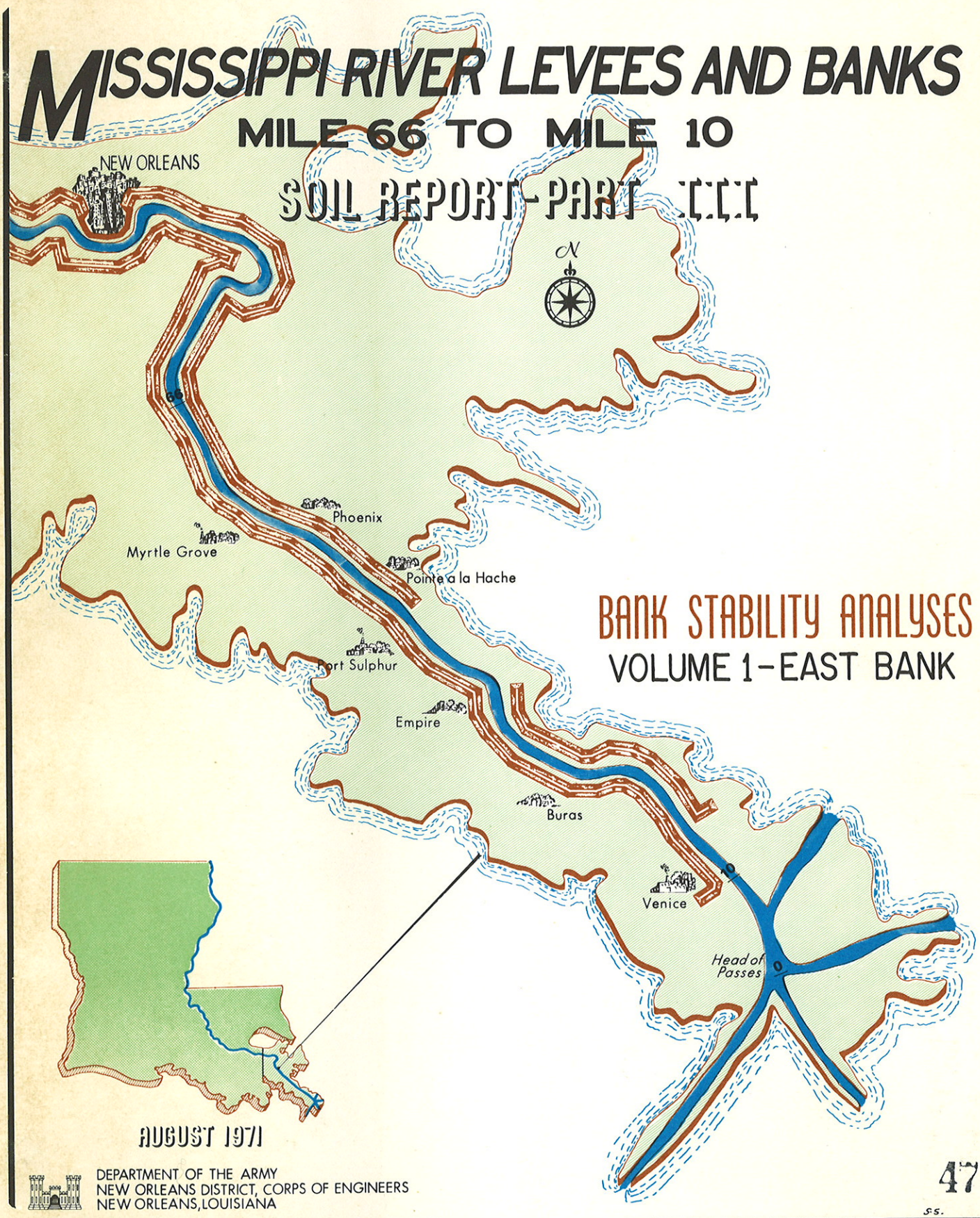
MISSISSIPPI RIVER LEVEES AND BANKS

MILE 66 TO MILE 10

SOIL REPORT - PART III



BANK STABILITY ANALYSES

VOLUME 1 - EAST BANK

AUGUST 1971

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

SS.

MISSISSIPPI RIVER LEVEES AND BANKS

MILE 66 TO MILE 10

SOIL REPORT-PART III

BANK STABILITY ANALYSES
VOLUME 1 - EAST BANK

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

MISSISSIPPI RIVER LEVEES AND BANKS

MILE 66 TO MILE 10

SOIL REPORT

PART INDEX

PART

I SOIL DATA

Volume 1 - East Bank

Volume 2 - West Bank

Appendix A - Detailed Shear Test Data

II LEVEE STABILITY ANALYSIS

Volume 1 - East Bank

Volume 2 - West Bank

III BANK STABILITY ANALYSIS

Volume 1 - East Bank

Volume 2 - West Bank

TABLE OF CONTENTS

Paragraph	Title	Page
1	Introduction	1
2	General	2
3.	Foundation Investigations	2
4.	Laboratory Tests	2
5.	Soil Conditions	2
6.	Design Shear Strengths	2
7.	Stability	2
8.	Bank Recession	4
9.	Recommendations	5

PLATES

No.	Title
1	General Map
2-15	Revetment Location Maps
16-18	Belair Revetment - Bank Stability Analyses
19-21	Monsecour Revetment - " " "
22-26	Harlem Revetment - " " "
27-34	Gravolet Revetment - " " "
35-39	Bohemia Revetment - " " "
39-46	Nestor Revetment - " " "
47-56	Neptune Revetment - " " "
57-66	Olga Revetment - " " "

PART III - VOLUME 1

BANK STABILITY ANALYSES - EAST BANK

1. Introduction. This volume of the report presents the plan for bank protection on the East Bank of the Mississippi River from Belair, Louisiana, Mile 66, to a point opposite Venice, Louisiana, Mile 10, a distance of approximately 56 miles. The data presented includes bank recession rates and stability analyses for bank revetment grading.

The stability analyses were performed by personnel of the New Orleans District and reviewed and approved by representatives of the Mississippi River Commission, during the preparation of the report.

This part was prepared in the Dams, Levees, and Channel Slopes Section by Mr. Nathaniel T. Langlois under the direction of Messrs. Herman A. Huesmann and Stewart E. Worley, Foundations and Materials Branch, Engineering Division, New Orleans District.

District Engineer during the preparation of this report was Colonel Herbert R. Haar, Jr., CE. Chief of the Engineering Division was Mr. Jerome C. Baehr.

2. General. Survey data available prior to the preparation of the report included hydrographic surveys 1961-1963, and revetment surveys. Additional surveys were made at locations where coverage was not available to adequately define the shape of the banks. The bank surveys indicated that riverbank slopes generally range from about 1 on 2 to 1 on 4. No revetment has been placed on this bank of the river within the limits of the study to date.

3. Foundation Investigations. See Part I, Volume 1.

4. Laboratory Tests. See Part I, Volume 1, and Appendix A.

5. Soil Conditions. See Part I, Volume 1.

6. Design Shear Strengths. See Part I, Volume 1.

7. Stability analyses of bank slopes for revetment construction were performed in accordance with paragraph 4 and 5 of LMVD letter dated 5 November 1963, subject "Analysis of Bank Slopes for Revetment Construction" and modification in LMVD letter dated 27 January 1969. Stability analyses were performed using the soil stratifications and design shear strengths presented in Part I, Volume 1 at various assumed depths of failure. The section used in each analysis was either a critical section within the reach or a composite section developed by overlaying the sections within the reach at a designated elevation. Various bank degrading slopes were analyzed until a minimum factor of safety of 1.30 was obtained for the "Q" construction case. It was assumed

that the river stage and ground water level in the bank soil were at mean low water elevation of 0.0. Only the "Q" construction case stability analysis was performed since the sudden drawdown and partial pool stability analyses were not critical for the low riverbanks that exist in the study area.

No additional stability analyses were performed for this report on reaches where revetment grading slopes had been previously approved by the Mississippi River Commission as shown on Table 1. Every attempt was made to use a degrading cut point commencing no deeper than elevation -20.0 but in two reaches within Olga Revetment it was more economical to use a cut point at elevation -30. The bank degrading requirements are listed in Table 1. The stability analyses are shown on plates 16 through 66.

8. Bank Recession. Bank recession rates were calculated using available caving bank surveys. Because of the time sequence of performing the construction of the slope protection and the availability of construction funds, bank recession was projected for a 10-year period to 1980 as shown on Table 2. Using this bank recession, a more realistic cost estimate would be made which would include the need for levee setbacks, relocations and required rights-of-way. As plans and specifications are prepared for levee construction, bank recession will be adjusted to reflect the actual recession at the time the slope protection is installed. Bank recession was assumed to vary linearly between the levee stations shown on Table 2.

9. Recommendations.

a. The bank slopes should be degraded according to the slopes and cut points shown on Table 1. Where the existing bank slope has an adequate factor of safety, the bank slope should be dressed to facilitate the placing of the concrete mat.

b. The material degraded from the bank should be degraded prior to any degrading of the underwater bank slope and should not be deposited on the existing underwater bank slope.

c. The degraded material should be deposited at the maximum distance possible from the bank within the stated limits.

d. Riprap paving will be used for the degraded slope beyond the articulated concrete mattress.

TABLE 1
REVETMENTS
BANK DEGRADING REQUIREMENTS
MILE 66 TO MILE 10
EAST BANK

NAME OF REVETMENT	STATIONS AND RANGES	STRENGTH	CUT POINT	SLOPE	PLATE
Belair	U-59 to U-6 1380+00 to 1433+00	AE-1	-20.0	1 on 4.5	16
	U-6 to D-86 1433+00 to 1525+00	AE-1	-20.0	1 on 4.0	17
	D-86 to D-151 1525+00 to 1590+00	AE-2	-20.0	1 on 3.0	18
Monsecour	U-66 to U-40 1590+00 to 1616+00	AE-3	-	Existing*	19
	U-40 to D-29 1616+00 to 1685+00	AE-3	-20.0	1 on 2.5	20
	D-29 to D-59 1685+00 to 1715+00	AE-4	-20.0	1 on 5.5	21
No Revetment Proposed	1715+00 to 1748+00	-	-	-	-
Harlem	U-126 to U-59 1748+00 to 1815+00	AE-4	-	Existing*	22
	U-59 to D-19 1815+00 to 1893+00	AE-5	-20.0	1 on 2.0	23
	D-19 to D-45 1893+00 to 1919+00	BE	-20.0	1 on 3.5	24
	D-45 to D-104 1919+00 to 1978+00	BE	-	Existing*	25
	D-104 to D-126 1978+00 to 2000+00	CE	-	Existing*	26
No Revetment Proposed	2000+00 to 2066+94	-	-	-	-
Gravolet	U-144 to U-123 2066+94 to 2087+00	CE	-	Existing*	27
	U-123 to U-87 2087+00 to 2124+69	DE	-	Existing*	28
	U-87 to U-57 2124+69 to 2155+29	DE	-20.0	1 on 3.5	29
	U-57 to D-6 2155+29 to 2218+74	DE	-20.0	1 on 5.0	30
	D-6 to D-33 2218+74 to 2245+74	DE	-20.0	1 on 5.0	31
	D-33 to D-60.3 2245+74 to 2274+00	DE	-20.0	1 on 3.0	32
	D-60.3 to D-98.5 2274+00 to 2312+00	EE	-	Existing*	33
	D-98.5 to D-137.3 2312+00 to 2351+00	FE	-	Existing*	34

*Existing Slope - No Degrading Required

TABLE 1
REVETMENTS
BANK DEGRADING REQUIREMENTS
MILE 66 TO MILE 10
EAST BANK

NAME OF REVETMENT	STATIONS AND RANGES	STRENGTH	CUT POINT	SLOPE	PLATE
Bohemia	U-90 to U-58 2351+00 to 2383+00	FE	-	Existing*	35
	U-58 to U-9 2383+00 to 2432+00	FE	-20.0	1 on 2.5	36
	U-9 to D-13 2432+00 to 2454+00	FE	-20.0	1 on 4.0	37
	D-13 to D-59 2454+00 to 2500+00	GE-1	-20.0	1 on 5.5	38
	D-59 to D-103.9 2500+00 to 2544+90	GE-2	-	Existing*	39
Nestor	D-103.9 to R-43.9 2544+90=0+00 to 10+00	GE-2	-	Existing	39
	R-43.9 to R-43.5 10+00 to 35+00	HE-1	-	Existing*	40
	R-43.5 to R-42.97 35+00 to 67+00	HE-1	-	Existing*	41
	R-42.97 to R-42.6 67+00 to 90+00	HE-1	-	Existing*	42
	R-42.6 to R-42.0 90+00 to 120+00	HE-1	-	Existing*	43
	R-42.0 to R-41.4 120+00 to 155+00	HE-2	-20.0	1 on 4.0	44
	R-41.4 to R-40.25 155+00 to 217+00	HE-3	-	Existing*	45
	R-40.25 to R-39.5 217+00 to 255+00	HE-4	-	Existing*	46
No Revetment Proposed	R-39.5 to R-35.6 255+00 to 444+71=0+00	-	-	-	-
No Revetment Proposed	R-35.6 to R-35.2 0+00 to 23+00	-	-	-	-
Bayou Lamoque	R-35.2 to R-34.6 23+00 to 61+93	-	-20.0	1 on 4.0	Prev App.
	R-34.6 to R-34.3 61+93 to 80+25	-	-20.0	1 on 5.0	Prev App.
	R-34.3 to R-33.0 80+25 to 165+35	-	-20.0	1 on 5.0	Prev App.
	R-33.0 to R-31.4 165+35 to 250+00	-	-20.0	1 on 6.0	Prev App.
No Revetment Proposed	R-31.4 to R-26.2 250+00 to 502+00	-	-	-	-

