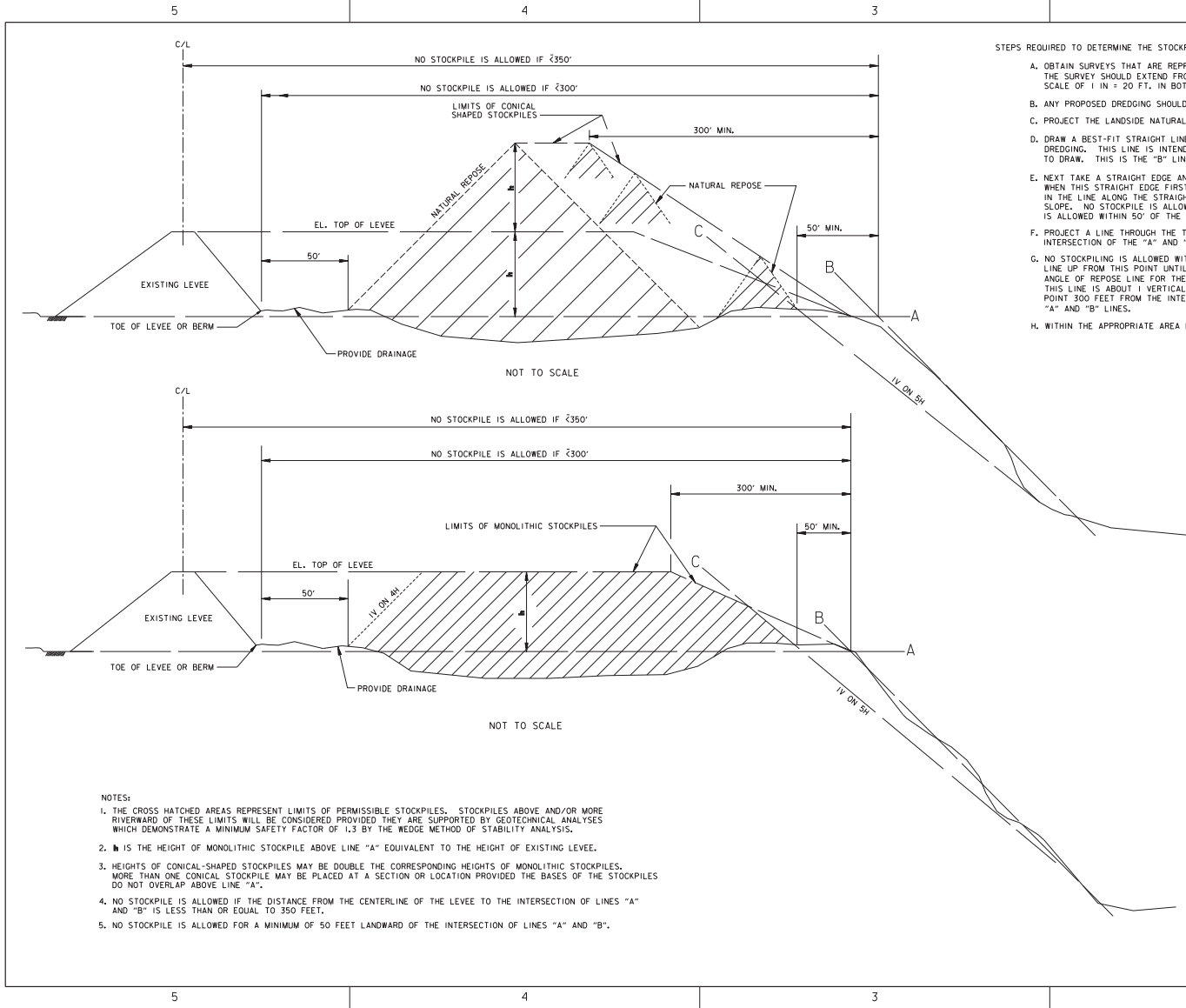
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STEPS REQUIRED TO DETERMINE THE STOCKPILE LIMITS:

- A. OBTAIN SURVEYS THAT ARE REPRESENTATIVE OF ALL CONDITIONS THAT EXIST AT THE SITE, PERFORMED BY A REGISTERED LAND SURVEYOR. THE SURVEY SHOULD EXTEND FROM THE LANDSIDE LEVEE TOE TO THE (UNDERWATER) TOE OF THE RIVERBANK SLOPE, AND BE PLOTTED TO A SCALE OF 1 IN = 20 FT. IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS.
- B. ANY PROPOSED DREDGING SHOULD BE SUPERIMPOSED ON THE ABOVE SURVEY CROSS-SECTION. REFER TO STANDARD DRAWING H-8-45755.
- C. PROJECT THE LANDSIDE NATURAL GROUND ELEVATION AT THE LEVEE TOE HORIZONTAL TOWARDS THE RIVER. THIS DETERMINES THE "A" LINE.
- D. DRAW A BEST-FIT STRAIGHT LINE THROUGH THE POINTS OF THE RIVERBANK SURVEY CROSS-SECTION, TAKING INTO ACCOUNT ANY PROPOSED DREDGING. THIS LINE IS INTENDED TO REPRESENT THE AVERAGE SLOPE FROM TOP TO TOE OF THE RIVERBANK, AND REQUIRES JUDGEMENT TO DRAW. THIS IS THE "B" LINE.
- E. NEXT TAKE A STRAIGHT EDGE ANGLED TO A 1 VERTICAL ON 5 HORIZONTAL SLOPE AND SLIDE THIS FROM THE LEVEE TOWARDS THE "B" LINE. WHEN THIS STRAIGHT EDGE FIRST TOUCHES ANY POINT OF THE SURVEY CROSS-SECTION, TAKING INTO ACCOUNT ANY PROPOSED DREDGING, DRAW IN THE LINE ALONG THE STRAIGHT EDGE. THIS IS THE "C" LINE, WHICH IS TANGENT TO THE RIVERBANK AND/OR PROPOSED DREDGING ON A 1 ON 5 SLOPE. NO STOCKPILE IS ALLOWED RIVERWARD OF THE INTERSECTION OF THE "C" LINE AND THE NATURAL GROUND. FURTHERMORE, NO STOCKPILE IS ALLOWED WITHIN 50' OF THE INTERSECTION OF THE "A" AND "B" LINES.
- F. PROJECT A LINE THROUGH THE TOP OF THE LEVEE TOWARDS THE RIVER AND PARALLEL TO THE "A" LINE, STOPPING AT A POINT 300 FEET FROM THE INTERSECTION OF THE "A" AND "B" LINES. DRAW A STRAIGHT LINE FROM THIS POINT TO THE POINT OF INTERSECTION OF THE "A" AND "B" LINES.
- G. NO STOCKPILING IS ALLOWED WITHIN 50 FEET OF THE RIVERSIDE LEVEE TOE. FOR MONOLITHIC STOCKPILES, DRAW A 1 VERTICAL ON 4 HORIZONTAL LINE UP FROM THIS POINT UNTIL IT INTERSECTS THE LINE THROUGH THE TOP OF THE LEVEE. FOR CONICAL SHAPED STOCKPILES, DRAW A NATURAL ANGLE OF REPOSE LINE FOR THE MATERIAL TO BE STOCKPILED UP FROM THIS POINT TO TWICE THE HEIGHT OF THE LEVEE (2H). FOR SANDY MATERIAL, THIS LINE IS ABOUT 1 VERTICAL ON 2 HORIZONTAL. FROM THIS POINT AT A HEIGHT OF 2H, PROJECT A HORIZONTAL LINE TOWARDS THE RIVER TO A POINT 300 FEET FROM THE INTERSECTION OF "A" AND "B". DRAW A STRAIGHT LINE FROM THIS POINT TO THE POINT OF INTERSECTION OF THE "A" AND "B" LINES.
- H. WITHIN THE APPROPRIATE AREA DETERMINED BY THE ABOVE, DRAW IN YOUR PROPOSED STOCKPILE CONFIGURATION.

NOTES:

1. THE CROSS HATCHED AREAS REPRESENT LIMITS OF PERMISSIBLE STOCKPILES. STOCKPILES ABOVE AND/OR MORE RIVERWARD OF THESE LIMITS WILL BE CONSIDERED PROVIDED THEY ARE SUPPORTED BY GEOTECHNICAL ANALYSES WHICH DEMONSTRATE A MINIMUM SAFETY FACTOR OF 1.3 BY THE WEDGE METHOD OF STABILITY ANALYSIS.
2. H IS THE HEIGHT OF MONOLITHIC STOCKPILE ABOVE LINE "A" EQUIVALENT TO THE HEIGHT OF EXISTING LEVEE.
3. HEIGHTS OF CONICAL-SHAPED STOCKPILES MAY BE DOUBLE THE CORRESPONDING HEIGHTS OF MONOLITHIC STOCKPILES. MORE THAN ONE CONICAL STOCKPILE MAY BE PLACED AT A SECTION OR LOCATION PROVIDED THE BASES OF THE STOCKPILES DO NOT OVERLAP ABOVE LINE "A".
4. NO STOCKPILE IS ALLOWED IF THE DISTANCE FROM THE CENTERLINE OF THE LEVEE TO THE INTERSECTION OF LINES "A" AND "B" IS LESS THAN OR EQUAL TO 350 FEET.
5. NO STOCKPILE IS ALLOWED FOR A MINIMUM OF 50 FEET LANDWARD OF THE INTERSECTION OF LINES "A" AND "B".

