Number 9 Original

In the Supreme Court of the United States

OCTOBER TERM 1968

UNITED STATES OF AMERICA,
Plaintiff,

v.

STATE OF LOUISIANA, ET AL.

Appendix G, Map Exhibits and Related Materials for Brief of the State of Louisiana in Support of its Motion for Entry of Supplemental Decree No. 2

JACK P. F. GREMILLION,
Attorney General,
State of Louisiana,
2201 State Capitol,
Baton Rouge, Louisiana.
VICTOR A. SACHSE,
PAUL M. HEBERT,
THOMAS W. LEIGH,
ROBERT F. KENNON,
W. SCOTT WILKINSON,
J. J. DAVIDSON,
OLIVER P. STOCKWELL,
J. B. MILLER,
FREDERICK W. ELLIS,
ANTHONY J. CORRERO III,
Special Assistant Attorneys General,
State of Louisiana.
JOHN L. MADDEN,
Assistant Attorney General,
State of Louisiana.

EXHIBITS 88-103

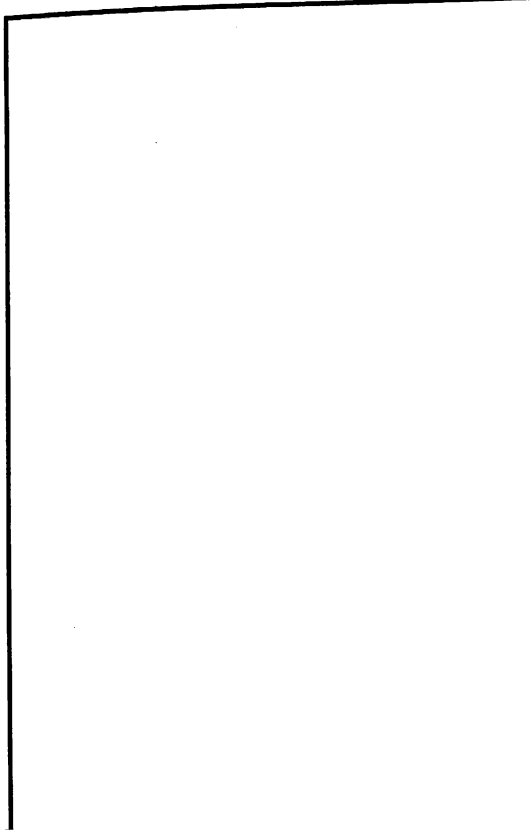
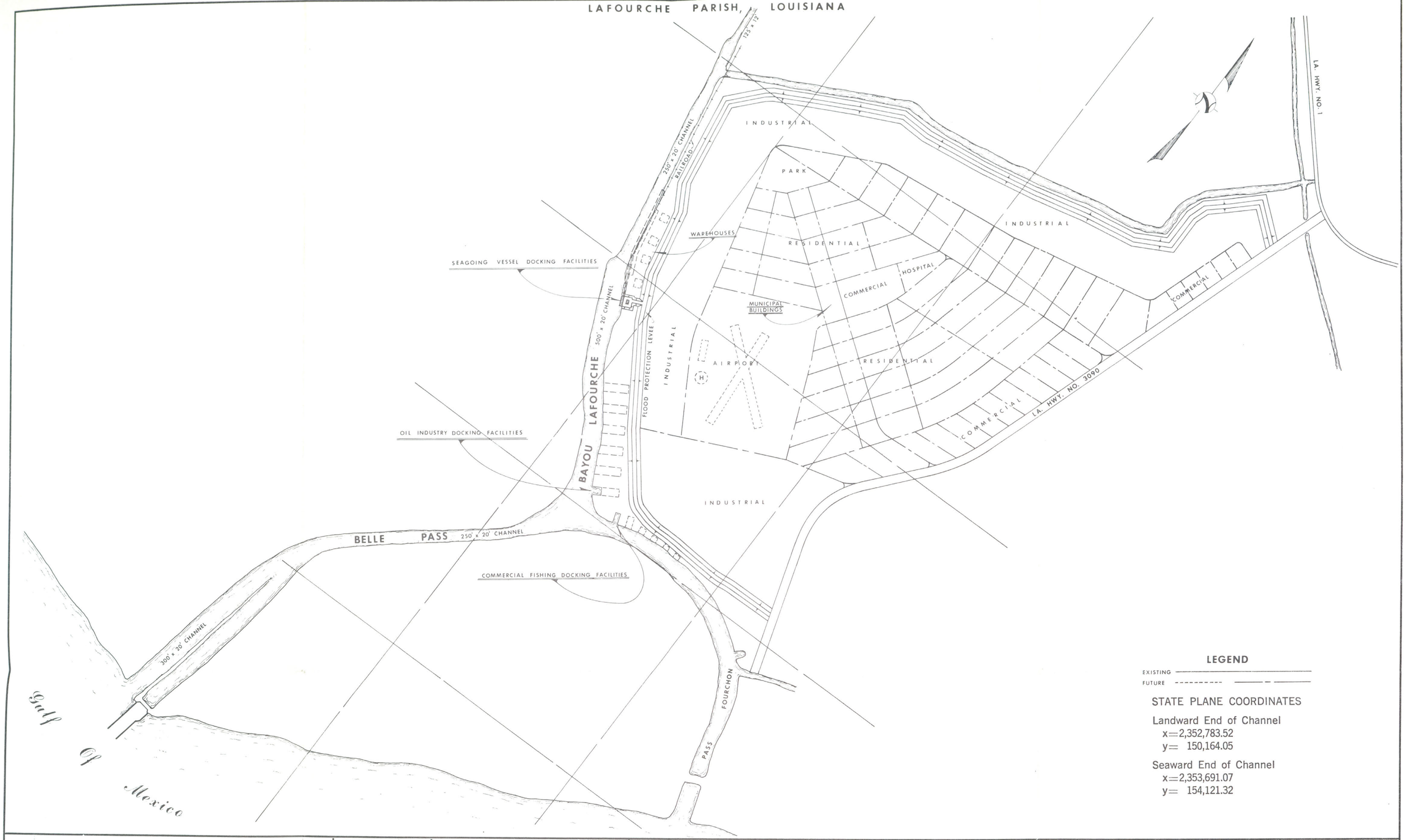


EXHIBIT 88, Page 1

LAFOURCHE PARISH, LOUISIANA



LEGEND

EXISTING ———————

FUTURE ---------- ——— – ———

STATE PLANE COORDINATES

Landward End of Channel
x=2,352,783.52
y= 150,164.05

Seaward End of Channel
x=2,353,691.07
y= 154,121.32

DATE	REVISIONS	BY

DRAWN BY K.W.H. F.L.
DESIGNED BY
CHECKED BY
APPROVED BY

DATE
SCALE 1" = 1000'

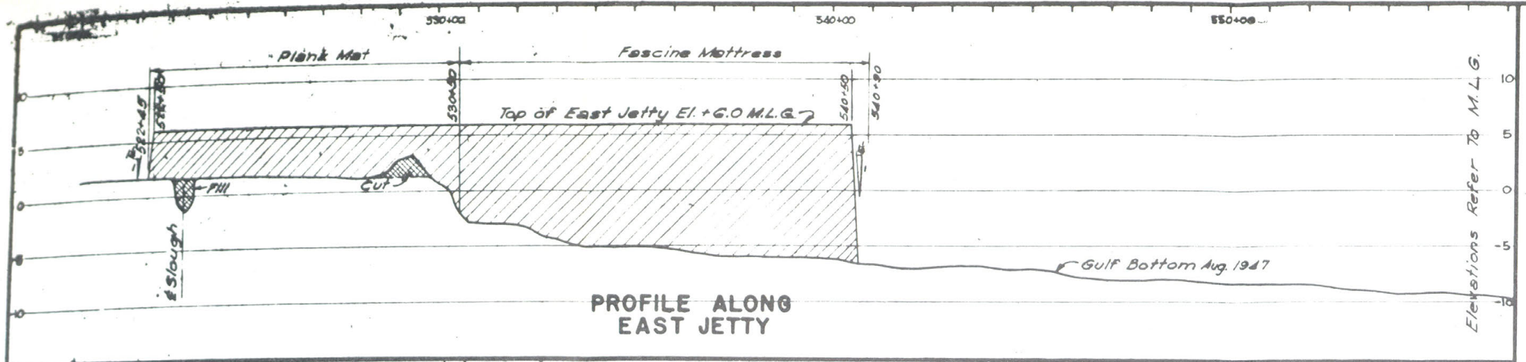
PROJECT NO. 147-100
DRAWING NO. 147-100-289