*Existing Slope - No Degrading Required

TABLE 1
REVETMENTS
BANK DEGRADING REQUIREMENTS
MILE 66 TO MILE 10
EAST BANK

NAME OF REVETMENT	STATIONS AND RANGES	STRENGTH	CUT POINT	SLOPE	PLATE
Neptune	R-26.2 to R-26.1 502+00 to 515+00	PE-2	-	Existing*	47
	R-26.1 to R-25.35 515+00 to 555+00	QE-1	-	Existing*	48
	R-25.35 to 555+00 to 559+82=0+00 0+00 to 19+06=0+00 R-24.45 0+00 to 30+00	QE-2	-	Existing*	49
	R-24.45 to R-24.1 30+00 to 48+00	RE-1	-	Existing*	50
	R-24.1 to R-23.8 48+00 to 65+00	RE-1	-	Existing*	51
	R-23.8 to R-23.1 65+00 to 100+00	RE-2	-20.0	1 on 4.0	52
	R-23.1 to R-22.5 100+00 to 130+00	SE-1	-20.0	1 on 2.5	53
	R-22.5 to R-21.9 130+00 to 155+00	SE-2	-20.0	1 on 4.0	54
	R-21.9 to R-21.5 155+00 to 169+00	SE-3	-	Existing*	55
	R-21.5 to R-21.0 169+00 to 188+00	SE-3	-	Existing*	56
Olga	R-21.0 to R-20.35 188+00 to 235+00	SE-3	-	Existing*	57
	R-20.35 to R-20.1 235+00 to 250+00	TE-1	-	Existing*	58
	R-20.1 to R-19.16 250+00 to 315+00	TE-1	-30.0	1 on 5	59
	R-19.16 to R-18.56 315+00 to 350+00	TE-2	-20.0	1 on 5	60
	R-18.56 to R-17.85 350+00 to 388+00	UE	-30.0	1 on 3.5	61
	R-17.85 to R-17.2 388+00 to 420+00	UE	-20.0	1 on 3.5	62
	R-17.2 to R-15.37 420+00 to 525+00	VE	-20.0	1 on 3.5	63
	R-15.37 to R-13.74 525+00 to 615+00	WE	-	Existing*	64
	R-13.74 to R-13.1 615+00 to 650+00	XE-1	-	Existing*	65
	R-13.1 to R-11.5 650+00 to 735+00	XE-2	-	Existing*	66

*Existing Slope - No Degrading Required

EAST BANK
RECESSION PROJECTED TO 1980

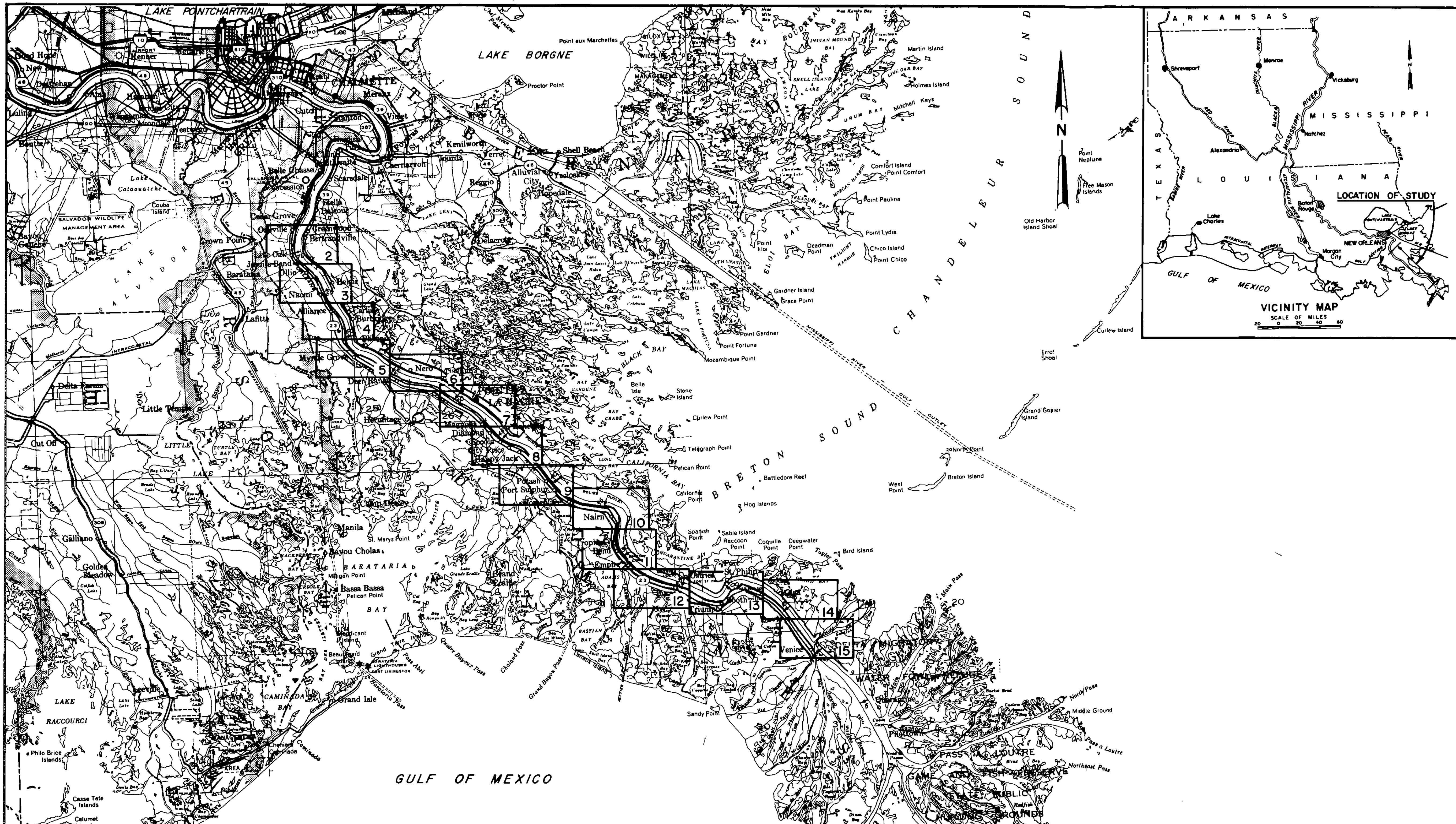
REACH	STATION	FEET
AE-1	1380+00	10
	1393+00	10
	1469+60	25
	1481+90	20
	1487+00	5
	1497+30	NONE
	1525+00	NONE
AE-2	1590+00	NONE
AE-3	1600+20	NONE
	1620+00	30
	1680+00	20
	1685+00	25
AE-4	1700+00	40
	1705+00	35
	1707+00	20
	1793+00	NONE
	1810+00	NONE
	1815+00	5
AE-5	1850+00	30
	1893+00	20
BE	1902+00	15
	1978+00	NONE
CE	2087+00	NONE
DE	2170+00	NONE
	2200+00	30
	2220+00	20
	2243+00	25
	2274+00	10
EE	2278+00	10
	2280+00	NONE
	2312+00	NONE
FE	2397+00	NONE
	2400+00	15
	2445+00	NONE
	2454+00	20
GE-1	2500+00	20
GE-2	2544+90 = 0+00	NONE
	10+00	NONE
HE-1	77+50	NONE
	93+50	50
	120+00	50
HE-2	155+00	50
HE-3	197+75	50
	210+50	NONE
	217+00	NONE
HE-4	255+00	NONE
IE	360+00	NONE
JE	444+70 = 0+00	NONE
	10+00	NONE
KE	55+25	NONE
	70+50	50
	73+00	55
LE	95+00	100
	123+50	300
	130+00	305
ME	165+00	330
NE	191+50	350
	207+50	50
	213+00	NONE
	255+00	NONE
OE-1	320+00	NONE
OE-2	355+00	NONE
	390+00	NONE
PE-1	460+00	NONE
PE-2	515+00	5
QE-1	555+00	5
QE-2	559+81.93 = 0+00	5
	0+00 to 19+06 = 0+00	5
	30+00	5
RE-1	65+00	10
RE-2	100+00	10
SE-1	130+00	10
SE-2	155+00	10
SE-3	235+00	15
TE-1	315+00	15
TE-2	350+00	15
UE	420+00	20
VE	467+00	20
	525+00	30
WE	614+00	50
	615+00	45
XE-1	623+50	NONE
	650+00	NONE
XE-2	735+00	NONE
YE	811+00	NONE
ZE	879+00	NONE

NOTE: Bank movement will vary linearly between levee stations

AUGUST 1971

TABLE 2

TABLE 2



MISSISSIPPI RIVER LEVEES AND BANKS

MILE 66 TO MILE 10

SOIL REPORT — PART III

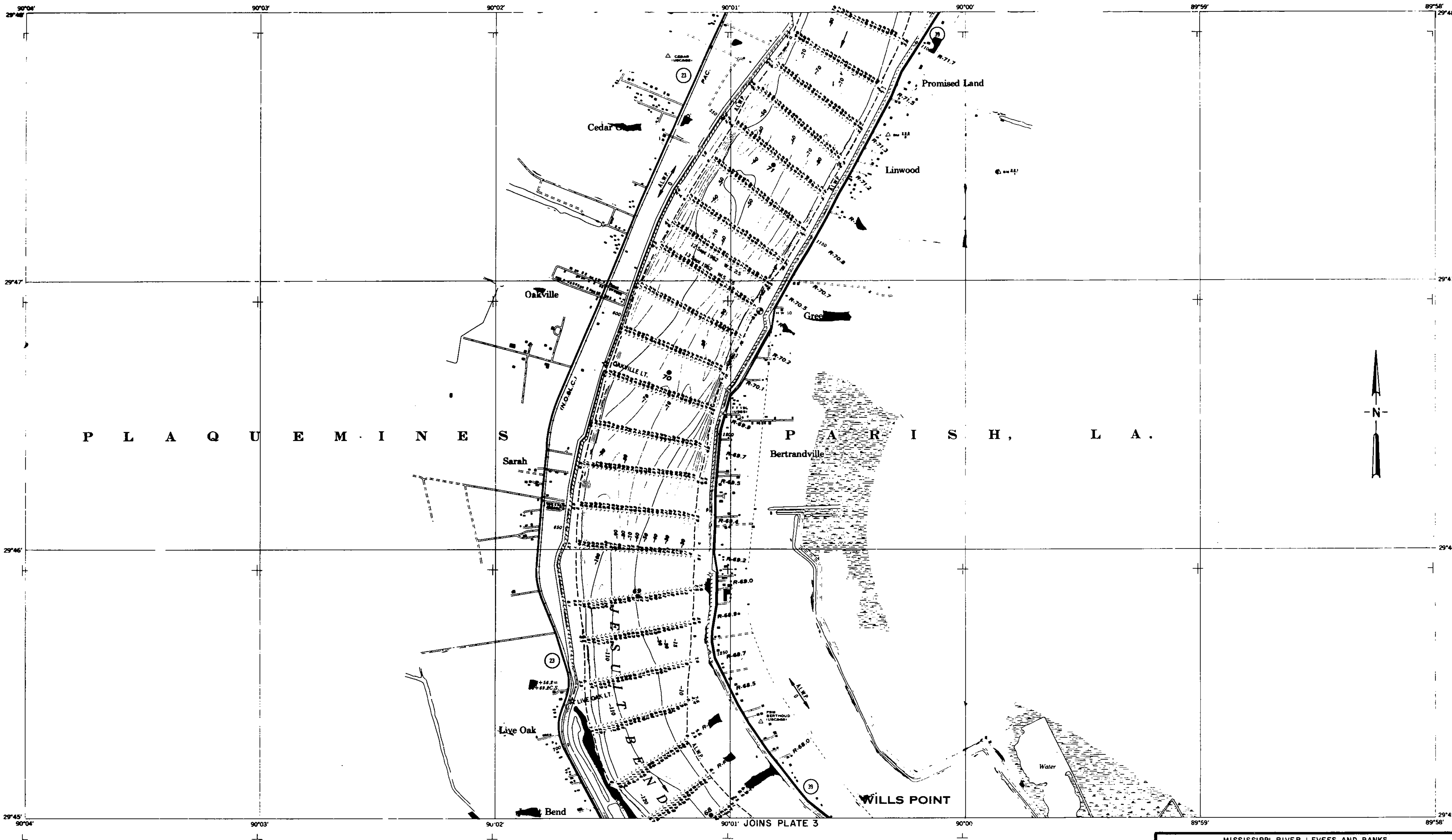
EAST AND WEST BANKS

REVETMENT LIMITS GENERAL MAP

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

AUGUST 1971 FILE NO. H-2-25275

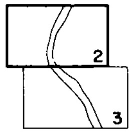
PLATE 1



All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals.
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A L W.P —Average Low Water Plane

SCALE 1:10,000

FEET 1000 0 1000 2000
METERS 100 0 100 500 1000
MILES 0 ⅛ ¼ ⅜ ½ ⅝ ¾ ⅞ 1



INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT – PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 71.0 TO MILE 68.0

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

AUGUST 1971 FILE NO. H-2-25275

JOINS PLATE 2

JOINS PLATE 4

Fanny

Ollie

Naomi

Belair

Water

Sta.828+00 JESUIT BEND REVETMENT Sta.840+00 U-139

Sta.973+00 U-6

Sta.1380+00 U-6

Sta.1433+00 U-6

ALLIANCE REVETMENT

BELAIR REVETMENT

P L A Q U E M I N E S P A R I S H, L A.

