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,
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Special Assistant Attorneys General,
State of Louisiana.
JOHN L. MADDEN,
Assistant Attorney General,
State of Louisiana.

EXHIBITS 70-76

EXHIBIT 70

Buna
Kountze
Silsbee
Evadale
Sour Lake
Beaumont
Amelia
China
Port Neches
Nederland
Groves
Port Arthur
Orange
Vinton
Starks
Lucas
Lunita
Toomey
Ged
Cameron Farms
Winnie
High Island
Sabine Pass
Sabine
Texas Point
Johnsons Bayou
Ocean View Beach
SABINE LAKE
SABINE MIGRATORY WATER FOWL REFUGE
INTRACOASTAL WATERWAY

EXHIBIT 71

LOUISIANA

Dredged Channel

A. Mississippi River Gulf Outlet
B. South Pass
C. Southwest Pass
D. Empire Canal
E. Belle Pass
F. Houma Navigation Canal
G. Atchafalaya Bay Waterway
H. Freshwater Bayou
I. Calcasieu Pass Waterway
J. Sabine-Neches Waterway

"J"
"I"
"H"
"G"
"F"
"E"
"D"
"C"
"B"
"A"

10 FATHOM LINE

100 FATHOM LINE (EDGE OF CONTINENTAL SHELF)

G U L F O F M E X I C O

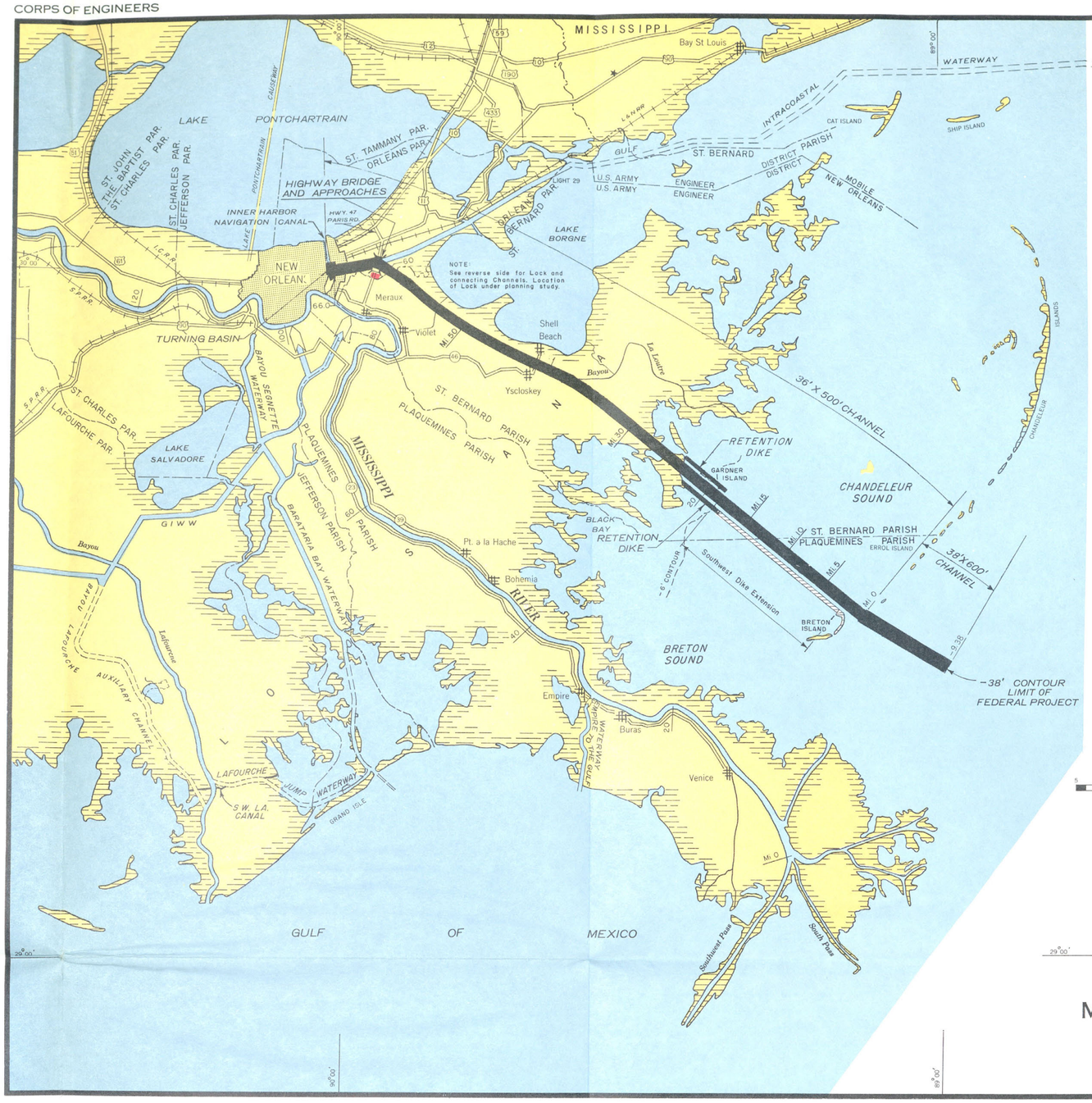
A. HOEN & CO. - INC. - BALTIMORE, MD.

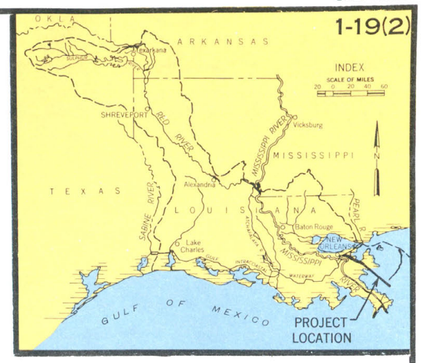
EXHIBIT 71

EXHIBIT 72

CORPS OF ENGINEERS

U. S. ARMY





LEGEND

- Improvements completed
- Improvements under construction
- Improvements authorized

STATE PLANE COORDINATES

Landward End of Channel
(Mi 0.0)
x=2,701,708.08
y= 308,062.06

Seaward End of Channel
(Mi 9.38)
x=2,744,813.61
y= 283,685.74

SCALE OF MILES
5 0 10 15

LOWER MISSISSIPPI VALLEY DIVISION WORK
RIVER AND HARBOR IMPROVEMENTS

MISSISSIPPI RIVER - GULF OUTLET, LA.

SCALES AS SHOWN

OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA.
Revised 30 June 1967

EXHIBIT 72

HISTORY OF THE MISSISSIPPI RIVER GULF OUTLET

I. Introduction and Summary:

The Mississippi River-Gulf Outlet runs from the New Orleans harbor area at a point roughly 11,000 feet from the Mississippi River, through Isle au Breton Sound, passing between Grand Gozier Islands through Isle au Breton Bay, to the forty foot contour. Its length from beginning point to the open waters of the Gulf is approximately 76 miles. A ship proceeding to New Orleans harbor from the east or leaving the harbor and traveling east will save substantial time by using the Outlet rather than going through South or Southwest Passes. In addition, a ship using the new channel is not beset by the many navigational problems encountered on the river itself. The Gulf Outlet does not wind and turn; the channel does not shift nor is there danger from large floating objects, such as trees. On the other hand, all of these navigational hazards are to be found on the Mississippi River and serve to increase the dangers of river navigation. These benefits of saving time and reducing the danger of navigation were probably, in large part, the reason for the passage of The Rivers and Harbors Act of March 29, 1956 (Pub. L. 455, 84th Cong., 2d Sess.), which authorized the construction of the Outlet.

The specifications for the project channel call for a cut 36 feet deep and 500 feet wide from the point of origin, expanding to 600 feet wide at the Gulfward

edge of Chandeleur Island. A map showing the project channel is set out in *House Document* 245, 82d Congress, 1st Session.

The course of the project channel generally runs from 7,500 feet north of the lock in the existing Inner Harbor Navigation Canal (11,000 feet from the Mississippi River) to a turning basin located south of Michoud, Louisiana, then from Michoud southwest to and along the south shore of Lake Borgne, across Isle au Breton Sound and Isle au Breton Bay and then into the Gulf. The project specifications called for a concrete retaining dike to run from land along the Outlet route into Isle au Breton Sound for a distance of about three miles.

The Act required cooperation by the State of Louisiana. The State was to (a) supply all necessary channel rights-of-way; (b) take over ownership and maintenance of all highway bridges and approaches; (c) provide and maintain all other bridges and to relocate all utilities and roads needing relocation; (d) construct and maintain appropriate terminal facilities; (e) exempt the United States from all liability for damages arising out of the construction.

Since the outlet was begun, over $61,000,000 has been expended by the federal government, with some contribution from Louisiana, to build and maintain it. It is estimated that ultimately $110,645,000 will be spent in new work necessary to complete the Outlet.

The usefulness of the channel is indicated by the

large amount of traffic in the Outlet. Although the channel is now only 58% complete over 6,110,988 short tons of cargo have been transported through it from fiscal 1960, the year it was opened to traffic, to fiscal 1965.

II. History of Activity:

Preliminary work commenced on the Outlet in the fiscal year ending June 30, 1957. (Note: all references hereafter are to fiscal years, not to calendar years.) At that time the projected distance from Michoud to the Gulf was 76 miles, approximately. The cost of the project at the time of the passage of the bill was estimated to be $95,900,000. This cost estimate was updated at the end of each fiscal year. This preliminary work consisted of hydrological and geological studies and the surveying of the first five miles of the project channel. In that year no actual excavation or dredging was accomplished.

Here it should be noted that all of the actual construction or excavation work was done under contracts covering small segments of the total project channel distance. No single contract was let for the entire project.

Each year the Corps of Engineers report included a financial statement of the federal and contributed state funds appropriated and actually spent on the project. The total for the year is given as well as the cumulative total to the date of the report. Additionally an estimate is provided each year of the total cost for new work required to complete the project.

These figures are included in the appendices.

In 1957-1958 the Corps continued its hydrological and geological studies, continued to lay out the route of the project channel, and began the excavation work. In that year 4,825,098 cubic yards of earth were excavated, completing 2.33 miles of the project channel. The Corps statement said that the project was 1.9% complete.

In the 1958-1959 fiscal year the geological studies continued, and Fish and Wildlife studies were made. Also, construction increased at a marked rate. The Corps report states that 5,384,969 cubic yards were excavated for a distance of 2.46 miles and 10,186,660 cubic yards were dredged for a channel distance of 2.61 miles. Thus, in this year, 15,571,629 cubic yards of earth were moved, resulting in the completion of 5.07 miles of channel, roughly 4% of the entire project.

In the 1959-1960 fiscal year the work was divided between three channels: an access channel, an interim channel, and the project channel. The access channel connected Bayou Dupre and the project channel. The interim channel was a cut 36 feet deep and 250 feet wide following the course laid out for the project channel. Being completed early, it allowed some use by shipping interests. After completion of the interim channel the work on the project channel consisted of widening the interim channel from 250 feet to the project width of 500 feet.

In this year the Corps report showed construction

activity in five separate segments. The majority of the work was done on the access channel. This fact is reflected by the figures for the total work completed by the end of the year:

Access Channel
- 13.02 miles complete
- 1.71 miles partially complete

Interim Channel
- 1.77 miles complete
- 2.21 miles partially complete

Project Channel
- 5.39 miles complete
- 2.21 miles partially complete

The figures for the 1959-1960 year show that 13 miles of access channel were completed and 0.06 miles of project channel were completed with a total of 9,649,028 cubic yards of excavation work done in all. Also, contracts were let for 4.42 miles of interim channel.

This year, 1960, saw the first traffic on the new channel. The Corps reports indicate that the channel transported 178,746 tons of cargo during 1960.

In 1960-1961 the access channel was completed, the project and interim channels were extended, and the dikes extending across Chandeleur Sound were begun.

Work on the access channel totaled approximately 24 miles of excavation resulting in the removal of 17,657,855 cubic yards of material during this year. This work extended the length of the channel to 37.91 miles.

The interim channel and the project channel were extended: the interim channel to 26.17 miles of completed channel and 11.45 miles of partially completed channel; the project channel itself to 7.58 miles of completed channel. This work required the removal of 52,635,282 cubic yards of material. In all, the operations required the excavation of 70,293,137 cubic yards of material.

Also during this year, 15,600 linear feet of dikes were built into Chandeleur Sound.

In the 1961 report the Corps stated that the work on the project was 20% complete, as follows:

Access Channel
- 37.91 miles complete

Interim Channel
- 26.17 miles complete
- 11.45 miles partially complete

Project Channel
- 7.58 miles complete

Dikes
- 15,600 linear feet complete

In 1961-1962 work continued on both the interim and project channels and on the dike in Chandeleur Sound.

The 1962 Report divided the work into several segments: interim contracts completed and in progress, main project channel contracts completed and in progress, and dike construction progress.

The interim channel progress amounted to 31.04 miles of channel completed and 35,351,695 cubic yards

of earth removed. The contracts in progress amounted to 1.24 miles and 4,475,873 cubic yards.

The project channel operation consisted of widening the interim channel. The completed contracts resulted in 4.34 miles of channel and 7,604,451 cubic yards of material removed; the contracts in progress resulted in 1.27 miles completed with the removal of 1,239,475 cubic yards of matter.

The total construction for the year on the channels amounted to 32.28 miles of interim channel and 5.61 miles of project channel resulting from the removal of 48,671,494 cubic yards of earth.

The dike construction during the year amounted to 15,650 linear feet of new dikes constructed in Chandeleur Sound and the capping of 15,600 linear feet of existing dikes.

The report on the condition of the new work as of 30 June, 1962 was:

Access Channel
- Complete

Interim Channel
- 58.3 miles complete
- 1.2 miles partially complete

Project Channel
- 11.9 miles complete
- 1.27 miles partially complete

Dikes
- 31,250 linear feet erected
- 15,600 capped

The cost of the major items reported in 1962 were:

Dredging	$5,149,446
Dikes	1,300,421
Road Relocation	2,958
Total	$6,452,825

The traffic on the channel amounted to 600,918 tons, an increase of 258,289 tons over the 1961 tonnage figure of 342,629 tons.

In 1962-1963 the work completed included widening the interim channel to 300 feet with the removal of 1,724,048 cubic yards of material, the completion of 8.2 miles of interim channel with the removal of 11,446,439 cubic yards of material and the completion of 21.8 miles of project channel with the dredging of 35,502,978 cubic yards of material. Also, 2.16 miles of the south dike in Chandeleur Sound were capped. This amounted to a total of 48,673,465 cubic yards removed.

The condition of the entire project was as follows:

Access Channel
Complete

Interim Channel
67.3 miles complete

Project Channel
37.6 miles complete

Dikes
31,250 linear feet complete

The project was 37% complete.

The traffic in 1963 increased to 1,194,822 tons, an increase of 593,904 over 1962.

In 1963-1964 the interim channel was completed, maintenance dredging was begun at intermittent locations and work was continued on the project channel.

The interim channel had 308,000 cubic yards dredged and the maintenance dredging amounted to 18,719,000 cubic yards. The report gave no figures on the total amount of material removed in work on the project channel, which was completed for 24.5 miles.

The year's expenditures for major items were:

Dredging	$7,577,031
Dike Construction	275,642
Road Relocation	498,564
Total	$8,351,273

In 1964-1965 the work consisted of repairing 140 feet of bulkhead, maintenance dredging 13,639,059 cubic yards of material along a 25-mile stretch of the channel, completing 12 miles of the project channel, with the removal of 18,022,646 cubic yards of material and creating 0.7 miles of docking area by dredging out 2,063,769 cubic yards of material.

The status at the end of the year indicated that the project was 53% complete and that the channel was complete except for a plug at the Paris Road Bridge which would have to be removed at a later date after the bridge over the channel at this point was completed.

The 1965 traffic reports show that the tonnage moving on the channel increased 389,903 tons, from 1,701,985 to 2,091,888 tons.

In 1965-1966 the Corps Report stated that the channel was open except for the Paris Road Bridge plug, thereby leaving the project 58% complete. The work done on new construction included 29.41 miles of completed contracts and 6.6 miles on non-completed contracts with 31,290,512 cubic yards of material having been removed. Maintenance work resulted in the removal of 931,870 cubic yards of material. Also 10,500 linear feet of dikes were capped.

Discussions with the Assistant to the Chief of Engineers for the New Orleans district have indicated that the channel is now complete except for the plug of earth, approximately 50 feet by 50 feet, which still remians at the site of the Paris Road Bridge, although the bridge has been removed.

Appendix #1

CONSTRUCTION COSTS

Cost and Financial Statement

Federal Funds

	New Work	
Year (fiscal)	*App.*	*Actual Cost*
1957	$ 325,000	304,512
1958	1,100,000	1,112,661
1959	3,610,000	3,181,936
1960	5,326,000	4,036,486
1961	8,625,000	10,244,118
1962	7,539,000	6,614,231
1963	9,116,000	9,655,561
1964	8,440,000	8,519,210
1965	8,437,000	7,025,296
1966	5,448,000	6,678,895
Total to 30 June 1966	$57,966,000	$57,372,908

Appendix #1

CONSTRUCTION COSTS (Continued)

Cost and Financial Statement

Contributed Funds

	New Work	
Year	*App.*	*Actual Cost*
1957		
1958	162,000	161,082
1959	19,098	20,016
1960	14,626	
1961	2,150	15,583
1962	13,744	1,191
1963	4,968	18,704
1964	392,240	
1965	74,161	375,978
1966		43,174
Total to 30 June 1966	$ 682,977	$ 635,729

Total Federal Funds for Construction to 30 June 1966

Appropriated	$57,966,000
Actual Cost	57,372,908

Total Contributed Funds for Construction to 30 June 1966

Appropriated	$ 682,977
Actual Cost	635,729

Grand Total Funds for Construction to 30 June 1966*

Appropriated	$58,648,977
Actual Cost	58,008,637

*Project 58% complete

Appendix #2

MAINTENANCE COSTS

Year (fiscal)	*Cubic yards removed*
1964	18,719,000
1965	13,639,059
1966	931,870
Total to 30 June 1966	33,289,929

	Cost of Maintenance	
	App.	*Actual Cost*
1964	Not available	Not available
1965	Not available	Not available
1966	$3,060,900	$2,996,984
Total to 30 June 1966	$3,060,900	$2,996,984

Appendix #3

ESTIMATED TOTAL COST OF NEW WORK ON PROJECT

End of year (fiscal)	*Dollar Estimate*
1956*	$ 95,900,000
1957	No figure available
1958	103,300,000
1959	108,790,000
1960	113,202,000
1961	103,202,000
1962	104,220,000
1963	104,220,000
1964	No figure available
1965	No figure available
1966	$110,645,000

*Estimate at time of passage of bill, March 29, 1956.

Appendix #4

BREAKDOWN OF ANNUAL ESTIMATE OF TOTAL COST

	Costs			
End of Year (fiscal)	*Federal Funds*	*Non-Federal Funds*	*Coast Guard Navigation Aids*	*Total*
1956*	$	$	$	$ 95,900,000
1957				
1958				103,300,000
1959	106,000,000	2,300,000	490,000	108,790,000
1960	105,000,000	7,712,000	490,000	113,202,000
1961	95,000,000	7,712,000	490,000	103,202,000
1962	95,000,000	8,730,000	490,000	104,220,000
1963	95,000,000	8,730,000	490,000	104,220,000
1966	98,200,000	9,832,000	2,613,000	110,645,000

*Estimate at time of passage of bill, March 29, 1956.
No figures are available for the years 1964 and 1965.