HEVCON CORPORATION
ENGINEERS
BATON ROUGE, LOUISIANA

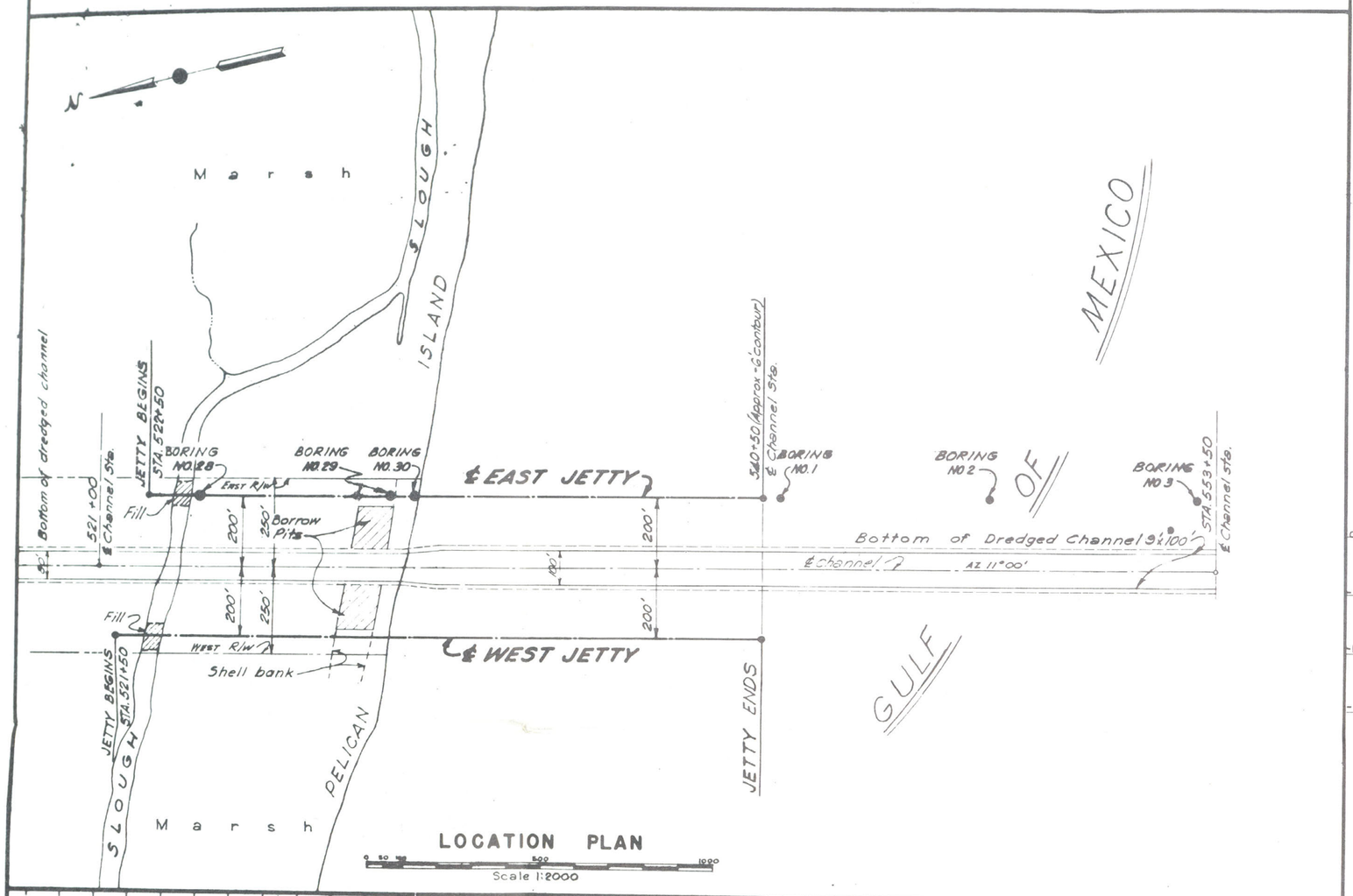
GREATER LAFOURCHE PORT COMMISSION
GALLIANO, LOUISIANA
OWNER

LAYOUT MAP
TITLE

EXHIBIT 88, Page 2

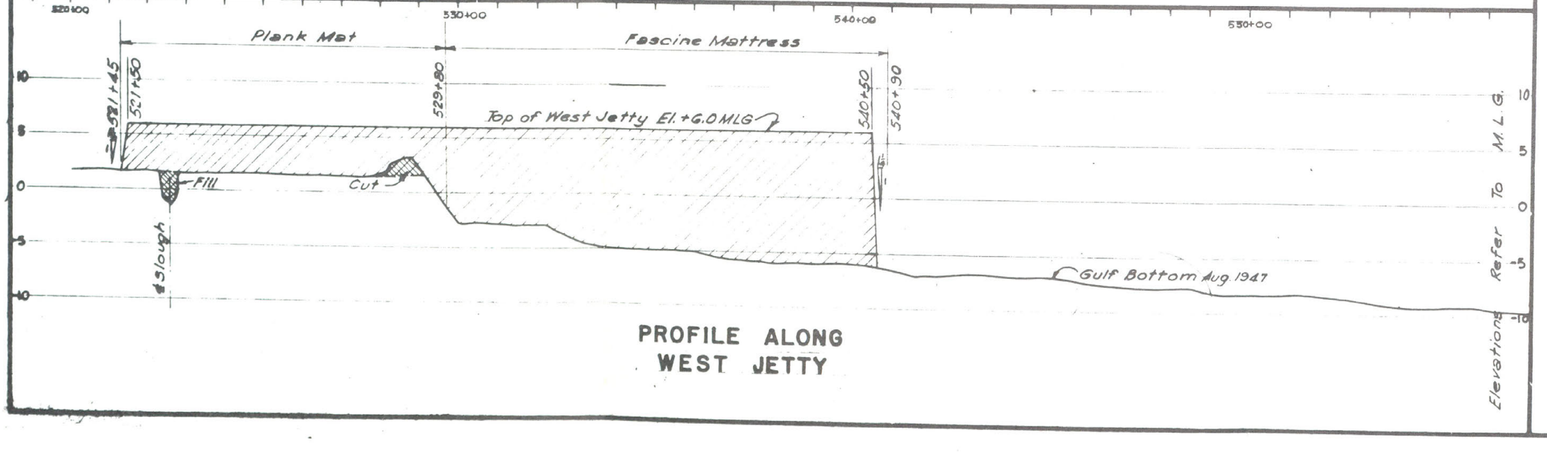


PROFILE ALONG EAST JETTY

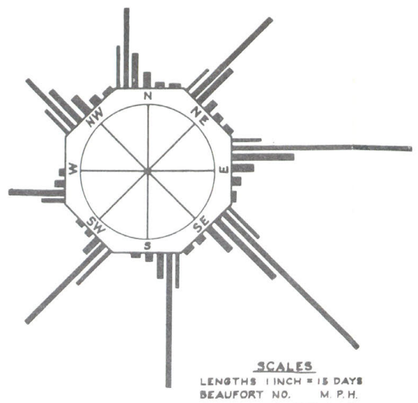


LOCATION PLAN

Scale 1:2000



PROFILE ALONG WEST JETTY



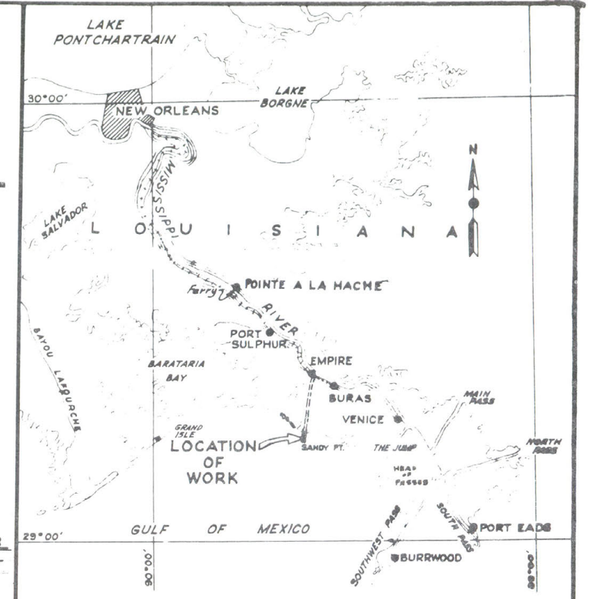
SCALES

LENGTHS 1 INCH = 15 DAYS

BEAUFORT NO.	M. P. H.
1	1 - 3
2	4 - 7
3	8 - 12
4	13 - 18
5	19 - 24
6	25 - 31

DIRECTION AND VELOCITY OF WINDS FOR ONE YEAR

Compiled from average Bi-Hourly readings for 3-year period from Jan. 1, 1933 to Dec. 31, 1935 by U.S. Coast Guard Station at Grand Isle.

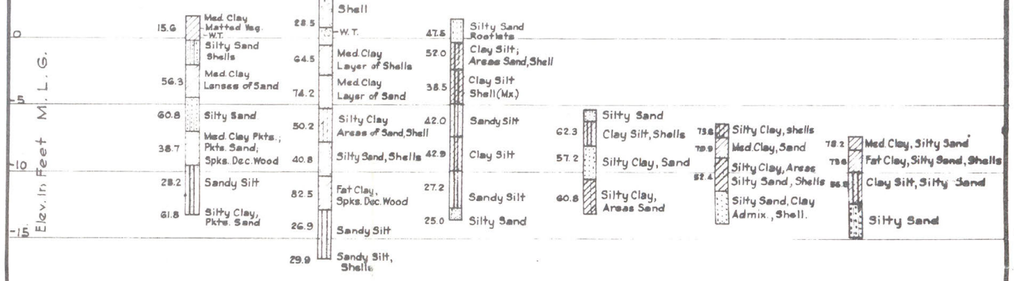


VICINITY MAP

SCALE MILES

10 0 10 20 30 40

℄ Stationing.	No. 28 Sta. 522+90	No. 29 Sta. 528+70	No. 30 Sta. 529+40	No. 1 Sta. 541+00	No. 2 Sta. 547+00	No. 3 Sta. 553+00
	Gr. Elev. 1.7	Gr. Elev. 3.5	Gr. Elev. 1.5	Gr. Elev. -5.3	Gr. Elev. -6.2	Gr. Elev. -7.2



NOTE:
Samples taken with 1¾" I.D. improved "Cuv" type sampler. Nov. 1945
Figures to left of borings indicate moisture content based on weight of oven dry soils.

BORINGS
Scale 1"= 5'

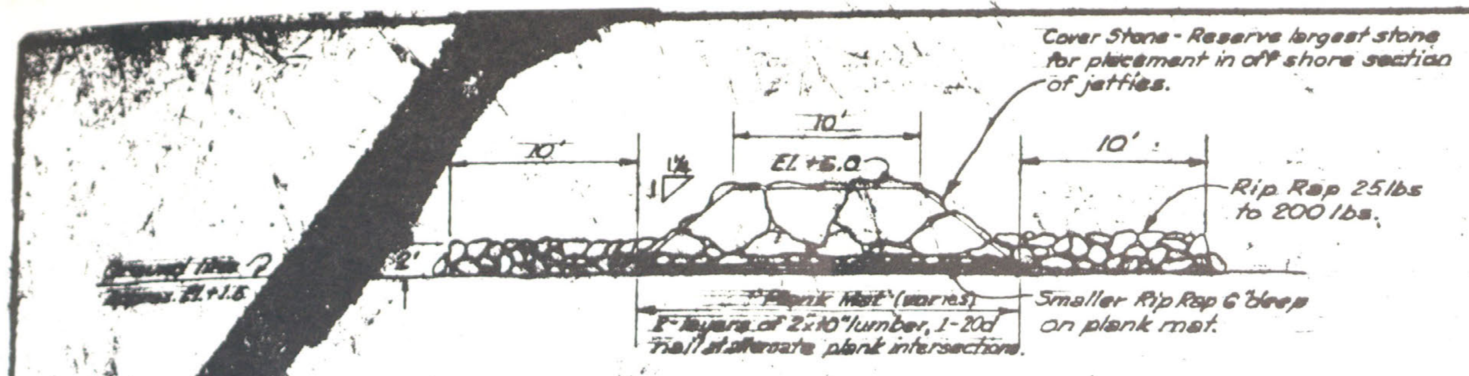
NOTE:
Excavation in borrow pits limited to El. +1.5
For sections and details see Drwg No. 2
Elevations refer to Mean Low Gulf.

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

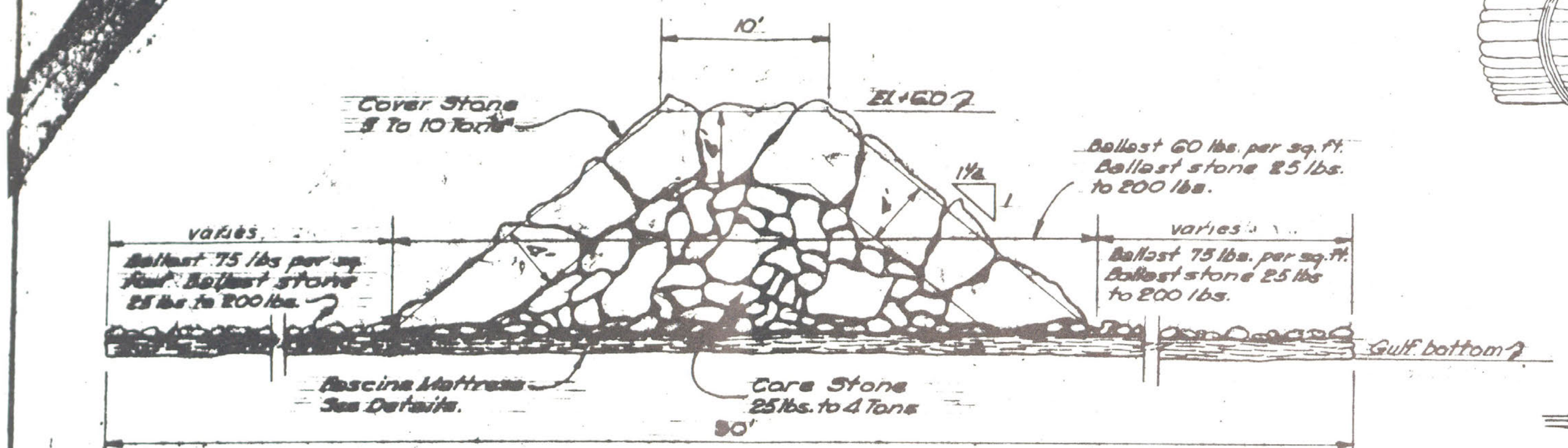
WATERWAY FROM EMPIRE, LA. TO THE GULF OF MEXICO

JETTIES PLAN AND PROFILE

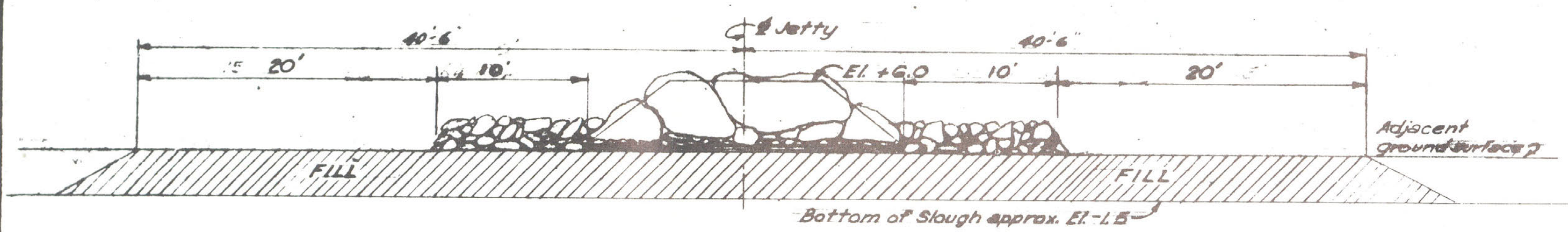
DRAWN BY: H.C.P.	
TRACED BY: H.C.P.	
CHECKED BY: R.J.F.	
SUBMITTED: G. J. Mahoney, CHIEF, GENERAL PLANNING BRANCH	SCALES AS NOTED
APPROVED: Harold Harton, CHIEF, ENGINEERING DIVISION	DATE: DEC. 1945
	SPEC NO. Eng-16-047-48-894
	FILE NO. H-16-16782
	SHEET 1 OF 2
	DRAWING NO. 1



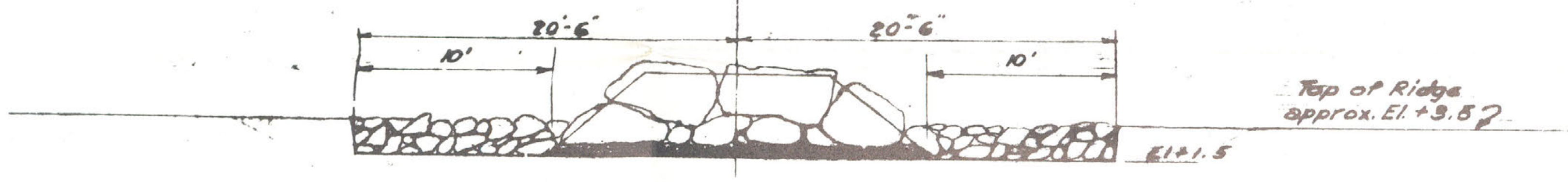
= TYPICAL SECTION =
STA. 522+50 TO 529+80 WEST JETTY
STA. 522+50 TO 530+50 EAST JETTY
Scale: 1" = 5'



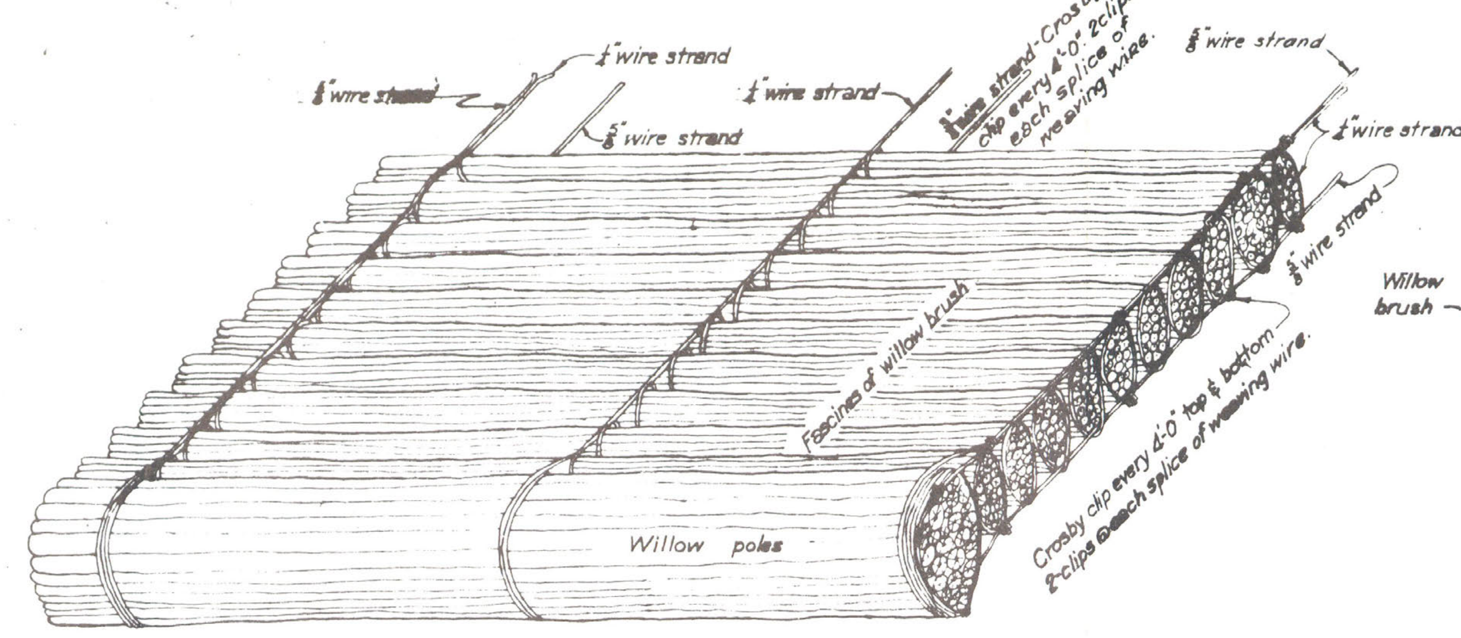
TYPICAL SECTION
STA. 529+80 TO 540+50 WEST JETTY
STA. 530+50 TO 540+50 EAST JETTY
Scale: 1" = 5'