LIMITS OF PERMISSIBLE STOCKPILE ON RIVERBANKS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
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NEW ORLEANS, LOUISIANA

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Sheet 12

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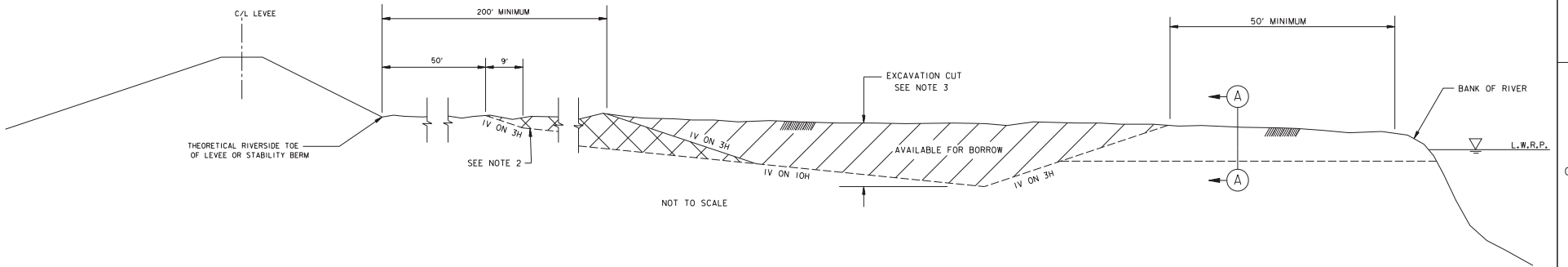
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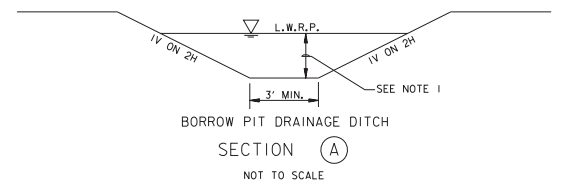
LANDSIDE

RIVERSIDE



NOTES:

1. A BORROW PIT DRAINAGE DITCH SHOULD BE EXCAVATED THRU THE RIVER BANK. THE DITCH SHALL HAVE A BOTTOM WIDTH OF 3 FEET AND 1 ON 2 SIDE SLOPES. THE BOTTOM ELEVATION OF THE DITCH SHALL BE A MINIMUM OF 3 FEET BELOW THE LOW WATER REFERENCE PLANE OF THE RIVER.
2. MATERIAL AVAILABLE FOR BORROW IS EXCAVATED FROM A PIT STARTING 200' FROM THE THEORETICAL LEVEE OR STABILITY BERM TOE WITHOUT THE BENEFIT OF A SOIL STABILITY ANALYSIS TO INSURE LEVEE FOUNDATION INTEGRITY. THE APPLICANT SHALL BE ALLOWED TO REMOVE BATTERED SAND STARTING 50' FROM THE THEORETICAL LEVEE OR STABILITY BERM TOE PROVIDED THE APPLICANT SUBMITS A SOILS STABILITY ANALYSIS JUSTIFYING THAT THE FACTOR OF SAFETY OF THE LEVEE FAILING INTO THE PIT IS EQUAL TO OR GREATER THAN 1.3.
3. THE ALLOWABLE EXCAVATION DEPTH OF THE BORROW PIT SHALL BE DETERMINED BY THE COE AS BASED UPON MAINTAINING ADEQUATE LEVEE FOUNDATION STABILITY. THE MAXIMUM DEPTH OF ANY PIT SHALL BE NO GREATER THAN 20 FEET.



REVISIONS			
SYMBOL	DESCRIPTION	DATE	APPROVED
	ADDED "ATCHAFALAYA" TO TITLE	12/06	E.J.P.

MISSISSIPPI AND ATCHAFALAYA RIVERS  
LIMITS OF PERMISSIBLE  
RIVER SIDE BORROW PITS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS  
NEW ORLEANS, LOUISIANA

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Sheet 13

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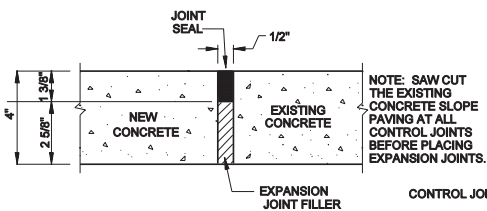
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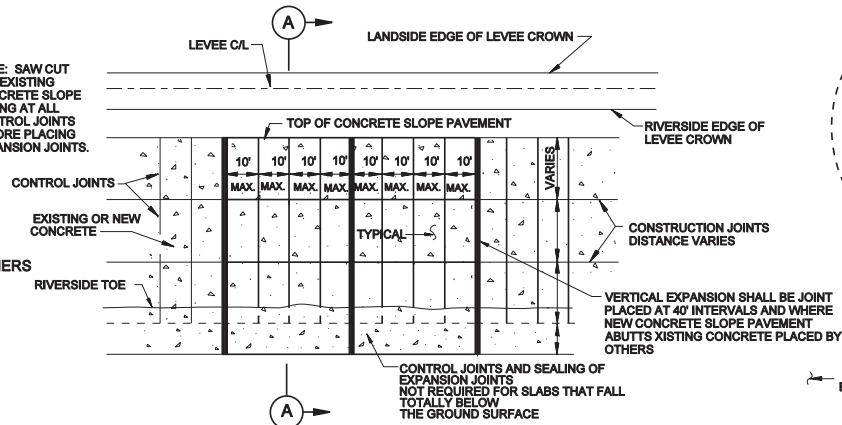
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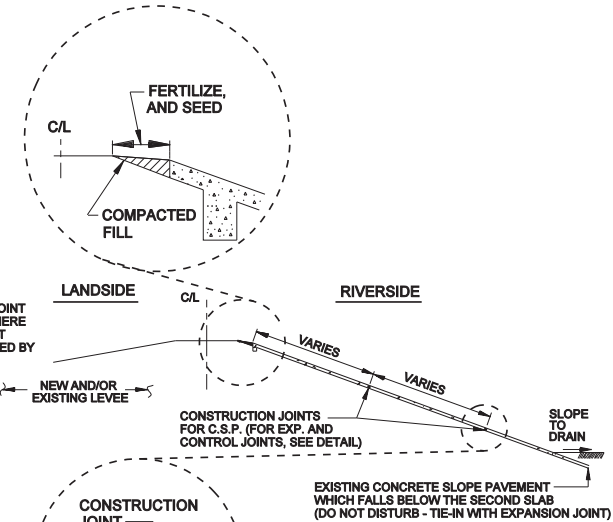
**TRANSITION DETAIL**

DETAIL OF TIE IN WITH EXISTING CONCRETE SLOPE PAVEMENT PLACED PREVIOUSLY BY OTHERS  
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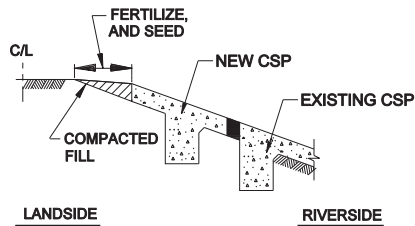
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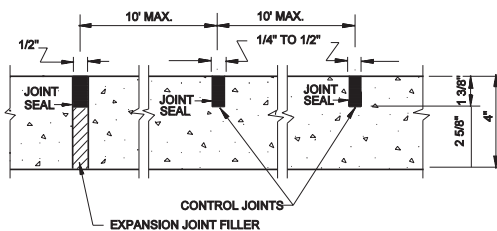


**SECTION A**

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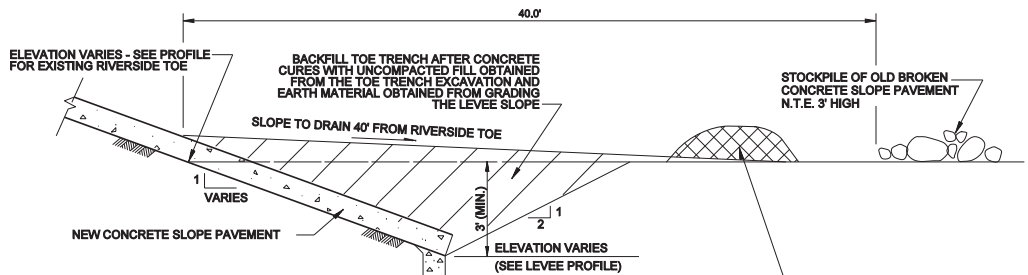


DETAIL FOR TIEING NEW CSP TO EXISTING CSP DUE TO GRADE RAISE.  
LANDSIDE ENLARGEMENT ONLY



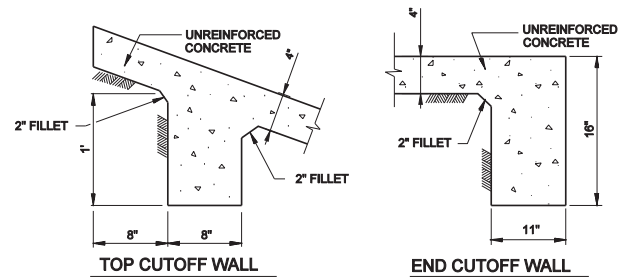
**DETAILS OF EXPANSION AND CONTROL JOINTS**

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**TOE TRENCH DETAIL**

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**DETAILS OF CUTOFF WALLS**

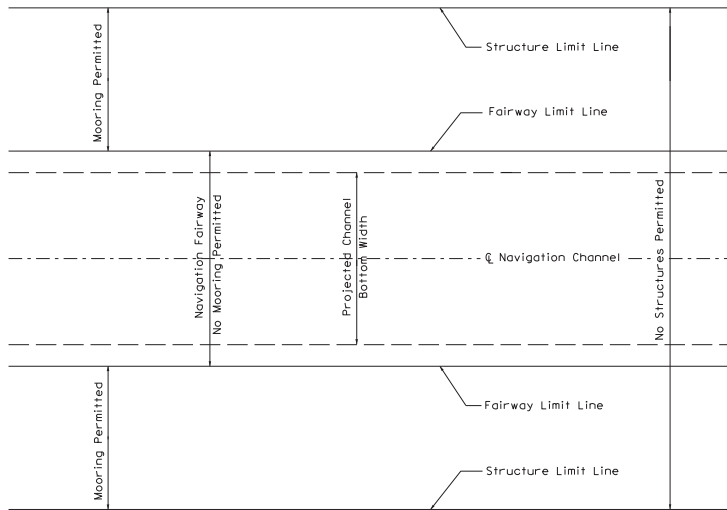
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NOTE:  
CONCRETE SLOPE PAVEMENT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1,800 PSI