Appendix #5

TRAFFIC ON MISSISSIPPI RIVER-GULF OUTLET

Year (fiscal)	*Tons (short) of cargo*
1960	178,746
1961	342,629
1962	600,918
1963	1,194,822
1964	1,701,985
1965	2,091,888

No figures are available at this time concerning traffic on the Outlet during 1966.

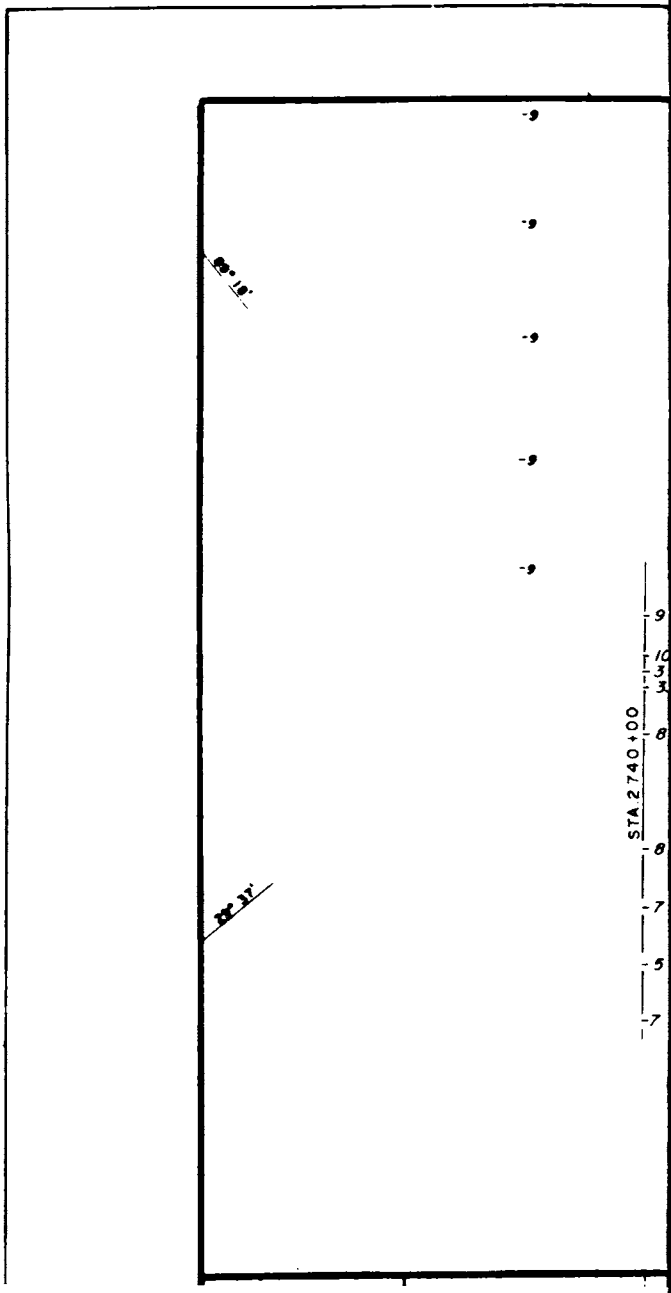
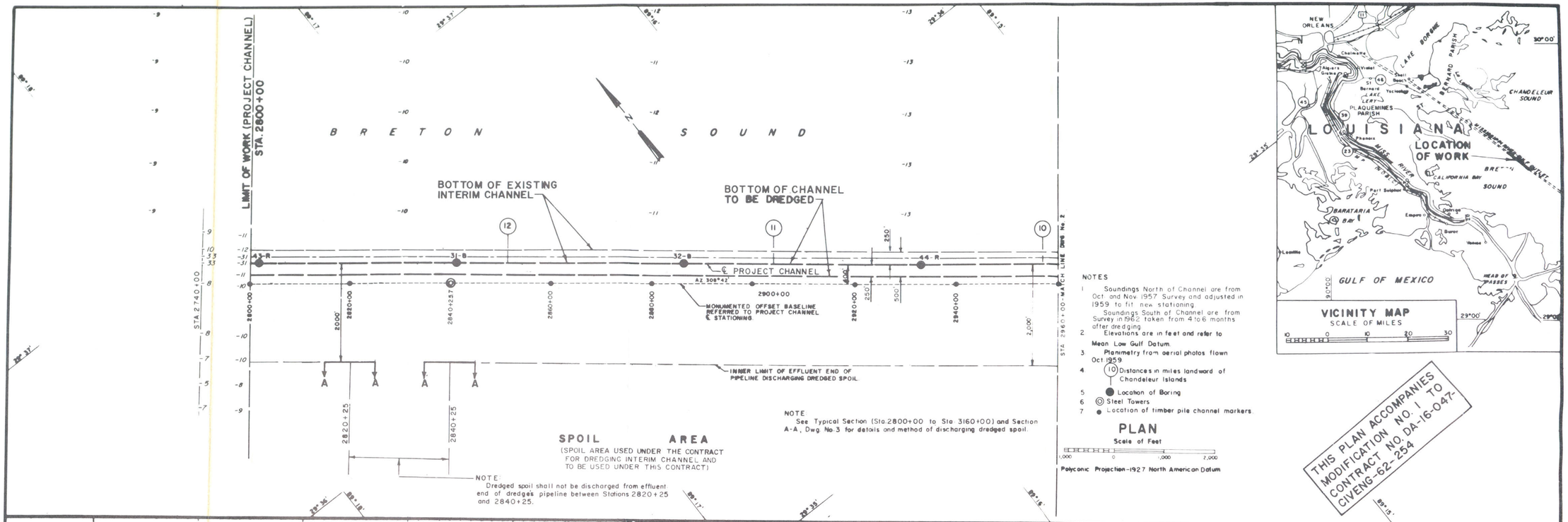


EXHIBIT 74, PAGE 1



REVISION	DATE	DESCRIPTION	BY	APP'VD
1	5-9-62	REVISED SPOIL LIMIT BETWEEN STAS. 2820+25-2840+25	D.S.	

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

DRAWN BY: D.A.S.
TRACED BY: D.A.S.
CHECKED BY: E.J.P.
SUBMITTED: DESIGN BRANCH
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: COLONEL, C.E. DISTRICT ENGINEER

MISSISSIPPI RIVER-GULF OUTLET ENLARGEMENT TO 36'X500' PROJECT CHANNEL STA. 2800+00 TO STA. 3160+00
ST. BERNARD PARISH, LA.
PLAN, PROFILE AND BORINGS

SCALE: AS SHOWN
DATE: MARCH 1962
SPEC. NO. CIVENG-16-047-62-123 | in 3 Drawings
FILE NO. J-15-22339 | Drawing No. 1

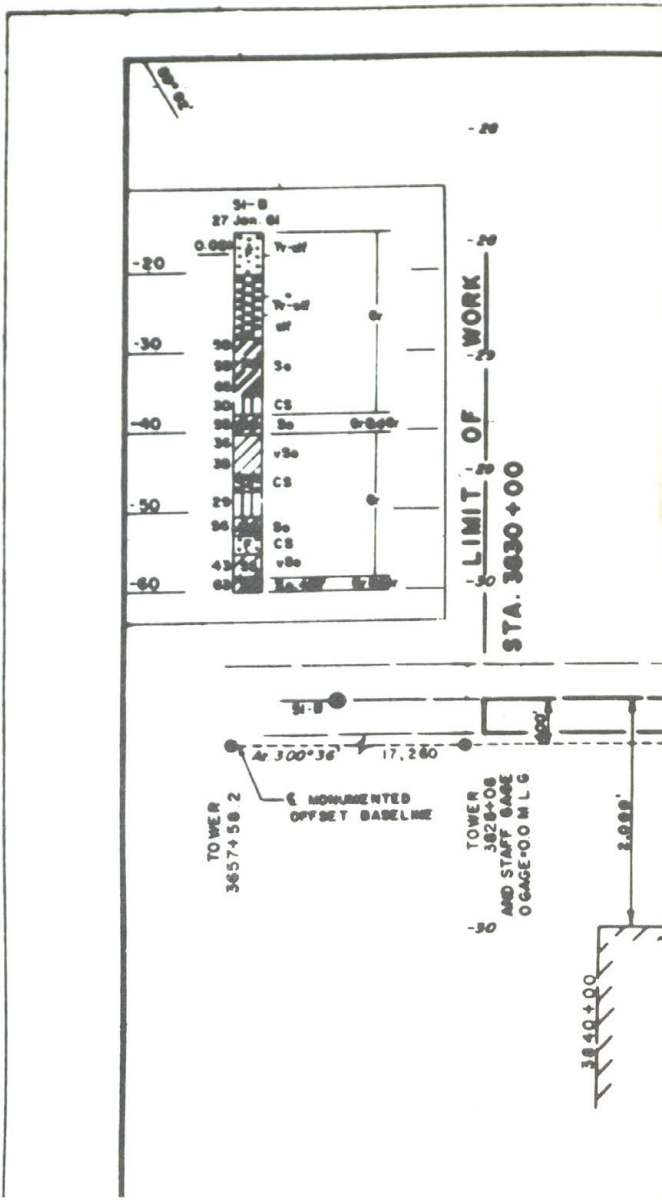
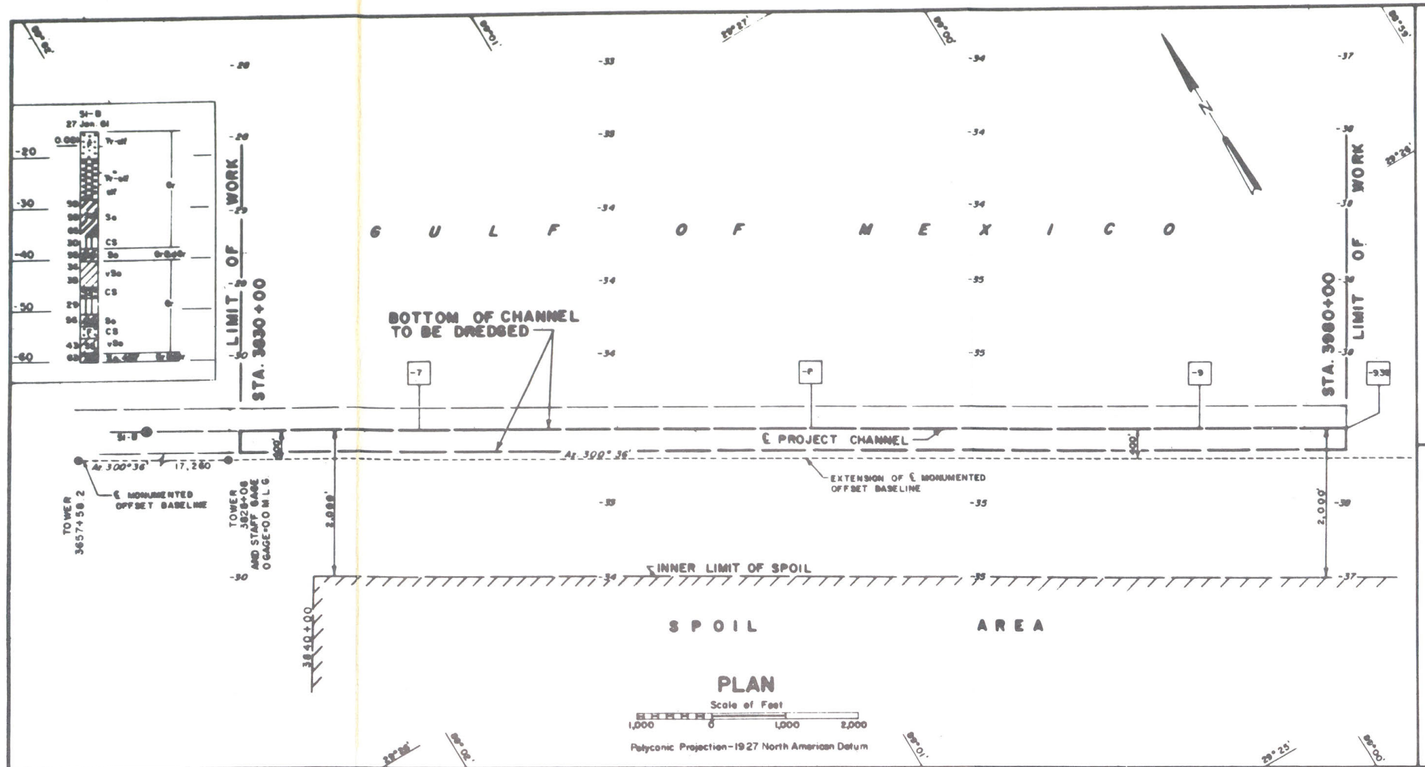
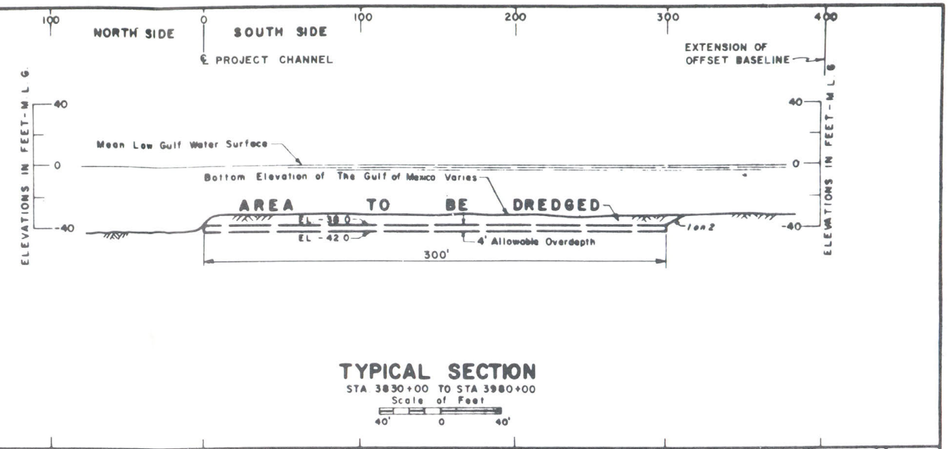


EXHIBIT 74, PAGE 2





TYPICAL SECTION

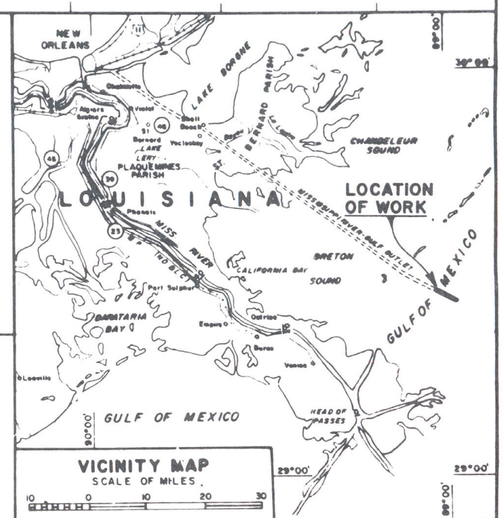
STA 3830+00 TO STA 3980+00

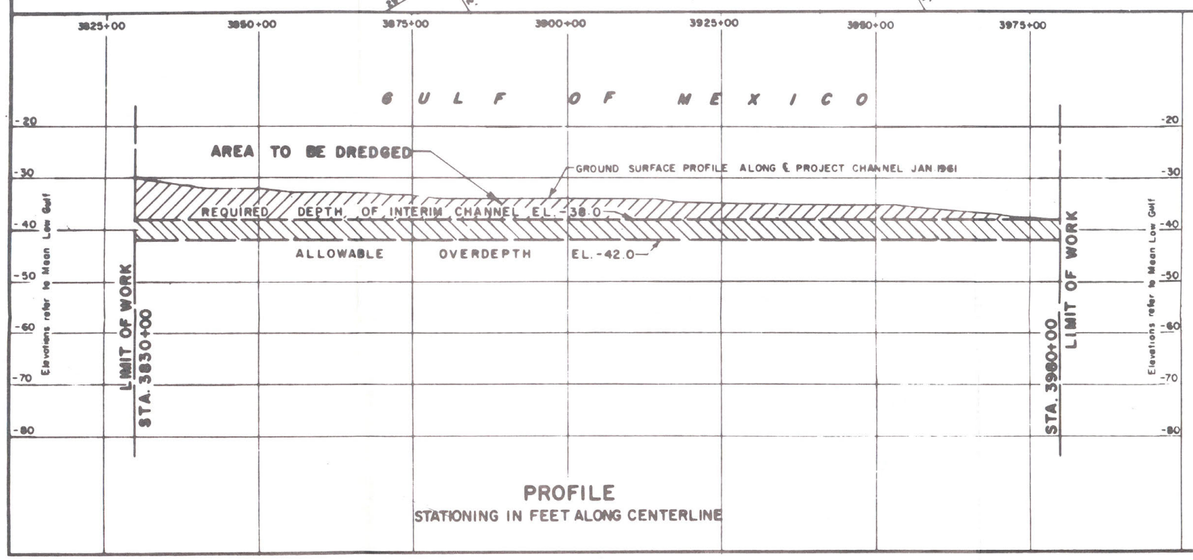
Scale of Feet

40' 0 40'

NOTES

1. Elevations are in feet and refer to Mean Low Gulf Datum.
2. -7 Distances in miles gulfward of Chandeleur Islands.
3. ⊙ Bronze Cap on Tower Platform
4. Hopper dredge shall discharge dredged spoil in The Gulf of Mexico in the Spoil Area shown.





REVISION	DATE	DESCRIPTION	BY	APPVD.