All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys
Polyconic Projection North American Datum
Polyconic Projection Gulf Coast Datum is indicated by ticks
A L W P —Average Low Water Plane

SCALE 1:10.000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1

INDEX TO ADJOINING SHEETS

2
3
4

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 66.3 TO MILE 63.7

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 3

JOINS PLATE 3

Sta. 1525+00 D-86

BELAIR REVETMENT

ALLIANCE REVETMENT

Reusite

Alliance

Sta. 1590+00 D-151 U-66

Sta. 1020+00 D-41

Sta. 1045+00 D-66

Sta. 1616+00 U-40

Sta. 1069+00 D-90

Bellbridge

MONSECOUR REVETMENT

Sta. 1094+00 D-115 U-117

St. Rosalie

Monsecour

Sta. 1685+00 D-29

Sta. 1715+00 D-59

MYRTLE GROVE REVETMENT

Sta. 1127+00 U-84

NO REVETMENT PROPOSED

POVERTY POINT

Sta. 1153+30 U-60

JOINS PLATE 5

P L A Q U E M I N E S

P A R I S H ,

L A .

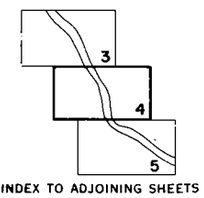
All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft. intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft. intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks
A.L.W.P.—Average Low Water Plane.

SCALE 1:10.000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 ¼ ⅛ ⅜ ½ ⅝ ¾ ⅞ 1



INDEX TO ADJOINING SHEETS

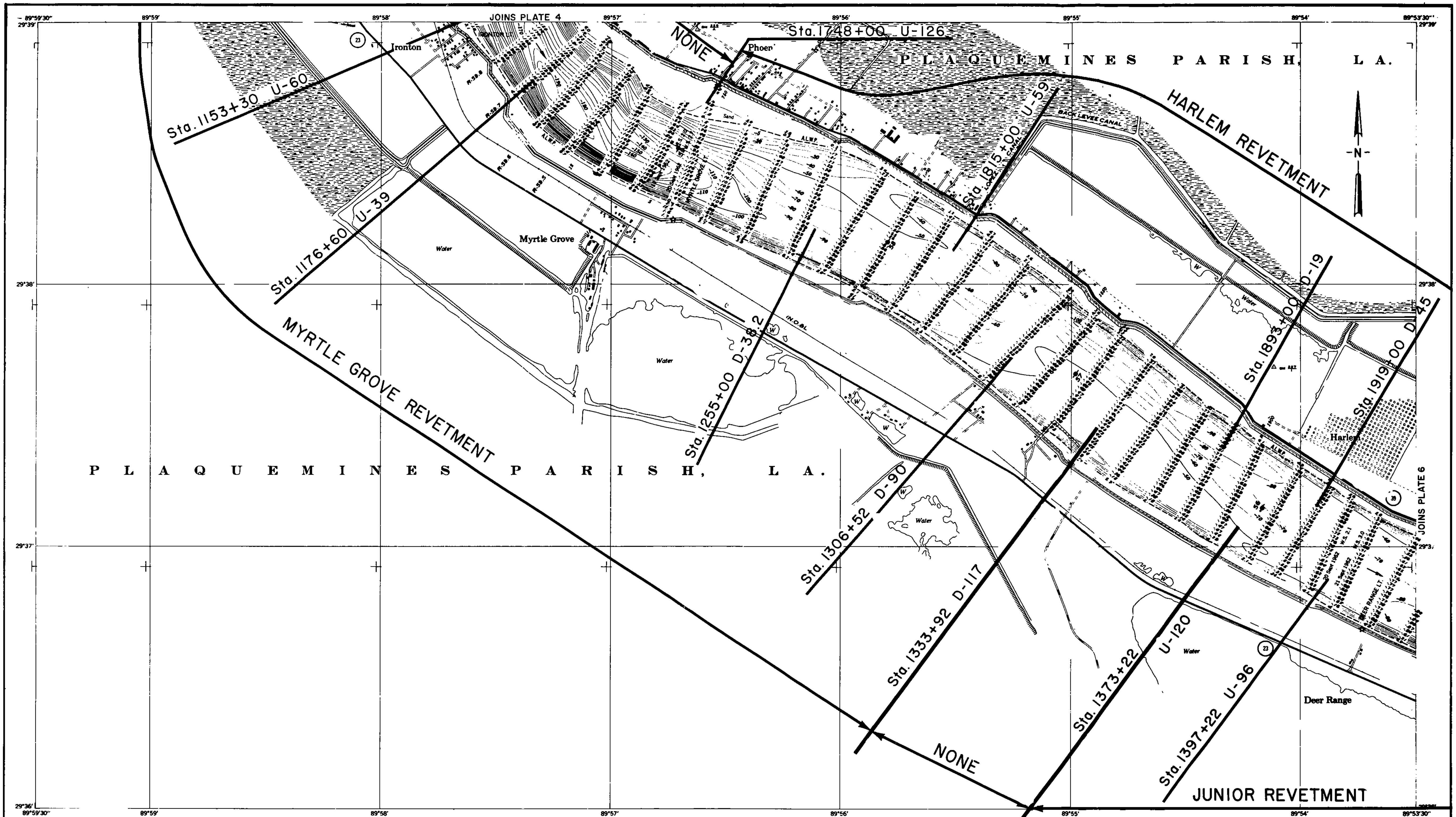
MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 63.7 TO MILE 59.9

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

AUGUST 1971 FILE NO. H-2-25275

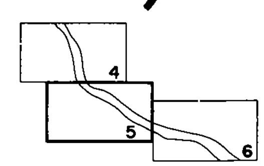
PLATE 4



All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals.
Contours above Average Low Water Plane are expressed in feet at 5 ft. intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A L W P —Average Low Water Plane

SCALE 1:10,000

FEET: 1000 0 1000 2000
METERS: 100 0 100 500 1000
MILES: 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1



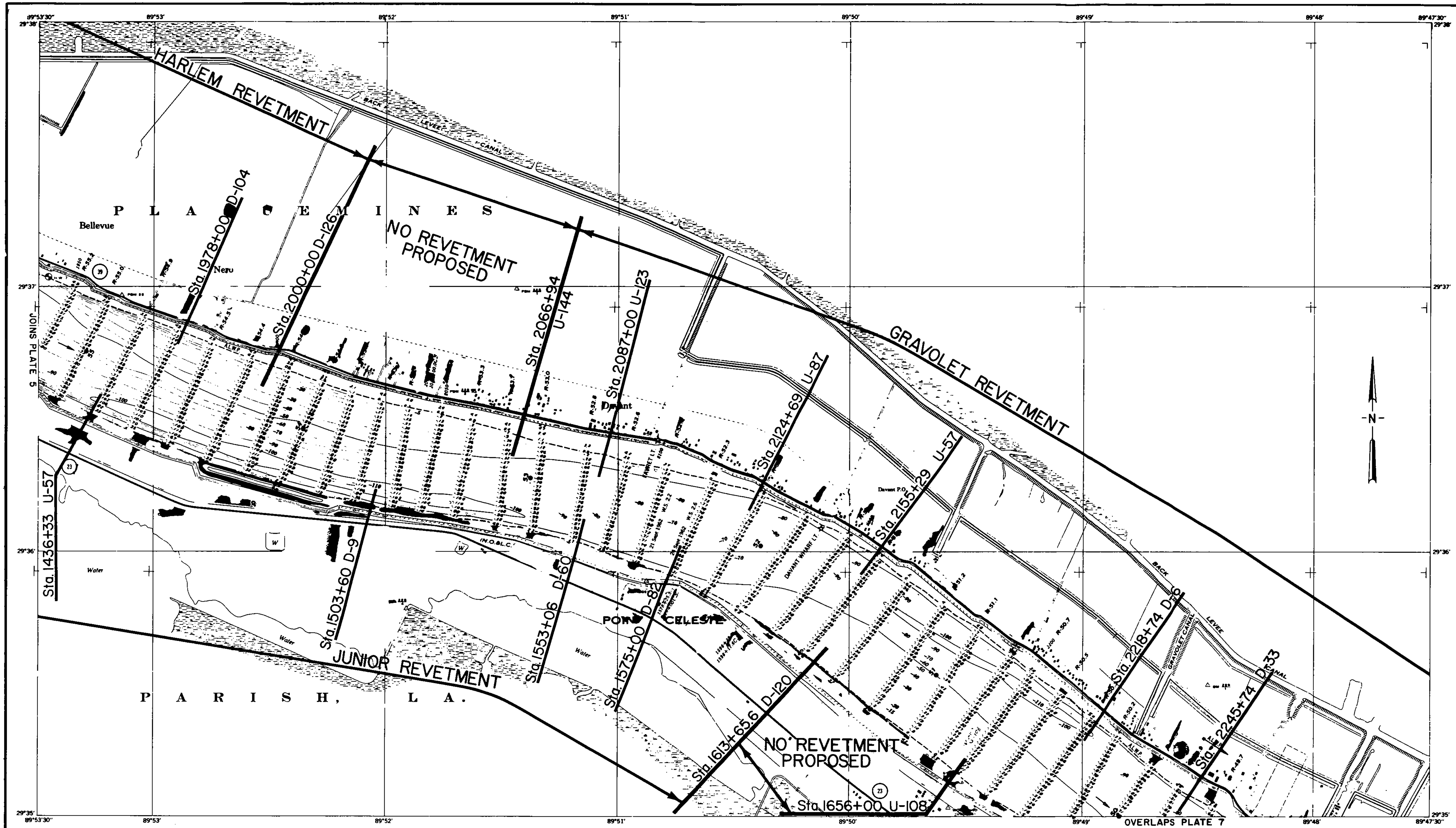
INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 59.9 TO MILE 55.3

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

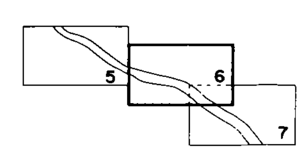
AUGUST 1971 FILE NO. H-2-25275



All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys
Polyconic Projection North American Datum
Polyconic Projection. Gulf Coast Datum is indicated by ticks
A L W P —Average Low Water Plane

SCALE 1:10,000

FEET: 1000 0 1000 2000
METERS: 100 0 100 500 1000
MILES: 0 1



INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 55.3 TO MILE 50.0

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 6

OVERLAPS PLATE 6

GRAVOLET REVETMENT

DIAMOND REVETMENT

BOHEMIA REVETMENT

Sta 1656+00 U-108

Sta 1678+00 U-86

Sta 1737+00 U-27

Sta 1788+00 D-24

Sta 1822+00 D-58

Sta 2218+74 D-6

Sta 2245+74 D-33

Sta 2274+00 D-60.5

Sta 2312+00 D-98.5

Sta 2351+00 D-137.3

Sta 2383+00 U-58

Sta 2432+00 U-9

Woodland

West Pointe a la Hache

Martin

Magnolia

P L A Q U E M I N E S P A R I S H, L A.