**Sheet 14**

U.S. ARMY CORPS OF ENGINEERS NEW ORLEANS DISTRICT NEW ORLEANS, LOUISIANA	PROJECT NO.: CONTRACT NO.: DRAWING NO.: DATE:
PERMIT APPLICATION USACE LEVEE STANDARDS	CONCRETE SLOPE PAVEMENT DETAILS LOUISIANA
SHEET IDENTIFICATION H-8-45782	DATE: / / APPR: / DATE: / / DESCRIPTION:





PLAN  
NAVIGATION FAIRWAY AND STRUCTURE LIMIT LINES

REQUIREMENTS FOR BARGE CHANNEL

CHANNEL BOTTOM WIDTH	NAVIGATION FAIRWAY WIDTH	DISTANCE FROM $\bar{C}$ TO STRUCTURE LIMIT LINE (S.L.L.)
30	50	65
40	60	70
50	70	75
60	80	80
70	90	85
80	100	100
100	120	110
125	150	175
150	180	190
200	240	220
250	300	250
300	360	280
400	480	340

REQUIREMENTS FOR SHIP CHANNEL

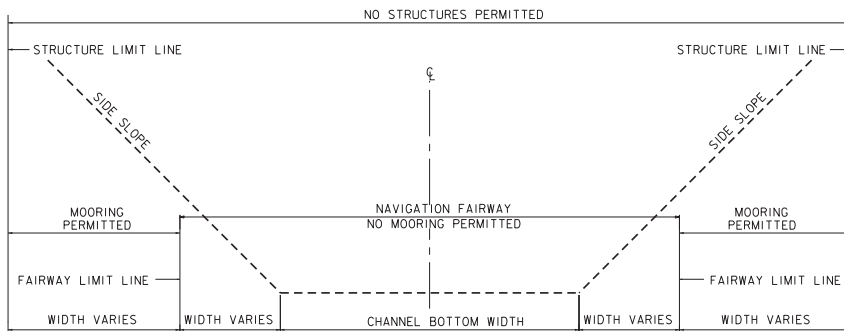
- Mississippi River, Baton Rouge to the Gulf; The 35' contour (MSL) or 350' from the average low water plane (ALWP), whichever is the lesser distance from the existing bankline.
- Mississippi River Gulf Outlet: See drawing J-15-21546.
- Calcasieu River and Pass:
  - Main channel : 450' from C/L to S.L.L.
  - Coon Island : 250' from C/L to S.L.L.
  - Clooney Island : 350' from C/L to S.L.L.
  - Devil's Elbow : 325' from C/L to S.L.L.
- Lake Charles Deep Water Channel: See EXCEPTIONS (g)
- Michoud Canal: 225' from C to S.L.L.

NOTES:

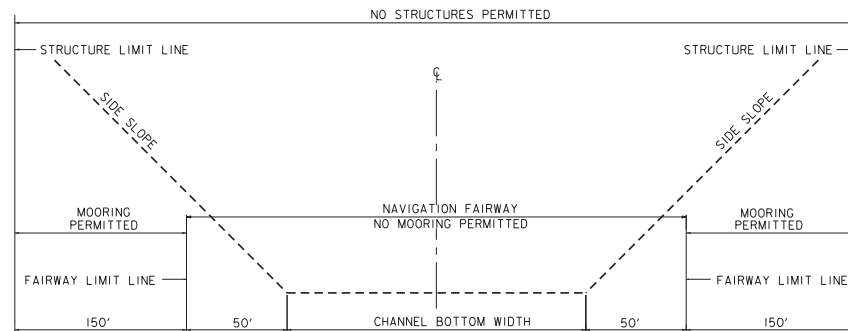
- Structure must be tied to Permanent Reference Point on the U.S.E.D. Baseline or Channel Centerline giving the Station, Azimuth, and Distance.
- The theoretical channel section will be superimposed on the actual cross section.
- See drawings 1 and 2 file No. H-4-24739 for theoretical channel dimension.
- Requirements indicated on this drawing are not all inclusive. See pamphlet PERMITS FOR WORK IN NAVIGABLE WATERS for additional information.

Exceptions:

- Bayou LeCorpe: 135' from  $\bar{C}$  to S.L.L.
- G.I.W.W. through Houma and LaRose: 150' from  $\bar{C}$  to S.L.L. or R/W.
- Baton Rouge Borge Channel: 265' from  $\bar{C}$  to S.L.L.
- Mississippi River: No structures channelward of the - 35' contour.
- Mississippi River - Gulf Outlet: See drawing J-15-21546.
- Coon Island Channel: 250' from  $\bar{C}$  to S.L.L.
- Lake Charles Deep Water Channel (G.I.W.W. Calcasieu River to Sabine River) : 350' from  $\bar{C}$  to S.L.L.
- G.I.W.W., Port Allen - Morgan City route, Indian Village - Port Allen : See drawing J-17-24375.
- G.I.W.W., Algiers lock and Canal : See drawing J-17-20002.
- Atchafalaya River and Bayous Chene, Boeuf and Black, Fairway 600', S.L.L. 400' from  $\bar{C}$  Sta. 68+00 on Bayou Boeuf to Bayou Chene and all of Bayous Chene and Black.



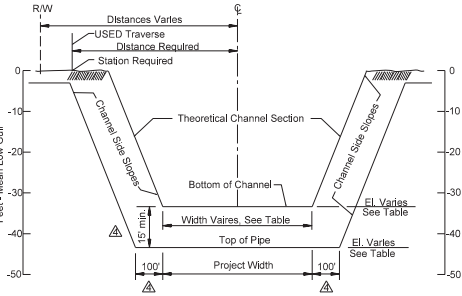
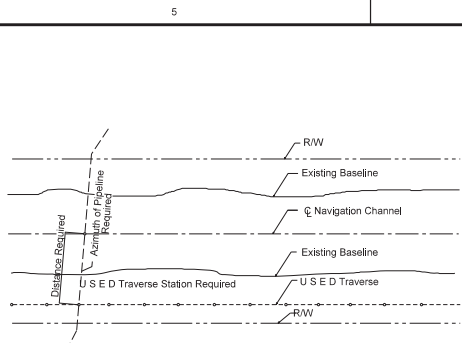
BARGE CHANNEL CLEARANCES  
THEORETICAL CROSS SECTION  
(SEE TABLE FOR WIDTHS)



SHIP CHANNEL CLEARANCES  
THEORETICAL CROSS SECTION

Sheet 16

Revision	3-10-82	ADDED NOTE
Date		Description
<b>PERMIT REQUIREMENTS FOR CONSTRUCTION OF UTILITIES PIERS, DOLPHINS, BULKHEADS, PILING, WHARVES, AND OTHER STRUCTURES ADJACENT TO AUTHORIZED NAVIGATION CHANNELS</b>		
<b>U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS</b>		
DRAWN BY: P.L.O.	JUNE, 1971	FILE NO. H-4-25794



NOTE  
 The theoretical channel section may be contained within the existing channel section. The pipeline will be placed 15 feet below the theoretical section, or 4 feet below the existing bed whichever provides the greater clearance. A minimum of 15 feet of cover will be provided on the channel slopes.  
 All distances shown are normal to the centerline of the channel and should be increased for skew.