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

DRAWN BY: R. E. A.	MISSISSIPPI RIVER-GULF OUTLET
TRACED BY: R. E. A.	ENLARGEMENT TO 38'x600' PROJECT CHANNEL
CHECKED BY: B. J. R.	STA. 3830+00 TO STA. 3980+00
SUBMITTED: Chief, DESIGN BRANCH	ST. BERNARD PARISH, LA.
	PLAN, PROFILE AND SECTION
RECOMMENDED: George H. Hudson, Chief, ENGINEERING DIVISION	SCALE: AS SHOWN
	DATE: APRIL 1964
APPROVED: Edward B. Hannegan, COLONEL, C.E. DISTRICT ENGINEER	SPEC. NO. H.L. 64-12
	FILE NO. J-15-23090
	Sheet No. 1 of 1 Sheets
	Drawing No. 1

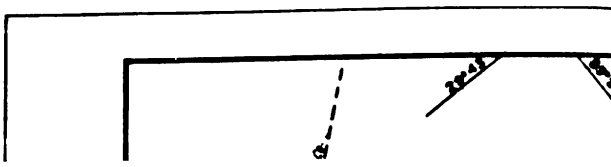


EXHIBIT 75

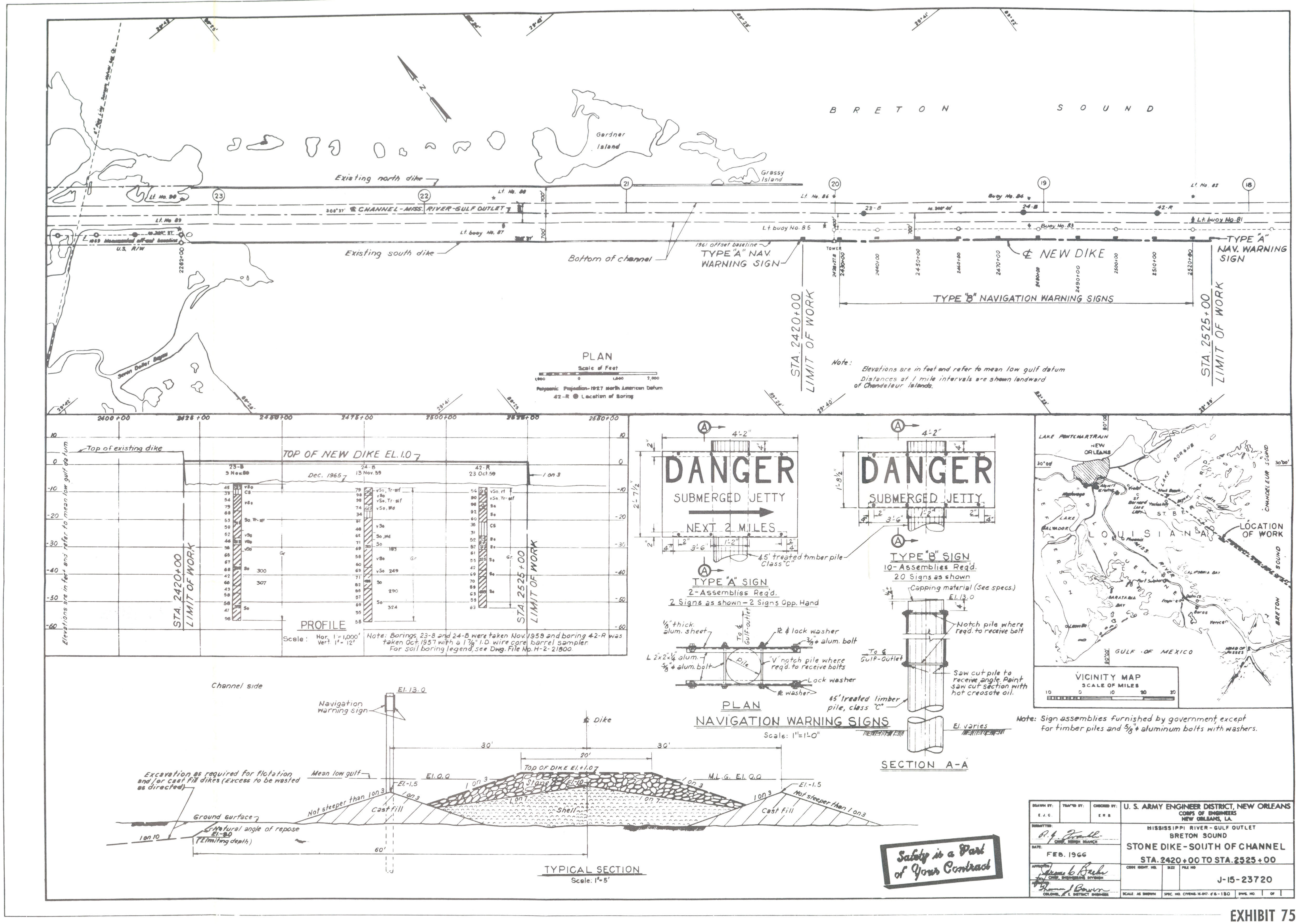

B R E T O N S O U N D
Gardner Island
Grassy Island
Existing north dike
CHANNEL - MISS. RIVER - GULF OUTLET
Existing south dike
Bottom of channel
1961 offset baseline
TYPE "A" NAV. WARNING SIGN
℄ NEW DIKE
TYPE "A" NAV. WARNING SIGN
TYPE "B" NAVIGATION WARNING SIGNS
STA. 2420+00 LIMIT OF WORK
STA. 2525+00 LIMIT OF WORK
PLAN
Note: Elevations are in feet and refer to mean low gulf datum. Distances at 1 mile intervals are shown landward of Chandeleur Islands.
Top of existing dike
TOP OF NEW DIKE EL. 1.0
Dec. 1965
PROFILE
Note: Borings 23-B and 24-B were taken Nov. 1958 and boring 42-R was taken Oct. 1957 with a 1 7/8" I.D. wire core barrel sampler. For soil boring legend, see Dwg. File No. H-2-21800.
DANGER
SUBMERGED JETTY
NEXT 2 MILES
TYPE "A" SIGN
2-Assemblies Req'd.
2 Signs as shown - 2 Signs Opp. Hand
DANGER
SUBMERGED JETTY
TYPE "B" SIGN
10-Assemblies Req'd.
20 Signs as shown
45' treated timber pile Class "C"
PLAN
NAVIGATION WARNING SIGNS
Scale: 1"=1'-0"
SECTION A-A
VICINITY MAP
LOCATION OF WORK
GULF OF MEXICO
Note: Sign assemblies furnished by government except for timber piles and 3/8" ø aluminum bolts with washers.
Navigation warning sign
Excavation as required for flotation and/or cast fill dikes (Excess to be wasted as directed)
Ground surface
Natural angle of repose
Top of DIKE El. +1.0
Stone
Shell
Cast Fill
Not steeper than 1 on 3
TYPICAL SECTION
Scale: 1"=5'
Safety is a Part of Your Contract
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.
MISSISSIPPI RIVER-GULF OUTLET
BRETON SOUND
STONE DIKE - SOUTH OF CHANNEL
STA. 2420+00 TO STA. 2525+00
FEB. 1966
J-15-23720

EXHIBIT 75

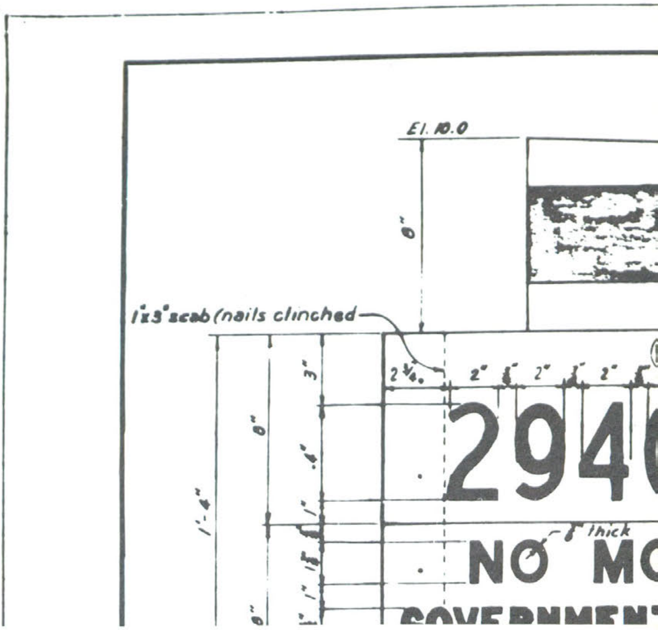
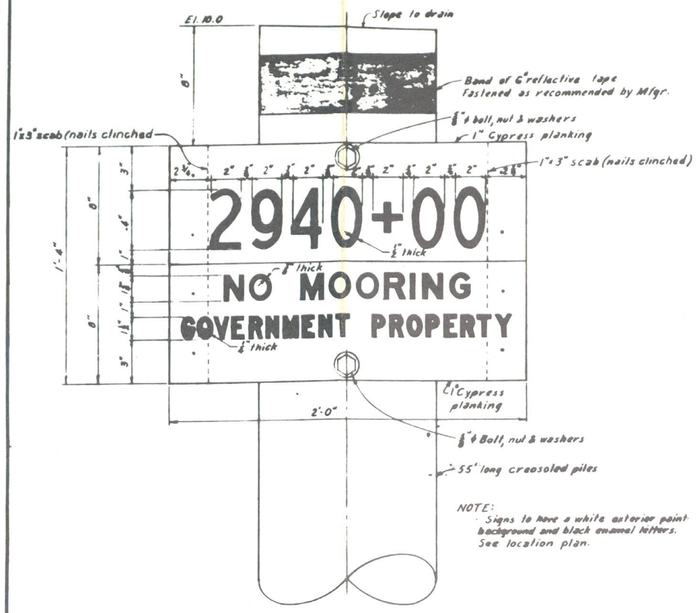


EXHIBIT 76, PAGE 1

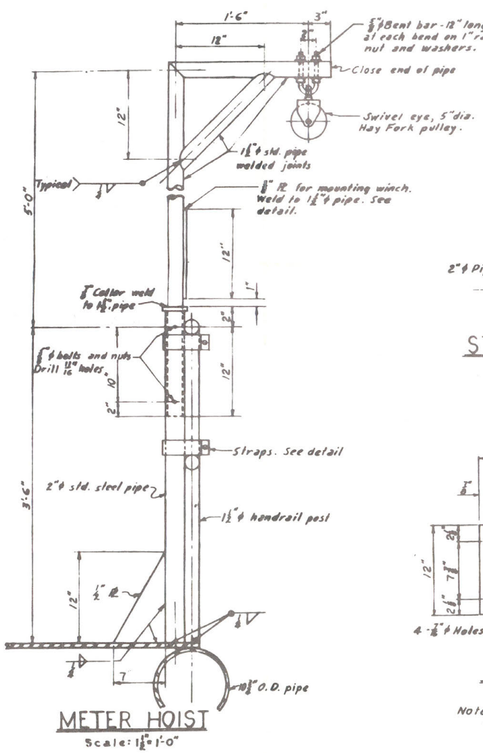


NOTE: Signs to have a white exterior paint background and black enamel letters. See location plan.

CANAL SIDE ELEVATION

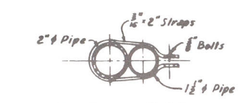
STATION MARKERS

Scale: 3"=1'-0"



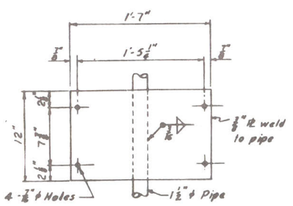
METER HOIST

Scale: 1½"=1'-0"



STRAP DETAIL

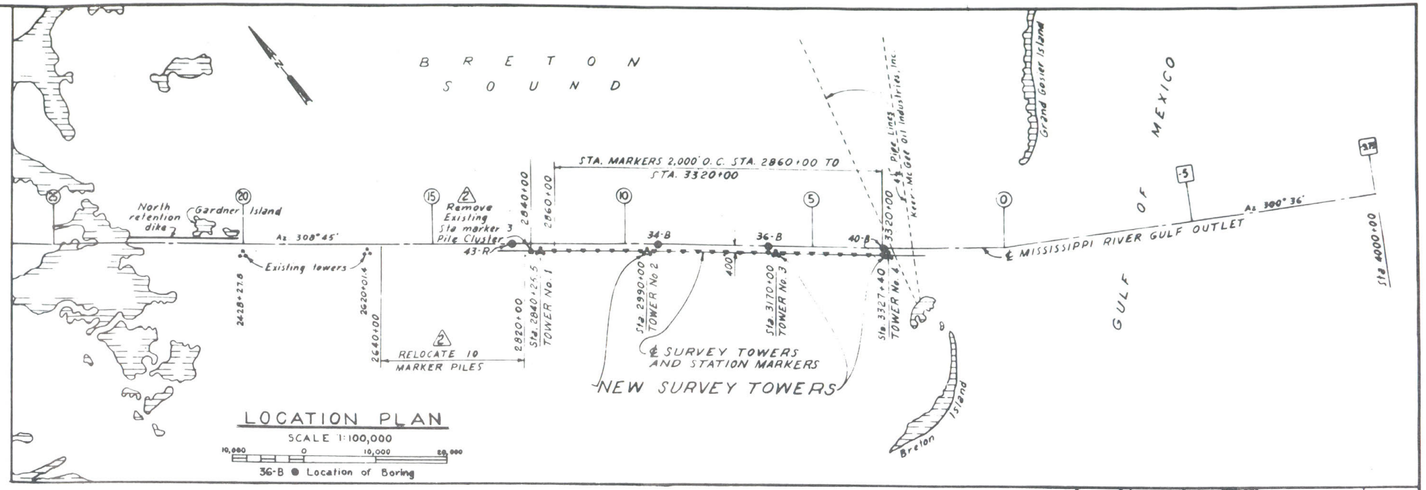
Scale: 3"=1'-0"



WINCH PL

Scale: 1½"=1'-0"

Note: Winch to be furnished and installed by the government.

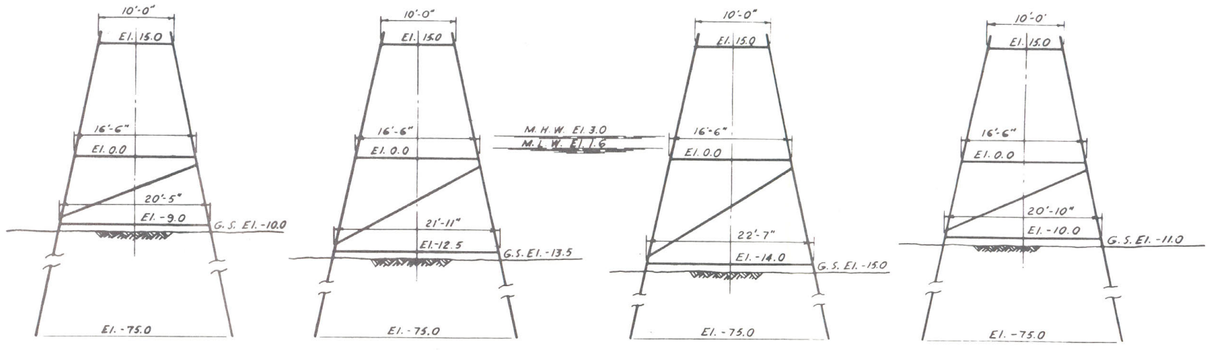


LOCATION PLAN

SCALE 1:100,000

10,000 0 10,000 20,000

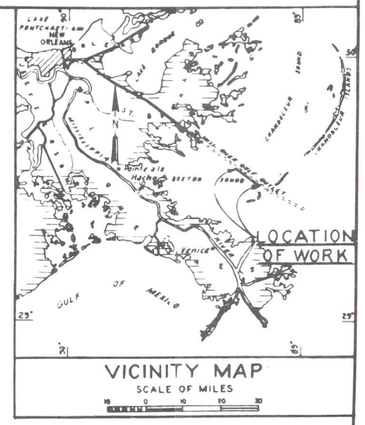
36-B ● Location of Boring



TOWER NO. 1 TOWER NO. 2 TOWER NO. 3 TOWER NO. 4

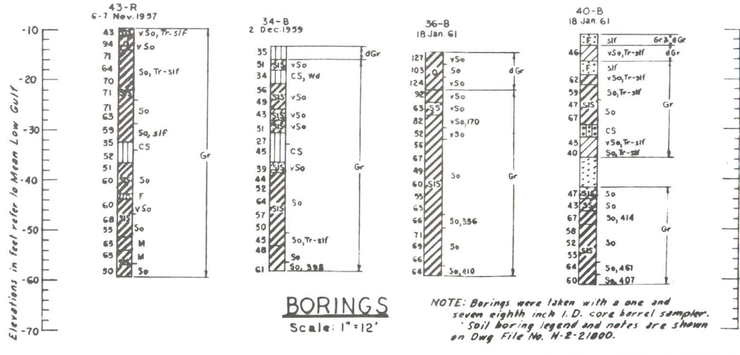
TOWER ELEVATIONS

Scale: ⅛"=1'-0"



THIS PLAN ACCOMPANIES MODIFICATION NO. 2 TO CONTRACT NO. DA-16-047-CIVENG-61-258

NOTE: Elevations are in feet Mean Low Gulf



BORINGS

Scale: 1"=12'

NOTE: Borings were taken with a one and seven eighth inch I.D. core barrel sampler. Soil boring legend and notes are shown on Dwg File No. H-2-21800.

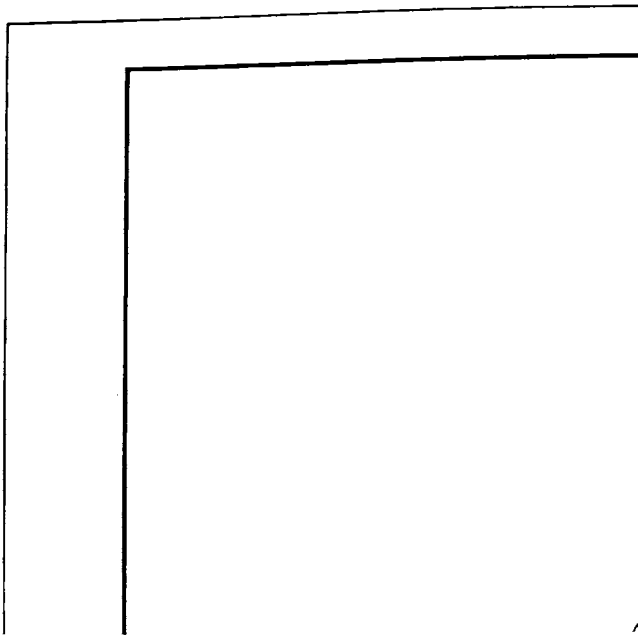
REVISION	DATE	DESCRIPTION	BY	APPVD.
2	6-21-61	Relocate marker piles & remove 3 pile cluster Mod. #2	D.J.H.	
1	4-11-61	General revisions addendum No. 1	D.J.H.	

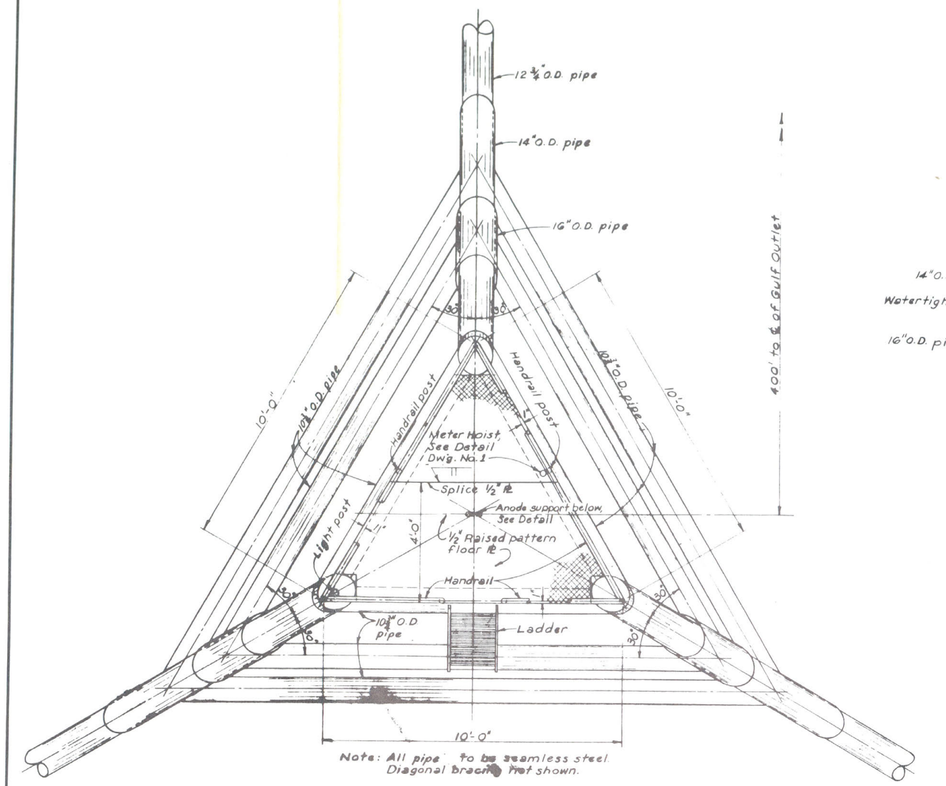
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.