JOINS PLATE 8

All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at .5 and 1.0 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection Gulf Coast Datum is indicated by ticks
A L W P —Average Low Water Plane

SCALE 1:10,000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1

INDEX TO ADJOINING SHEETS

6 7 8

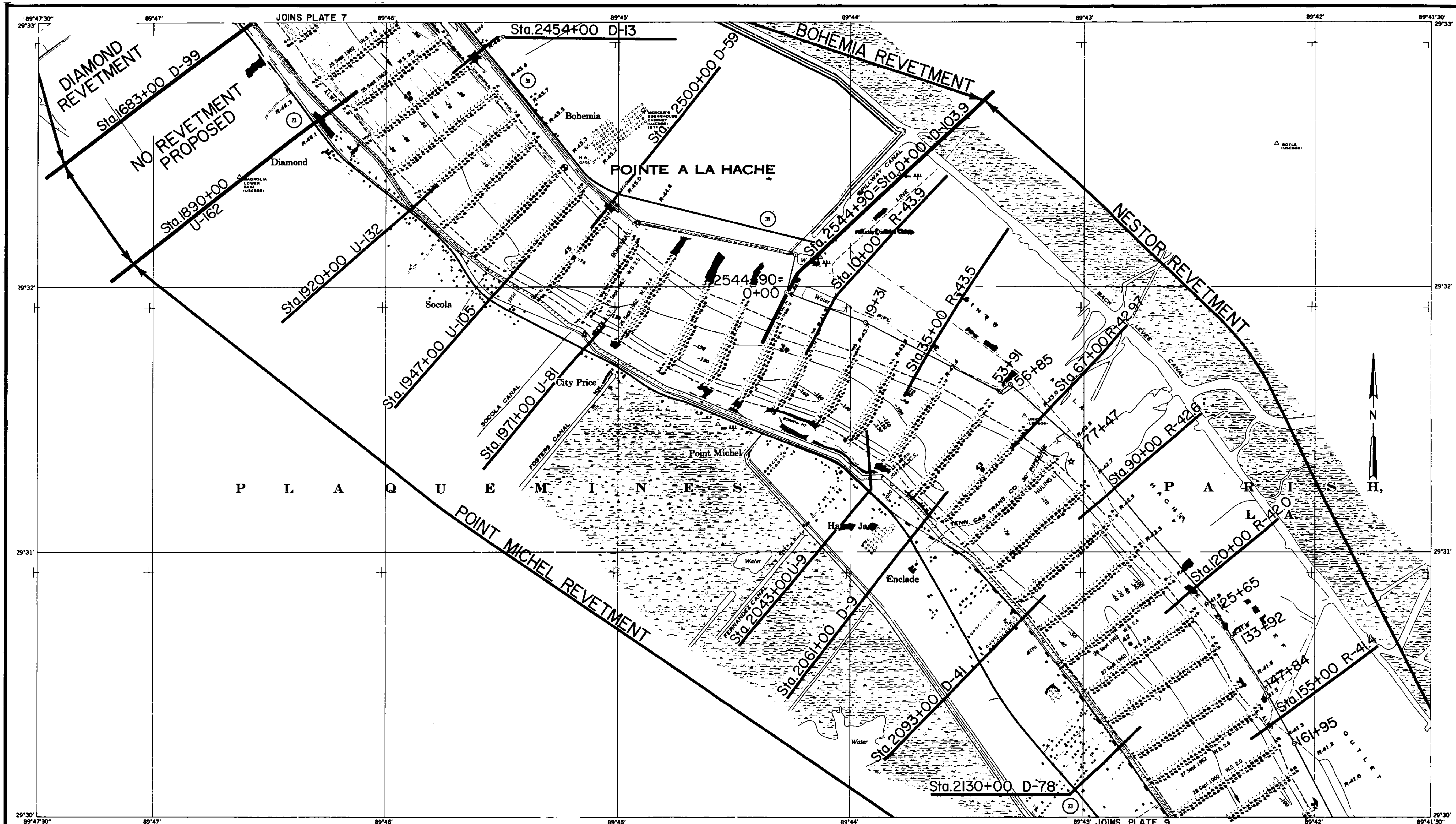
MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 51.5 TO MILE 46.5

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

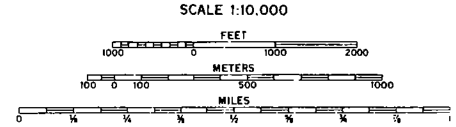
AUGUST 1971 FILE NO. H-2-25275

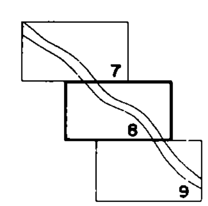
PLATE 7



All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A L W P —Average Low Water Plane

SCALE 1:10,000





INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 46.5 TO MILE 41.2

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

AUGUST 1971 FILE NO. H-2-25275

89°46' 89°45' 89°44' 89°43' JOINS PLATE 8 89°42' 89°41' 89°40'

29°30' 29°29' 29°28' 29°27'

POINT MICHEL REVETMENT

NESTOR REVETMENT

NO REVETMENT PROPOSED

PORT SULPHUR REVETMENT

Sta. 2178+00 D-126

Sta. 2214+12 D-162.1 U-54

Sta. 2232+12 U-36

Sta. 2253+33 U-15

Sta. 2297+40 D-29

Sta. 2307+40 D-39

Sta. 2329+40 D-61

Sta. 201+10 R-40.25 Nestor

Sta. 217+60

232+82

240+19

Sta. 255+00 R-39.5

276+53

299+81

320+00

JOINS PLATE 10

P L A Q U E M I N E S

P A R I S H, L A.

Potash

Freeport Sulphur Co.

Port Sulphur

Water

Home Bldgs.

CANAL

PIPE LINE

FREEPORT SULPHUR CO. CANAL

All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Average Low Water Plane are expressed in feet at 5 ft. intervals.
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals, 1962 and 1942 surveys.
Polyconic Projection, North American Datum.
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A.L.W.P.—Average Low Water Plane.

SCALE 1:10.000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1

INDEX TO ADJOINING SHEETS

8 9 10

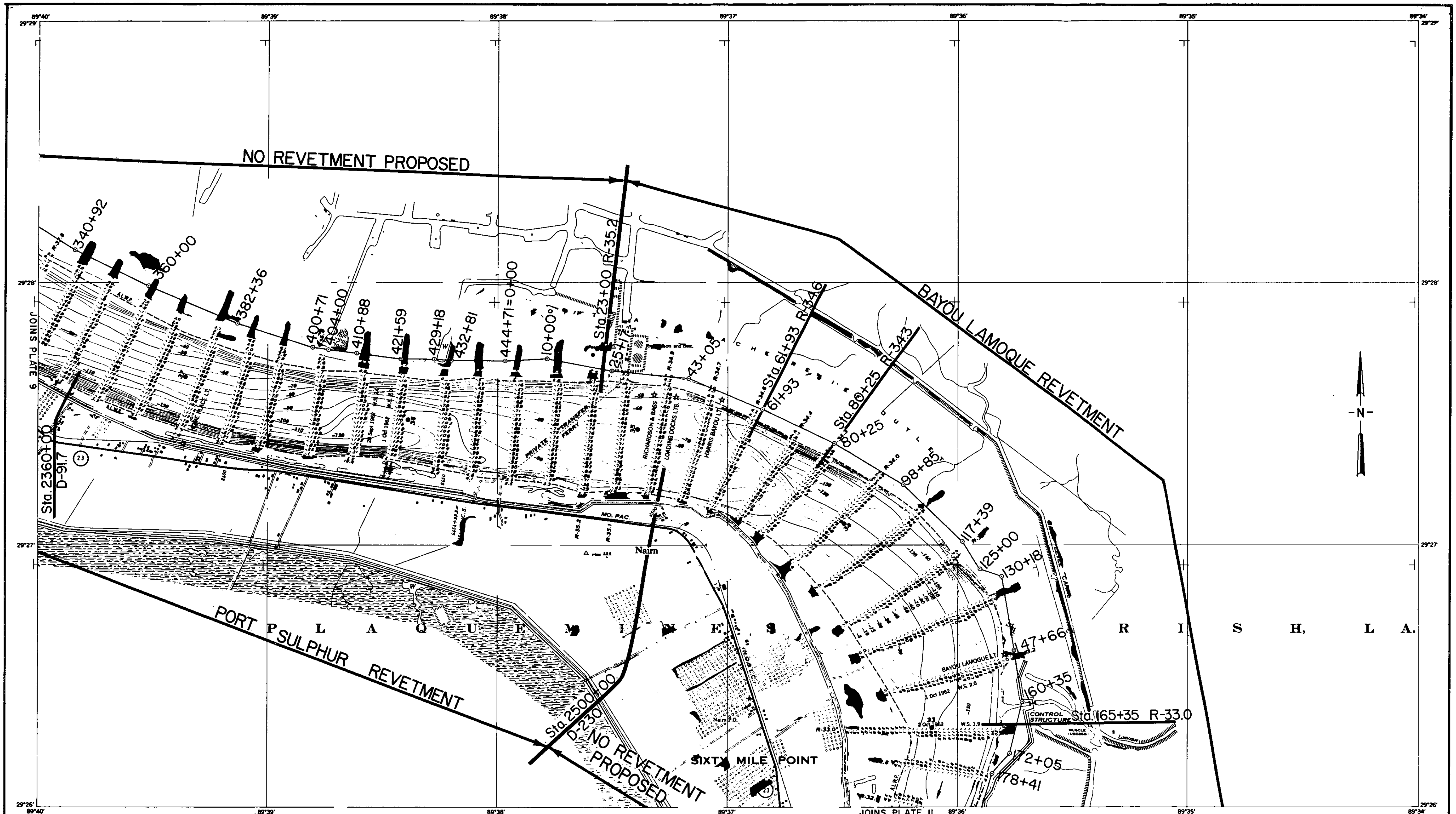
MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 41.2 TO MILE 37.7

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

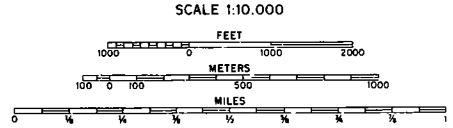
AUGUST 1971 FILE NO. H-2-25275

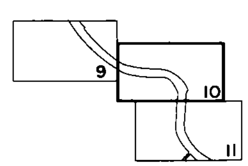
PLATE 9



All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A.L.W.P.—Average Low Water Plane

SCALE 1:10,000





INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 37.7 TO MILE 32.6

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 10

JOINS PLATE 10

NO REVT. PROPOSED

Sta. 2606+32
U-117

99+30

204+06

BAYOU LAMOQUE REVETMENT

TROPICAL BEND REVETMENT

Sta. 2635+00
U-88.3

230+05

TENN. GAS TRANS. CO. 1-24" PIPE LINE

SHELL OIL CO. 1-12" PIPE LINE

1-16" OIL PIPE LINE

Sta. 2651+32
U-72

Sta. 250+00 R-31.4

250+00

PT. PLEASANT

256+56

261+24

Sta. 2660+32
U-54

282+76

Sta. 2693+12
U-30

298+17

318+90

Sta. 2714+00
U-9

335+62

351+59

372+09

406+47

Sta. 2750+00
D-27

EMPIRE LOCK

Empire

Sta. 2765+00
D-44

Sta. 2784+00
D-66

WATERWAY FROM EMPIRE, LA. TO THE GULF OF MEXICO

BATTESTOWN BRANCH

NO REVETMENT PROPOSED

BACK LEVEE W.I.D. CANAL

PLAQUEMINES PARISH, LA.

JOINS PLATE 12

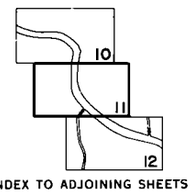
All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft. intervals.
Contours above Average Low Water Plane are expressed in feet at 5 ft. intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys.
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks.
A.L.W.P. — Average Low Water Plane

SCALE 1:10.000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1



INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

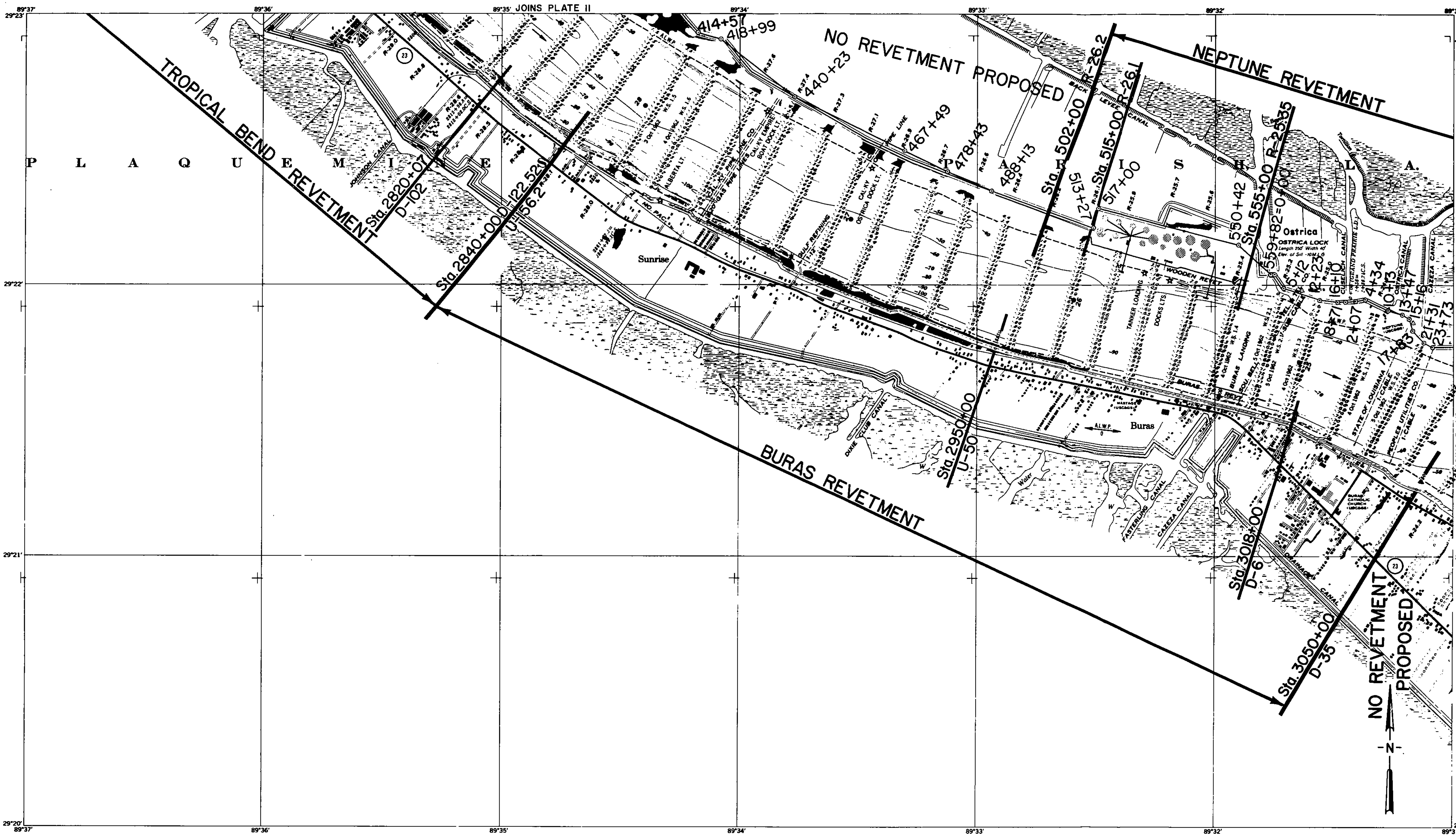
REVETMENT LIMITS
MILE 32.6 TO MILE 28.7

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

AUGUST 1971

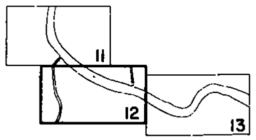
FILE NO. H-2-25275

PLATE 11



All elevations are expressed in feet and refer to Mean Sea Level.
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft. intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft. intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals. 1962 and 1942 surveys.
Polyconic Projection. North American Datum
Polyconic Projection. Gulf Coast Datum is indicated by ticks.
A L W P —Average Low Water Plane