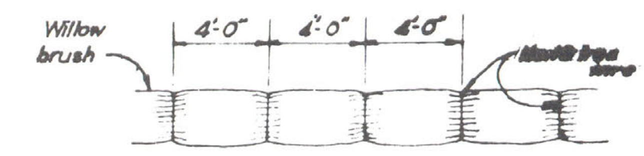
TYPICAL SECTION AT SLOUGH
Scale: 1" = 5'



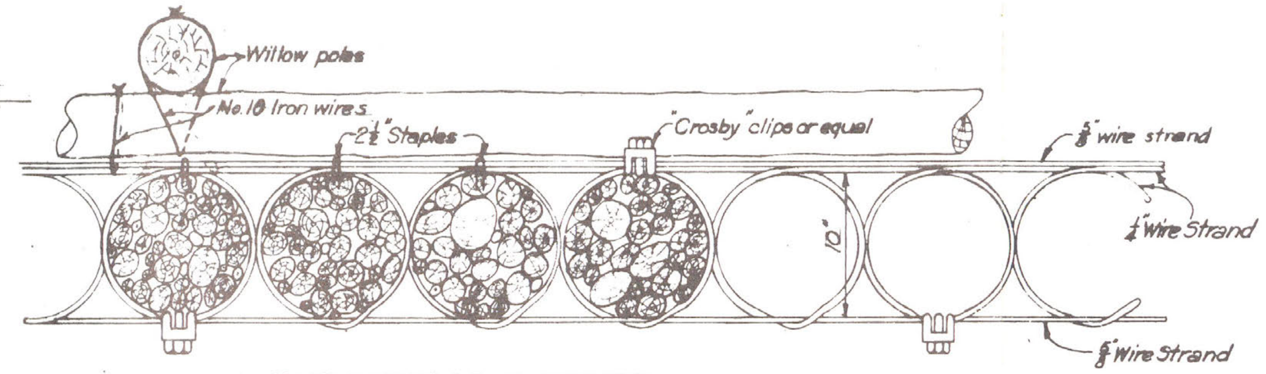
TYPICAL SECTION AT CUT
Scale: 1" = 5'



DETAIL OF SECTION OF MATTRESS

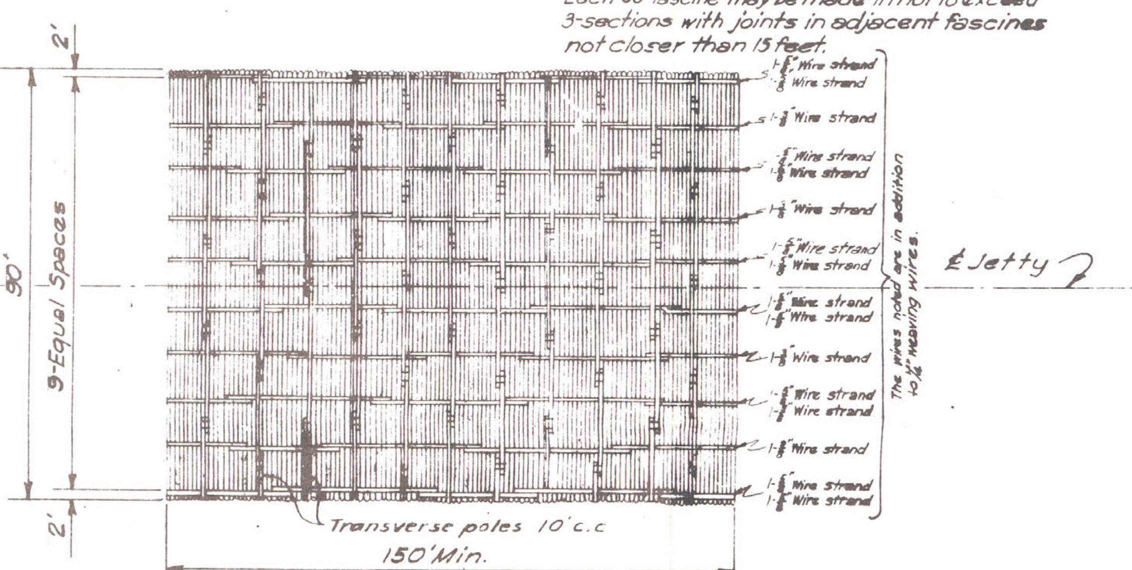


BINDING OF FASCINES



END VIEW OF FASCINES
SCALE: 1½" = 1'-0"

Mattress & fascine const. to be continuous. Each 90' fascine may be made in not to exceed 3-sections with joints in adjacent fascines not closer than 15 feet.



GENERAL PLAN OF MATTRESS
SCALE: 1" = 20'

CORPS OF ENGINEERS, U.S. ARMY OFFICE OF THE DISTRICT ENGINEER NEW ORLEANS, LA.	
DRAWN BY H.C.P. TRACED BY H.C.P. CHECKED BY R.J.F.	WATERWAY FROM EMPIRE, LA. TO THE GULF OF MEXICO JETTIES DETAILS AND SECTIONS
SUBMITTED: CHIEF, GENERAL PLANNING BRANCH	SCALES: AS NOTED DATE: DEC. 1948
APPROVED: CHIEF, ENGINEERING DIVISION	SPEC. NO. FILE NO.

EXHIBIT 89

BAYOU LAFOURCHE AND LAFOURCHE-JUMP WATERWAY, LA. CONDITION OF IMPROVEMENT, 30 JUNE 1966

Prior To Opening Of Lafourche Parish Port Commission Channel

Project

River and Harbor Act of 30 August 1935 House Document 45, 73rd Congress, 1st Session provides for a permanent closure of head of bayou without lock; channel 6- by 60-feet from Napoleonville to Lockport; a channel 6- by 60-feet from Larose to the Gulf of Mexico with a jettied entrance at Belle Pass and the closure of Pass Fourchon. Length of improvement 79.25 miles.

The River and Harbor Act of 14 July 1960 House Document 112, 86th Congress, 1st Session authorized modification of the existing project. This modification provides for an auxiliary channel 12- by 125-feet from the Intracoastal Waterway (mile 37.2) generally parallel to and west of Bayou Lafourche along Grand Bayou Blue to Bayou Lafourche below the highway bridge at Leeville, thence in the bayou to the 12 foot depth contour in the Gulf of Mexico; a channel 9- by 100-feet in Bayou Lafourche from Leeville to the lower limits of Golden Meadow; restoring and extending the existing jetties at Belle Pass from the 6- to the 12-foot depth if found advisable to reduce maintenance; and dredging a 12- by 125-foot channel from Bayou Lafourche at Leeville

through the Southwest Louisiana Canal to and through Bayou Rigaud (Grand Isle).

Physical Data

Range of tide normal, 10 inches at mouth and 3 inches at head; severe rains, 3 to 10 feet at head; hurricane up to 10 feet at mouth.

Controlling depth mean low Gulf, (July 1965), bar channel 17 feet; (Dec. 1965) jetty channel, 16 feet; (Sept. 1965) mile 0.0 to 13.4 (Leeville bridge), 9 feet; to mile 39.1 (Larose bridge), 5.5 feet; to mile 73.4 (Thibodaux bridge), 4.5 feet.

Progress of Work

Dredging between Lockport and Larose was completed to 9- by 100-foot dimensions in 1936 as part of the G.I.W.W. Dredging between Larose and the Gulf of Mexico and the Jetties at Belle Pass was completed in 1934. Dredging between Lockport and Napoleonville is in inactive status due to lack of rights-of-way and spoil areas.

Dredging authorized by Act of 14 July 1960 between mile -0.3 and mile 13.2 on Bayou Lafourche was completed 11 September 1963.

Dredging Bayou Lafourche from Leeville to Golden Meadow (9 ft. x 100 ft.) was initiated on June 21, 1966 and completed 25 August 1966.

Dredging of Lafourche-Jump Waterway (Leeville to Grand Isle) and Bayou Lafourche Auxiliary Channel will be initiated after "fiscal year" 1967 con-

tingent upon availability of right of way and funds.

As of 14 July 1960 is 8% complete.

Total project as modified is 18% complete.

Cost

Previous Project	$ 252,935
Existing Project	913,550
Code 820	75,563
Total	$1,242,048

EXHIBIT 89

EXHIBIT 90

BAYOU LAFOURCHE-BELLE PASS
PRESENT CHANNEL

A new project constructed by the Greater Lafourche Port Commission, and completed in 1968, at a cost of $1,063,196, now connects the Gulf of Mexico with the interior waterway of the old Bayou Lafourche-Belle Pass channel. This project was licensed by the Corps of Engineers and, subsequent to the completion of the project, a dam was built blocking the old channel at the landward end of the jetties.

This new project enters the Gulf slightly west of the channel previously constructed by the Corps of Engineers and uses the old west jetty, built by the Corps of Engineers, to protect the channel from the prevailing westerly current in the Gulf. The project begins at the existing channel at a point 1.2 miles from the Gulf of Mexico and extends seaward to the 20-foot contour. The channel must be maintained at its project dimensions by the Port Commission or the Corps regulations require that it be abandoned and the federal project be re-opened.

Channel Constructed by the Corps of Engineers

After completion of project operations in fiscal 1914, at a cost of $220,519.09, there were only minor maintenance supervision expenses totaling $15,445.38 through the year 1934.

Corps investigation in the years prior to 1935 had found that the project was inadequate for the

demands of commerce and several recommendations were made to improve the channel.

The River and Harbor Act of August 30, 1935 adopted the report of the Corps of Engineers as published in House Doc. 45, 73rd Cong., 1st Sess.

The route recommended was as follows, subject to modification by the Chief of the Corps of Engineers as to selection of which outlet to the Gulf to improve.

Napoleonville to Thibodaux ..... 6 ft. x 60 ft.
Thibodaux to Lockport ..... 9 ft. x 60 ft.
Larose to the Gulf .....12 ft. x 60 ft.

(From Lockport to Larose the Intercoastal Waterway follows the Bayou.)

The cost estimates for the project were $351,000 for new work and $13,500 annually for maintenance.

The original Corps recommendation on the segment from Larose to the Gulf chose the present route of the project except for one section. It recommended that the project, at the juncture of Bayou Fourchon-Belle Pass, follow the Bayou with jetties at its mouth, and that Belle Pass be closed off.

The basis for this recommendation was, "Pass Fourchon can be improved at somewhat less cost than Belle Pass and has a larger upstream tidal prism." (H. Doc. 45, 73rd Cong., 1st Sess.) The cost of the two were:

Belle Pass
Construction—$84,000
Maintenance/yr.—$4,200

Pass Fourchon
Construction—$69,000
Maintenance/yr.—$4,000

In 1938 work was begun with surveys on the Havoline Canal to Gulf of Mexico section and some contracts were let for dredging. Also in this year the project was amended to close off Bayou Fourchon and allow the water to enter the Gulf through jetties at Belle Pass.

Construction began in earnest in 1939. Sheet steel breakwaters were begun extending to the 6-foot contour at Belle Pass and the channel was completed to project dimensions from Larose to the Gulf except for a one-mile section where the project was 6 ft. x 40 ft. At this point the project is listed as being 53% completed.

In 1940 the Larose to the Gulf section was completed as were the breakwaters. However, storm action damaged the break waters and additional stone is needed on them. During the year the estimate of cost was increased to $700,000 for new work and $20,000 annually for maintenance. At the end of fiscal 1940 the project was reported to be 35% complete.

At the end of 1941 the report states that the breakwater was strengthened and extended shoreward, that the project was 38% complete and that the remaining work was on the Lockport to Napoleonville segment. However, it lists the depth at breakwater as 2.5 feet.

There was no new work done on this project

and practically no maintenance during the war. In 1946 and 1947 surveys of the project were carried out and work recommenced in 1948. At that time the estimate of cost of construction was set at $871,000 with $50,000 needed annually for maintenance.

In 1948 maintenance work was done restoring the Pass and strengthening and extending the jetties. The project was 31% complete at the end of the year.

No new work was done and only minor maintenance works were carried out from 1945 to 1951. In 1952 repair work was done on the east jetty, but outside of this little was done. Again in 1953, jetty repair was the only major action on the project, as was the case in 1954.

In 1955, activity again slacked off and consisted of only minor survey and maintenance work. In 1956 the project became inactive and was unreported until 1961.

The River and Harbor Act of July 14, 1960, adopted the modifications set out in H. Doc. 112, 86th Cong., 1st Sess. In July, 1961, modifications provide for approximately 56 miles of 12 ft. x 125 ft. channel and 10.6 miles of 9 ft. x 100 ft. channel. The estimate of cost of this project was:

Federal $4,951,000
Non-federal 1,343,000
C. G. Aids 18,000

In the first year of operation new work consisted of right-of-way acquisition, surveys and soil sampling. The major expenditures of $75,563 was

for the purpose of rehabilitation of the jetties.

The following year right-of-way acquisition, soil tests and surveys were continued. Completion at the end of fiscal 1962 was set at 8%.

In 1963, 4.3 miles of channel were completed at a cost of $202,444. This work involved the removal of 1,026,705 cubic yards of material. In 1964, 442 feet of jetties were repaired with rock removed from the channel. The channel from Leesville to the 12-foot contour was completed for a total of 8.8 miles, 1,548,552 cubic yards of material were removed. The jetty channel was improved with the dredging of 74,490 cubic yards of material. At the end of 1964 the project was 17% completed.