DRAWN BY: D. J. H.
TRACED BY:
CHECKED BY: R. O. M.
SUBMITTED: DESIGN BRANCH
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: COLONEL, E. E. DISTRICT ENGINEER

MISSISSIPPI RIVER-GULF OUTLET
SURVEY TOWERS AND STATION MARKERS
STA 2810+00 to STA 3327+40
VICINITY MAP, PLAN ELEVATIONS AND DETAILS

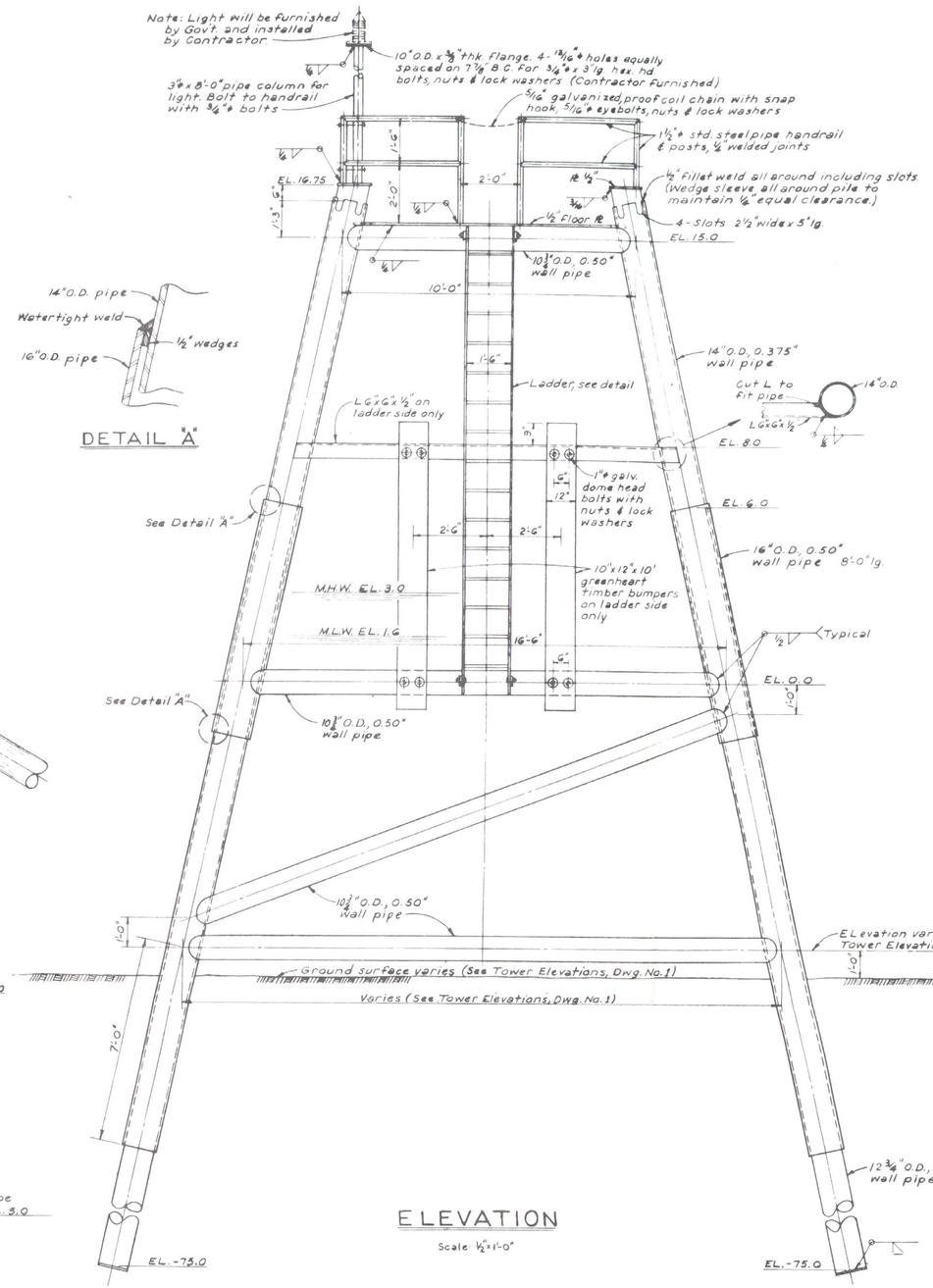
SCALE: AS INDICATED
DATE: MARCH 1961
SPEC. NO. CIVENG-16-047-61-148
FILE NO. H-4-22067
In 2 Drawings
Drawing No. 1



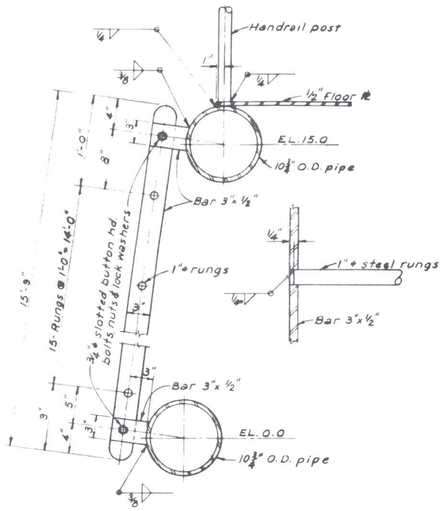


PLAN

Scale: ½"=1'-0"



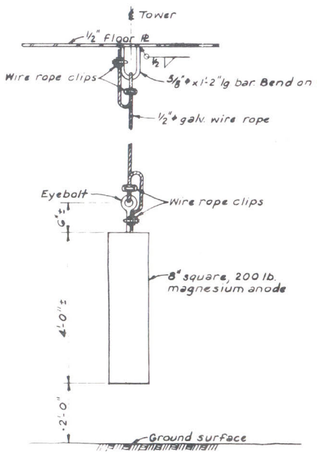
DETAIL "A"



LADDER

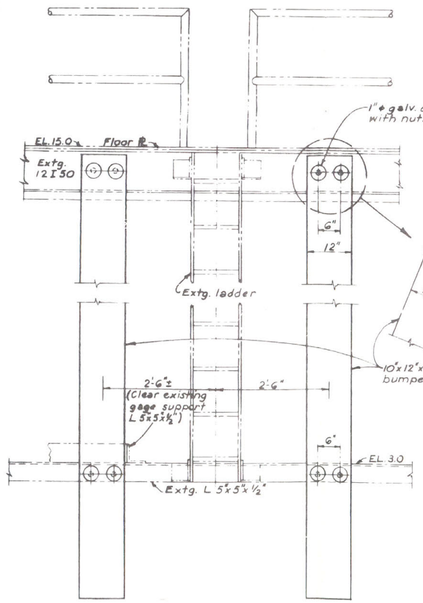
Galvanized After Fabrication

Scale: 1½"=1'-0"



ANODE

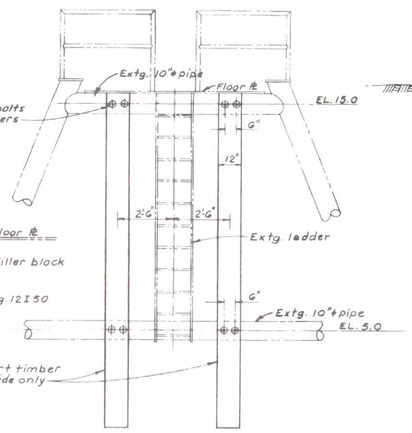
Note:
Elevations are in Feet Mean Low Gulf.



TIMBER BUMPERS

EXTG. TOWER STA. 2428+27.8

Scale: ¾"=1'-0"



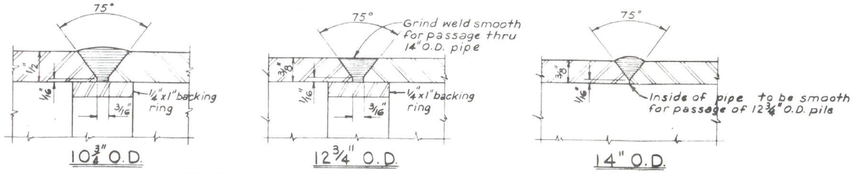
TIMBER BUMPERS

EXTG. TOWER STA. 2620+01.4

Scale: ⅜"=1'-0"

ELEVATION

Scale: ½"=1'-0"



TYPICAL PIPE SPLICES

Scale: Full Size

TYPICAL TOWER DETAILS

REVISION	DATE	DESCRIPTION	BY	APPVD.
1	4-11-61	General revisions addendum No. 1	D.J.H.	

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

MISSISSIPPI RIVER-GULF OUTLET

SURVEY TOWERS AND STATION MARKERS
STA. 2810+00 to STA. 3527+40
TOWER DETAILS

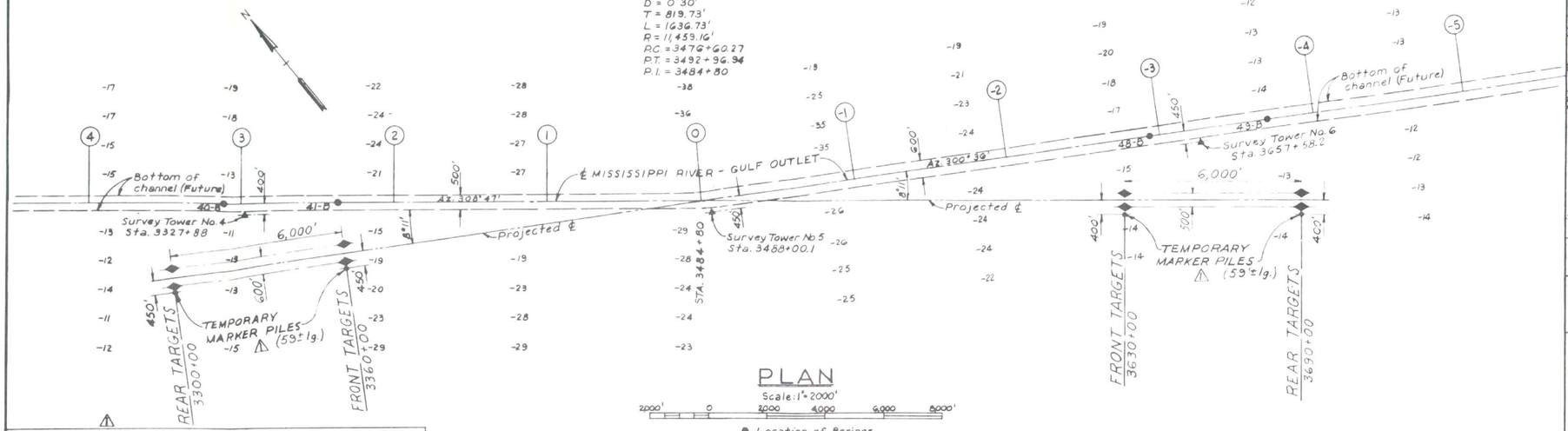
SCALE: AS INDICATED	DATE: MARCH 1961	SPEC. NO. CIVENG-16-047-61-145	In 2 Drawings
DRAWN BY: F.H. / TRACED BY:	CHECKED BY: R.O.M.	FILE NO. H-4-22067	Drawing No. 2

EXHIBIT 76, PAGE 3

BRETON SOUND

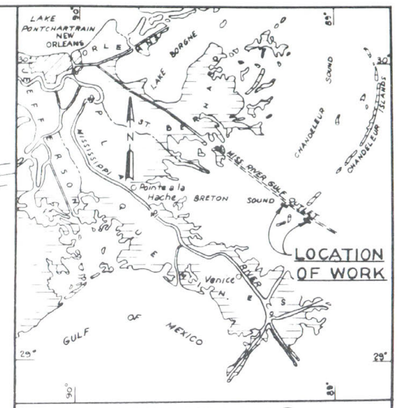
GULF OF MEXICO

℄ Curve Data
Δ = 8°11'
D = 0°30'
T = 819.73'
L = 1636.73'
R = 11,459.16'
PC = 3467+60.27
P.T. = 3492+96.34
P.I. = 3484+80



PLAN
Scale: 1"=2000'

● Location of Borings

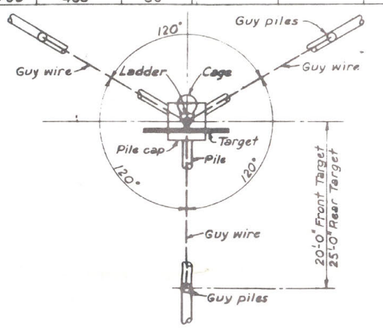


VICINITY MAP
SCALE OF MILES
10 0 10 20 30

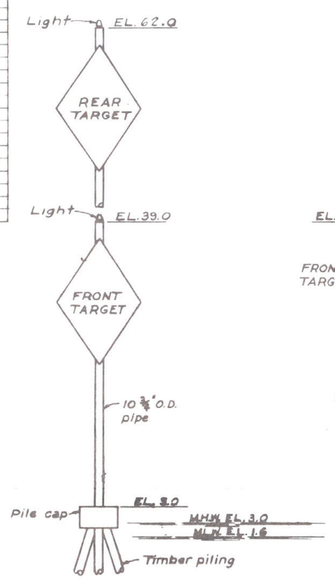
THIS PLAN ACCOMPANIES MODIFICATION NO. 2 TO CONTRACT NO. DA-16-047-CIVENG-62-161

⚠ LOCATION OF STATION MARKERS TO BE INSTALLED

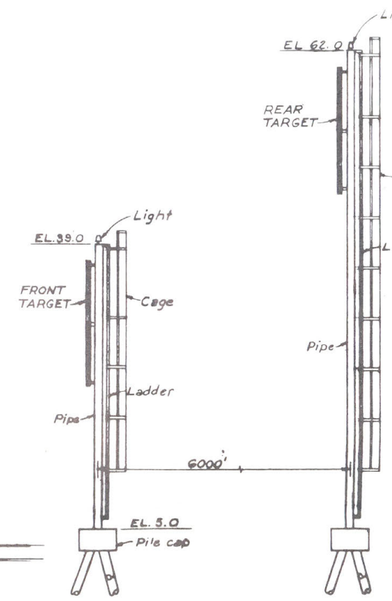
STATION	Distance South of ℄	Length of Pile	STATION	Distance South of ℄	Length of Pile
2440+00	400'	44'	3060+00	400'	49'
2460+00	400'	44'	3100+00	400'	49'
2500+00	400'	44'	3110+00	400'	59'
2520+00	400'	44'	3140+00	400'	59'
2540+00	400'	44'	3160+00	400'	49'
2560+00	400'	44'	3170+00	400'	49'
2580+00	400'	44'	3180+00	400'	49'
2600+00	400'	44'	3280+00	400'	49'
2660+00	400'	44'	3320+00	400'	49'
2680+00	400'	59'	3340+00	400'	59'
2700+00	400'	44'	3420+00	400'	69'
2740+00	400'	59'	3440+00	400'	69'
2760+00	400'	44'	3460+00	400'	69'
2820+00	400'	44'	3500+00	450'	69'
2840+00	400'	49'	3520+00	450'	69'
2860+00	400'	59'	3540+00	450'	69'
2880+00	400'	58'	3580+00	450'	69'
2900+00	400'	49'	3720+00	450'	59'
2940+00	400'	59'	3760+00	450'	49'
2980+00	400'	49'	3780+00	450'	59'
2990+00	400'	49'	3800+00	450'	49'
3000+00	400'	49'	3820+00	450'	49'
3020+00	400'	59'			



PLAN

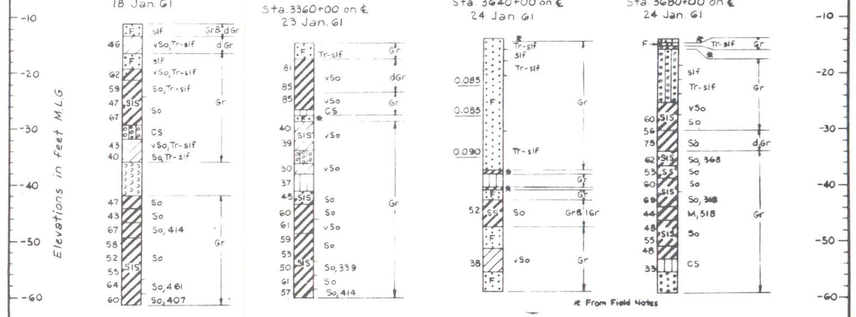


FRONT ELEVATION



SIDE ELEVATION

TARGET PLAN AND ELEVATIONS
Scale: 1/8" = 1'-0"



BORINGS
Scale: 1"=12'

Note:
Borings were taken with a one and seven eighth inch I.D. core barrel sampler.
Soil boring legend and notes are shown on Dwg. File No. H-2-21800

Note:
Elevations are in feet Mean Low Gulf.
For details of targets, see Dwg. Nos. 2 and 3.

REVISION	DATE	DESCRIPTION	BY	APPVD.
⚠	3-14-62	Revised number & location of Sta. markers & added 4 temporary markers. Mod. NO. 2	F.H.	

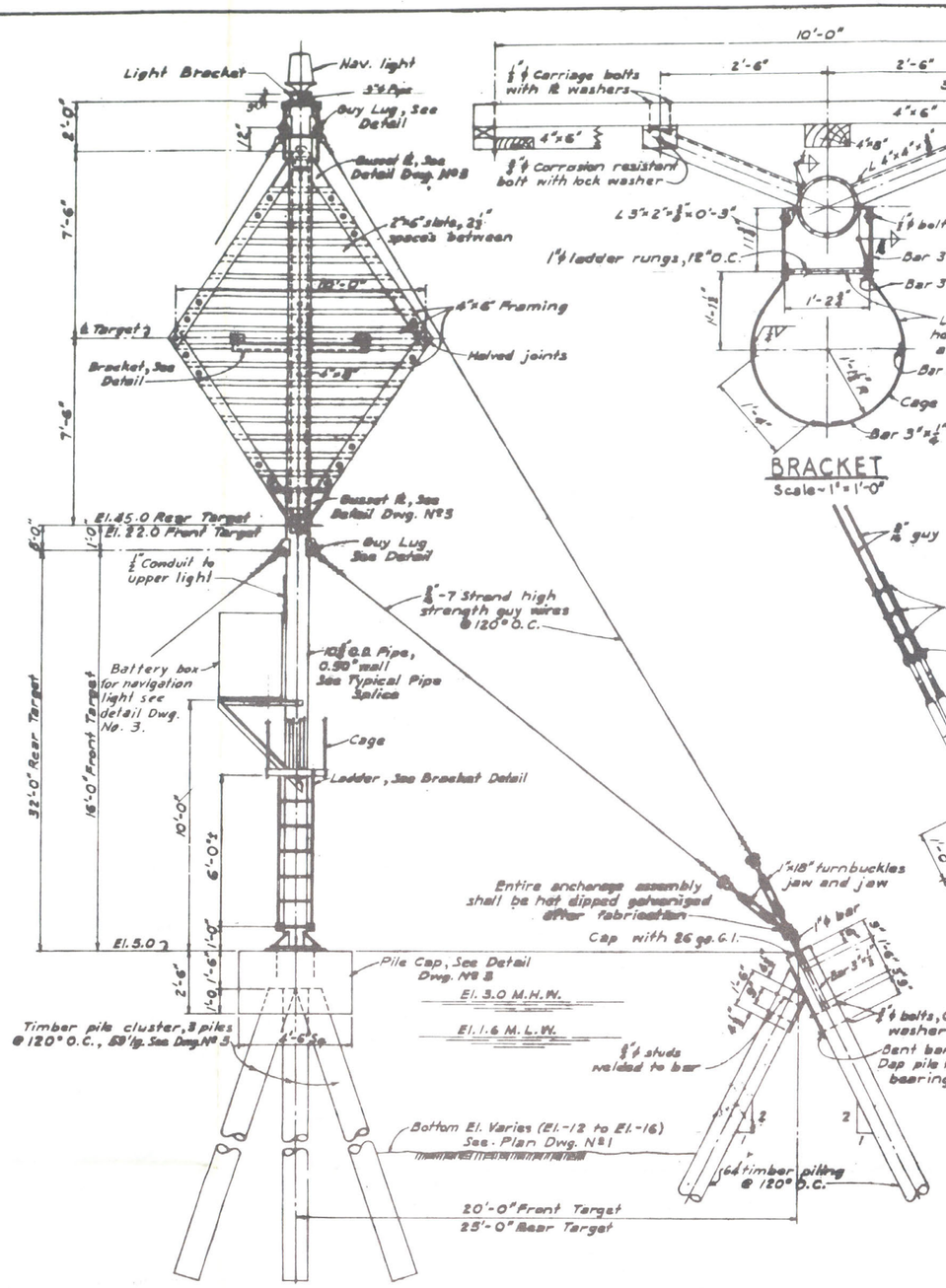
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.