SCALE 1:10,000



INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 28.7 TO MILE 24.3

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

AUGUST 1971 — FILE NO. H-2-25275

PLATE 12

NEPTUNE REVETMENT

OLGA REVETMENT

BOLIVAR POINT

NO REVETMENT PROPOSED

NO REVETMENT PROPOSED

VENICE REVETMENT

FORT JACKSON REVETMENT

P L A Q U E M I N E S

P A R I S H L A

Neptune

Fort St. Philip

Fort

Triumph

Water

JOINS PLATE 12

JOINS PLATE 14

Sta 30+00 R-24.45

Sta 48+00 R-24.1

Sta 65+00 R-23.8

Sta 100+00 R-23.1

Sta 130+00 R-22.5

Sta 155+00 R-21.9

Sta 188+00 R-21.0

Sta 230+00 R-20.1

Sta 235+00 R-20.35

Sta 315+00 R-19.16

Sta 350+00 R-18.56

Sta 386+00 R-17.85

Sta 48+00 = Lev. Sta 338+00 D-84*

Sta 3130+00 U-64.8

Sta 3179+82 U-23

Sta 3267+81 D-26

Sta 3255+81 D-27

Sta 3370+00 U-189

Sta 3449+00 U-216

28+92

53+03

79+15

103+61

111+47

132+01

150+00

155+57

169+00

178+71

184+21

97+42

0+00

276+00

286+32

299+94

309+04

332+23

347+12

363+59

370+34

393+85

28+04

39+80

48+00

Sta. 3+00 D-39

Sta. 21+00 D-57

Sta. 33+00 D-69

Sta 3101+82 U-93

29°22'30"

29°22'

29°21'

29°20'

29°19'30"

89°31'

89°30'

89°29'

89°28'

89°27'

89°26'

89°25'

* Revetment Baseline

All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown November 1962.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys
Polyconic Projection, North American Datum
Polyconic Projection, Gulf Coast Datum is indicated by ticks
A L W P —Average Low Water Plane

SCALE 1:10.000

FEET 1000 0 1000 2000

METERS 100 0 100 500 1000

MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1

INDEX TO ADJOINING SHEETS

12 13 14

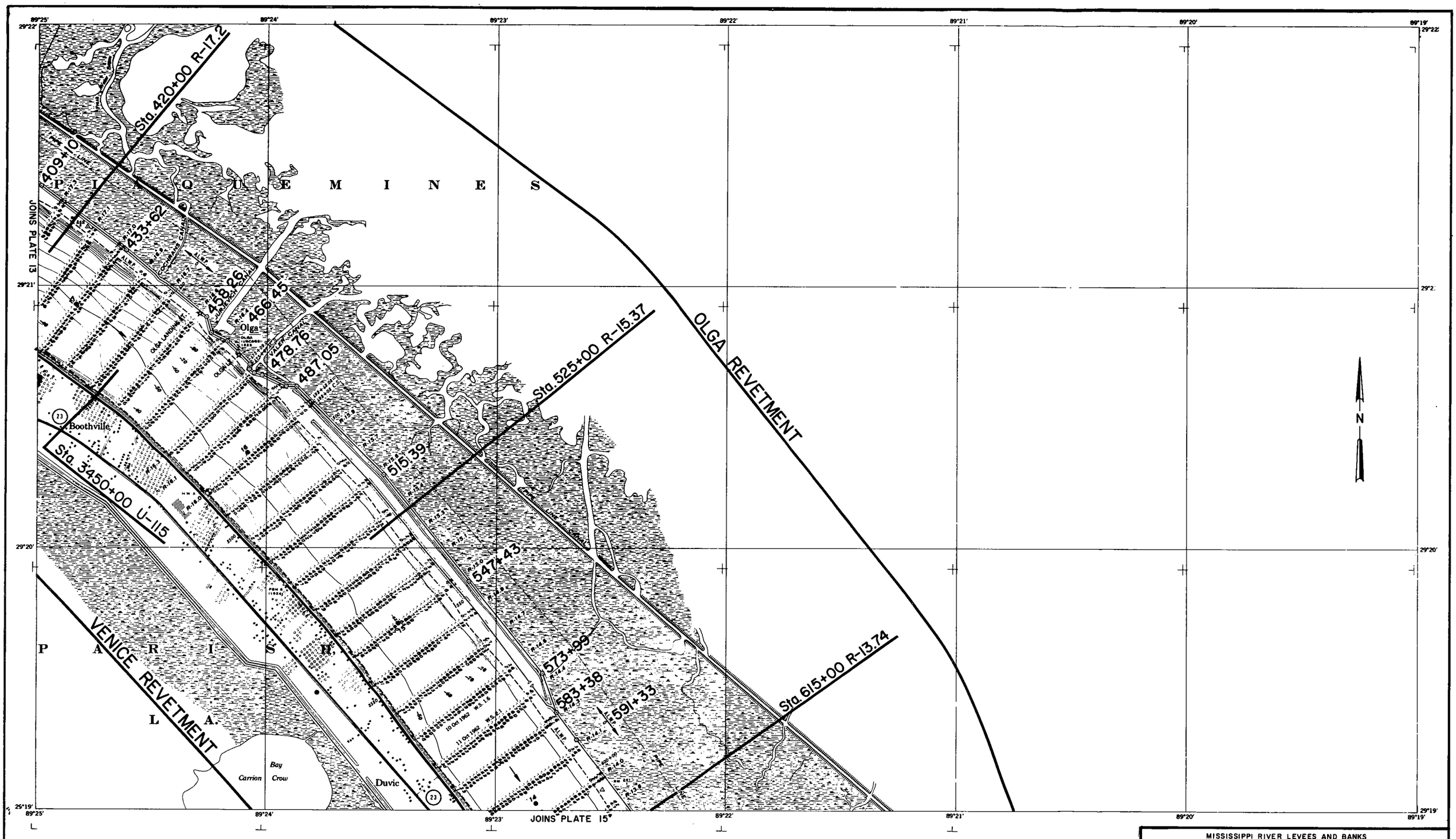
MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 24.3 TO MILE 17.2

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

AUGUST 1971 FILE NO. H-2-25275

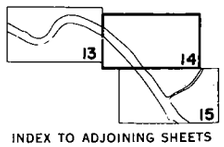
PLATE 13



All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown February 1963.
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals.
1962 and 1942 surveys.
Polyconic Projection. North American Datum
Polyconic Projection. Gulf Coast Datum is indicated by ticks
A.L.W.P.—Average Low Water Plane

SCALE 1:10.000

FEET 1000 0 1000 2000
METERS 100 0 100 500 1000
MILES 0 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1



INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 1(
SOIL REPORT - PART III
EAST & WEST BANKS

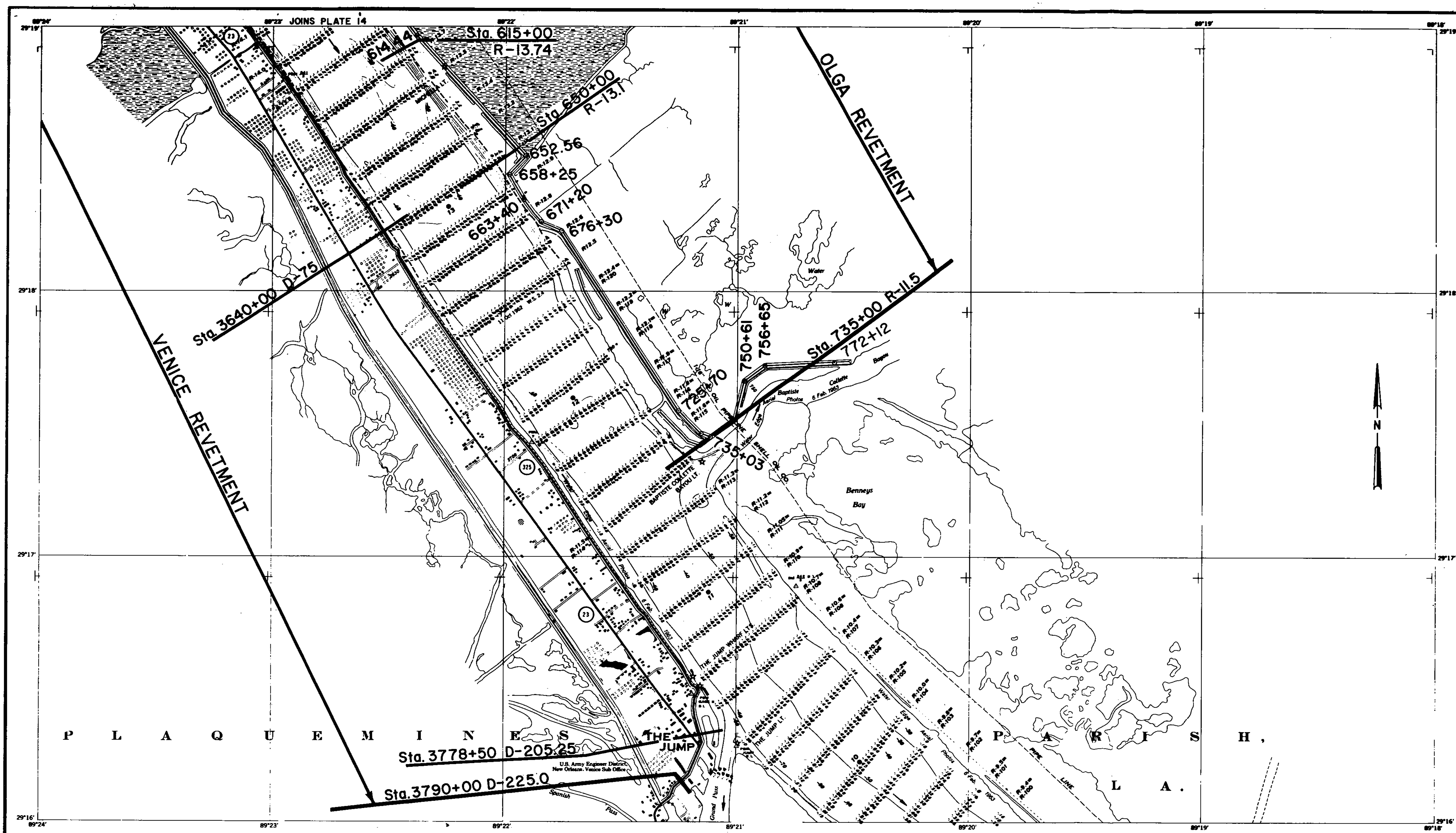
REVETMENT LIMITS
MILE 17.2 TO MILE 13.9

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

AUGUST 1971

FILE NO. H-2-25275

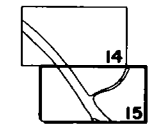
PLATE 14



All elevations are expressed in feet and refer to Mean Sea Level
Contours below Average Low Water Plane are expressed in feet at 5 and 10 ft intervals
Contours above Average Low Water Plane are expressed in feet at 5 ft intervals
Planimetry from aerial photographs flown February 1963
● Distances on Mississippi River above Head of Passes are shown at 1 mile intervals
1962 and 1942 surveys
Polyconic Projection North American Datum
Polyconic Projection Gulf Coast Datum is indicated by ticks
A L W P —Average Low Water Plane