TABULATION OF NAVIGATION CHANNELS					
NAME AND DESCRIPTION	DEPTH	WIDTH	SIDE SLOPES	TOP OF PIPE ELEVATION	REFERENCE DRAWINGS
AMITE RIVER AND TRIBUTARIES: Lake Maurepas to Mile 4.8 (Blind River) Mile 4.8 to Mile 25.3 (c) Mile 25.3 to Mile 35.75 (Bayou Manchac) (c)	7 26.5 to 30 21.8 to 26.5	60 150 165	1 on 2 1 on 2 1 on 2	22 41.5 to 45 38.8 to 34.5	H-16-21794 H-16-20649, H-16-20749, H-16-208 H-16-21473, H-16-21785
ATCHAFALAYA BASIN ACCESS CHANNELS: East Access (c) West Access (c)	7 7	80 80	1 on 2 1 on 2	22 22	H-16-23440 H-16-23588
ATCHAFALAYA RIVER, BAYOUS CHENE, BOEUF & BLACK	20	400	1 on 3	35	(d)
ATCHAFALAYA RIVER NAVIGATION (c)	12	125	(See Drawing No H-4-24739/1 for Requirements)		
BARATARIA BAY WATERWAY	12	125	1 on 2	27	H-16-22858
BATON ROUGE HARBOR (c)	9.4	300	1 on 3	24.4	H-5-20834
BAYOU BONFOUCA	12	60	1 on 2	27	H-16-22858
BAYOU DUPRE: Bar Channel Mile 0.0 to Violet	6 6	100 80	1 on 2 1 on 2	21 21	H-16-24032 H-16-24032
BAYOU GROSSE TETE (e)	5	60	1 on 2	20	(d)
BAYOU LAFOURCHE - LAFOURCHE JUMP WATERWAY: Leveille to Grand Isle Leveille to the Gulf Auxiliary Channel Leveille to Golden Meadow Golden Meadow to Larose Larose to Lockport Lockport to Thibodaux	12 12 12 9 6 9 6	125 125 125 100 80 100 60	1 on 2.5 1 on 2.5 1 on 2.5 1 on 2.5 1 on 2.5 1 on 2.5 1 on 2.5	27 27 27 24 24 24 21	H-16-22665 H-16-22391 H-16-24331 H-16-22692 (d) (d) (d)
BAYOU LA LOUTRE, ST. MALO & YSCLOSKEY: Bayou LaLoutre, Mile 0 to Mile 15.0 Bayou LaLoutre, Mile 15.0 to Mile 21.7 Bayou Yscloskey Bar Channel Bayou St. Malo, Mile 0.0 to Mile 6.3 Bayou St. Malo Bar Channel Lake Etou Bar Channel	6 5 5 6 6 6	40 30 80 40 40 80	1 on 2 1 on 2 1 on 2 1 on 2 1 on 2 1 on 2	21 20 20 21 21 21	J-16-20121 J-16-20121 J-16-20121 J-16-20121 J-16-20121 J-16-20121
BAYOU LE CARPE: GMWV to Houma Navigation Canal Houma Navigation Canal to Bayou Dulac	10 5	45 40	1 on 2 1 on 2	25 20	H-16-24194 H-16-22712
BAYOU LACOMBE: Bar Channel Mile 0.0 to Mile 8.2	8	60	1 on 2	23	H-16-23850 (d)
BAYOU PLAQUEMINE BRULE (f)	6	60	1 on 2	21	(d)
BAYOU SEGNETTE WATERWAY	9	60	1 on 2	24	H-16-20565
BAYOU TECHE: Mile 0.0 to Mile 54.5 Mile 54.5 to Mile 72.0 Mile 72.0 to Mile 106.5	8 6 6	80 60 50	1 on 2 1 on 2 1 on 2	23 21 21	(d) (d) (d)
BAYOU TECHE AND VERMILLION RIVER: GMWV to Lafayette, Mile 52.0 (f) GMWV to Vermillion River Lafayette, Mile 52.0 to Bayou Teche, Mile 79.0 (g)	9 8 9	100 80 80	1 on 2 1 on 3 1 on 2	24 23 (b)	J-12-14762 J-12-14762 J-12-14762
BAYOU TERREBONNE	6	(a)	1 on 2	21	H-16-15916
CHEFUNCTE RIVER AND BOGUE FALAYA: Bar Channel and Mile 0.0 to Mile 3.5 Mile 3.5 to Covington	10 8	125 (a)	1 on 3 1 on 3	25 23	H-2-21372 (d)
FRANKLIN CANAL (c)	8	60	1 on 2	23	H-16-24449
FRESHWATER BAYOU (c)	16	150	1 on 2	31	H-16-22293
FRESHWATER DISTRIBUTION CHANNELS: East Freshwater (c) West Freshwater (c)	7 7	80 80	1 on 2 1 on 2	22 22	H-16-23656 (d)
GRAND BAYOU PASS	6	100	1 on 3	21	H-16-15095/3
GULF INTRACOASTAL WATERWAY (GMWV) Lake Borgne Light No.29 to Harvey Lock Algiers Alternate Route Mississippi River to Atchafalaya River Atchafalaya River to Vermillion River Vermillion River to Mermentau River Mermentau River to Calcasieu River Calcasieu River to Sabine River Morgan City - Port Allen Alternate Route Lake Borgne Light No.29 to Harvey Lock via Lake Portchartrai Old Plaquemine-Morgan City Route via Lower Grand River (Outside Route)	12 16 16 16 16 16 16 12 9 9	150 150 150 200 200 200 200 125 100 100	1 on 3 1 on 3 1 on 3 1 on 3 1 on 3 1 on 3 1 on 3 1 on 3 1 on 2 1 on 2	27 31 31 31 31 31 31 27 24 24	J-16-21420 J-17-20002 J-17-19994 J-18-17411 J-19-17413 J-20-17415 J-21-15055 J-17-18995 (d) (d)

NAME AND DESCRIPTION	DEPTH	WIDTH	SIDE SLOPES	TOP OF PIPE ELEVATION	REFERENCE DRAWINGS
HOUMA NAVIGATION CANAL	15	150	1 on 2	30	H-16-23119
INLAND WATERWAY FROM FRANKLIN TO MERMENTAU RIVER (c)	5	40	1 on 2	20	J-24-15979
INLAND WATERWAY FROM WHITE LAKE TO PELICAN ISLAND (c)	5	40	1 on 2	20	
LITTLE CAÏLOU BAYOU	5	40	1 on 2	20	
MERMENTAU RIVER: BAYOU NEZPIQUE AND DES CANES GMWV to Lake Arthur Lake Arthur Lake Arthur to Junction, Bayou Nezpique and Des Cannes	12 12 12	125 200 125	1 on 3 1 on 3 1 on 3	27 27 27	
Bayou Nezpique, Junction to I-10 Bayou Des Cannes, Junction to I-10 Bayou Des Cannes, I-10 to Mi. 8.5 Bayou Nezpique, I-10 to Mi. 25	12 12 12	125 125 60	1 on 3 1 on 3 1 on 2	27 27 (b)	(b) (b) (b)
MERMENTAU RIVER, LA.: Mermentau River, Mi. 24 to Mi. 13 Mermentau River, Mi. 13 to Mi. 0 Grand Lake to White Lake White Lake to Vermillion Bay North Prong Schooner Bayou Schooner Bayou Cut-Off (Replace by Freshwater Bayou)	15 15 15 15 6	100-175 80-175 170 170 60	1 on 2 1 on 2 1 on 2 1 on 2 1 on 2	30 30 30 30 21	J-13-22518 J-13-22475 (d) J-13-17192 J-13-17192
NAVIGATION OUTLETS, MISSISSIPPI RIVER VICINITY VENICE, LA Tiger Pass Baptiste Collette	16 16	150 125	1 on 3 1 on 3	31 31	(d) (d)
OLD RIVER (e)	12	150	1 on 3	27	H-4-23153
PETIT ANSE, TIGRE, AND CARLIN BAYOUS (f) Avery Canal (McHenry Canal)	12 12	125 125	1 on 2 1 on 2	27 27	H-16-22294 H-16-22153
RED RIVER WATERWAY	9	200	1 on 4	(See Drawing No H-4-24764 for Requirements)	
SCHOONER BAYOU (c)	6	60	1 on 2	21	J-13-17192
TANGIPAHOA RIVER Bar Channel Mile 0.0 to Mile 53.5	10	100	1 on 6	25	H-16-24569 (b) (d)
VINTON WATERWAY (c)	9	60	1 on 3	24	(d)
WATERWAY FROM EMPIRE, LA. TO THE GULF (c)	12	125	1 on 2	27	H-16-16489

Notes:  
 (a) Elevations are expressed in feet and refer to Mean Low Gulf unless otherwise indicated  
 (b) No specified width -- a minimum of 10' of cover over the pipeline for the existing channel section  
 (c) No specified width and depth -- a minimum of 4' of cover over the pipeline for the existing channel section  
 (d) Mean Sea Level  
 (e) Not available  
 (f) Mean Low Water  
 (g) Lower end replaced with Morgan City -- Port Allen Route  
 (h) Replaced in part by Mermentau River, La. Project  
 (i) Contained within the Atchafalaya Basin Main Channel from Mi. 54.5 to Mi. 112.6  
 (j) Enlarged by D.P.W.  
 (k) Placed in Mermentau River, La. Project  
 (l) Below Bayou Yokely, D.P.W. enlarged to -8'x80'  
 (m) G.I.W.W. to Mi. 175 Flood control channel enlarged to - 19'x120' M.S.L.  
 (n) Flood Control Channel enlarged for a portion  
 (o) Enlarged by local interest  
 (p) Should provide for this future - 12'x125' channel. Existing maintained channel - 9'x80'  
 (q) Existing channel maintained to - 12'x125' channel - 9'x80'.  
 (r) The -12'x125' channel is contained within the -30'x125' Lake Charles Deep Water Channel  
 The West Calcasieu Parish Port Commission requires all crossings to accommodate a future -40'x300' channel.  
 (s) Should provide for this future -16'x150' channel. Existing maintained channel - 12'x125'.  
 (t) This Channel has been enlarged by the Greater Lafourche Port Commission as follows:

REVISION DATE	DESCRIPTION	BY
8/31/17	Revised minimum pipeline cover and updated alignment requirements.	J.I.V.S.
7-12-05	Converted to CAD	A.G.
4-19-96	Revised minimum pipeline cover	R.B.
6-12-70	Revised name, slopes, channel width, notes & title	S.S.G.