In 1965 real estate activities were carried out and some surveys made, but no construction work was done.

In 1966 some dredging was carried out and contracts were let for jetty repair. The total spent in the year was $60,747.

APPENDIX I

Year	Construction Appropriated[2]	Cost[2]	Maintenance Appropriated[3]	Cost[4]	Commerce Tonnage	Value
1913[1]	.....	.....	$ 2,000	$ 874	295,195	$ 4,095,935
1914	.....	.....	.....	367	335,361	6,261,201
1915	.....	.....	.....	.....	248,167	4,079,114
1916	.....	.....	.....	69	226,419	4,710,479
1917	.....	.....	.....	104	266,203	5,588,229
1918	.....	.....	.....	7	267,054	10,067,475
1919	.....	.....	.....	118	241,249	10,510,997
1920	.....	.....	.....	173	232,960	9,854,535
1921	.....	.....	.....	216	257,594	9,264,022
1922	.....	.....	.....	108	171,622	5,101,169
1923	.....	.....	.....	45	138,293	4,827,451
1924	.....	.....	.....	82	112,608	4,134,198
1925	.....	.....	.....	.....	96,422	3,940,946
1926	.....	.....	.....	.....	43,605	1,319,886

Year	Construction Appropriated[2]	Cost[2]	Maintenance Appropriated[3]	Cost[4]	Commerce Tonnage	Value
1927	.....	.....	.....	.....	62,373	1,146,666
1928	.....	.....	.....	.....	126,312	2,352,619
1929	.....	.....	.....	.....	163,287	2,438,290
1930	.....	.....	.....	.....	210,788	3,359,216
1931	.....	.....	.....	.....	143,369	2,587,554
1932	.....	.....	.....	.....	138,462	1,432,205
1933	.....	.....	.....	.....	109,958	1,174,591
1934	.....	.....	.....	.....	792,265	5,654,841
1935	.....	.....	.....	.....	893,379	7,248,033
1936	.....	.....	.....	.....	882,522	7,565,924
1937	.....	.....	.....	.....	870,522	.....
1938	.....$ 120,000	$ 5,792	.....	.....	914,704	.....
1939	 150,000	145,430	.....	.....	756,043	.....
1940	 19,720	97,249	.....	.....	1,166,255	.....
1941	 36,200	21,840	.....	20,004	1,253,570	.....
1942	..... — 3,355	.....	.....	15,221	933,209	.....
1943	 15,000	.....	.....	328	1,009,702	.....
1944	....	.....	.....	3,519	761,872	.....
1945	 10,000	.....	.....	28,647	684,578	.....
1946	..... — 900	.....	.....	875	849,431	.....
1947	 123,946	.....	.....	2,782	878,929	.....
1948	....	.....	97,500	215,732	1,380,912	.....
1949	....	.....	11,000	4,809	1,831,065	.....
1950	....	.....	174	2,289	2,182,298	.....
1951	....	.....	52,480	5,418	2,279,685	.....
1952	....	.....	3,000	56,091	1,946,442	.....
1953	....	.....	221,105	104,577	2,216,534	.....
1954	....	.....	—15,000	102,153	897,072	.....
1955	....	.....	5,000	5,071	1,179,172	.....
1956	....	.....	.....	.....	1,294,635	.....
1957	....	.....	.....	.....	1,804,354	.....
1958	....	.....	.....	.....	2,146,649	.....
1959	....	.....	.....	.....	2,276,384	.....
1960	....	.....	.....	.....	2,308,356	.....
1961	 87,000	72,993	.....	.....	2,491,945	.....
1962	 100,000	29,836	.....	.....	2,629,495	.....
1963	 330,500	202,444	.....	.....	2,985,284	.....
1964	 55,000	265,997	85,525	85,520	1,933,182	.....
1965	 9,000	10,454	— 5	.....	2,341,886	.....
1966	 325,000	60,737	56,000	9,222	.....	.....
Total	.....$1,431,024	$1,166,486	$724,558	$677,780		

(As of 30 June 1966 exclusive of $75,563 spent in 1961 on rehabilitation.)

[1]For statistics prior to 1913 see Appendix II.
[2]No new construction appropriations until 1938 and between 1938 and 1948 appropriations were not divided between maintenance and new work in the Reports.
[3]No maintenance appropriations until 1948.
[4]No record of maintenance expenditures until 1941.

APPENDIX II
STATISTICS AVAILABLE ON PERIOD PRIOR TO 1913

Appropriations for new work:

1878 ..... $10,000
1879 10,000
1880 5,000
1884 5,000
1888 50,000
1890 50,000
1894 40,000
1896 15,000

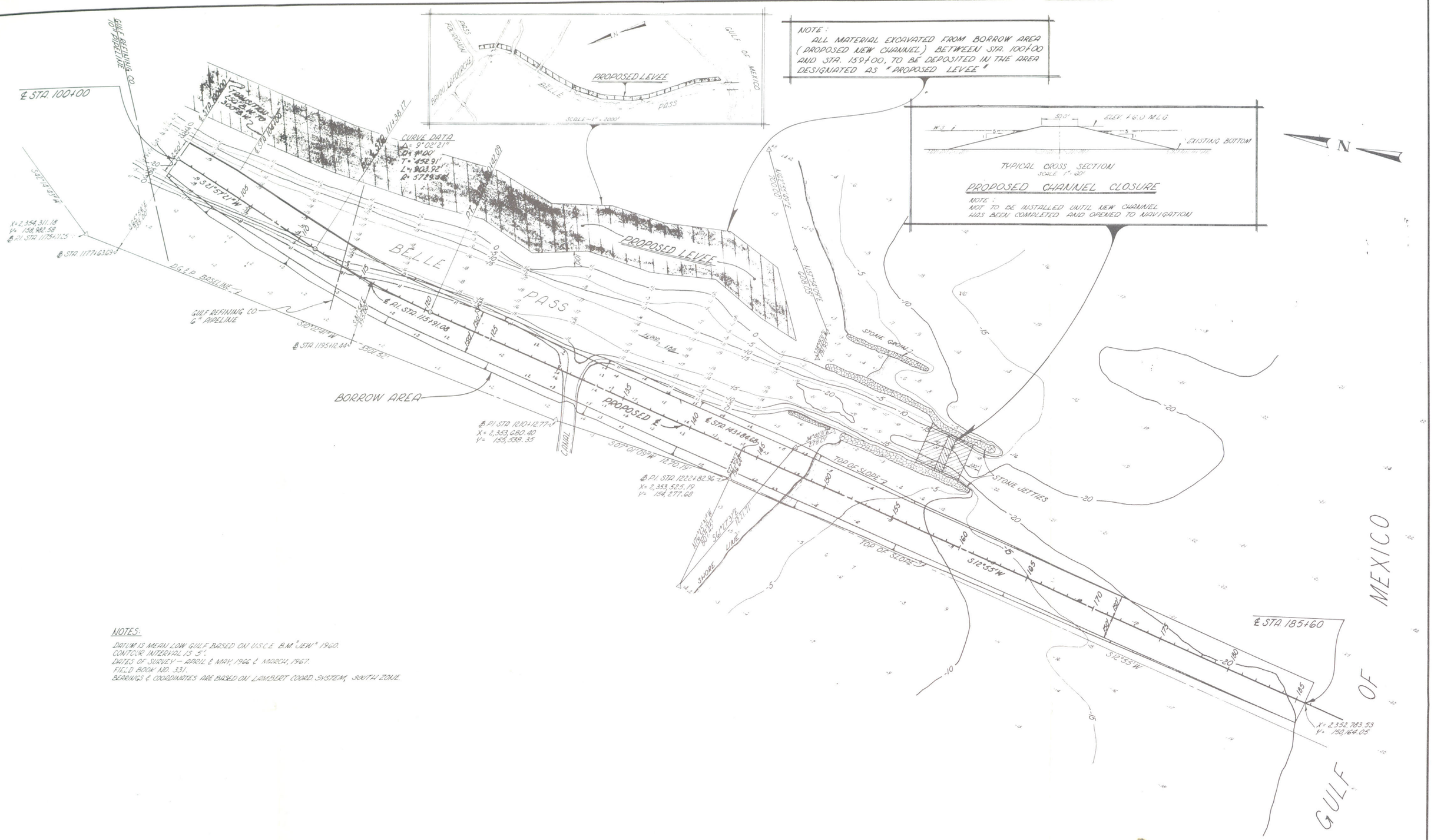
Maintenance Appropriations:

1899 ..... $ 7,500
1902 7,500
1910 7,500
1913 2,000

Commerce in Tons:

1899 157,258
1900 201,315
1901 137,315
1902 132,745
1903 94,351
1904 66,839
1905 94,320
1906 59,092
1907 46,413
1908 64,914
1909 70,618
1910 80,935
1911 115,749
1912 232,186

EXHIBIT 91



NOTES:

DATUM IS MEAN LOW GULF BASED ON U.S.C.E. B.M. "IEW" 1960.
CONTOUR INTERVAL IS 5'.
DATES OF SURVEY — APRIL & MAY, 1966 & MARCH, 1967.
FIELD BOOK NO. 331.
BEARINGS & COORDINATES ARE BASED ON LAMBERT COORD. SYSTEM, SOUTH ZONE.

DATE	REVISIONS	BY
6/28/68	ADD COORD. FOR STA 185+60	KWH
8/2/67	REMOVE SPOIL AREA IN GULF & NOTE PERTAINING TO SAME	KWH
7/10/67	ADD GULF REF. CO. 6" PIPELINE	KWH
6/29/67	ADD COORDINATES	KWH
5/23/67	ADD CHANNEL & SHORE DETAILS	FJL
5/12/67	ADD SPOIL & BORROW DETAILS	FJL

DRAWN BY KWH
DESIGNED BY
CHECKED BY
APPROVED BY

DATE MARCH, 1967
SCALE 1" = 300'
PROJECT NO 147-100
DRAWING NO 147-100-273

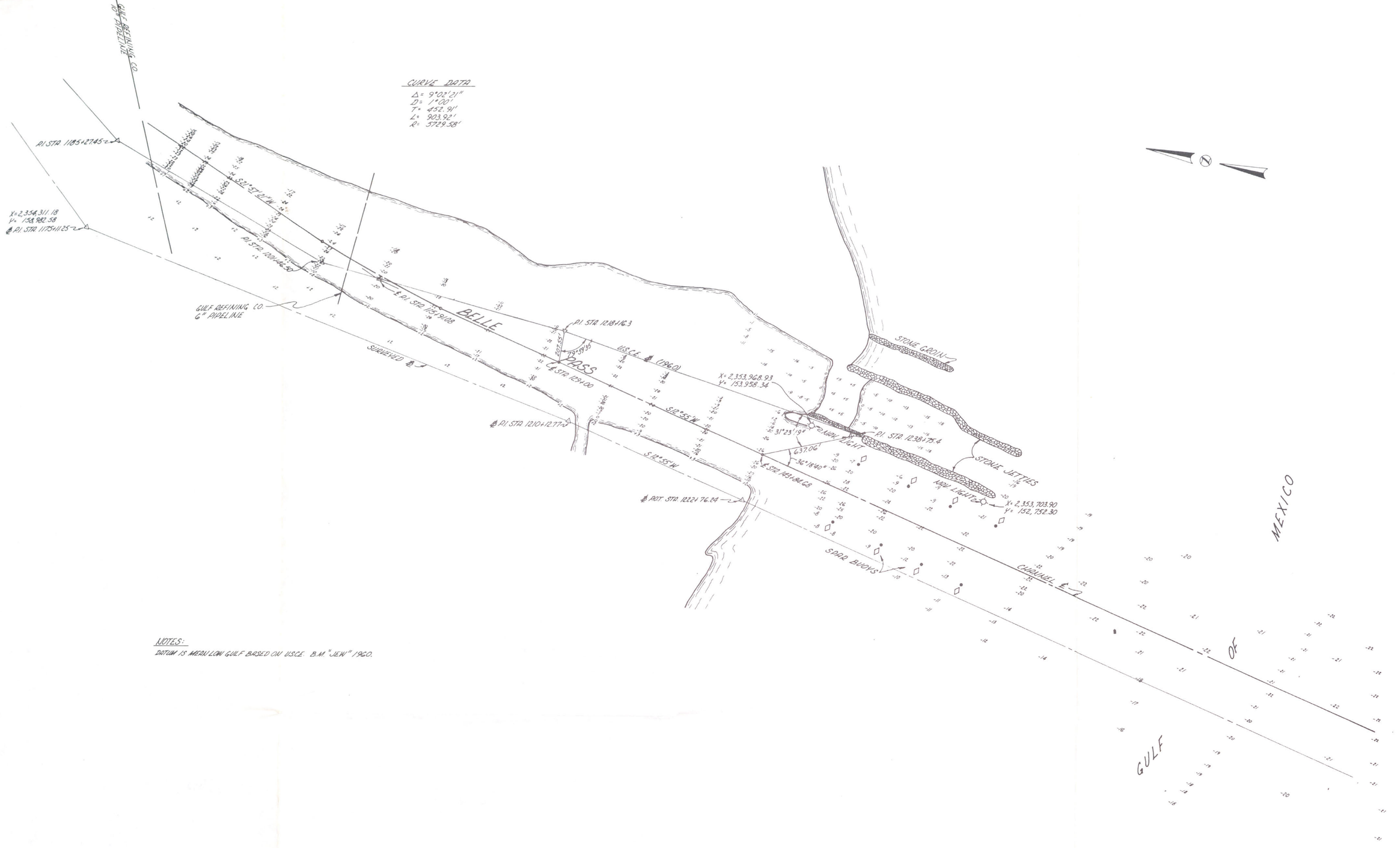
DAWSON, GILBERT & PILCHER
CONSULTING ENGINEERS
BATON ROUGE LOUISIANA

GREATER LAFOURCHE PORT COMMISSION
GALLIANO, LOUISIANA
OWNER

HURRICANE PROTECTION IMPROVEMENTS AT BELLE PASS
LAFOURCHE PARISH, LOUISIANA
TITLE

EXHIBIT 91

EXHIBIT 92



CURVE DATA
Δ = 9°02'21"
D = 1°00'
T = 452.91'
L = 903.92'
R = 5729.58'

NOTES:
DATUM IS MEAN LOW GULF BASED ON U.S.C.E. B.M. "JEW" 1960.