SCALE 1:10,000

FEET 1000 0 1000 2000
METERS 100 0 100 500 1000
MILES 0 ⅛ ¼ ⅜ ½ ⅝ ¾ ⅞ 1



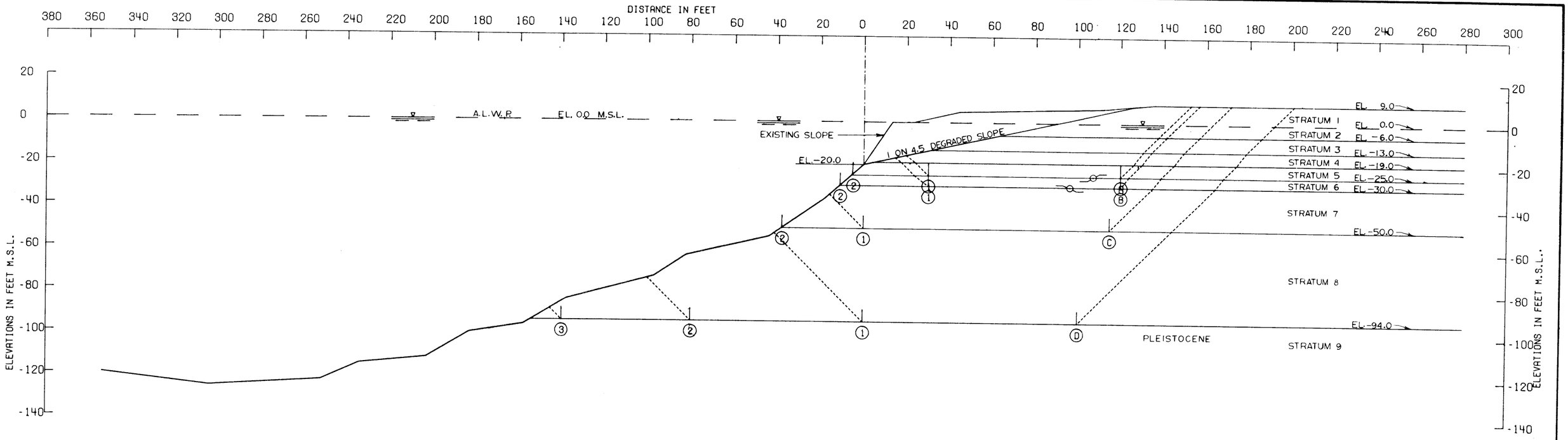
INDEX TO ADJOINING SHEETS

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST & WEST BANKS

REVETMENT LIMITS
MILE 13.9 TO MILE 10.5

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

AUGUST 1971 FILE NO. H-2-25275



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 29. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	500.0	500.0	500.0	500.0	0.
2	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
3	CHO	30.0	30.0	500.0	500.0	500.0	500.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CHO	40.0	40.0	600.0	600.0	600.0	600.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	600.0	600.0	600.0	600.0	0.
8	CH	43.0	43.0	820.0	820.0	1040.0	1040.0	0.
9	CH	60.0	60.0	=1200.0	=1200.0	=1200.0	=1200.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-25.00	34911	41618	9230	40726	2768	85760	37958	2.259
(A) (2)	-25.00	34911	51737	352	40726	3	87001	40723	2.136
(B) (1)	-30.00	40633	46905	13363	51520	5313	100902	46207	2.184
(B) (2)	-30.00	40633	61058	54	51520	.0	101746	51519	1.975
(C) (1)	-50.00	65167	69000	19058	106497	11611	153226	94885	1.615
(C) (2)	-50.00	65167	91800	109	106497	.0	157076	106496	1.475
(D) (1)	-94.00	137330	104000	68283	284588	67301	309613	217286	1.425
(D) (2)	-94.00	137330	187200	33052	284588	13508	357582	271080	1.319
(D) (3)	-94.00	137330	249600	9020	284588	1039	395950	283549	1.396

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

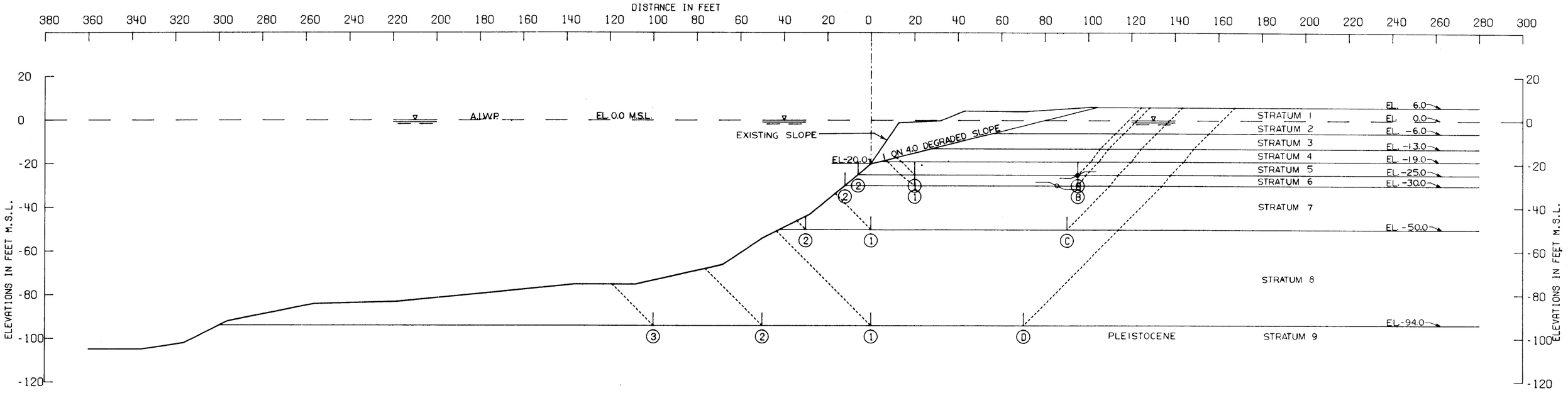
BELAIR, LOUISIANA
RANGE U-59 TO RANGE U-6
STA. 1380+00 TO STA. 1433+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 16



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 29. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	500.0	500.0	500.0	500.0	0.
2	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
3	CHO	30.0	30.0	500.0	500.0	500.0	500.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CHO	40.0	40.0	600.0	600.0	600.0	600.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	600.0	600.0	600.0	600.0	0.
8	CH	43.0	43.0	820.0	820.0	1040.0	1040.0	0.
9	CH	60.0	60.0	≯1200.0	≯1200.0	≯1200.0	≯1200.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-25.00	31240	32231	8273	30616	1920	71745	28696	2.500
(A)	(2)	-25.00	31240	39328	0	30616	.0	70568	30616	2.305
(B)	(1)	-30.00	36276	37422	12089	39756	4031	85787	35725	2.401
(B)	(2)	-30.00	36276	47856	0	39756	0	84132	39756	2.116
(C)	(1)	-50.00	60677	54000	19696	88066	11980	134374	76085	1.766
(C)	(2)	-50.00	60677	72000	4800	88066	574	137477	87491	1.571
(D)	(1)	-94.00	132837	72800	71066	247644	68896	276704	178747	1.548
(D)	(2)	-94.00	132837	124800	42907	247644	21098	300545	226545	1.327
(D)	(3)	-94.00	132837	176800	31160	247644	8067	340797	239576	1.423

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

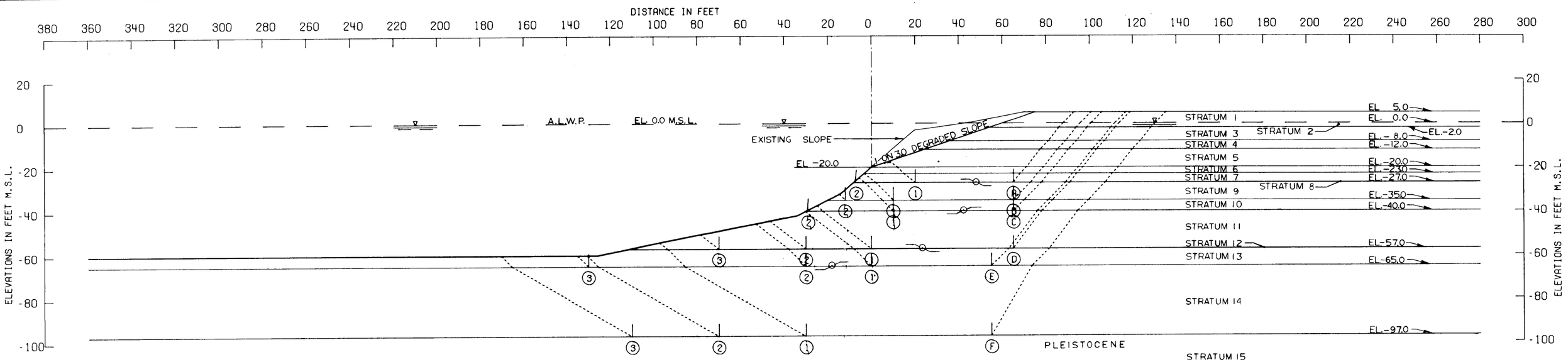
BANK STABILITY ANALYSIS

BELAIR, LOUISIANA
RANGE U-6 TO RANGE D-86
STA. 1433+00 TO STA. 1525+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 17



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATES **30 & 31. (PART I - VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CL	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CL	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CL	43.0	43.0	500.0	500.0	500.0	500.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	CH	43.0	43.0	520.0	520.0	520.0	520.0	0.
9	CH	43.0	43.0	560.0	560.0	600.0	600.0	0.
10	CH	48.0	48.0	625.0	625.0	650.0	650.0	0.
11	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
12	CH	43.0	43.0	820.0	820.0	820.0	820.0	0.
13	CH	43.0	43.0	860.0	860.0	900.0	900.0	0.
14	SM	60.0	60.0	0.	0.	0.	0.	30.0
15	CH	60.0	60.0	1220.0	1220.0	1220.0	1220.0	0.

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-27.00	26995	21616	8318	32777	3531	56930	29245	1.947
(A) (2)	-27.00	26995	30352	255	32777	12	57602	32764	1.758
(B) (1)	-35.00	36570	33000	11784	50123	6046	81354	44077	1.846
(B) (2)	-35.00	36570	46200	2986	50123	259	85757	49864	1.720
(C) (1)	-40.00	42860	33410	16469	62227	9409	92740	52817	1.756
(C) (2)	-40.00	42860	47238	416	62227	3	90515	62223	1.455
(D) (1)	-57.00	68093	51943	23771	112735	16913	143808	95822	1.501
(D) (2)	-57.00	68093	68704	10482	112735	5577	147279	107158	1.374
(D) (3)	-57.00	68093	83794	4443	112735	1471	156331	111264	1.405
(E) (1)	-65.00	81412	49500	31300	136393	27532	162213	108861	1.490
(E) (2)	-65.00	81412	75555	22826	136393	12580	179794	123813	1.452
(E) (3)	-65.00	81412	115338	8600	136393	536	205351	135857	1.512
(F) (1)	-97.00	176582	103700	136054	284861	63931	416337	220930	1.884
(F) (2)	-97.00	176582	152500	102014	284861	47245	431097	237616	1.814
(F) (3)	-97.00	176582	201300	85102	284861	38787	462984	246073	1.881

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

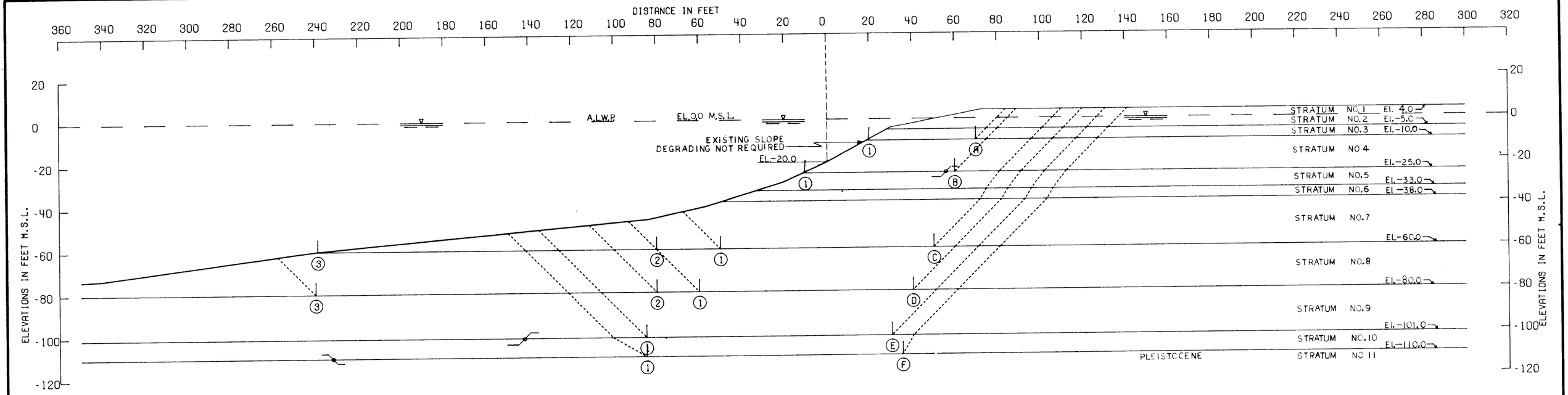
BANK STABILITY ANALYSIS

BELAIR, LOUISIANA
RANGE D-86 TO RANGE D-151
STA. 1525+00 TO STA. 1590+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 18