PERMIT REQUIREMENTS  
 FOR CONSTRUCTION OF UTILITIES  
 ACROSS NAVIGATION CHANNELS  
 HAVING LESS THAN 30' OF DEPTH  
 NOT TO SCALE

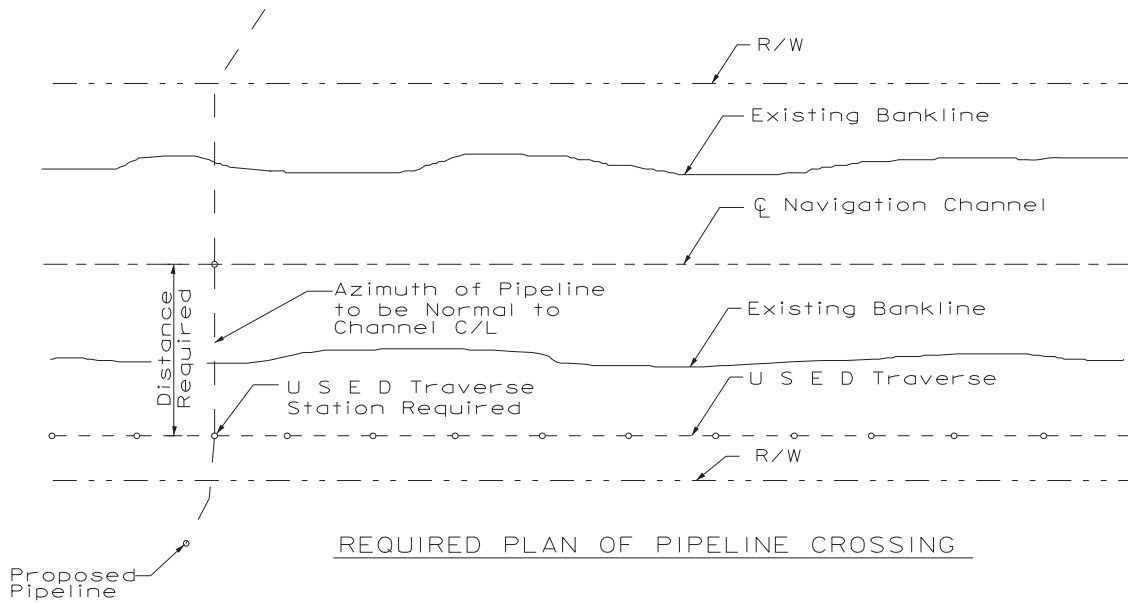
DESIGNED BY: J.F.B. PLOT SCALE: PLOT DATE: 8/31/17  
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 CHECKED BY: DATE: AUG 69 REV AUG 17 H-4-24739/2

# Sheet 17

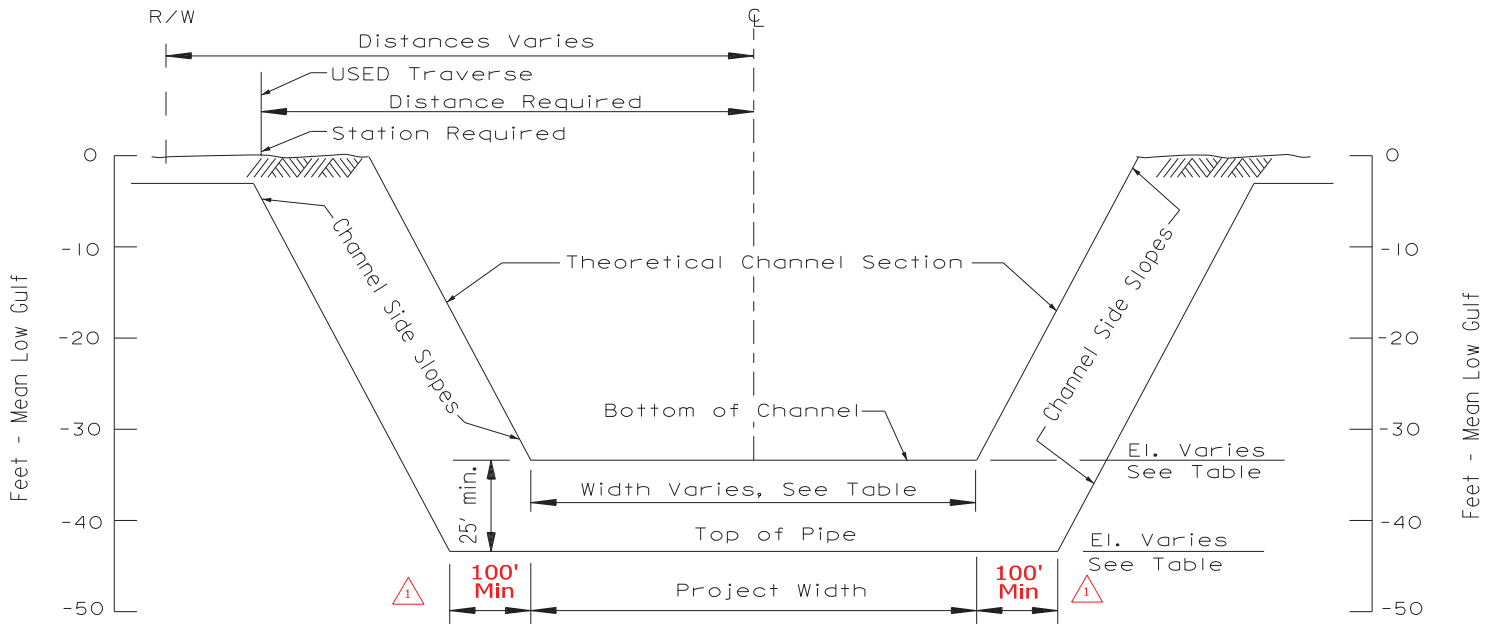
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
 CORPS OF ENGINEERS

PERMIT REQUIREMENTS  
 FOR CONSTRUCTION OF UTILITIES  
 ACROSS NAVIGATION CHANNELS  
 HAVING LESS THAN 30' OF DEPTH  
 NOT TO SCALE

DESIGNED BY: J.F.B. PLOT SCALE: PLOT DATE: 8/31/17  
 DRAWN BY: J.F.B. FILE NO.:  
 CHECKED BY: DATE: AUG 69 REV AUG 17 H-4-24739/2



REQUIRED PLAN OF PIPELINE CROSSING



REQUIRED CROSS SECTION OF PIPELINE CROSSING

TABULATION OF NAVIGATION CHANNELS AND PROJECT DIMENSIONS

NAME AND DESCRIPTION	DEPTH	WIDTH	TOP OF PIPE EL.	SIDE SLOPES
MISSISSIPPI RIVER:				
Baton Rouge to New Orleans	55	750	-80	SEE NOTE 3
New Orleans Harbor (-55' x 750' central channel) - UNDER REVIEW -	35	1500	-60	SEE NOTE 3
New Orleans Harbor to Head of Passes	55	750	-80	SEE NOTE 3
SWP, Head Passes, to Mi. 18.0 BHP	55	750	-80	1 on 3
SWP, Mi. 18.0 BHP to Mi. 20.0 BHP	55	600	-80	1 on 3
SWP, Mi.20.0 BHP to -55' contour	55	600	-80	1 on 3
SP, Head of Passes to Mi. 13.5 BHP	30	450	-55	SEE NOTE 3
SP, Mi. 13.5 BHP to -30' contour	30	600	-55	SEE NOTE 3

NOTES:

- The theoretical channel section may be contained within the existing channel section. The pipeline will be placed 25 feet below the theoretical section, or 25 feet below the existing bed whichever provides the greater clearance. A minimum of 25 feet of cover will be provided on the channel slopes. All distances shown are normal to the centerline of the channel.
- The Associated Branch Pilots, Crescent River Port Pilots, New Orleans Steamship Association, and the New Orleans - Baton Rouge S/S Pilots Association recommend a minimum of 25' of cover over pipelines.
- Authorized channels are contained within existing cross sections of river.