DATE	REVISIONS	BY
6-28-68	ADD NAV. LIGHTS COORD.	K.W.H.
3-3-68	ADD U.S.C.E. BASELINE, CHANNEL ℄ & DATUM NOTE.	K.W.H.

DRAWN BY K.W.H.
DESIGNED BY
CHECKED BY
APPROVED BY
DATE APRIL, 1968
SCALE 1" = 300'
PROJECT NO. 147-100
DRAWING NO. 147-100-293

HEVCON CORPORATION
ENGINEERS
BATON ROUGE, LOUISIANA

GREATER LAFOURCHE PORT COMMISSION
GALLIANO, LOUISIANA
OWNER

HYDROGRAPHIC SURVEY
AT MOUTH OF BELLE PASS
TITLE

EXHIBIT 92

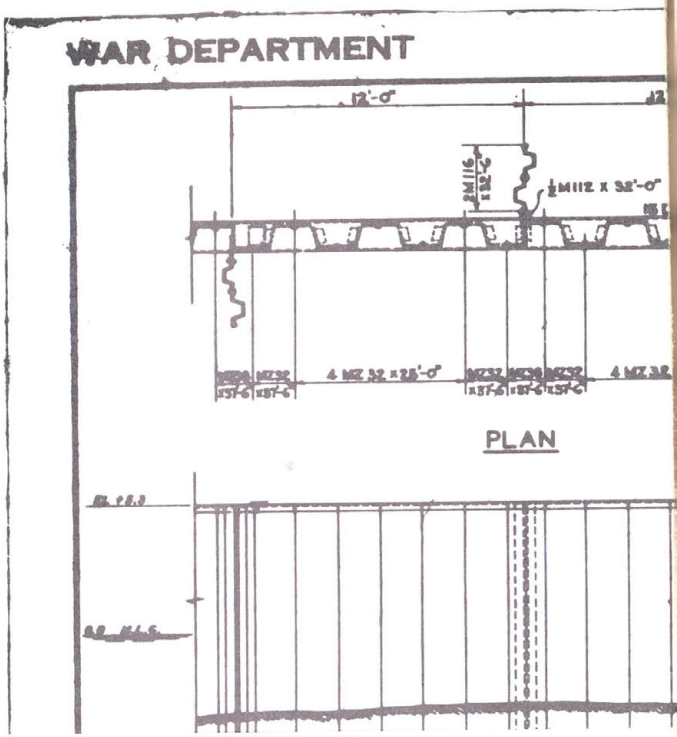


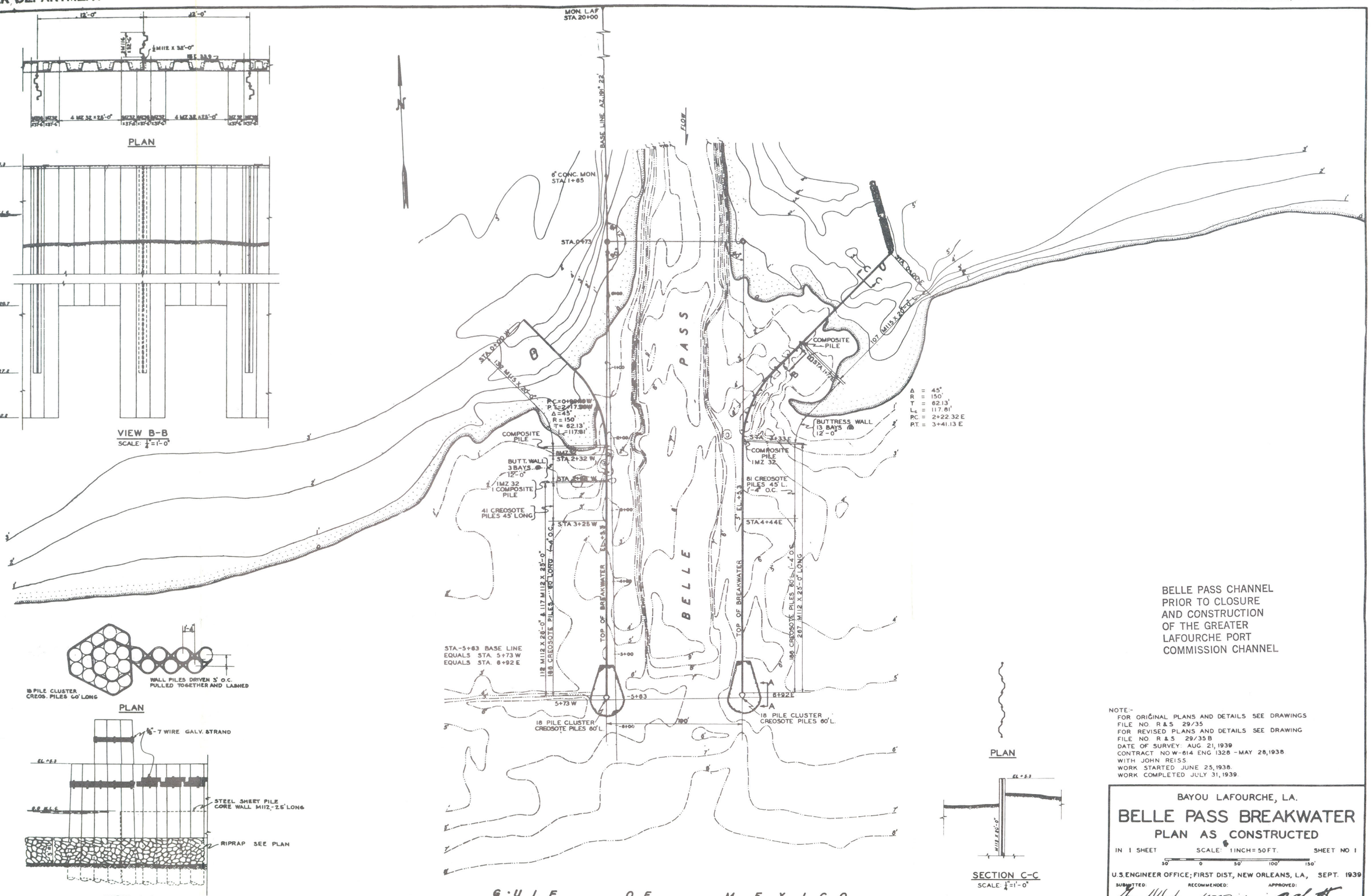
EXHIBIT 93, PAGE 1

WAR DEPARTMENT

CORPS OF ENGINEERS, U. S. ARMY

PLAN

VIEW B-B
SCALE: 1/4"=1'-0"



PLAN

VIEW A-A
SCALE: 1/4"=1'-0"

PLAN

SECTION C-C
SCALE: 1/4"=1'-0"

BELLE PASS CHANNEL
PRIOR TO CLOSURE
AND CONSTRUCTION
OF THE GREATER
LAFOURCHE PORT
COMMISSION CHANNEL

NOTE:-
FOR ORIGINAL PLANS AND DETAILS SEE DRAWINGS
FILE NO. R & S 29/35
FOR REVISED PLANS AND DETAILS SEE DRAWING
FILE NO. R & S 29/35 B
DATE OF SURVEY: AUG. 21, 1939
CONTRACT NO W-614 ENG 1328 - MAY 28, 1938
WITH JOHN REISS.
WORK STARTED JUNE 25, 1938.
WORK COMPLETED JULY 31, 1939.

BAYOU LAFOURCHE, LA.

BELLE PASS BREAKWATER

PLAN AS CONSTRUCTED

IN 1 SHEET SCALE: 1 INCH = 50 FT. SHEET NO 1

50' 0 50' 100' 150'

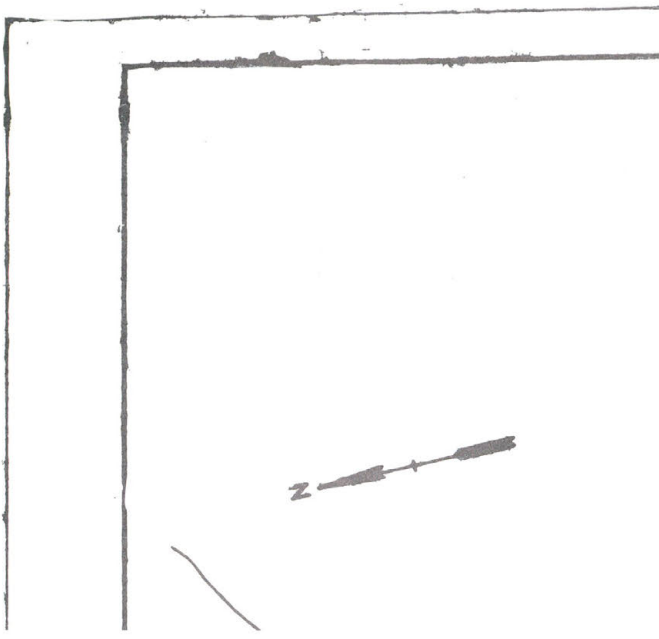
U.S. ENGINEER OFFICE; FIRST DIST, NEW ORLEANS, LA., SEPT. 1939

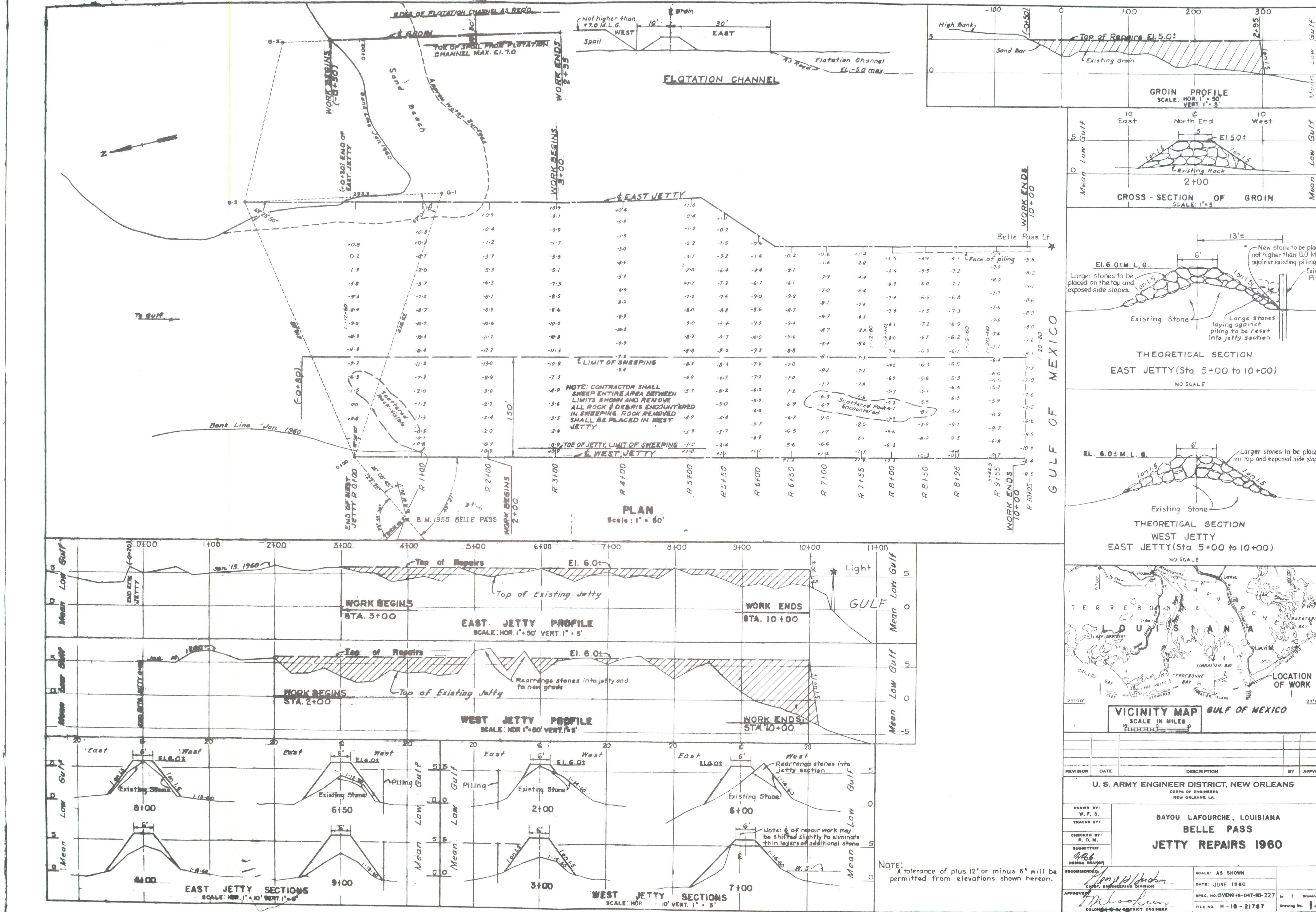
SUBMITTED:	RECOMMENDED:	APPROVED:
ENGINEER	PRINCIPAL ENGINEER	CAPT. CORPS OF ENGINEERS