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 31. **(PART I – VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	CH	43.0	43.0	500.0	500.0	500.0	500.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	48.0	48.0	740.0	740.0	850.0	850.0	0.
8	CH	43.0	43.0	950.0	950.0	1050.0	1050.0	0.
9	CH	43.0	43.0	1155.0	1155.0	1260.0	1260.0	0.
10	SM	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1350.0	≥1350.0	≥1350.0	≥1350.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-10.00	11200	20000	347	7341	4	31547	7337	4.300
(B) (1)	-25.00	26200	26523	344	22843	3	53067	22840	2.323
(C) (1)	-60.00	73599	85000	25943	103055	9029	184543	94025	1.963
(C) (2)	-60.00	73599	110500	19501	103055	4585	203600	98469	2.068
(C) (3)	-60.00	73599	245650	121	103055	.0	319371	103055	3.099
(D) (1)	-80.00	111611	105000	57501	171906	29501	274112	142404	1.925
(D) (2)	-80.00	111611	126000	55063	171906	25041	292675	146864	1.993
(D) (3)	-80.00	111611	294000	33628	171906	7607	439239	164298	2.673
(E) (1)	-101.00	160121	144900	100404	262058	62192	405426	199866	2.028
(F) (1)	-110.00	188503	162000	146510	310611	82854	497013	227757	2.182

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

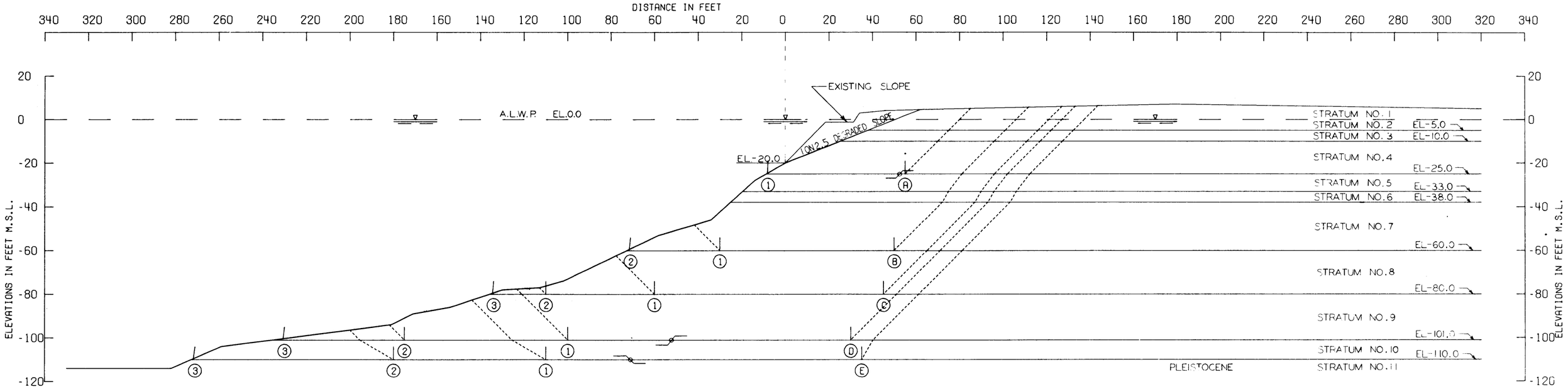
MONSECOUR, LOUISIANA
RANGE U-66 TO RANGE U-40
STA.1590+00 TO STA.1616+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 19



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 31, PART I, VOL.I.

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL THE SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	CH	43.0	43.0	500.0	500.0	500.0	500.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	48.0	48.0	740.0	740.0	850.0	850.0	0.
8	CH	43.0	43.0	950.0	950.0	1050.0	1050.0	0.
9	CH	43.0	43.0	1155.0	1155.0	1260.0	1260.0	0.
10	SM	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1350.0	≥1350.0	≥1350.0	≥1350.0	0.

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-25.00	26989	22547	272	25719	2	49809	25717	1.937
(B) (1)	-60.00	75427	68000	17378	111800	4504	160805	107296	1.499
(B) (2)	-60.00	75427	102850	796	111800	10	179074	111790	1.602
(C) (1)	-80.00	113918	110250	33498	186093	10059	257666	176034	1.464
(C) (2)	-80.00	113918	162750	5700	186093	245	282368	185848	1.519
(C) (3)	-80.00	113918	187950	950	186093	7	302818	186086	1.627
(D) (1)	-101.00	162625	150483	53048	273374	13243	366157	260131	1.408
(D) (2)	-101.00	162625	186840	15907	273374	1436	365372	271938	1.344
(D) (3)	-101.00	162625	192800	1470	273374	9	356895	273365	1.306
(E) (1)	-110.00	190644	186879	65657	324607	21168	443181	303438	1.461
(E) (2)	-110.00	190644	239635	20113	324607	5305	450393	319301	1.411
(E) (3)	-110.00	190644	269383	20	324607	10	460048	324596	1.417

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

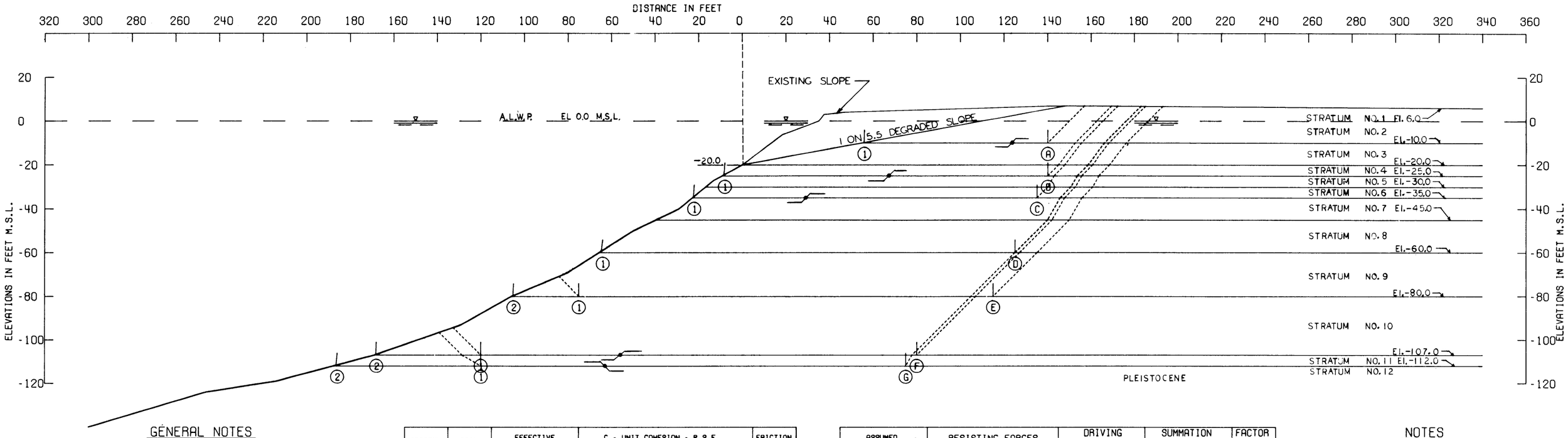
BANK STABILITY ANALYSIS

MONSECOUR, LOUISIANA
RANGE U-40 TO RANGE D-29
STA.1616+00 TO STA.1685+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 20



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 31, 32 & 33. (PART I - VOL. I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	43.0	43.0	500.0	500.0	500.0	500.0	0.
5	SP	60.0	60.0	0.	0.	0.	0.	30.0
6	CH	43.0	43.0	575.0	575.0	600.0	600.0	0.
7	SM	60.0	60.0	0.	0.	0.	0.	30.0
8	CH	48.0	48.0	775.0	775.0	850.0	850.0	0.
9	CH	43.0	43.0	950.0	950.0	1050.0	1050.0	0.
10	CH	43.0	43.0	1185.0	1185.0	1320.0	1320.0	0.
11	SM	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	60.0	60.0	≥1370.0	≥1370.0	≥1370.0	≥1370.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
A 1	-10.00	13564	25860	123	12056	.0	39548	12056	3.280
B 1	-25.00	27785	58287	450	36702	6	86522	36695	2.358
C 1	-35.00	40329	83577	436	58240	5	124343	58235	2.135
D 1	-60.00	82096	160650	1075	134822	18	243821	134803	1.809
E 1	-80.00	120744	199500	17510	214936	2709	337754	212227	1.591
E 2	-80.00	120744	231000	564	214936	2	352308	214934	1.639
F 1	-107.00	184336	235754	30107	327068	5055	450198	322012	1.398
F 2	-107.00	184336	246397	614	327068	1	431348	327066	1.319
G 1	-112.00	200600	246226	33439	349531	7499	480266	342032	1.404
G 2	-112.00	200600	266970	6	349531	4	467580	349526	1.338

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

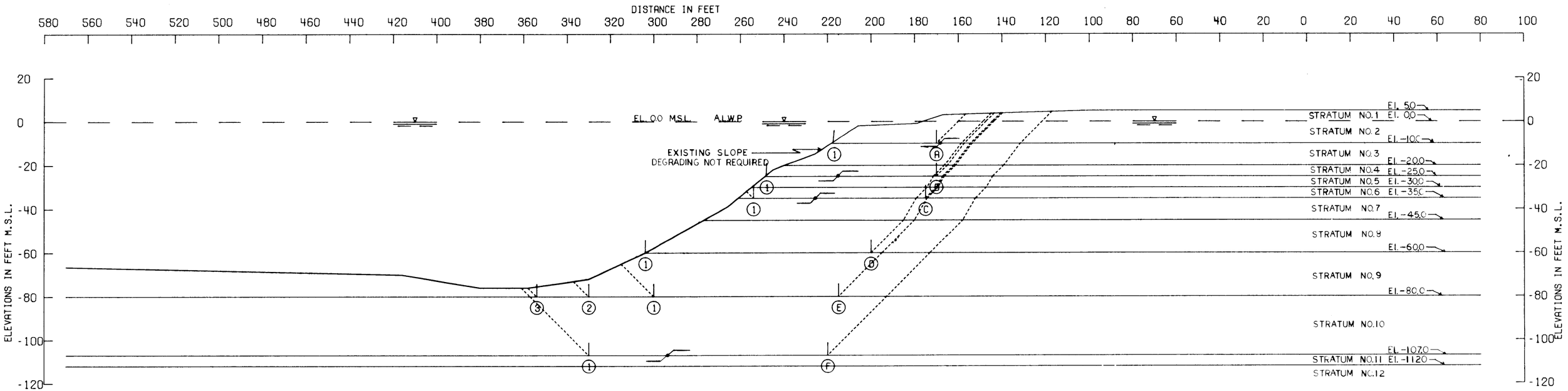
BANK STABILITY ANALYSIS

MONSECOUR, LOUISIANA
RANGE D-29 TO RANGE D-50
STA. 1685+00 TO STA. 1715+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 21



RANGE U-63

GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 31, 32, & 33. (PART I - VOL. I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS THE MOST CRITICAL WITHIN THE LIMITS OF THIS REACH.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	43.0	43.0	500.0	500.0	500.0	500.0	0.
5	SP	60.0	60.0	0.	0.	0.	0.	30.0
6	CH	43.0	43.0	575.0	575.0	600.0	600.0	0.
7	SM	60.0	60.0	0.	0.	0.	0.	30.0
8	CH	48.0	48.0	775.0	775.0	850.0	850.0	0.
9	CH	43.0	43.0	950.0	950.0	1050.0	1050.0	0.
10	CH	43.0	43.0	1185.0	1185.0	1320.0	1320.0	0.
11	SM	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	60.0	60.0	≥1370.0	≥1370.0	≥1370.0	≥1370.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-10.00	10638	14292	412	6197	10	25343	6187	4.096
(B) (1)	-25.00	23550	30325	315	25112	3	54191	25108	2.158
(C) (1)	-35.00	34967	42006	3631	42773	392	80606	42380	1.902
(D) (1)	-60.00	70924	88315	55	100421	0	159294	100421	1.586
(E) (1)	-80.00	109995	89250	28399	170592	7070	227645	163522	1.392
(E) (2)	-80.00	109995	120750	13300	170592	1202	244045	169390	1.441
(E) (3)	-80.00	109995	145950	7600	170592	392	263545	170200	1.548
(F) (1)	-107.00	177655	136578	71590	302301	23063	385824	279237	1.382