Sheet 18

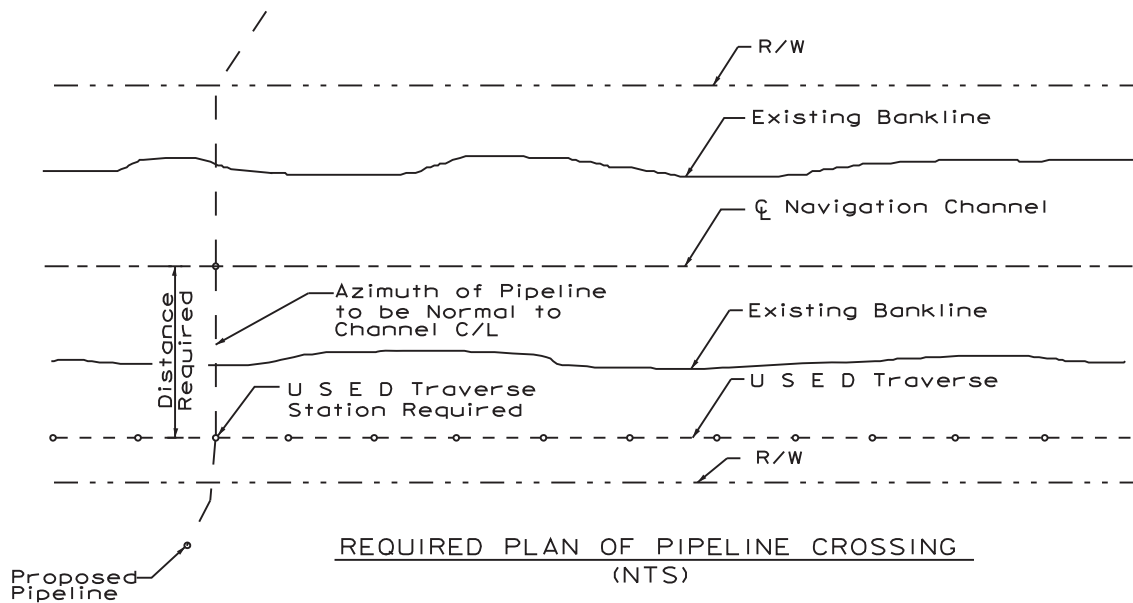
PERMIT REQUIREMENTS FOR CONSTRUCTION OF UTILITIES

Mississippi River

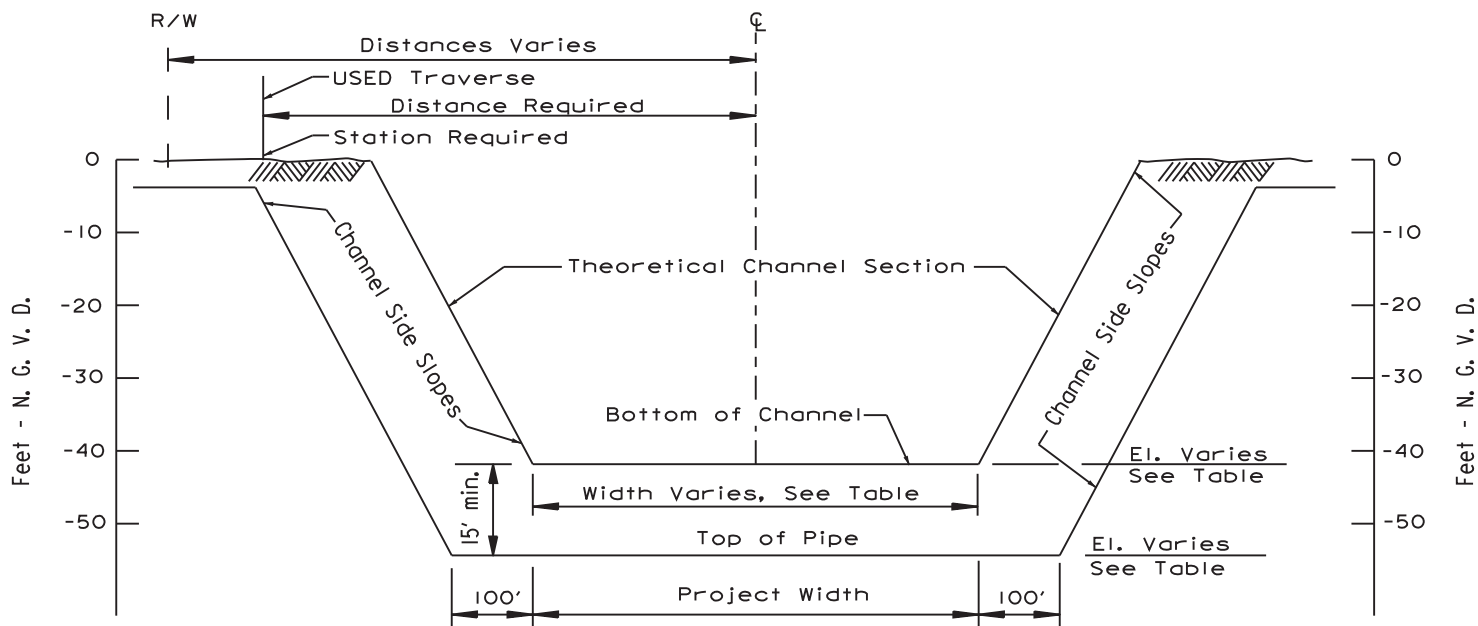
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS



REQUIREMENTS REVISED AS PER MAY 2010 PUBLIC NOTICE



REQUIRED PLAN OF PIPELINE CROSSING  
(NTS)



REQUIRED CROSS SECTION OF PIPELINE CROSSING  
(NTS)

TABULATION OF PROJECT REACHES

NAME AND DESCRIPTION	DEPTH	WIDTH	TOP OF PIPE EL.	SIDE SLOPES
ATCHAFALAYA BASIN MAIN CHANNEL:				
Mi.54.5 to Mi.63.7	38	1250	-53	1 on 2.5
Mi.63.7 to Mi.67.8	39	1300	-54	1 on 2.5
Mi.67.8 to Mi.70.5	39	1300	-54	1 on 2.5
Mi.70.5 to Mi.76.0	40	1400	-55	1 on 2.5
Mi.76.0 to Mi.80.2	40	1400	-55	1 on 2.5
Mi.80.2 to Mi.81.6	40	1400	-55	1 on 2.5
Mi.81.6 to Mi.83.6	41	1450	-56	1 on 2.5
Mi.83.6 to Mi.85.1	42	1450	-57	1 on 2.5
Mi.85.1 to Mi.91.0	42	1500	-57	1 on 2.5
Mi.91.0 to Mi.96.0	42	1550	-57	1 on 2.5
Mi.96.0 to Mi.112.6	42	1550	-57	1 on 2.5

NOTES:

- The theoretical channel section may be contained within the existing channel section. The pipeline will be placed 15 feet below the theoretical section, or 10 feet below the existing bed whichever provides the greater clearance. A minimum of 15 feet of cover will be provided on the channel slopes. All distances shown are normal to the centerline of the channel.