DRAWN:	TRACED:	CHECKED:	TO ACCOMPANY LETTER DATED:
RJF	JHP	RJF	SEPT. 11, 1939

R&S. 29/35 C

EXHIBIT 93, PAGE 1


N

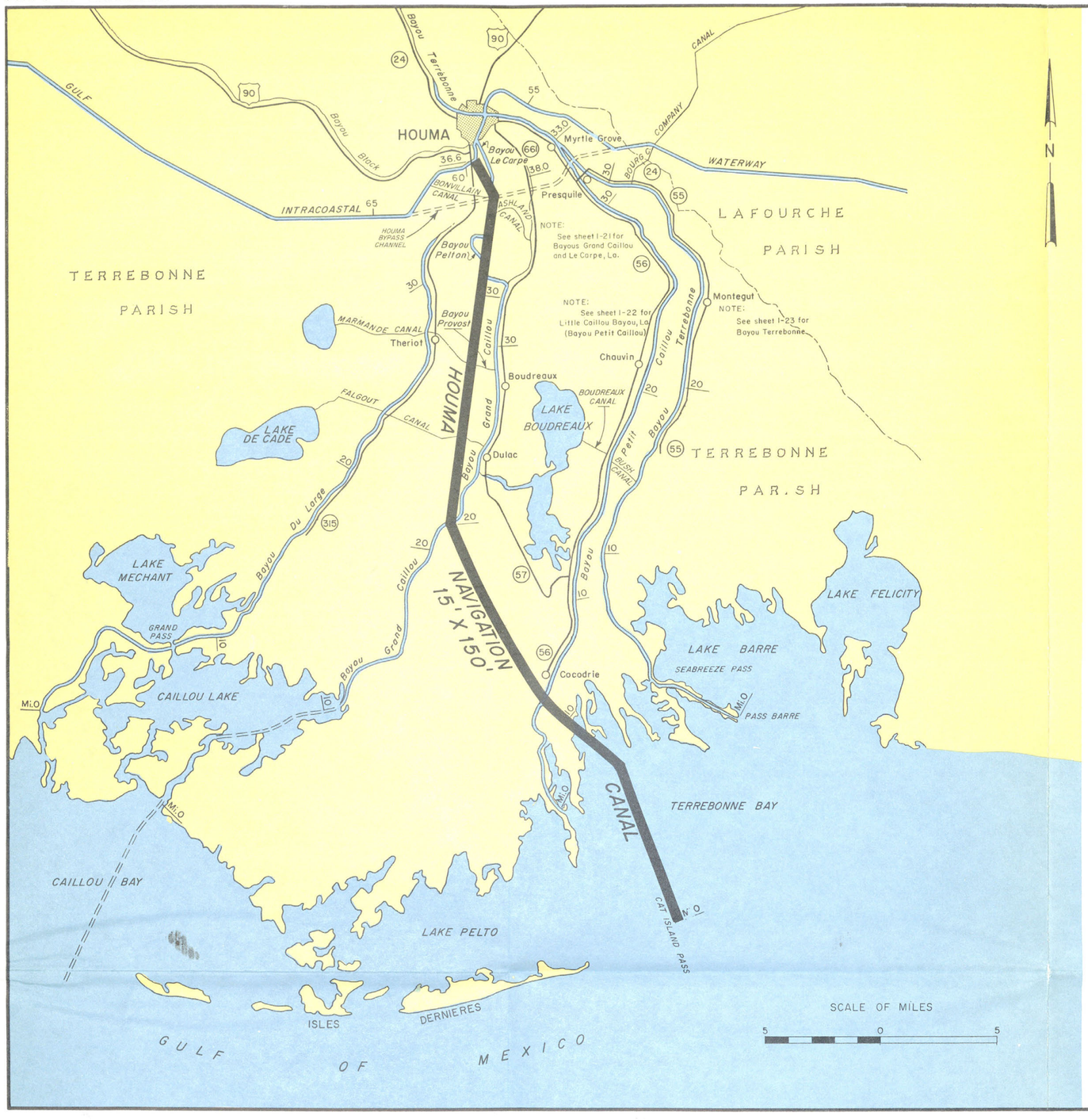


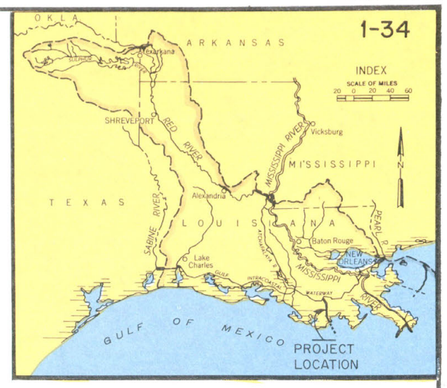
EDGE OF FLOTATION CHANNEL AS REQ'D.
TOE OF SPOIL FROM FLOTATION CHANNEL MAX. EL. 7.0
WORK BEGINS (-0+50)
WORK ENDS 2+95
Sand Beach
FLOTATION CHANNEL
Not higher than +7.0 M.L.G.
WEST
EAST
Spoil
Flotation Channel
High Bank
Sand Bar
Top of Repairs El. 5.0±
Existing Groin
GROIN PROFILE
East
North End
West
Existing Rock
2+00
CROSS - SECTION OF GROIN
East Jetty
WORK BEGINS 3+00
WORK ENDS 10+00
Belle Pass Lt.
Face of piling
To Gulf
LIMIT OF SWEEPING
NOTE: CONTRACTOR SHALL SWEEP ENTIRE AREA BETWEEN LIMITS SHOWN AND REMOVE ALL ROCK & DEBRIS ENCOUNTERED IN SWEEPING. ROCK REMOVED SHALL BE PLACED IN WEST JETTY
Scattered Rock Encountered
Bank Line - Jan. 1960
TOE OF JETTY, LIMIT OF SWEEPING
West Jetty
GULF OF MEXICO
B.M. 1955 BELLE PASS
WORK BEGINS 2+00
PLAN
Scale: 1" = 50'
EL. 6.0± M. L. G.
Larger stones to be placed on the top and exposed side slopes.
New stone to be placed not higher than 0.0 M.L.G. against existing piling.
Existing Piling
Existing Stone
Large stones laying against piling to be reset into jetty section
THEORETICAL SECTION
EAST JETTY (Sta. 5+00 to 10+00)
NO SCALE
EL. 6.0± M. L. G.
Larger stones to be placed on top and exposed side slopes.
Existing Stone
THEORETICAL SECTION
WEST JETTY
EAST JETTY (Sta. 5+00 to 10+00)
NO SCALE
Top of Repairs
El. 6.0±
Top of Existing Jetty
Light
GULF
WORK BEGINS STA. 3+00
WORK ENDS STA. 10+00
EAST JETTY PROFILE
SCALE: HOR. 1" = 50' VERT. 1" = 5'
Top of Repairs
El. 6.0±
Rearrange stones into jetty and to new grade
Top of Existing Jetty
WORK BEGINS STA. 2+00
WEST JETTY PROFILE
SCALE: HOR 1" = 50' VERT. 1" = 5'
WORK ENDS STA. 10+00
Mean Low Gulf
Existing Stone
8+00
6+50
4+00
9+00
EAST JETTY SECTIONS
SCALE: HOR. 1" = 10' VERT. 1" = 5'
Piling
Existing Stone
2+00
3+00
Rearrange stones into jetty section
6+00
Note: ℄ of repair work may be shifted slightly to eliminate thin layers of additional stone
7+00
WEST JETTY SECTIONS
SCALE: HOR. 1" = 10' VERT. 1" = 5'
NOTE: A tolerance of plus 12" or minus 6" will be permitted from elevations shown hereon.
VICINITY MAP
SCALE IN MILES
GULF OF MEXICO
TERREBONNE
LAFOURCHE
LOUISIANA
TIMBALIER BAY
TERREBONNE BAY
LOCATION OF WORK
REVISION DATE DESCRIPTION BY APPVD.
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.
DRAWN BY: W. F. S.
CHECKED BY: R. O. M.
BAYOU LAFOURCHE, LOUISIANA
BELLE PASS
JETTY REPAIRS 1960
CHIEF, ENGINEERING DIVISION
COLONEL, C. E., DISTRICT ENGINEER
SCALE: AS SHOWN
DATE: JUNE 1960
FILE NO. H-16-21767

EXHIBIT 94

CORPS OF ENGINEERS

U.S. ARMY





LEGEND

Improvements provided by local interest completed

STATE PLANE COORDINATES

Landward End of Channel
x=2,242,833.59
y= 144,662.84

Seaward End of Channel
x=2,243,847.59
y= 135,007.84

LOWER MISSISSIPPI VALLEY DIVISION WORK

RIVER AND HARBOR IMPROVEMENTS

HOUMA NAVIGATION CANAL, LA.

SCALES AS SHOWN

OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA.

Revised 30 June 1967

EXHIBIT 94

HOUMA NAVIGATION CANAL, LA.
CONDITION OF IMPROVEMENT, 30 JUNE 1965

Project

River and Harbor Act of 23 October 1962 provides for the maintenance of the Houma Navigation Canal, after its completion by local interests to channel dimensions of 15 feet deep and 150 feet wide, at an estimated annual cost of $105,000. Total length of improvement 36.25 miles with the last 9.5 miles in Terrebonne Bay.

Physical Data

Normal range of tide 10 inches at mouth and 4 inches at Houma; extreme, 14 inches at mouth and 6 inches at Houma; wind and tide 1 to 3 feet at mouth; flood 3 to 4 feet in upper section.

Controlling depth, mean low Gulf as of June 1965, Cat Island Pass to G.I.W.W., 10.5 ft.; and intersection with G.I.W.W., 10 ft.

Progress of Work

Maintenance initiated on 27 November 1964.

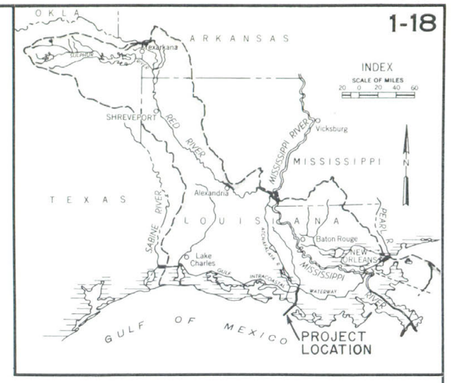
EXHIBIT 95

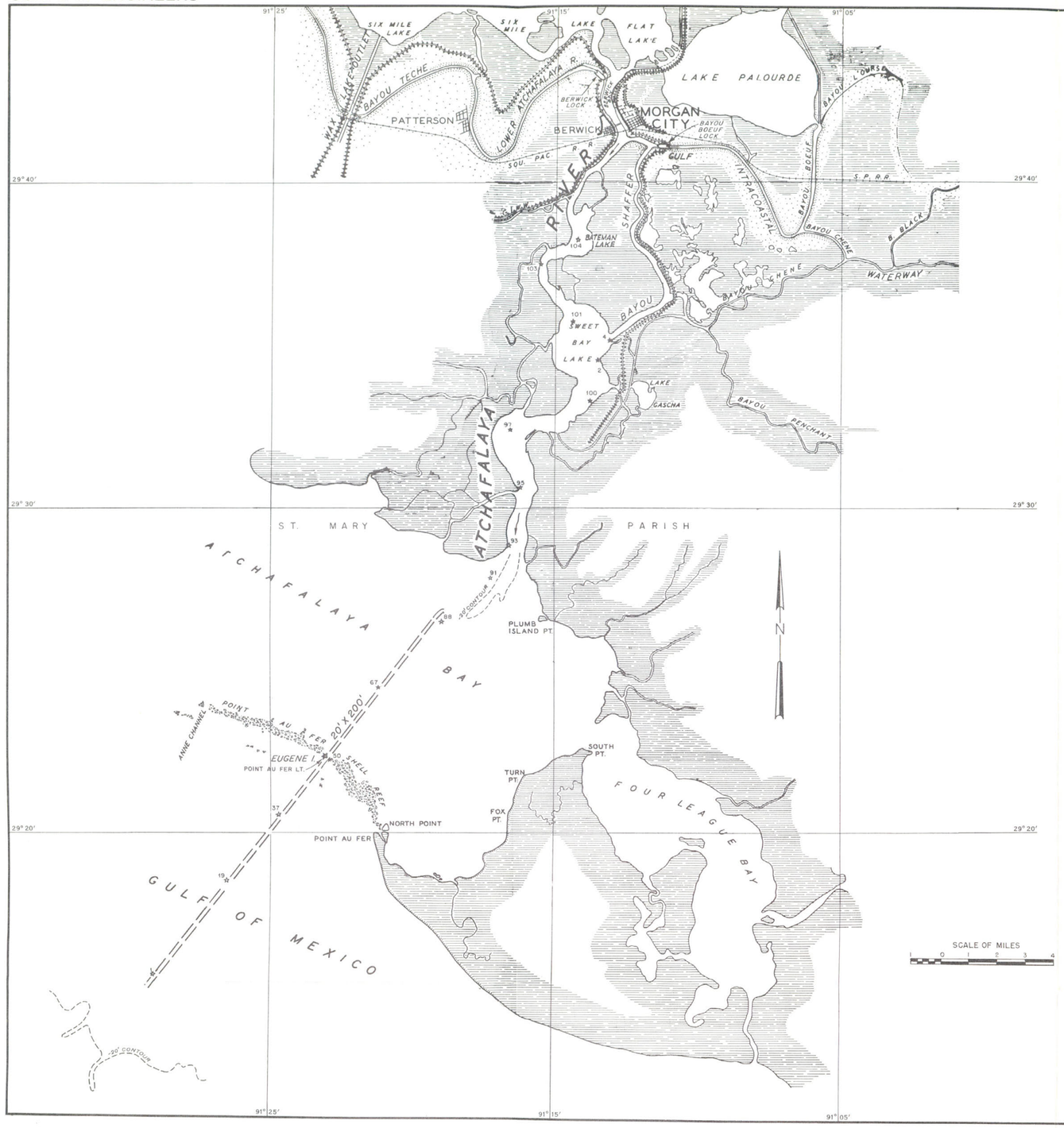
EXHIBIT 97

CORPS OF ENGINEERS

U. S. ARMY

1-18





LOWER MISSISSIPPI VALLEY DIVISION WORK

RIVER AND HARBOR IMPROVEMENTS

ATCHAFALAYA RIVER
MORGAN CITY TO THE GULF OF MEXICO, LA.

SCALES AS SHOWN

OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA.

Revised 30 June 1961

EXHIBIT 97

ATCHAFALAYA RIVER, MORGAN CITY TO THE GULF OF MEXICO, LA.

CONDITION OF IMPROVEMENT, 30 JUNE 1961

Project

River and Harbor Act of 25 June 1910 provides for a channel 20 feet deep, 200 feet wide and 15.75 miles long from the 20 foot contour in Atchafalaya Bay, which is approximately 4 miles beyond the mouth of the Atchafalaya River, to the 20 foot contour in the Gulf of Mexico.

Range of Tide

Normal, 10 inches; extreme, 14 inches; hurricane, 10 feet.