DRAWN BY R. E. M.
CHECKED BY R. O. M.
SUBMITTED
DESIGN BRANCH
RECOMMENDED: Chief, Engineering Division
APPROVED: Colonel, U.S. Army, District Engineer

MISSISSIPPI RIVER - GULF OUTLET
RANGE TARGETS
PLAN, VICINITY MAP AND BORINGS

SCALE AS SHOWN | DATE OCT. 1961
SPEC. NO. CIVENG. 16-047-62-82 | In 4 Drawings
FILE NO. H-4-22221 | Drawing No. 1

EXHIBIT 76, PAGE 4



REVISION	DATE	DESCRIPTION	BY	APPVD.
△	6-1-62	Added sun switch & bracket (Mod. No. 3)	E.J.C.	

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

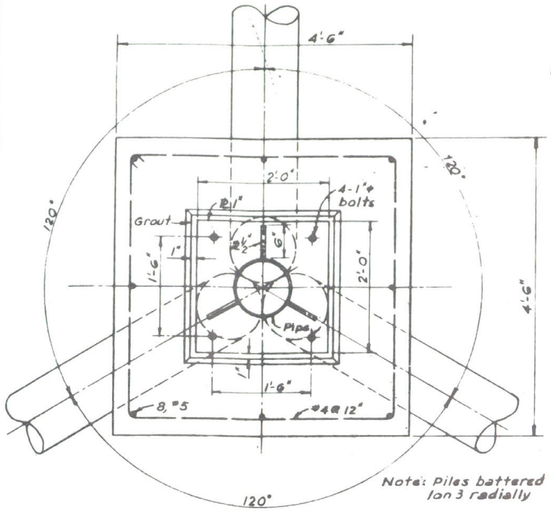
MISSISSIPPI RIVER - GULF OUTLET

RANGE TARGETS

TARGET DETAILS

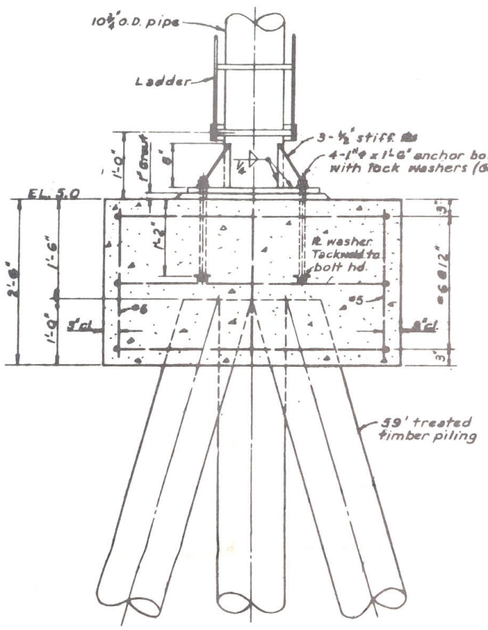
SCALE: AS SHOWN		DATE: OCT. 1961	SPEC. NO. CIVENG-16-047-62-62	In 4 Drawings
DRAWN BY: F.H.	TRACED BY:	CHECKED BY: R.O.M.	FILE NO. N-4-22221	Drawing No. 2

EXHIBIT 76, PAGE 5



Note: Piles battered 1 on 3 radially

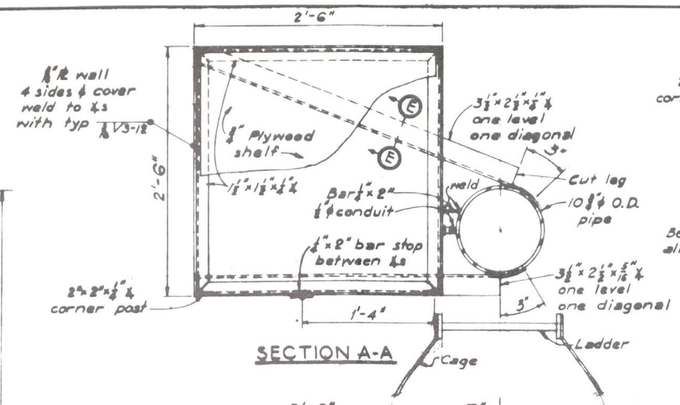
PLAN



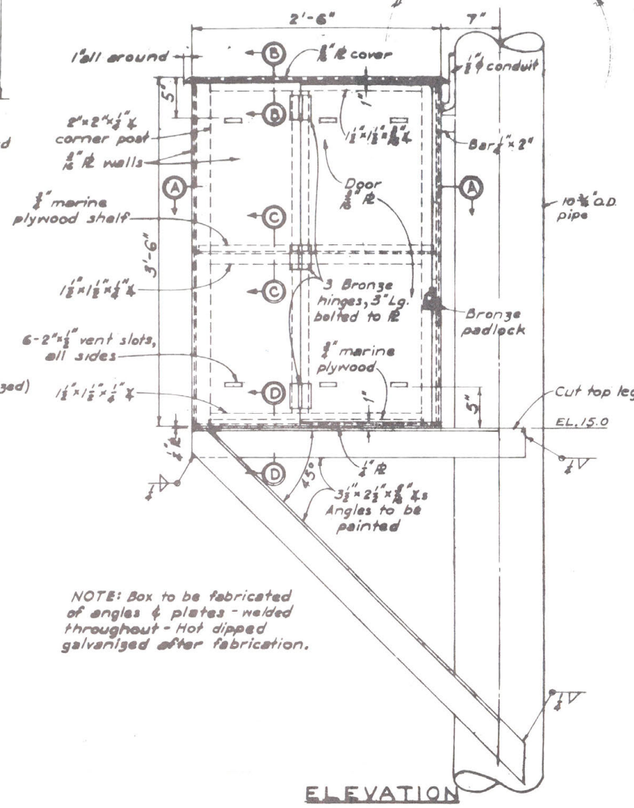
ELEVATION

PILE CAP

Scale: 1"=1'-0"



SECTION A-A

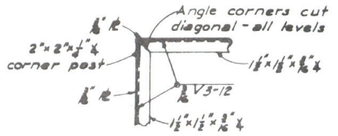


NOTE: Box to be fabricated of angles ϕ plates - welded throughout - Hot dipped galvanized after fabrication.

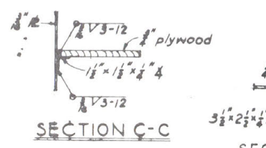
ELEVATION

BATTERY BOX

Scale: 1½"=1'-0"

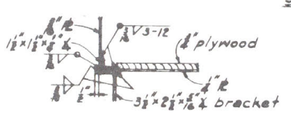


SECTION B-B



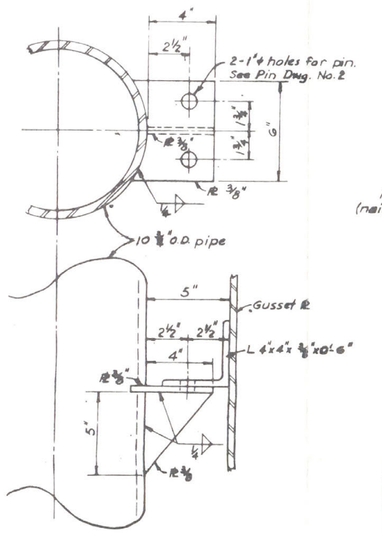
SECTION C-C

SECTION E-E



SECTION D-D

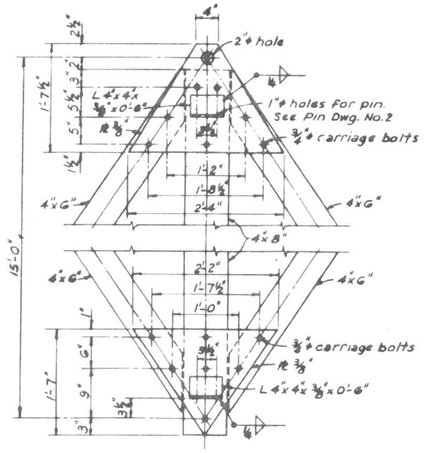
Scale 1½"=1'-0"



TARGET SEAT

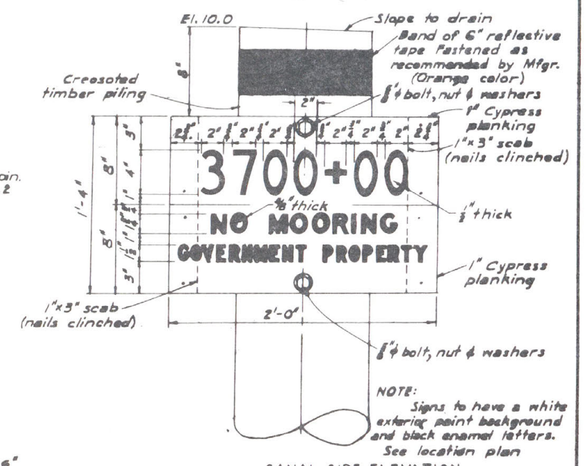
Scale: 3"=1'-0"

Note: See General Notes, Dwg. N° 2



GUSSET PLATE

Scale: 1"=1'-0"



CANAL SIDE ELEVATION

STATION MARKERS

NOT TO SCALE

THIS PLAN ACCOMPANIES MODIFICATION NO. 1 TO CONTRACT NO. DA-16-047-CIVENG-62-161

REVISION	DATE	DESCRIPTION	BY	APPVD.
⚠	3-5-62	Revised battery box & platform. See Dwg. No. 4 for revisions & relocation. Mod No. 1		

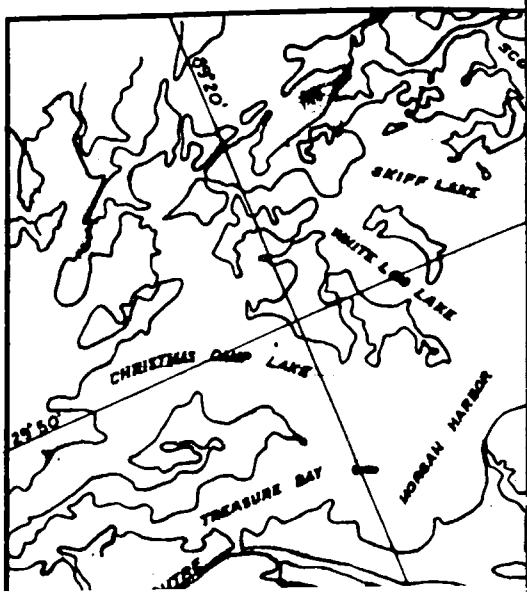
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.

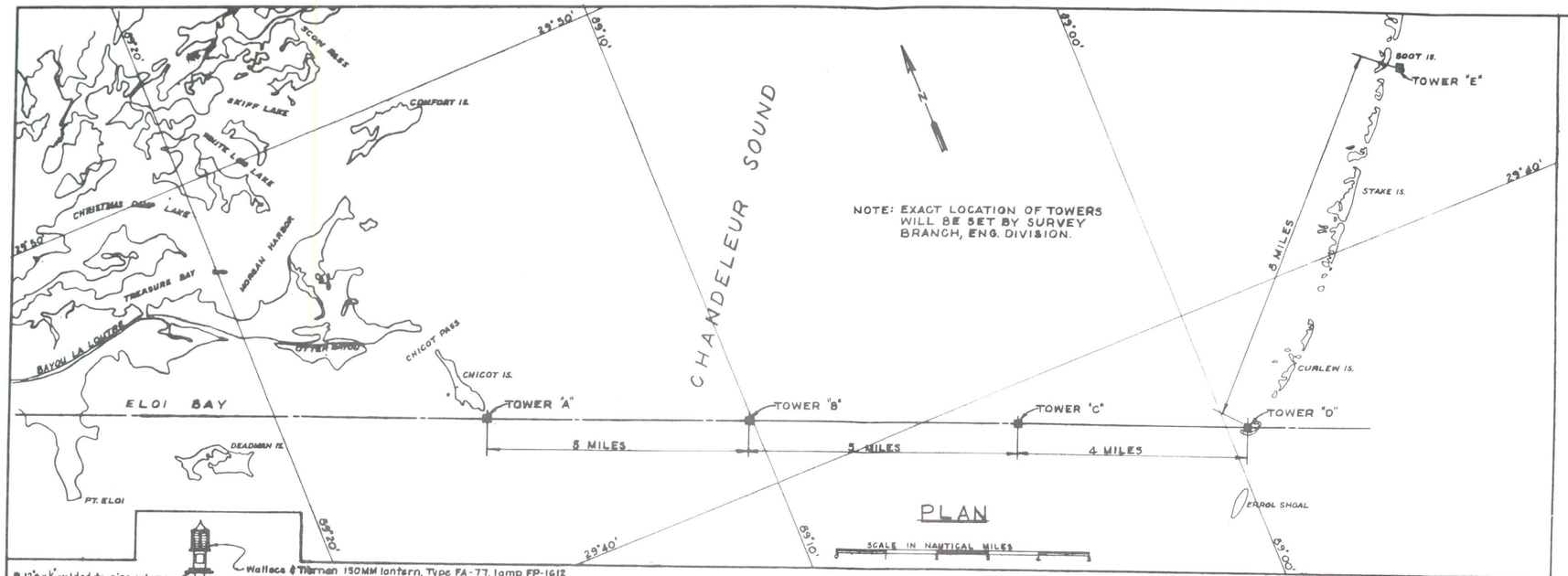
MISSISSIPPI RIVER - GULF OUTLET

RANGE TARGETS

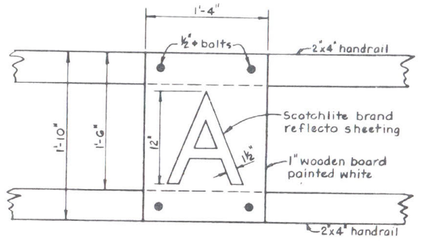
TARGET DETAILS

SCALE: AS SHOWN		DATE: OCT. 1961	SPEC. NO. CIVENG-16-047-62-62	In 4 Drawings
DRAWN BY: F.H.	TRACED BY:	CHECKED BY: R.O.M.	FILE NO. H-4-22221	Drawing No. 3


SKIFF LAKE
LAKE
LAKE
MORGAN HARBOR
TREASURE BAY



PLAN

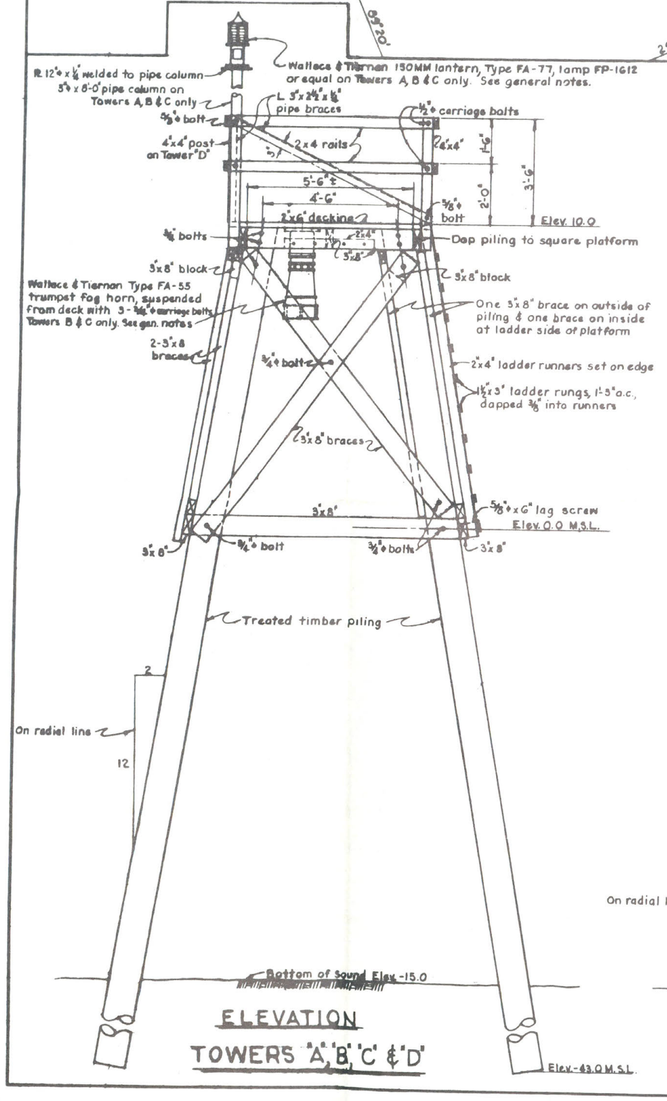


SIGN DETAIL

SIGNS B, C, D & E SIMILAR

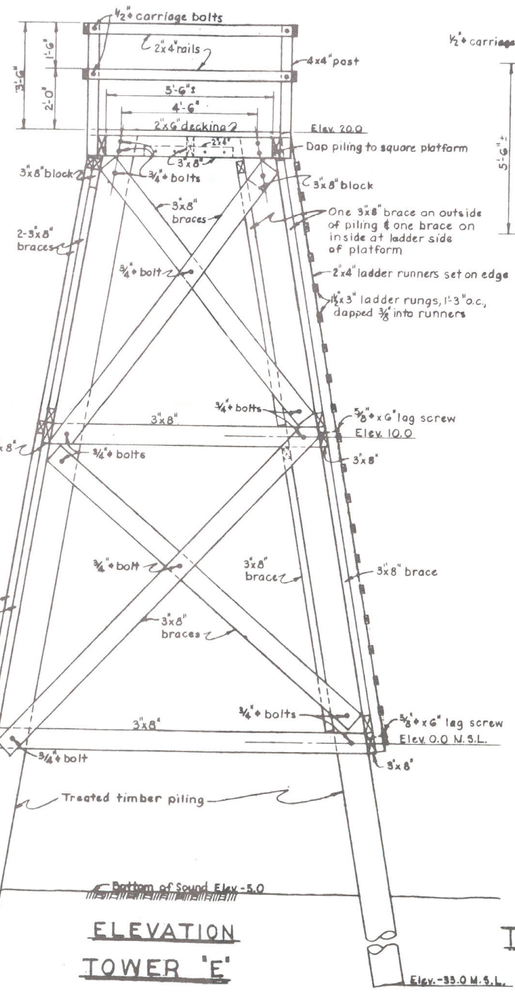
Scale: 1½"=1'-0"

Note: Location of signs on towers to be determined in field.