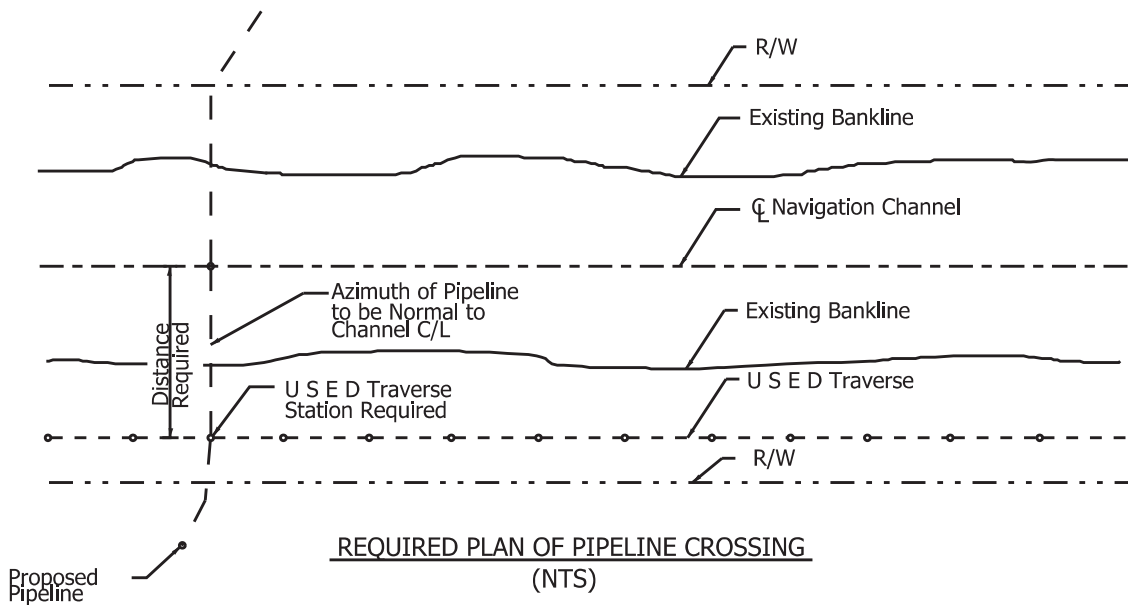
Sheet 19

PERMIT REQUIREMENTS  
FOR CONSTRUCTION OF UTILITIES  
BASED ON MAY 2010 CRITERIA

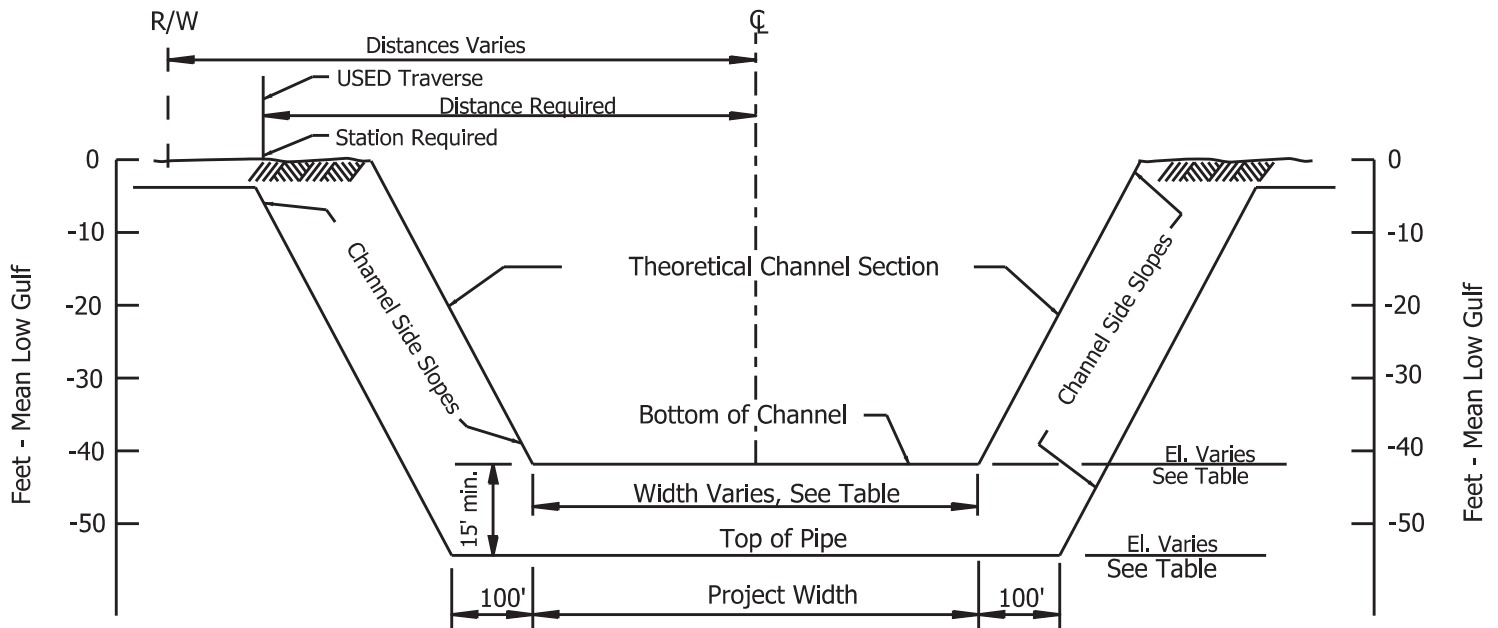
**Atchafalaya Basin  
Main Channel**

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS





**REQUIRED PLAN OF PIPELINE CROSSING**  
(NTS)



**REQUIRED CROSS SECTION OF PIPELINE CROSSING**  
(NTS)

**TABULATION OF PROJECT REACHES**

**Sheet 20**

NAME AND DESCRIPTION	DEPTH	WIDTH	TOP OF PIPE EL.	SIDE SLOPES
<b>CALCASIEU RIVER:</b>				
Philips Bluff to Lake Charles (US Hwy 90, Mi.36.2)				
Mi.36.0 to Mi.34.1 (1,000' X 750' Turning Basin at Mi.35.7 to Mi.35.9)	35	250	-50	(b)
Clooney Island Loop	40	400	-55	1 on 3
Mi.34.1 to Mi.0 (2,000 x 350' Mooring Area at Mi. 30, Turning Basin at Mi.35.9)	40	400	-55	1 on 2.5(a)
Jetty Channel	40-42	400	-57	1 on 2.5
Jetty to -42' contour	42	800	-57	1 on 2.5
Barge Channel to Cameron via Upper Portion of Old River Bend	12	200	-27	1 on 2.5

**NOTES:**

- The theoretical channel section may be contained within the existing channel section. The pipeline will be placed 15 feet below the theoretical section, or 10 feet below the existing bed whichever provides the greater clearance. A minimum of 15 feet of cover will be provided on the channel slopes. All distances shown are normal to the centerline of the channel.

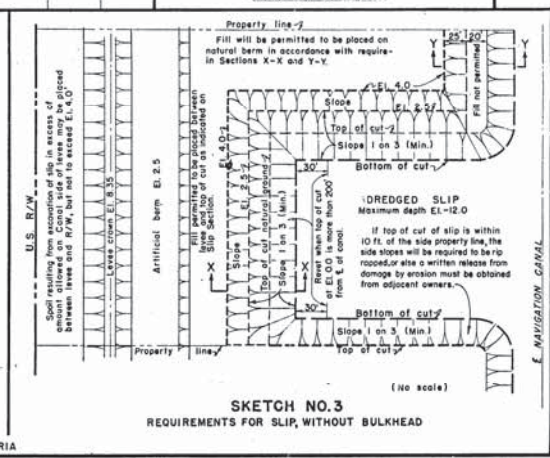
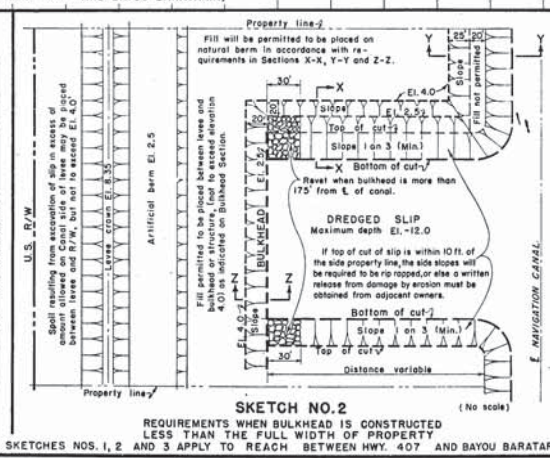
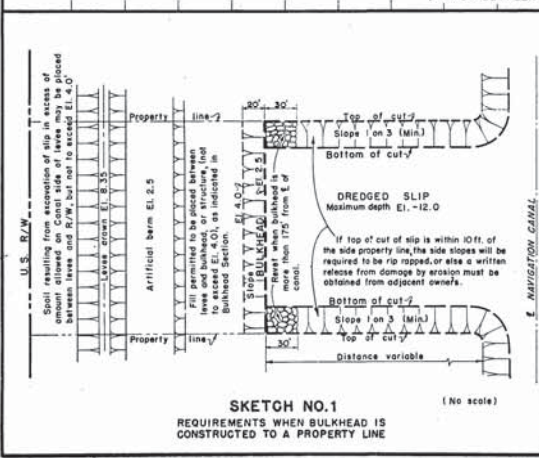
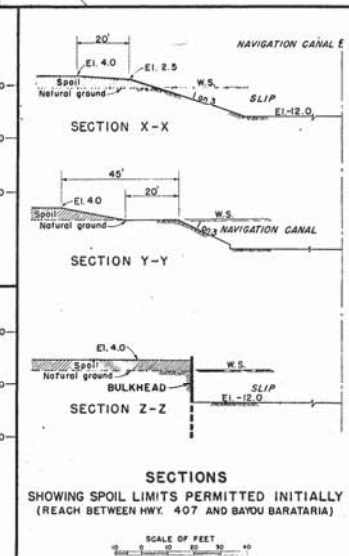
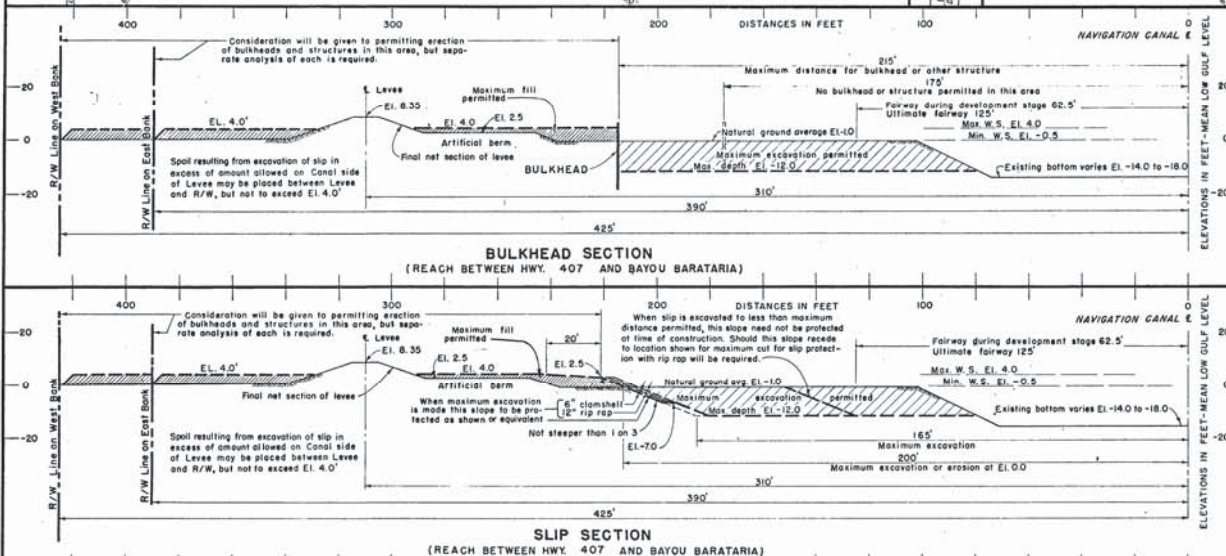
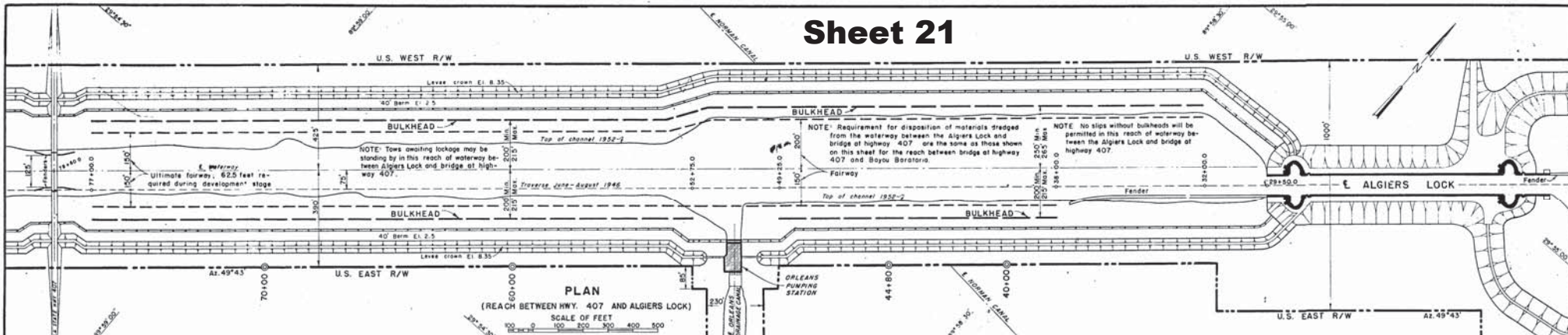
- (a) Side slopes are 1 on 3 between Mi.23.7 and 26.7, Mi.29.7 and 34.1  
 (b) Authorized channels are contained within existing cross sections of river.

**PERMIT REQUIREMENTS  
FOR CONSTRUCTION OF UTILITIES  
FOR MAY 2010 CRITERIA**

**Calcasieu River**

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
CORPS OF ENGINEERS

# Sheet 21



**GENERAL NOTES**

Requirements shown are based on soil conditions generally along navigation canal. Modification of the requirements hereon will be considered when soil conditions are materially better than those generally prevailing, provided engineering data, i.e., borings and computations, are furnished to permit the Government to check the proposed modifications.