Controlling Depth Below Mean Low Gulf Level

(Apr. 1960) Light 91 to light 88, 12 ft.; (Jun. 1961) to light 50, 18 ft.; (Apr. 1960) to buoy No. 1, 16 ft.; from buoy No. 1 to deep water, 13 ft.

Progress of Work

Project completed in 1914.

Status

100% complete.

Cost

$501,963.

EXHIBIT 98

EXHIBIT 99

ATCHAFALAYA RIVER—
MORGAN CITY TO THE GULF

Prior to the construction of what is the present Atchafalaya River-Morgan City to the Gulf Channel (hereafter "Channel") there had been several feasibility studies made by the Corps of Engineers. These studies resulted in unfavorable reports recommending that no improvement be made. They can be found in the Corps of Engineer Reports: 1871, p. 554; 1897, p. 1779; 1900, p. 2282.

Two channels were constructed by private companies prior to the present Corps of Engineers Project. In 1870-1874 the first channel was constructed by the Louisiana and Texas Railroad. This channel was poorly surveyed and the route chosen exposed it to wave action which filled it with sediment. By 1900 almost no trace of this channel remained.

The second channel was constructed by the Atchafalaya Bay Ship Channel Company. The company was organized in 1907, primarily by Morgan City businessmen: lumber interests, farmers, etc., who felt that the transportation facilities available to them were inadequate.

This company constructed a channel 14 feet deep by 100-125 feet wide. The route chosen was the one that the Corps of Engineers, in its 1900 survey, considered the best available. This route was desirable because it would not be subject to cross currents with the constant and rapid filling which was responsible for the abandonment of the Louisiana and Texas Railroad Channel.

The wisdom of this choice was proven by the remarkably small amount of filling which occurred during what one House Report describes as the "big storm" of September 20, 1909.

The Act of June 25, 1910; H.R. 20686; Public Law, No. 264 adopted H.Doc. 669, 61st Cong., 2d Sess., recommended that the Federal Government purchase the existing channel from the Atchafalaya Bay Ship Channel Company for the sum of $150,000 and improve it to a depth of 20 feet and a width of 240 feet, except for the part crossing Point au Fer shell reef at which point it should be widened to 400 feet, tapering to 240 feet on either side of the reef.

The work on the improvement began in the fiscal year, 1911, and was completed the following year with the expenditure of $501,963.23, which included the $150,000 purchase price.

After completion of the channel it was found that parts shoaled quite rapidly. Consequently dredging was begun to maintain the channel.

In fiscal 1915, the channel had to be re-dredged. The costs for maintenance in that year, primarily spent on the re-dredging amounted to $35,585.47 and in fiscal 1916, $22,926.52.

The re-dredging was completed in August, 1915. There was some increase in commerce attributable to the new channel. (Note: Re-dredging was done in 1914 and 1915. The improvement allowed greater use of

the channel during most of 1914 and most of 1915. Traffic increased after commencement of the work and dropped off again after the channel was destroyed.) The commercial statistics available are as follows:

1912	41,588 short tons
1913	29,427 short tons
1914	66,147 short tons
1915	39,561 short tons
1916	20,823 short tons

The marked drop in tonnage was caused by a hurricane which, in September, 1915, one month after the completion of the re-dredging, "practically obliterated the channel. . . ." (Corps Report of 1916, Part I, p. 887).

The 1917 Report increased the estimate of the cost of maintenance to $120,000 per year. There was no modification of the project but the report stated that maintenance at project dimensions was impractical without being excessively expensive and for that reason an amount, not to exceed $20,000 per year would be spent to maintain a 14x200 foot channel.

In that year maintenance expenditures amounted to $195.61 for survey work.

In 1919 the channel was re-dredged to 14 feet and channel markers were replaced at a total maintenance cost of $75,151.69 bringing the total maintenance cost on the channel to $140,729.63. This amount, combined with construction costs comes to a grand total of $642,692.86.

Cost estimates in 1919 to maintain a 14-foot

channel were set at $60,000. This rise in maintenance cost was caused by the "rapid shoaling of the channel, the advanced cost of dredging, and the demands for better channel conditions than were formerly maintained." (Corps of Engineers Report, 1919, Part I, p. 1009.)

Commercial statistics for 1917 and 1918 were:

Year	*Tons*	*Value*
1917	8,183	$ 255,054
1918	11,626	1,221,998

"The tonnage for the calendar year, 1918, consisted principally of fuel oil, new ship hulls, and miscellaneous merchandise." (*Ibid* 1010).

The year, 1920, saw $12,569.19 spent on maintenance, over $10,000 of which was on contracts carrying over from the prior year. Again, $60,000 was the estimate needed to maintain a 14x200 foot channel.

The 1921 expenditures amounted to $1,094.26 for general supervision.

No maintenance was done over the next several years. In 1923 the controlling depth was found to be 6 feet.

Between the years, 1930 and 1939, no annual report was made, and no maintenance of any nature was carried out. From 1939 through 1946 the reports show that no maintenance work was done. However, several surveys indicate that re-dredging a 10-foot channel from the Eugene Island Light to the 10-

foot contour in the Gulf would be practical. In this period the controlling depth for the channel was listed at 7.5 feet.

In 1947 the Corps began to re-dredge the Eugene Island Channel, as recommended, to a depth of 10 feet. The amount spent during that year for the re-dredging amounted to only $1,399.48. In 1948 work continued; the project, a 10x100 foot channel was completed at a cost of $67,969.17. A recommendation was made for an expenditure of $250,000 in 1950.

The 1949 Report stated that the existing channel was inadequate to meet the needs of commerce, that a channel more nearly the approved project depth was necessary. As a result it recommends an appropriation of $189,500 be made for 1951 for maintenance and dredging.

The 1950 and 1951 reports echo the 1949 statement, but no work was accomplished. The 1952-1955 reports list the project as "inactive" and make no specific project reports. In 1956 a survey and reconnaissance of the channel was made at a cost of $5,789.

In 1958 there was a resurgence of activity. In this year dredging operations were carried out between November, 1957, and January, 1958, costing $308,128; the total maintenance cost for the year was $309,149. The work resulted in a channel with a controlling depth of 13 feet.

Total cost of the project at the end of fiscal 1958 amounted to $1,096,502; $501,963 for construction and $594,539 for maintenance.

The following year, 1959, the only activity was a survey of the Channel. In 1960, $311,603 was spent in maintenance dredging.

Between 1960 and the latest data available the Corps has continued to deepen and widen the channel. In the years from 1960 through 1966, the total maintenance was:

1960	$ 315,064
1961	313,237
1962	527,653
1963	11,111
1964	443,944
1965	398,760
1966	342,321
Total 1960-1966:	$2,352,090
Total Maintenance 1914-date:	$2,946,629

The expenditures by May, 1966, had returned the channel to a controlling depth of 16 feet. The traffic in tons for the year 1965 was 4,749,507.

When this is compared with the 314,452 tons transported over this channel in 1946 when the control depth was 7.5 feet, the beneficial result of the project to the area shipping becomes immediately obvious.

ATCHAFALAYA APPENDIX I

Traffic in Atchafalaya Bay Ship Channnel in Tons

Channel Filled	1913	29,437
	1914	66,147
	1915	39,561
Depression	1916	20,823
	1917	8,183
	1918	11,626
	1919	14,029
	1920	15,852
	1921	52,357
	1922	70,027
	1923	122,695
	1924	142,098
	1925	149,385
	1926	172,567
	1927	278,684
	1928	681,869
	1929	521,681
	1930	167,845
	1931	316,869
	1932	205,947
	1933	201,635
	1934	203,577
	1935	293,284
	1936	297,747
	1937	282,265
	1938	317,407
	1939	432,534
	1940	412,157
	1941	374,895
	1942	399,006
	1943	809,614
	1944	410,523
	1945	450,005
	1946	314,452
Work Started	1947	488,400
Finished	1948	343,503
	1949*	436,098
	1950	586,226
Inactive	1951	512,747
Inactive	1952	497,283
Inactive	1953	458,711
Inactive	1954*	594,432
Inactive	1955*	1,004,433
Inactive	1956*	1,767,462
Survey Work	1957	2,503,609
Survey Work	1958	2,443,707
	1959	2,820,861
	1960	3,181,643
	1961*	3,615,082
	1962	3,974,999
	1963	4,371,574
	1964	4,036,181
	1965	4,749,507

*Channel adequate adequate for commerce.

*Channel adequate adequate for commerce.

*Channel adequate adequate for commerce.

ATCHAFALAYA APPENDIX II

Cost of Maintenance - 1950 to present

Year	*Cost for year*	*Cost to end of year*
1966	$342,321	$2,946,629
1965	398,760	2,604,308
1964	443,944	2,205,548
1963	11,111	1,761,604
1962	527,653	1,750,493
1961	313,237	1,222,840
1960	315,064	909,603
1959	824	595,363
1958	309,149	594,539

Project inactive through 1950.

EXHIBIT 99

EXHIBIT 100, PAGE 1

GULF OF MEXICO

LOWER LIMIT OF WORK RANGE 112

ITEM 3 (37,000')

NO WORK (10,000')

ITEM 2 (26,069')

UPPER LIMIT OF WORK RANGE 14

INNER LIMIT OF SPOIL

Range 28 does not exist

BASE LINE

ATCHAFALAYA BAY

ATCHAFALAYA BAY

Terrebonne Parish, La.

LEGEND
- Red Buoy
- Black Buoy
- Lighted Buoy

PLAN
SCALE 1:36,000 OR 1"=3000'
1000 0 3000 10,000 FEET

VICINITY MAP
SCALE OF MILES
10 0 10

LOCATION OF WORK
ITEM 2
ITEM 3
GULF OF MEXICO
MORGAN CITY
MARSH ISLAND
29° 30'
91° 30'

CROSS SECTIONS
Scale Hor. 1"= 40' Vert. 1"= 20'

WEST SIDE ℄ CHANNEL EAST SIDE

SPOIL — INNER LIMIT OF SPOIL — Dec. 1962

AREA TO BE DREDGED — RANGE 33

BOTTOM OF DREDGED CUT EL.-16.0 — 1 on 2

2' ALLOWABLE OVERDEPTH EL.-18.0

100' 100' 1000'

ITEM 2 — Theoretical Cut

AREA TO BE DREDGED — RANGE 85

ITEM 3

ELEVATIONS IN FEET-MEAN LOW GULF

PROFILE
Scale Hor. 1"= 4000' Vert. 1"= 12'

ITEM 3 (57,000') — NO WORK (14,000') — ITEM 2 (26,069')

Bottom of Existing Channel 100' East of ℄

Bottom of Existing Channel at ℄ (Dec. 1962)

Bottom of Existing Channel 100' West of ℄

2' ALLOWABLE OVERDEPTH

BOTTOM OF DREDGED CUT EL.-16.0 M.L.G.

EL.-18.0 M.L.G.

RANGE 35 — RANGE 41

LOWER LIMIT OF WORK RANGE 112

UPPER LIMIT OF WORK RANGE 14

* NOTE: Range 28 does not exist

REVISION	DATE	DESCRIPTION	BY	APPVD.

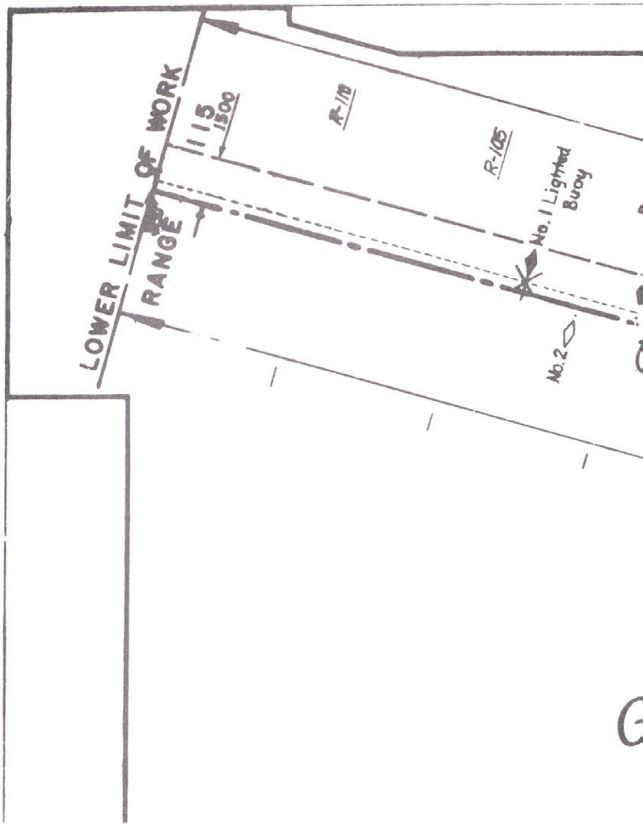
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.