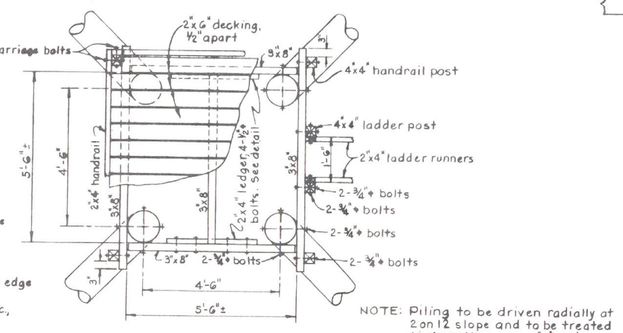
ELEVATION

TOWERS "A", "B", "C" & "D"



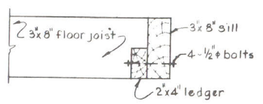
ELEVATION

TOWER "E"



PLAN

NOTE: Piling to be driven radially at 2 on 12 slope and to be treated timber piling, Class "B", 55' long.



LEDGER DETAIL

Scale: 1½"=1'-0"

TOWER DETAILS

Scale: ½"=1'-0"

NOTES:

Elevations in feet refer to Mean Sea Level.
All bolts to have hex. nuts and O.G. washers, and shall be galvanized.
All lumber to be S4S.
Lanterns and fog horns to be furnished by the Survey Branch and installed by Hired Labor

REVISION	DATE	DESCRIPTION	BY	APPVD.

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

DRAWN BY: N. J. A, J. S. H.
TRACED BY: F. H
CHECKED BY: R. O. M.

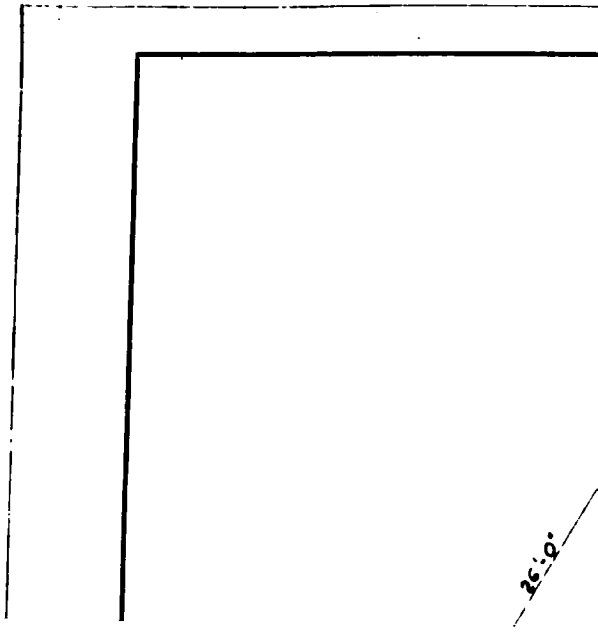
MISSISSIPPI RIVER – GULF OUTLET

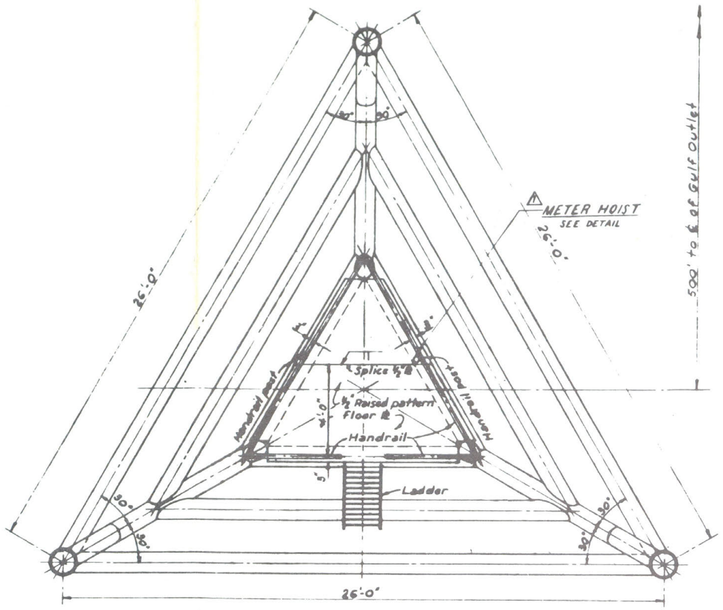
SURVEY TOWERS IN CHANDELEUR SOUND

SUBMITTED BY: CHIEF, DESIGN BRANCH
APPROVED BY: CHIEF, ENGINEERING DIVISION

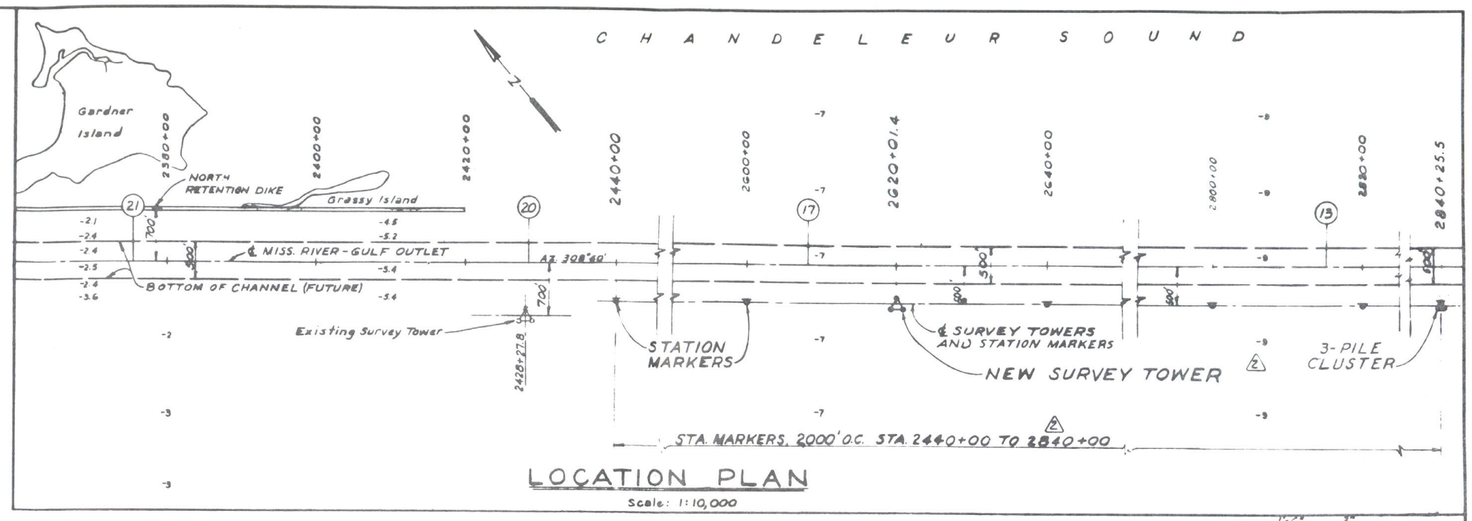
SCALE: AS SHOWN
DATE: NOV. 1956
SPEC. NO. NL- 57-7
FILE NO. H-4-20606

Sheet 1 of 1 Sheets
Drawing No. 1



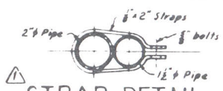


PLAN



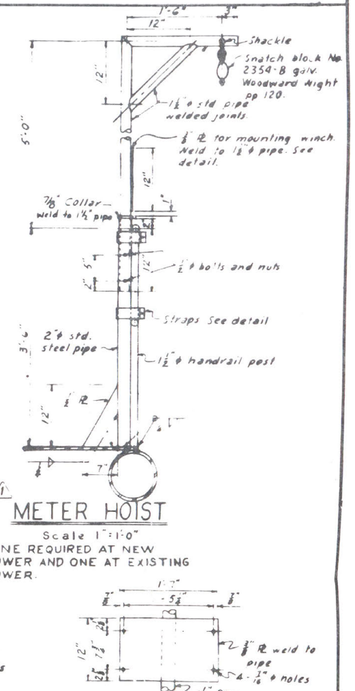
LOCATION PLAN

Scale: 1:10,000



⚠1 STRAP DETAIL

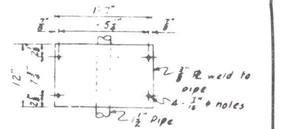
Scale 3"=1'-0"



⚠1 METER HOIST

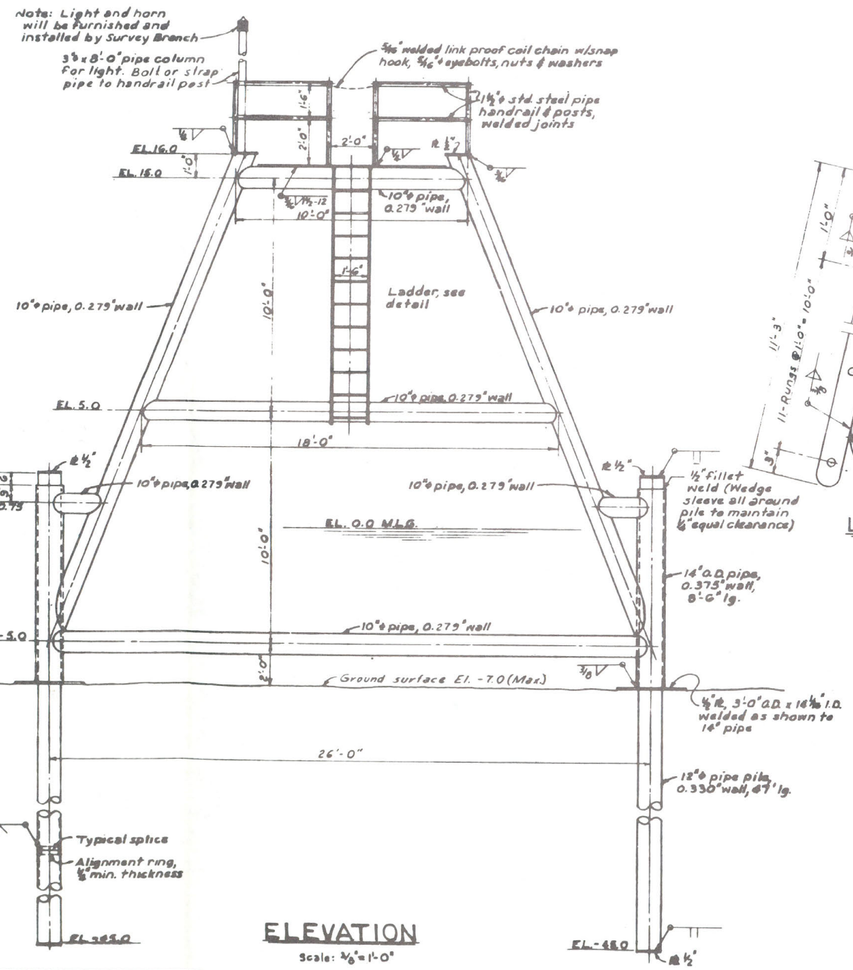
Scale 1"=1'-0"

ONE REQUIRED AT NEW TOWER AND ONE AT EXISTING TOWER.



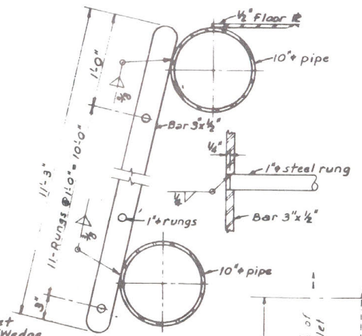
WINCH ℞

Scale 1"=1'-0"

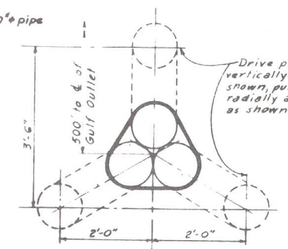


ELEVATION

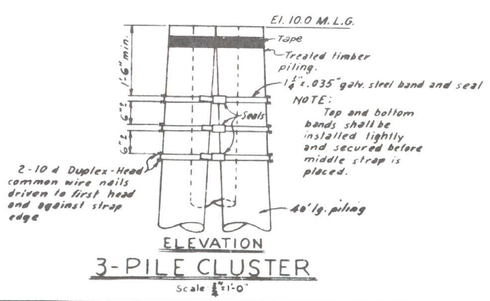
Scale: ⅜"=1'-0"



LADDER



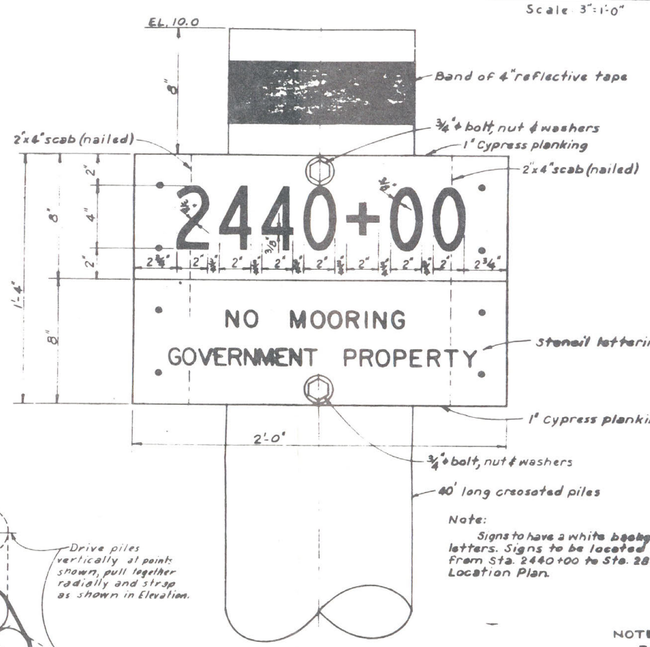
PLAN



ELEVATION

3-PILE CLUSTER

Scale ⅜"=1'-0"



CANAL SIDE ELEVATION

STATION MARKERS

Scale: 3"=1'-0"

Note:
Signs to have a white background and black letters. Signs to be located on 2,000' centers from Sta. 2440+00 to Sta. 2840+25.5 See Location Plan.

NOTE:
Elevations are in Feet Mean Low Gulf

REVISION	DATE	DESCRIPTION	BY	APPVD.
⚠2	2-6-61	Eliminated tower sta. 2820+00 and added 2 markers	D.J.H.	
⚠1	1-24-61	Added meter hoist, and revised handrail post located	D.J.H.	

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

DRAWN BY: F.H.
TRACED BY:
CHECKED BY: R.O.M.
SUBMITTED: DESIGN BRANCH

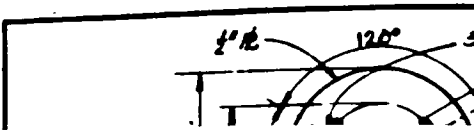
MISSISSIPPI RIVER — GULF OUTLET

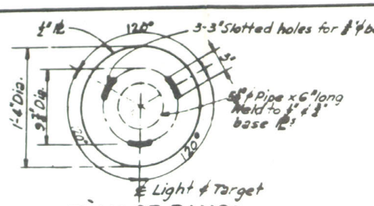
SURVEY TOWER AND STATION MARKERS STA. 2440+00 TO STA. 2840+25.5

RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED: COLONEL, C. E. DISTRICT ENGINEER

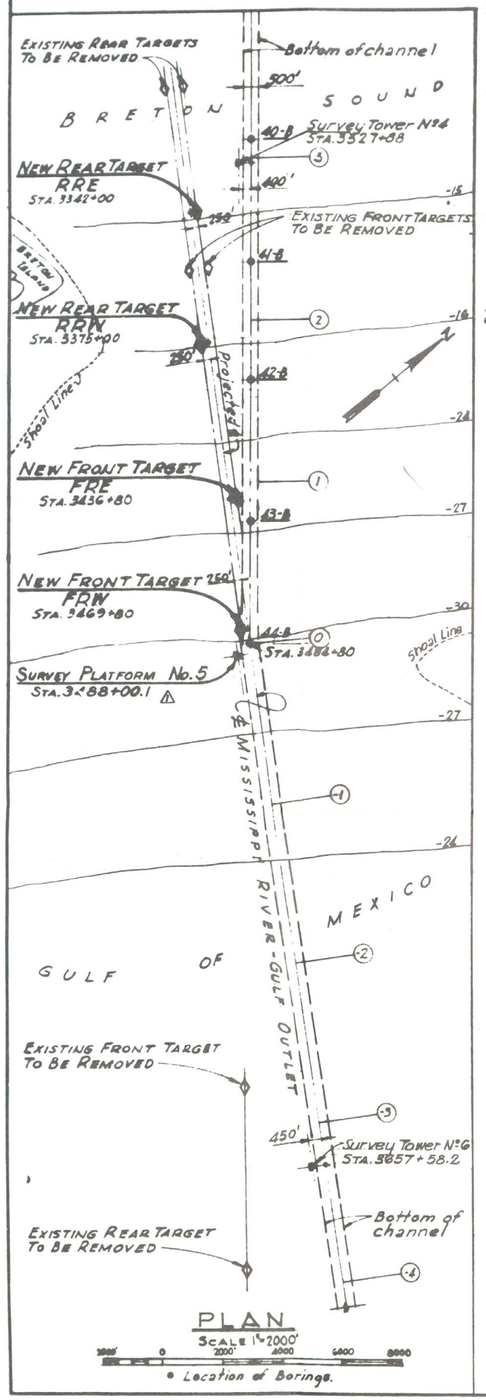
SCALE: AS SHOWN
DATE: DEC. 1960
SPEC. NO. N.L.
FILE NO. H-4-22006

In 1 Drawing
Drawing No. 1

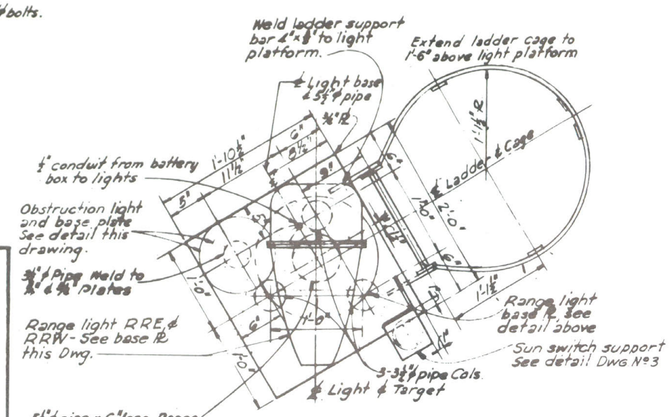

120°



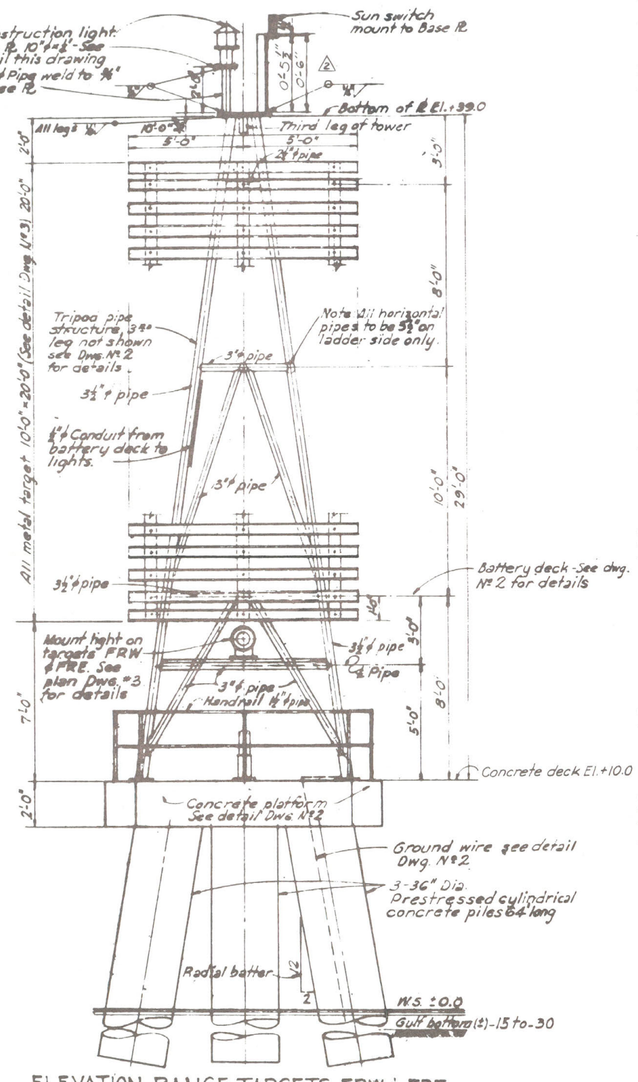
PLAN OF RANGE LIGHT BASE PLATE
Scale 1½"=1'-0"