The requirements are based upon an elevation of water in the canal not lower than El. +0.5 M.L.G. and no excavation of the navigation canal bank will be permitted until the water in the canal has been brought to this elevation. Bulkheads or structures shall be designed for soils and other conditions of the specific location.

Construction of bulkheads, structures, slips, etc. beyond the limits shown hereon will be considered, but separate analysis of such will be required.

Excavated material shall be placed and remain within the U.S. R/W limits. Such material shall remain available for levee use unless it is being utilized by the property owner.

Applications for operations on the U.S. controlled R/W shall be accompanied by consent of the owner of the fee to the property over which operations are proposed.

No industrial operations shall be performed on the levee or within 10 feet of each levee toe.

**MLG to NGVD - 0.78'**

ELEVATIONS IN FEET REFER TO MEAN LOW GULF LEVEL

REVISION	DATE	DESCRIPTION	BY
1	2-9-67	General Revisions	D.R.K.

**GULF INTRACOASTAL WATERWAY  
ALGIERS LOCK AND CANAL**

**PERMIT REQUIREMENTS FOR CONSTRUCTING  
BULKHEADS, STRUCTURES, SLIPS, ETC.,  
ALONG ALGIERS NAVIGATION CANAL**

SCALES AS SHOWN

CORPS OF ENGINEERS, U.S. ARMY  
OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA.  
FEBRUARY 1955 FILE NO. 2-17-20002





REPLY TO  
ATTENTION OF:

## DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P. O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

May 31, 2010

Operations Division  
Regulatory Branch

### **GENERAL CRITERIA FOR PIPELINE AND UTILITY LINE BURIAL IN WATERWAYS WITHIN THE NEW ORLEANS DISTRICT, CORPS OF ENGINEERS**

To assist the general public in applying for Department of the Army permits, the following general criteria list burial depths for pipelines and other utility crossings in waterways within the New Orleans District, Corps of Engineers. Deviations from the stated criteria may occur on infrequent occasions should we find it necessary for a particular project and these burial depth criteria are subject to change at the discretion of the New Orleans District. The terms "pipeline" and "utility line" include petroleum lines, flow lines, gas lines, chemical lines, water lines, brine lines, power cables, telephone cables, television cables, and similar lines. These general criteria do not supersede the pipeline and utility line burial requirements of other federal, state or local government agencies, nor do they necessarily represent the general pipeline and utility line burial criteria of other Department of the Army, Corps of Engineers districts.

#### **1. GULF OF MEXICO**

a. Open Waters: In areas where the water depth is 200 feet or greater, the line may be placed on the seabed floor. In waters less than 200 feet deep, burial will be at least 3 feet below the mud line (Top of pipe will be a minimum of 3 feet below the existing mud line. With jetting of pipelines it is understood that there may be a depression in the mud line over the pipeline immediately after installation, but the depression will soon be naturally filled with bottom material to establish the required 3 feet of cover.)

b. Fairways and Anchorages: In designated anchorages and fairways in areas where the water depth is 200 feet or greater, the line may be placed on the sea bed floor. In waters less than 200 feet, burial will be at least 10 feet below the mud line. Crossings of fairways should be perpendicular or near perpendicular to the fairway.

c. Gulf of Mexico Beaches: New pipeline and utility line crossings of Gulf of Mexico beaches in New Orleans District will be directionally bored. The purpose of the general rule is to maintain the integrity of barrier islands and beaches that protect the fragile coast line and to address the tendency of beaches to recede, thereby exposing existing pipelines to the surf zone. The directional bore length is to be decided on a case-by-case basis and would include consideration of impacts to the beach or island habitat, areas of previously disturbed beaches, adjacent water impacts, engineering feasibility, and cost considerations.

## 2. MISSISSIPPI RIVER AND MISSISSIPPI RIVER GULF OUTLET

In the Mississippi River up to Baton Rouge and in the Mississippi River Gulf Outlet, pipelines and utility lines will be buried at least 25 feet below the mud line or 25 feet below the authorized channel depth, whichever gives the greater clearance. Burial depths on the side slopes will also be 25 feet below the mud line or authorized channel slope.

### 3A. FEDERAL CHANNELS HAVING LESS THAN 30-FOOT DEPTH

Burial depths on federally maintained navigation channels with a bottom depth of less than -30 feet MLG are to be at least 15 feet below the authorized project depth or 4 feet below the mud line, whichever gives the greater clearance, and extend at this depth at minimum 100 feet\* beyond the project width on both sides. (0.0 feet MLG = -0.78 feet mean sea level or NGVD.) See Enclosure 1 titled "P/L Burial Depths for Federal Project Waterways (other than the Mississippi River)" for more information.

### 3B. FEDERAL CHANNELS HAVING 30-FOOT OR GREATER DEPTH

Burial depths on federally maintained navigation channels with a bottom depth at or greater than -30 feet MLG are to be at least 15 feet below the authorized project depth or 10 feet below the mud line, whichever gives the greater clearance, and extend at this depth at minimum 100 feet\* beyond the project width on both sides. See Enclosure 1 titled "P/L Burial Depths for Federal Project Waterways (other than the Mississippi River)" for more information.

\* If the extension of the minimum burial depth to include a width of 100 feet minimum on both sides of the defined project width is not practicable, you may, on a case by case basis, request variance to this requirement. All such variance requests and justifications for said variances must be included in your permit application and drawings and should strive to meet the following criteria:

Extended coverage on either side of the defined project width dimension should be no less than 20% of the authorized width, or no less than 20 feet, whichever is greater. For example:

Bottom Width	Required Extension on Both Sides of Project Channel
400'	80'
250'	50'
125'	25'
100'	20'
Less than 100'	20'



#### **4. NON-FEDERALLY MAINTAINED WATERWAYS AND OPEN WATER AREAS**

Except for flowlines and activities in the Gulf of Mexico, pipelines and utility lines are to be buried at least 4 feet below the mud line. This policy would be applicable to most rivers, bayous, canals, lakes, bays, etc.

#### **5. FLOWLINES**

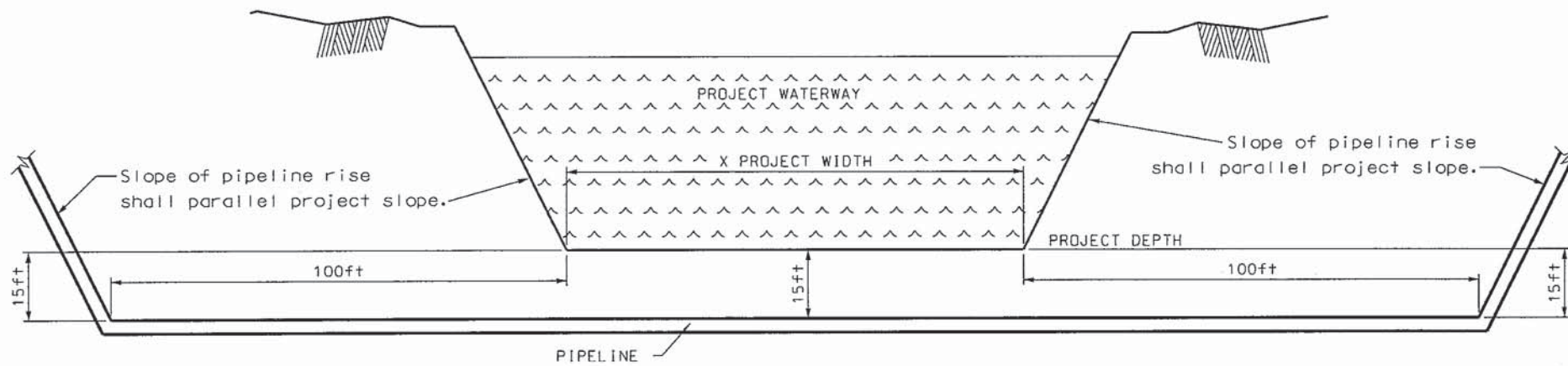
Flowlines are generally the small diameter lines that are used in oil and gas exploration and production and carry petroleum, brine, gas, and similar products between oil and gas wells, gathering stations, production platforms, and similar facilities in established oil and gas fields, or at exploration sites. Flowlines are to be buried at least 3 feet below the mud line in open waters. Flowlines in marsh areas may be placed on the marsh surface and/or on support structures in lieu of burial.

The above burial criteria define the minimum burial depths, however, greater burial depth is allowed. Reburial of older lines is considered maintenance under the terms of the original permits and under the terms on nationwide permit number 3. Replacement of an existing line with a new parallel line is not considered maintenance if the older line is not removed. In areas where line cover has been reduced or lost to erosion, our general policy is to have the line reburied to conform to the minimum burial depth criteria. We will, however, consider formal requests, on a case-by-case basis, for approval to cover the line with grout bags, riprap, or similar materials, or other methods to protect the lines in instances where we find burial impractical.

Operators who propose to lay new pipelines or utility crossings, or perform work on existing lines, across general navigation channels are requested to notify the U.S. Coast Guard so that a Notice to Mariners, if required, may be prepared. Notification, with a copy of your permit approval and drawings, should be mailed to the U.S. Coast Guard, Sector New Orleans Command Center, 201 Hammond Highway, Metairie, Louisiana 70005, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 846-5923.

Pete J. Serio  
Chief, Regulatory Branch

Enclosure



P/L BURIAL DEPTHS FOR  
 FEDERAL PROJECT WATERWAYS  
 (OTHER THAN THE MISSISSIPPI RIVER)

ENCLOSURE 1

NOTE: SEE WRITTEN DESCRIPTION ON PAGE 2 UNDER 3A AND 3B FOR ADDITIONAL INFORMATION