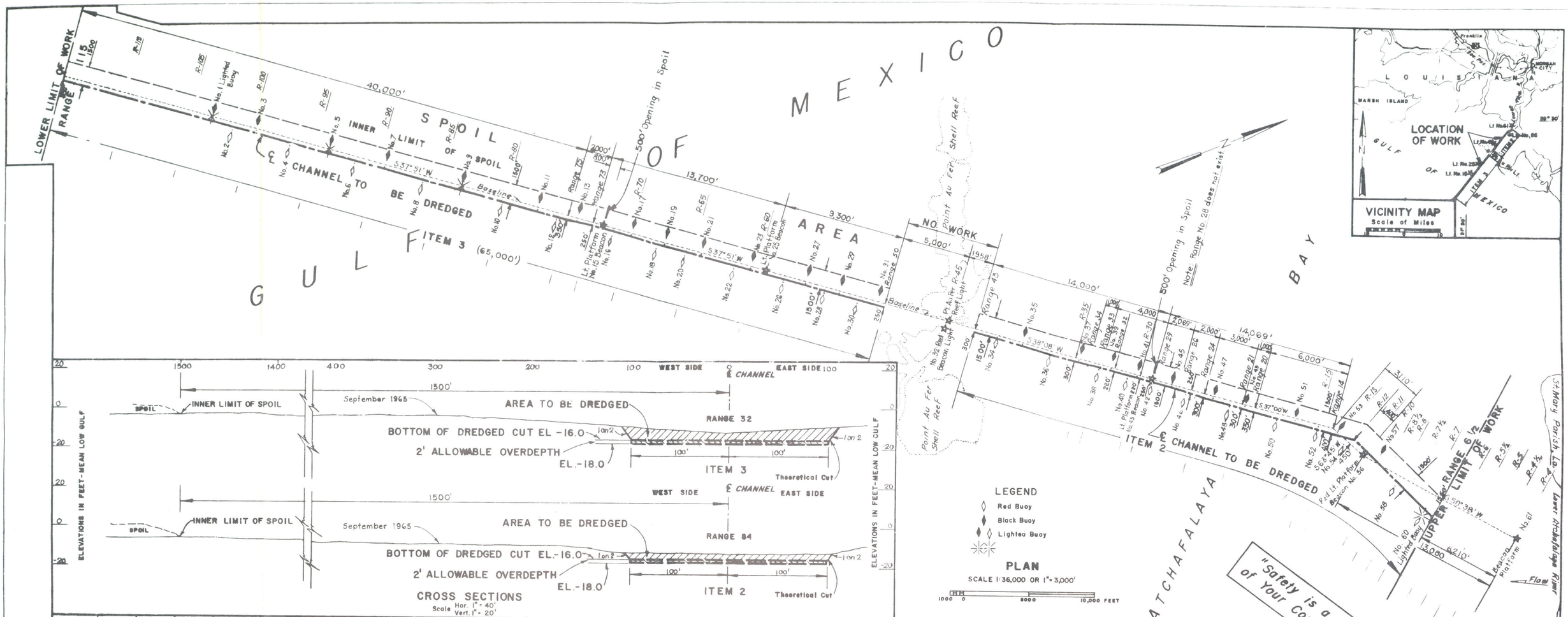
DRAWN BY: L.S.M.
TRACED BY: L.S.M.
CHECKED BY: G.F.M.
SUBMITTED: RJP DESIGN BRANCH
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: COLONEL, C.E., DISTRICT ENGINEER

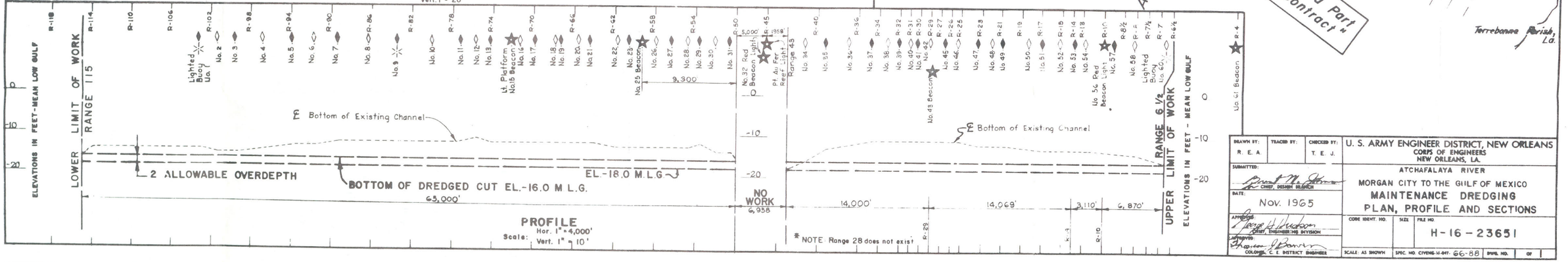
ATCHAFALAYA RIVER
MORGAN CITY TO THE GULF OF MEXICO
MAINTENANCE DREDGING

PLAN, PROFILE AND SECTIONS

SCALE: AS SHOWN
DATE: MAY 1963
SPEC. NO. CIVENG.-16-047-63-164
FILE NO. H-16-22764
Sheet No. 1 Drawing No. 1


LOWER LIMIT OF WORK
RANGE
1150
1500
R-118
R-105
No. 1 Lighted Buoy
No. 2



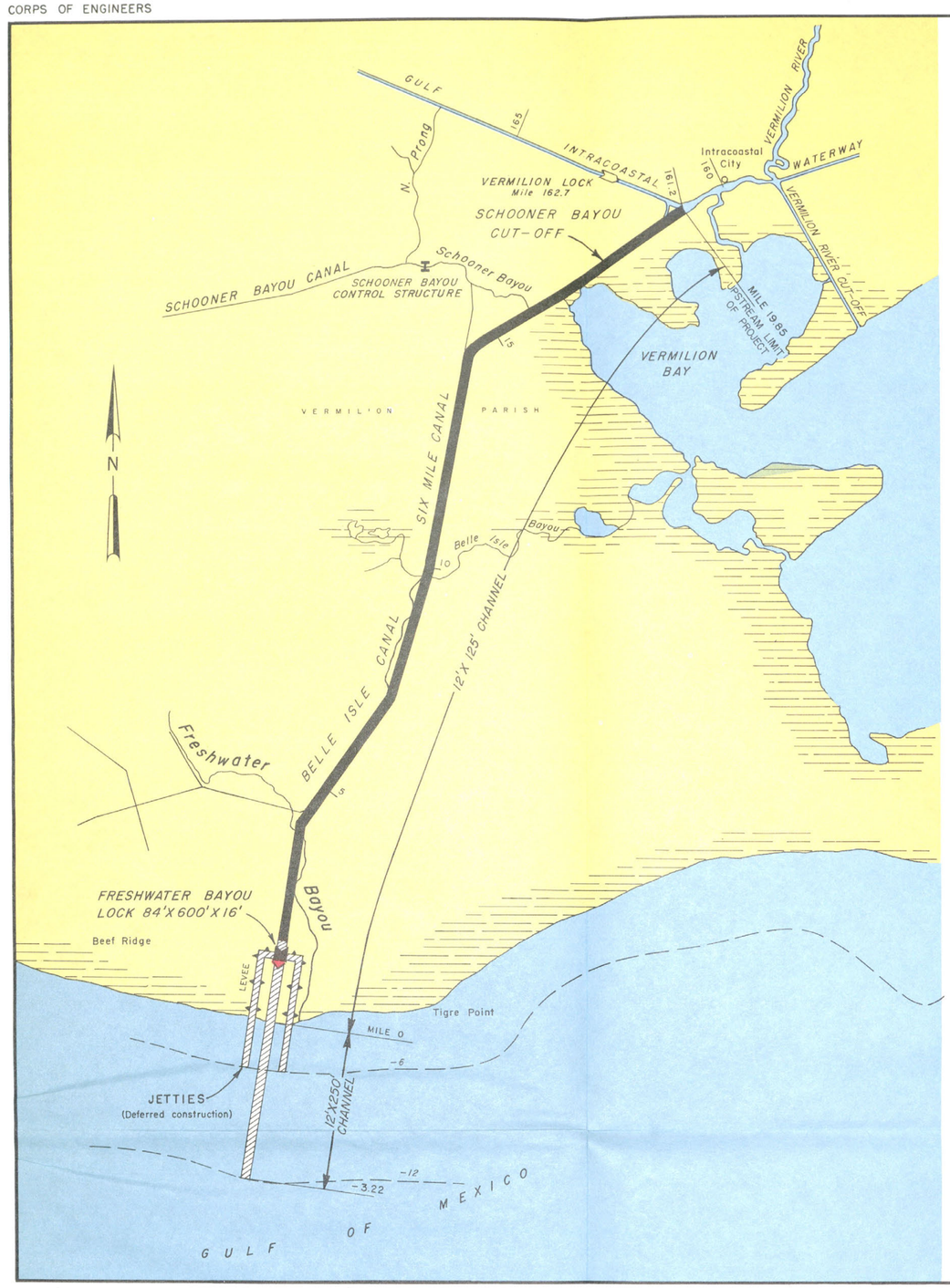


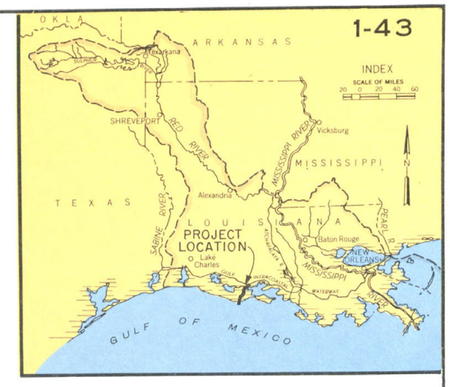
DRAWN BY: R. E. A.	TRACED BY:	CHECKED BY: T. E. J.	U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LA.
SUBMITTED: CHIEF, DESIGN BRANCH			ATCHAFALAYA RIVER MORGAN CITY TO THE GULF OF MEXICO MAINTENANCE DREDGING PLAN, PROFILE AND SECTIONS
DATE: Nov. 1965			
APPROVED: CHIEF, ENGINEERING DIVISION	CORE IDENT. NO.	SIZE	FILE NO. H-16-23651
APPROVED: COLONEL, C. E. DISTRICT ENGINEER	SCALE: AS SHOWN	SPEC. NO. CIVENG-M-697- 66-88	DWG. NO.

EXHIBIT 101

CORPS OF ENGINEERS

U S ARMY





STATE PLANE COORDINATES

Landward End of Channel
x=1,983,842.73
y= 256,605.06

Seaward End of Channel
x=1,941,140.98
y= 201,137.20

LEGEND

- Improvements completed
- Improvements under construction
- Improvements authorized

PLAN

SCALE OF MILES

1 0 1 2 3 4 5

Contours are in feet - M.L.G.

LOWER MISSISSIPPI VALLEY DIVISION WORK
RIVER AND HARBOR IMPROVEMENTS

FRESHWATER BAYOU, LA.

SCALES AS SHOWN

OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA.

30 June 1967

EXHIBIT 101

FRESHWATER BAYOU, LA.
CONDITION OF IMPROVEMENTS, 30 JUNE 1966

Project

The River and Harbor Act of 14 July 1960, House Document 435, 86th Congress, 2nd Session, authorized a navigation channel 12 feet deep and 125 feet wide from the Gulf Intracoastal Waterway at mile 161.2 west of Harvey Lock to the 12 foot depth contour in the Gulf of Mexico near Freshwater Bayou, with increased width to 250 feet in the Gulf approach as may be found advisable; jetties from the shoreline to the 6-foot depth contour in the Gulf of Mexico, and a lock near the Gulf of Mexico, 84 feet wide, 600 feet long and 16 feet deep.

Physical Data

It is estimated that under ordinary conditions the mean range of tide at the proposed lock will be 13 inches.

Progress of Work

Construction of channel between mile 1.65 and mile 4.39 completed 3 July 1963.

Construction of channel under two contracts between mile 4.39 and mile 19.85 was completed 2 March 1965.

Contract was awarded 29 June 1965 for construction of Freshwater Bayou Lock. Work was initiated 2 August 1965 and is 27% complete.

Construction of channel between mile -3.22 and mile 1.27 is scheduled to be awarded in April 1967.

Construction of jetties to the -6 foot contour will be deferred until the need therefor is justified.

Cost

$2,682,839

EXHIBIT 102

EXHIBIT 102

EXHIBIT 103

FRESHWATER BAYOU

The Freshwater Bayou project authorizes a 12x-125 foot channel. It was approved by the Rivers and Harbors Act of 1960, adopting the report in House Doc. 435, 86 Cong., 2d Sess. (Public Law 81-645, Act of July 14, 1960, H.R. 7634.)

> "Sec. 101. That the following works of improvement of rivers and harbors and other waterways for navigation, flood control, and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of the Army and supervision of the Chief of Engineers, in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated: . . ."
>
> "Freshwater Bayou, Louisiana: House Document Numbered 435, Eighty-sixth Congress, at an estimated cost of $7,485,000;"

The Channel begins at mile 161.2 west of Harvey, Louisiana, at the Gulf Intercoastal Waterway and extends to the 12-foot contour in the Gulf. Jetties are authorized, extending from the shore to the 6-foot contour if jetty construction proves to be less expensive than maintenance dredging. Until the necessary time has elapsed to determine the comparative costs, a channel 12x250 in the Gulf is to be maintained by dredging.

In addition, a 56x100 foot lock 14 feet deep is to be constructed "over the sill near the Gulf of Mexico." (Corps Report 1962, p. 648.)

This project requires local cooperation; right-of-ways and easements, etc., must be supplied by the state, all pipeline alteration necessary as a result of the Channel must be made at state expense and the U. S. must be exempt from damages arising out of construction and maintenance of the project.

In the first year of work, pre-construction studies were made and a design memorandum was approved. Pre-approval costs were listed as $44,164. This item was not explained but probably refers to the feasibility study which resulted in the authorization.

At the end of fiscal 1963, the first year in which actual construction was carried out, the project was listed as 6% complete with the construction of 2.2 miles of channel completed and 2.4 miles partially completed. 1,448,223 cubic yards of material was removed at a cost of $313,262.

In 1964 a total of 5,132,045 cubic yards of material was removed from separate segments of the channel for a completed distance of 13.6 miles. At this time the project was 15% complete. The expenditures for the year amounted to $699,848.

By the end of fiscal 1965 the project was 19% complete. During the year 2,532,430 cubic yards of material had been removed, completing the project from mile 1.65 to 19.85, at a cost of $387,257.

In 1966, the last year for which the Reports of the Corps are available, no new work was done on dredging or removal of material. However, in that year $1,170,330 was spent on construction of the lock,

resulting in 27% completion of lock. The entire project was 29% complete as of 30 June 1966.

As of the latest available information, there is no commerce on this waterway.

FRESHWATER APPENDIX I & II

Cost Estimates

Year	*Federal*	*Non-Federal*	*C. G. Aids*	*Total*
1960	$7,485,000	$	$	$7,485,000
1962	7,530,000	198,000	20,000	7,748,000
1963	7,700,000	198,000	20,000	7,918,000
1964	7,700,000	207,000	23,000	7,930,000
1965	8,000,000	203,000	23,000	8,226,000
1966	9,370,000	203,000	23,000	9,596,000

Cost & Financial Statement

	New Work	
Fiscal Year	*Appropriated*	*Cost*
1961	$ 90,000	$ 76,198
1962	99,800	35,944
1963	399,200	313,262
1964	630,000	699,848
1965	445,000	387,257
1966	1,131,000	1,700,000
Totals to end of fiscal 1966:	$2,795,000	$2,682,839

EXHIBIT 103