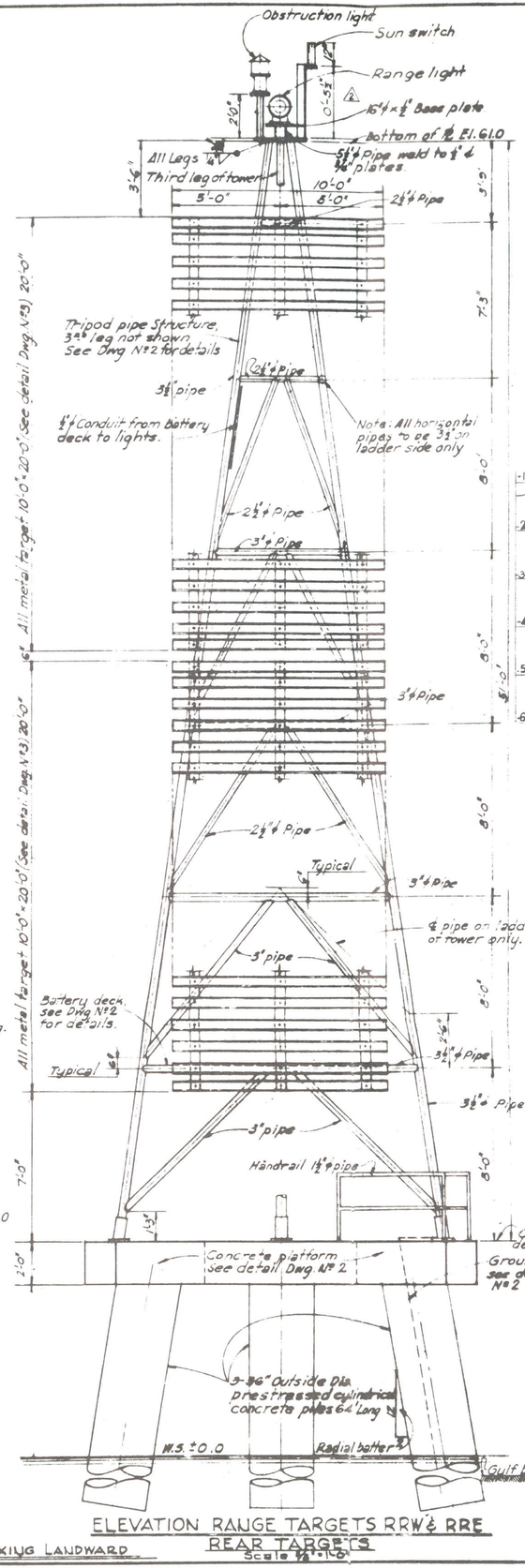
PLAN
SCALE 1"=2000'



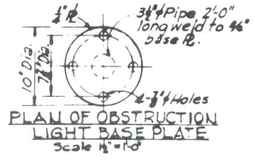
PLAN AT LIGHT PLATFORM
Scale 1½"=1'-0"



ELEVATION RANGE TARGETS FRW & FRE
FRONT TARGETS
Scale ⅜"=1'-0"



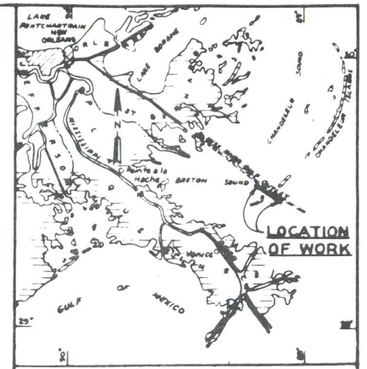
ELEVATION RANGE TARGETS RRW & RRE
REAR TARGETS
Scale ⅜"=1'-0"



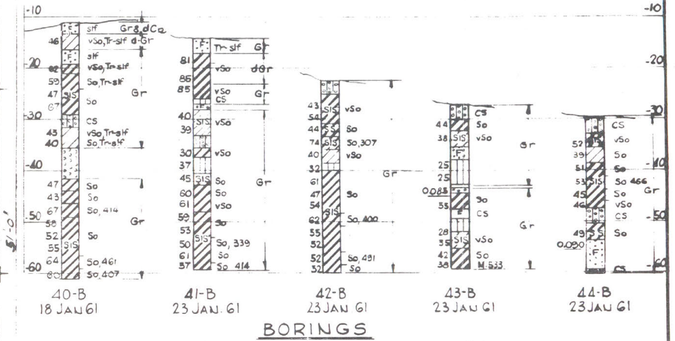
PLAN OF OBSTRUCTION LIGHT BASE PLATE
Scale ½"=1'-0"

Safety is a Part of Your Contract

THIS PLAN ACCOMPANIES MODIFICATION NO. 2 TO CONTRACT NO. DA-16-047-CIVENG-64-269



VICINITY MAP
SCALE OF MILES
0 10 20 30



BORINGS

Borings taken with a one and seven eight inch I.D. core barrel sampler.
Soil borings legend and notes are shown on Dwg. File No H-2-21800

GENERAL NOTES:

Elevations refer to Mean Low Gulf

Range lights, obstruction lights, Sun switch and batteries will be furnished by the Government and installed by the Contractor.

See Dwg. No 3 for construction of existing targets that are to removed

Only one side or pipe tower shown, other two sides are indentical, in tower construction except one side has ladder and cage from elevation +10.0 to 1'-6" above light platforms. Range targets on one side only as shown. See details on Dwgs. No 2 and 3. All tower pipe connections to be welded with single beveled groove weld all around, full penetration.

REVISION	DATE	DESCRIPTION	BY	APPVD.
2	12-2-64	Shortened Sun Switch Supports Mod No. 2	D.S.	
1	10-1-64	Added Survey Platform No. 5. Mod No. 1	S.S.G.	

DRAWN BY	TRACED BY	CHECKED BY
H.W.H R.O.M	H.W.H	A.F.J. R.O.M.

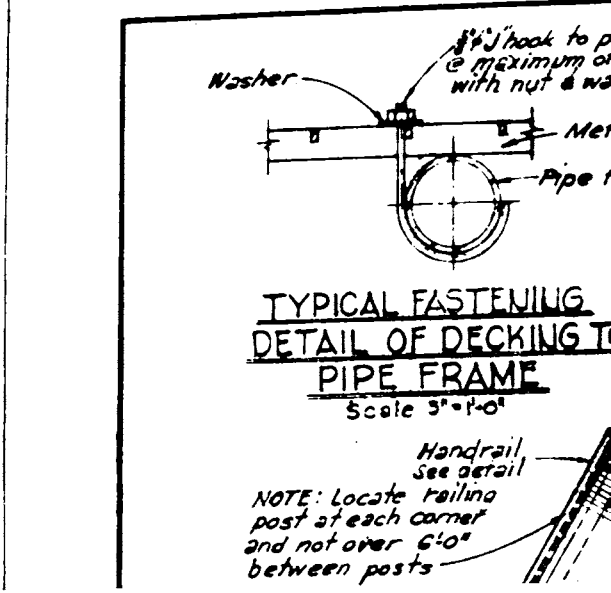
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LA.

SUBMITTED: R.J. Frankel, CHIEF, DESIGN BRANCH
DATE: MAY 1964
APPROVED: Roy P. Hudson, CHIEF, ENGINEERING DIVISION
APPROVED: Lloyd G. Harrison, COLONEL, C.E., DISTRICT ENGINEER

MISSISSIPPI RIVER-GULF OUTLET
RANGE TARGETS FOR DREDGE LANGFITT 1964

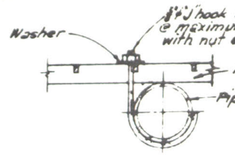
CODE IDENT NO | SIZE | FILE NO: H-4-23095
SCALE AS SHOWN | SPEC. NO. CIVENG 16-047 64-183 | DWG. NO 1 OF 4

NOTE: ELEVATIONS LOOKING LANDWARD

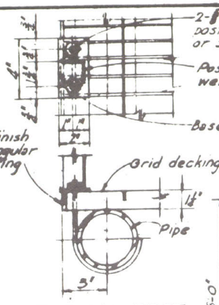


TYPICAL FASTENING DETAIL OF DECKING TO PIPE FRAME

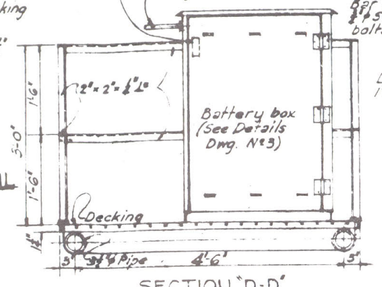
Scale 3" = 1'-0"



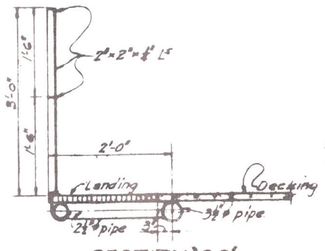
TYPICAL FASTENING DETAIL OF DECKING TO PIPE FRAME
Scale 3"=1'-0"



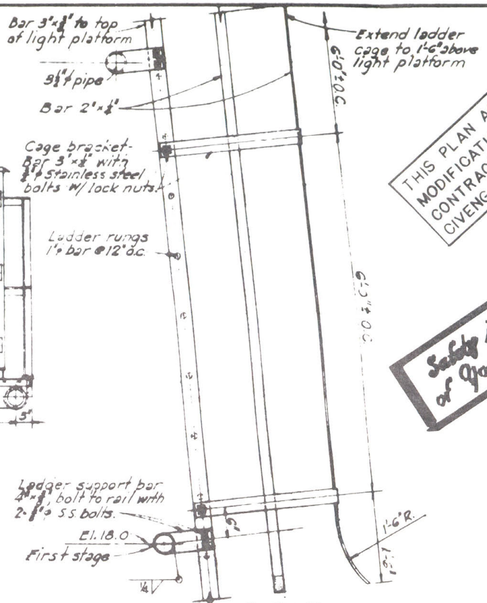
TYPICAL POST FASTENING DETAIL
Scale 3"=1'-0"



SECTION "D-D"
Scale 1"=1'-0"



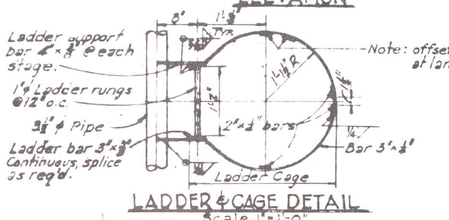
SECTION "GC"
Scale 1"=1'-0"



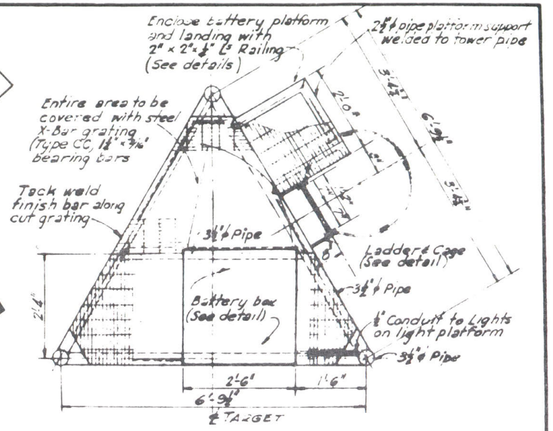
ELEVATION

THIS PLAN ACCOMPANIES MODIFICATION NO. 1 TO CONTRACT NO DA-16-047-CIVENG-64-269.

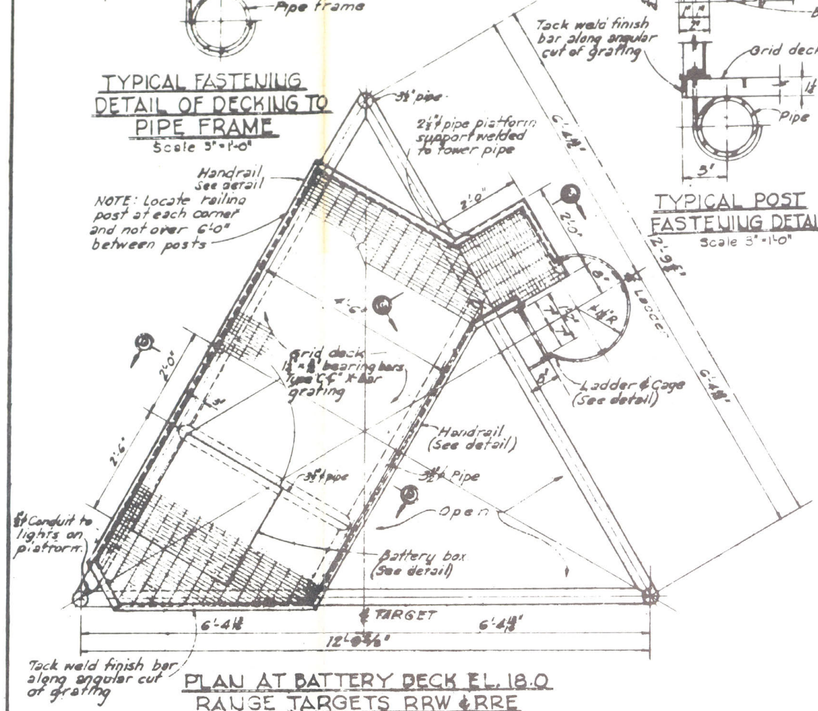
Safety is a Part of Your Contract



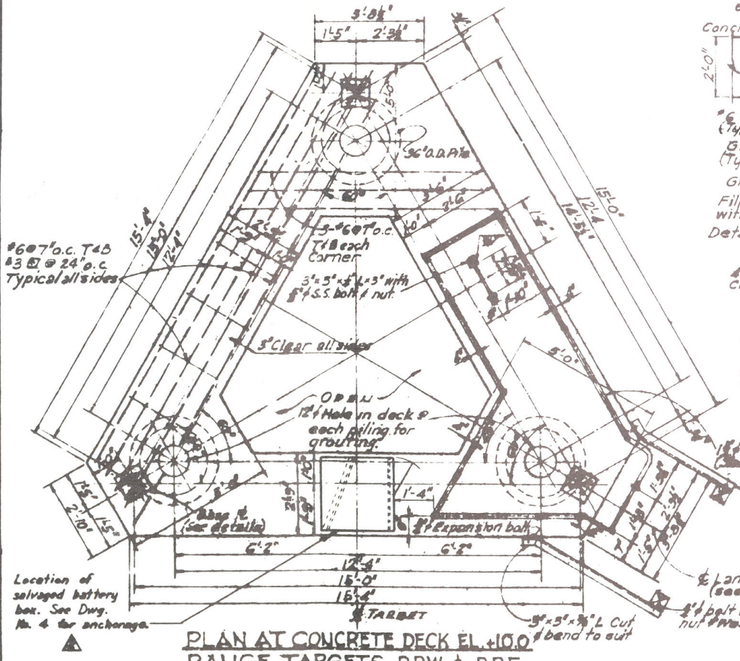
LADDER & CAGE DETAIL
Scale 1"=1'-0"



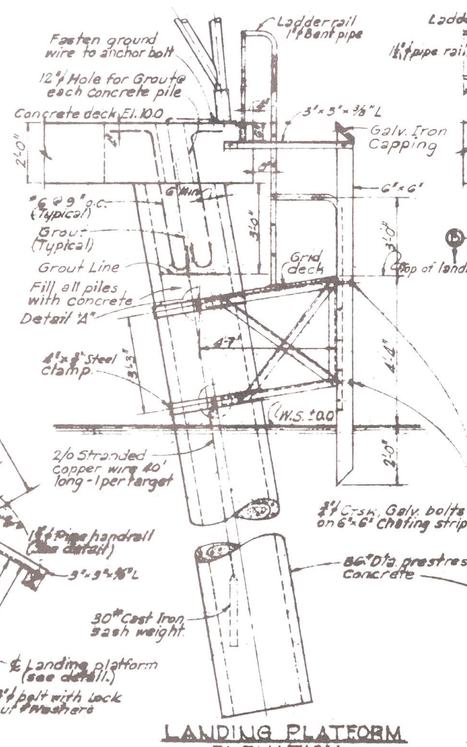
PLAN AT BATTERY DECK EL. 18.0
RANGE TARGETS FRW & FRE
Scale ½"=1'-0"



PLAN AT BATTERY DECK EL. 18.0
RANGE TARGETS RRW & RRE
Scale ½"=1'-0"

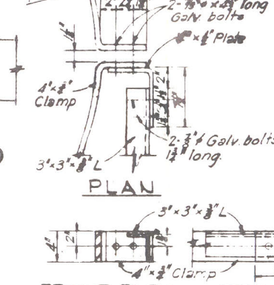


PLAN AT CONCRETE DECK EL. +10.0
RANGE TARGETS RRW & RRE
Scale ½"=1'-0"

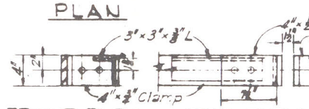


LANDING PLATFORM ELEVATION
Scale ½"=1'-0"

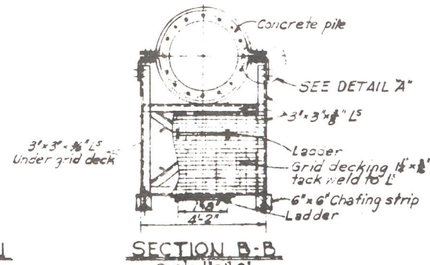
FRONT ELEVATION
Scale ½"=1'-0"



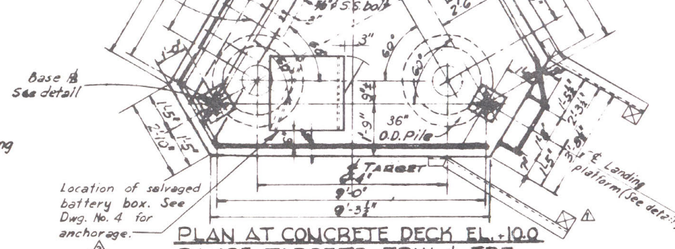
PLAN



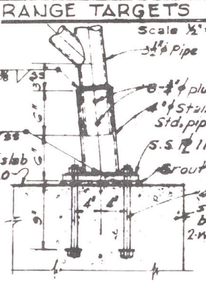
DETAIL "A"
Scale 1½"=1'-0"



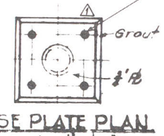
SECTION B-B
Scale ½"=1'-0"
Entire assembly to be galvanized after fabrication



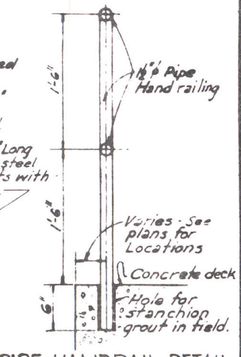
PLAN AT CONCRETE DECK EL. +10.0
RANGE TARGETS FRW & FRE
Scale ½"=1'-0"



ELEVATION



BASE PLATE PLAN
Scale 1½"=1'-0"

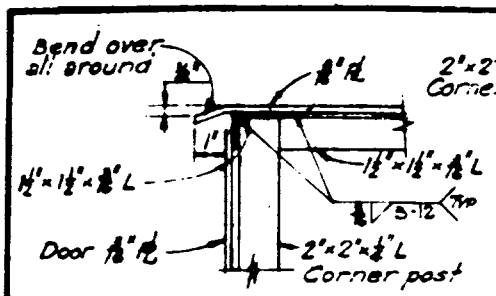


PIPE HANDRAIL DETAIL
Scale 1½"=1'-0"

REV.	DATE	DESCRIPTION	BY
2	10-66	Added battery boxes on platforms. Mod. No. 1.	SG
1		Added landing platform FRW and FRE. Revised bolt locations on base plate plan.	DN

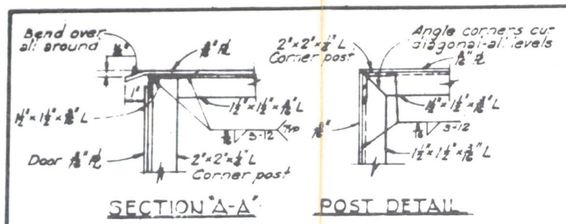
H-4-23095

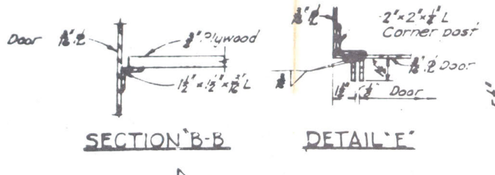
SCALE: AS SHOWN | SPEC. NO. CIVENG-16-047-64-183 | DWG. NO. 2 OF 4

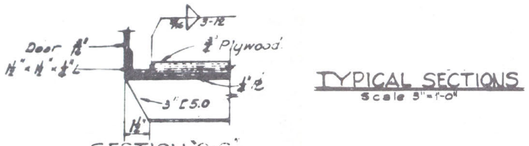

Bend over all around
2"x2"
Corne
1"
1½"x1½"x⅛"L
1½"x1½"x⅛"L
5-12
Typ
Door ⅛"
2"x2"x¼"L
Corner post

SECTION "A-A"

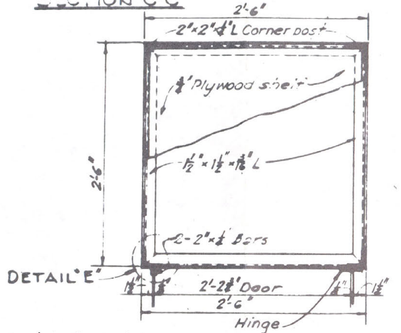

Door ⅛"
¾" Plywood
1½"x1½"x⅛"L





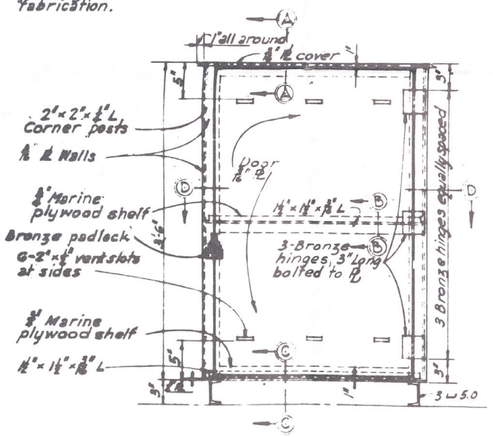


TYPICAL SECTIONS
Scale 3"=1'-0"



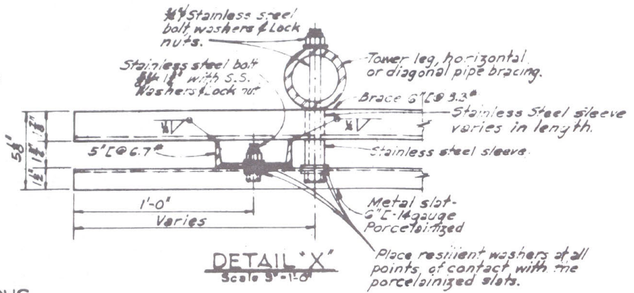
SECTION "D-D"

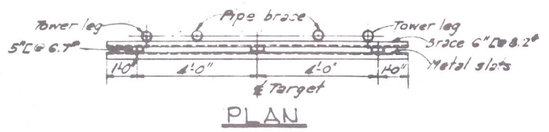
NOTE: Box to be fabricated of angles & plates welded throughout. Hot dipped galvanized after fabrication.

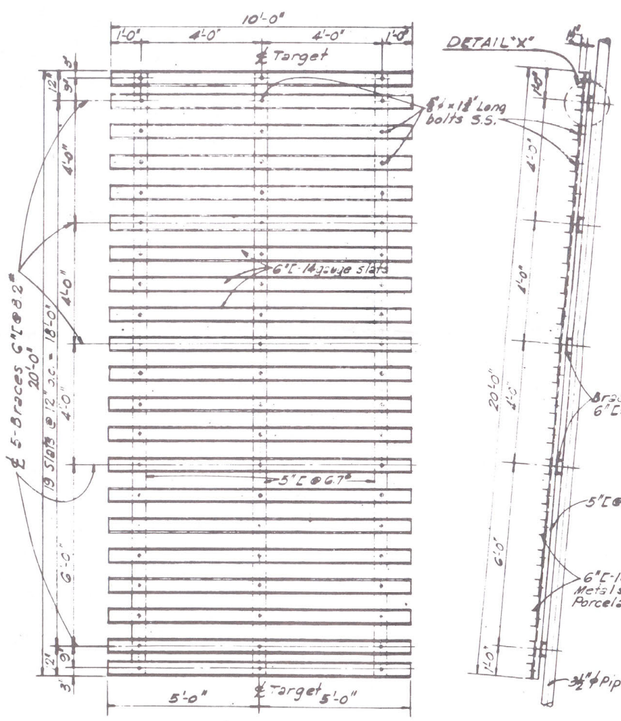


BATTERY BOX DETAILS
Scale 1½"=1'-0"

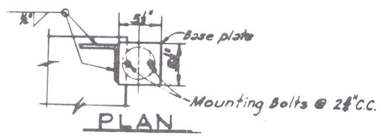
NOTE: Contractor to provide conduit and all fittings necessary for connecting batteries to lights. Provide disconnect switch for range light and separate wiring to obstruction Lights and Sun switches. Lead pan to be installed on top shelf, see dwg No 4 for detail. ⚠

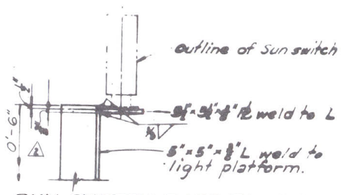


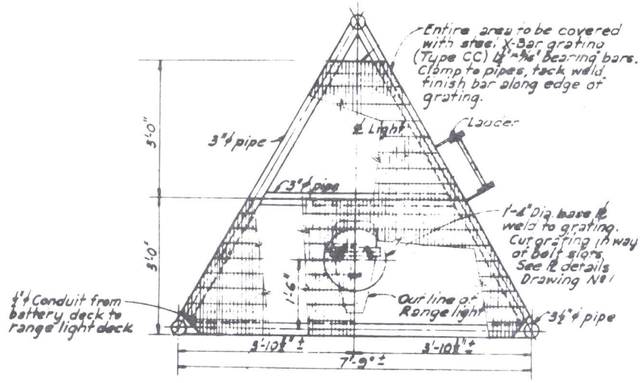


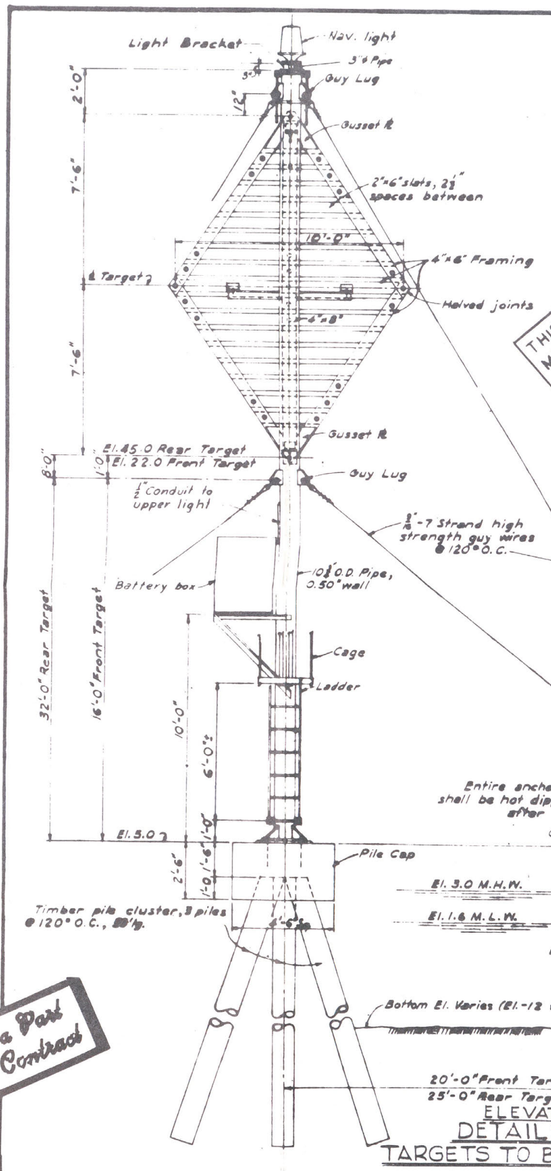


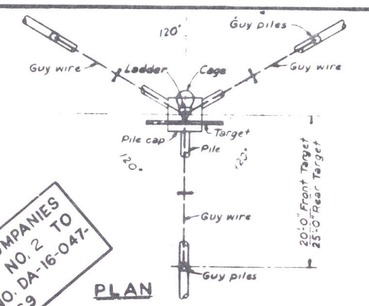
TARGET DETAILS
Scale ½"=1'-0"



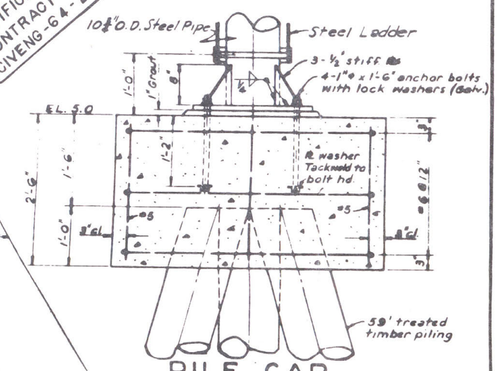


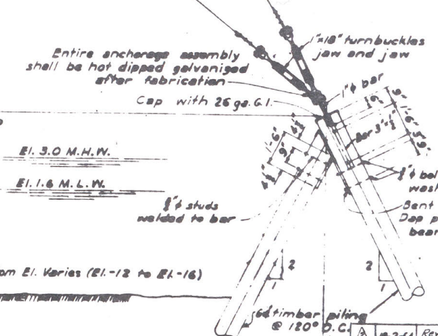






THIS PLAN ACCOMPANIES MODIFICATION NO. 2 TO CONTRACT NO. DA-16-047-CIVENG-64-269



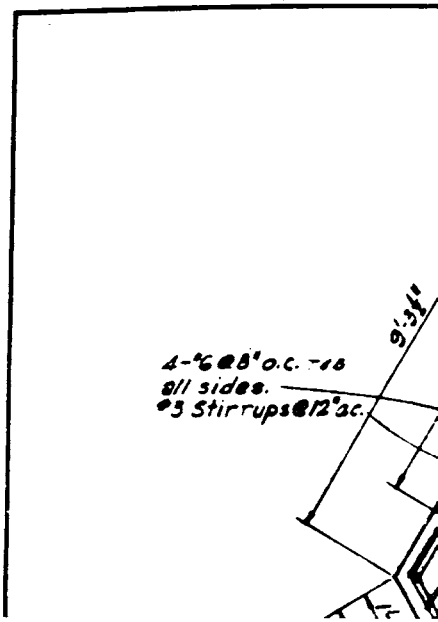


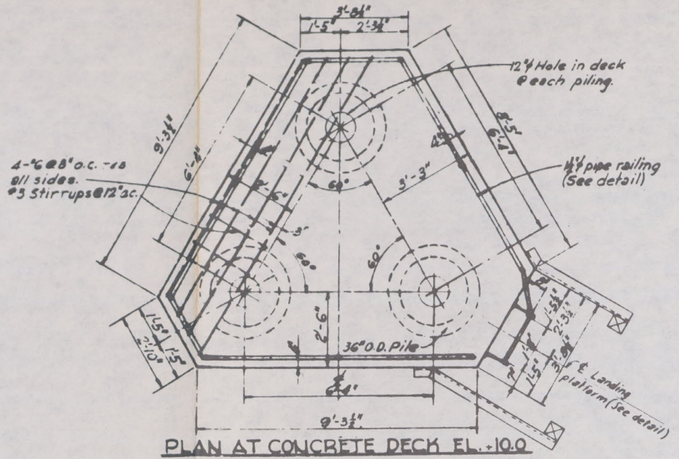
Safety is a Part of Your Contract

REVISION	DATE	DESCRIPTION	BY
⚠	12-2-64	Revised dim. for Sun Switch support Mod. No. 2	D.S.
⚠	10-1-64	Added lead pan to battery box Mod. #1	D.J.H.

H-4-23095

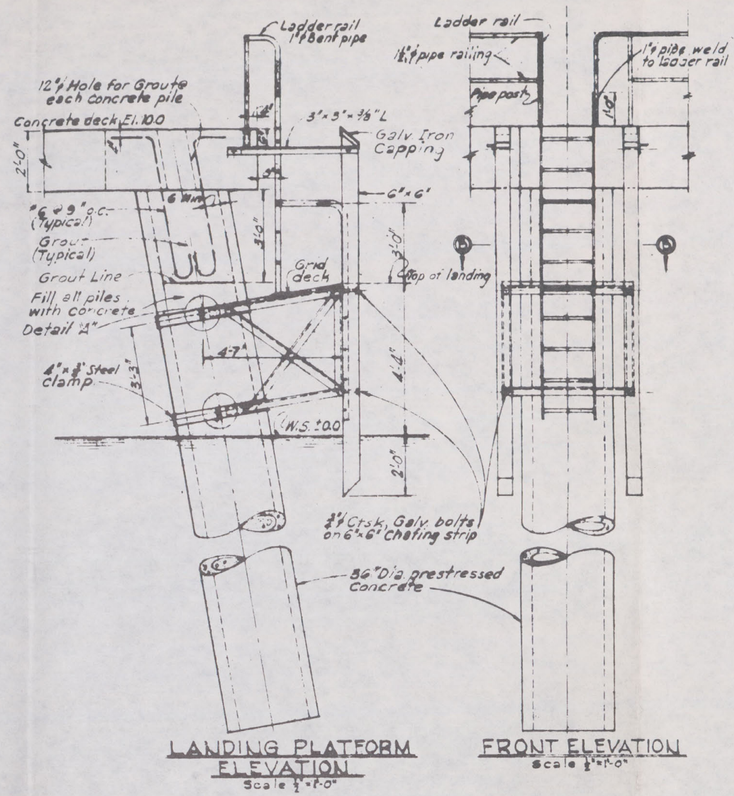
SCALE AS SHOWN | SPEC. NO. CIVENG 16-047 64-183 | DRWG. NO. 3 OF 4


4-#6 @8" o.c. -16
all sides.
#3 Stirrups @12" oc.



PLAN AT CONCRETE DECK EL. +10.0

NOTE: ORIENTATION AND LOCATION OF PLATFORM WILL BE DETERMINED IN FIELD BY SURVEY BRANCH.

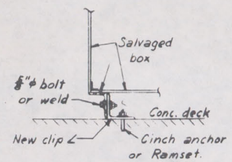


LANDING PLATFORM ELEVATION

Scale ½"=1'-0"

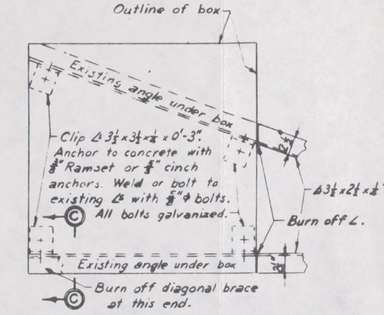
FRONT ELEVATION

Scale ½"=1'-0"



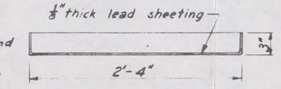
SECTION C-C

Note: Locate boxes on platforms as shown on Dwg. No. 2.



PLAN

To pass pan through door of salvaged boxes, either bend as necessary and then flatten back to shape, or cut and then solder joint.



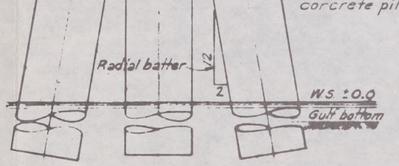
LEAD PAN

8-REQUIRED

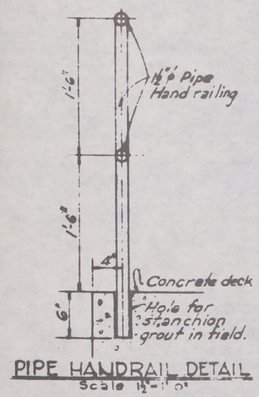
4-ON SHELVES OF NEW BOXES,
4-ON SHELVES OF SALVAGED BOXES.

SALVAGED BATTERY BOX

Scale: 1½"=1'-0"

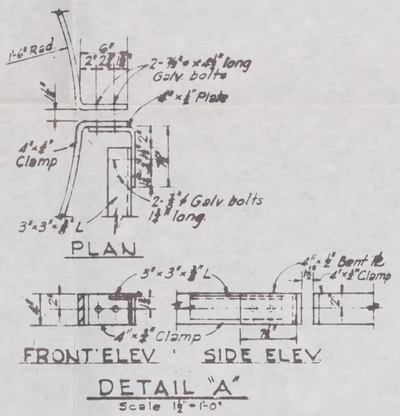


ELEVATION



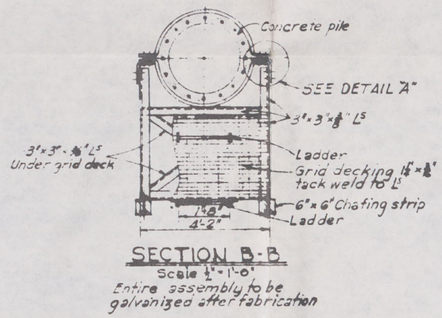
PIPE HANDRAIL DETAIL

Scale 1½"=1'-0"



DETAIL "A"

Scale 1½"=1'-0"



SECTION B-B

Scale ½"=1'-0"

Entire assembly to be galvanized after fabrication

SURVEY PLATFORM

Safety is a Part of Your Contract

THIS PLAN ACCOMPANIES MODIFICATION NO. 1 TO CONTRACT NO. DA-16-047-CIVENG-64-269.

REV.	DATE	DESCRIPTION	BY
1	10-1-66	Added new drawing. Mod. No. 1.	S.S.G.

CODE IDENT. NO.	SIZE	FILE NO.
		H-4-23095
SCALE AS SHOWN	SPEC. NO. CIVENG 16-047-64-183.	DWG. NO. 4 OF 4