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

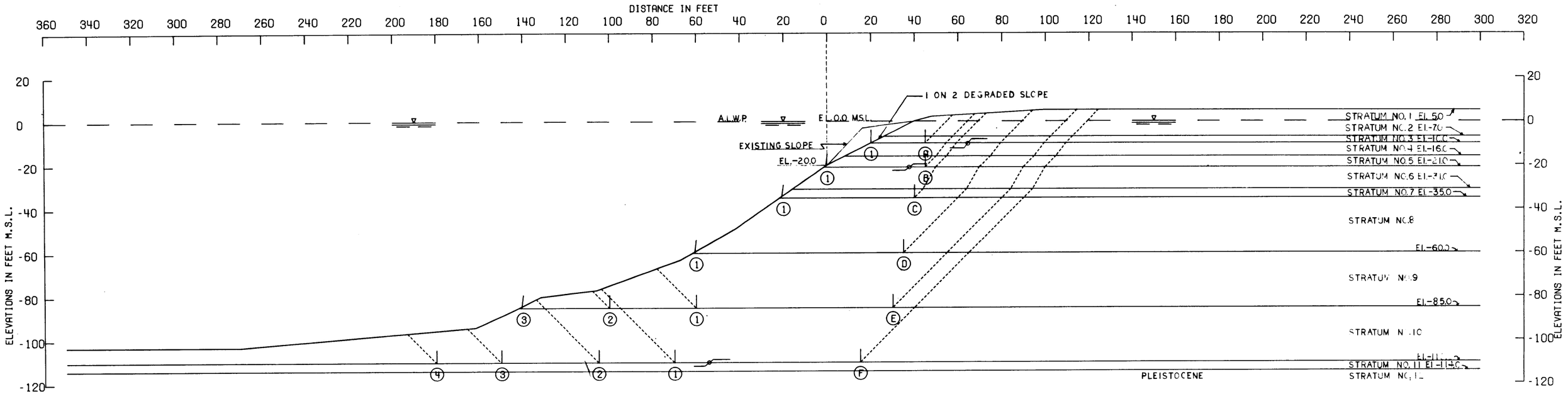
BANK STABILITY ANALYSIS

HARLEM, LOUISIANA
RANGE U-126 TO RANGE U-59
STA. 1748+00 TO STA. 1815+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 22



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	400.0	400.0	400.0	400.0	0.
2	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	43.0	43.0	500.0	500.0	500.0	500.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	43.0	43.0	580.0	580.0	600.0	600.0	0.
8	CH	48.0	48.0	725.0	725.0	850.0	850.0	0.
9	CH	43.0	43.0	975.0	975.0	1100.0	1100.0	0.
10	CH	43.0	43.0	1225.0	1225.0	1350.0	1350.0	0.
11	SM	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	60.0	60.0	≥1390.0	≥1390.0	≥1390.0	≥1390.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.-	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_R	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-10.00	10040	6647	26	4881	0	16715	4881	3.424
(B)	(1)	-21.00	19407	14086	591	16032	12	34084	16020	2.128
(C)	(1)	-35.00	34015	36000	816	38178	17	70832	38160	1.856
(D)	(1)	-60.00	72600	80750	855	106041	12	154205	106029	1.454
(E)	(1)	-85.00	122785	99000	35173	203616	9717	256958	193898	1.325
(E)	(2)	-85.00	122785	143000	15196	203616	1643	280981	201972	1.391
(E)	(3)	-85.00	122785	187000	1300	203616	14	311085	203601	1.528
(F)	(1)	-110.00	184504	112997	78395	317287	33357	375897	283930	1.324
(F)	(2)	-110.00	184504	147442	69049	317287	21093	400996	296193	1.354
(F)	(3)	-110.00	184504	180018	38446	317287	6850	402969	310437	1.298
(F)	(4)	-110.00	184504	192394	32792	317287	4170	409691	313117	1.308

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_R - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

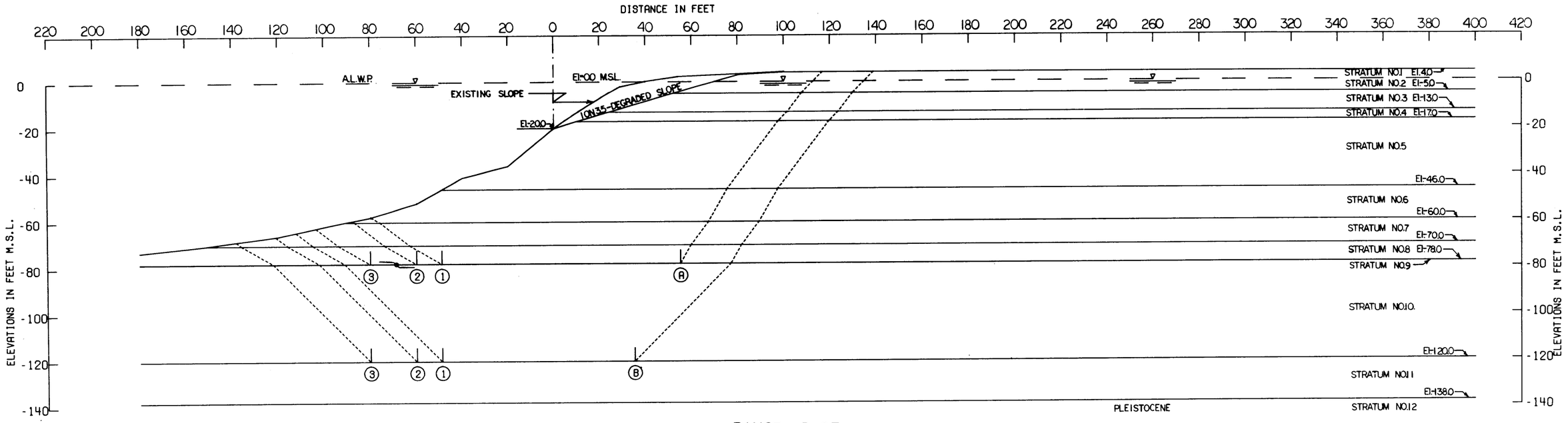
BANK STABILITY ANALYSIS

HARLEM, LOUISIANA
RANGE U-59 TO RANGE D-19
STA.1815+00 TO STA.1893+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 23



RANGE D-27

GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS THE MOST CRITICAL WITHIN THE LIMITS OF THIS REACH.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	112.0	112.0	350.0	350.0	350.0	350.0	0.
2	CH	50.0	50.0	350.0	350.0	350.0	350.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	50.0	50.0	400.0	400.0	400.0	400.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	SM	60.0	60.0	0.	0.	0.	0.	30.0
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	0.	0.	0.	0.	780.0	780.0	0.
10	CH	50.0	50.0	990.0	990.0	1200.0	1200.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	43.0	43.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-78.00	114265	81120	32234	183127	17325	227620	165802	1.373
Ⓐ ②	-78.00	114265	89700	26359	183127	13183	230325	169944	1.355
Ⓐ ③	-78.00	114265	104600	18546	183127	8588	237411	174539	1.360
Ⓑ ①	-120.00	206252	100800	98233	418184	108057	405285	310126	1.307
Ⓑ ②	-120.00	206252	114000	94913	418184	98519	415166	319665	1.299
Ⓑ ③	-120.00	206252	138000	90438	418184	85812	434690	332371	1.308

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

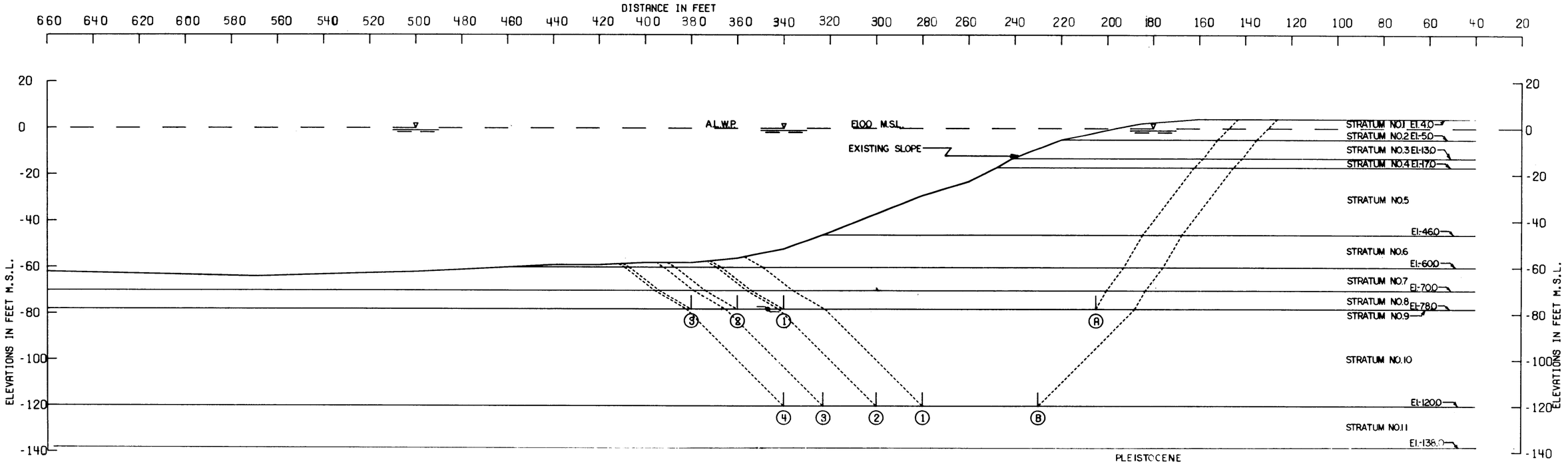
FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

HARLEM, LOUISIANA
RANGE D-19 TO RANGE D-45
STA. 1893+00 TO STA. 1919+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971 FILE NO. H-2-25275

PLATE 24



RANGE D-54

GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS THE MOST CRITICAL WITHIN THE LIMITS OF THIS REACH.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	112.0	112.0	350.0	350.0	350.0	350.0	0.
2	CH	50.0	50.0	350.0	350.0	350.0	350.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	50.0	50.0	400.0	400.0	400.0	400.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	SM	60.0	60.0	0.	0.	0.	0.	30.0
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	0.	0.	0.	0.	780.0	780.0	0.
10	CH	50.0	50.0	990.0	990.0	1200.0	1200.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	60.0	60.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-78.00	115871	105300	28399	185616	14985	249571	170630	1.463
(A) (2)	-78.00	115871	120601	24082	185616	12060	260554	173555	1.501
(A) (3)	-78.00	115871	134581	22640	185616	11247	273092	174368	1.566
(B) (1)	-120.00	204738	60000	119278	417577	162939	384017	254638	1.508
(B) (2)	-120.00	204738	84000	110993	417577	139169	399732	278408	1.436
(B) (3)	-120.00	204738	111600	106704	417577	118632	423043	298945	1.415
(B) (4)	-120.00	204738	132000	105757	417577	109594	442496	307984	1.437

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

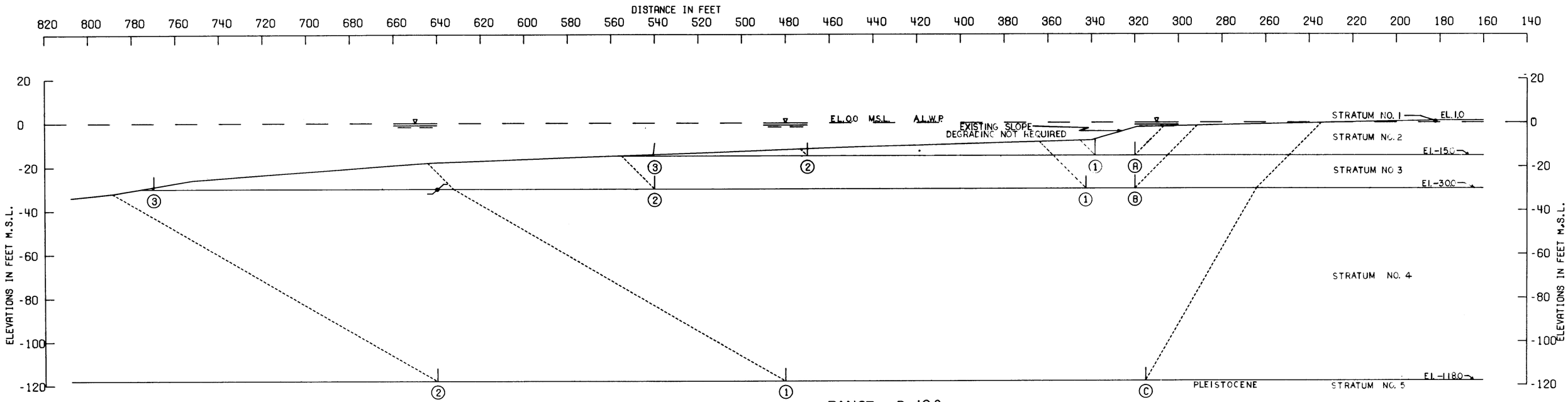
BANK STABILITY ANALYSIS

HARLEM, LOUISIANA
RANGE D-45 TO RANGE D-104
STA.1919+00 TO STA.1978+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 25



RANGE D-108

GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES.

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS THE MOST CRITICAL WITHIN THE LIMITS OF THIS REACH.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	500.0	500.0	500.0	500.0	0.
2	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
3	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.
4	SP	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	60.0	60.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-15.00	13253	5400	6800	4124	1176	25453	2948	8.630
Ⓐ ②	-15.00	13253	45000	3094	4124	237	61347	3887	15.780
Ⓐ ③	-15.00	13253	65000	656	4124	10	78909	4114	19.180
Ⓑ ①	-30.00	22570	6600	15200	18621	10684	44370	7937	5.590
Ⓑ ②	-30.00	22570	66000	9134	18621	5130	97704	13491	7.242
Ⓑ ③	-30.00	22570	119561	514	18621	18	142646	18603	7.668
Ⓒ ①	-118.00	254819	247500	586609	366850	292910	1088929	73940	14.727
Ⓒ ②	-118.00	254819	487500	510681	366850	255340	1253001	111509	11.237

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

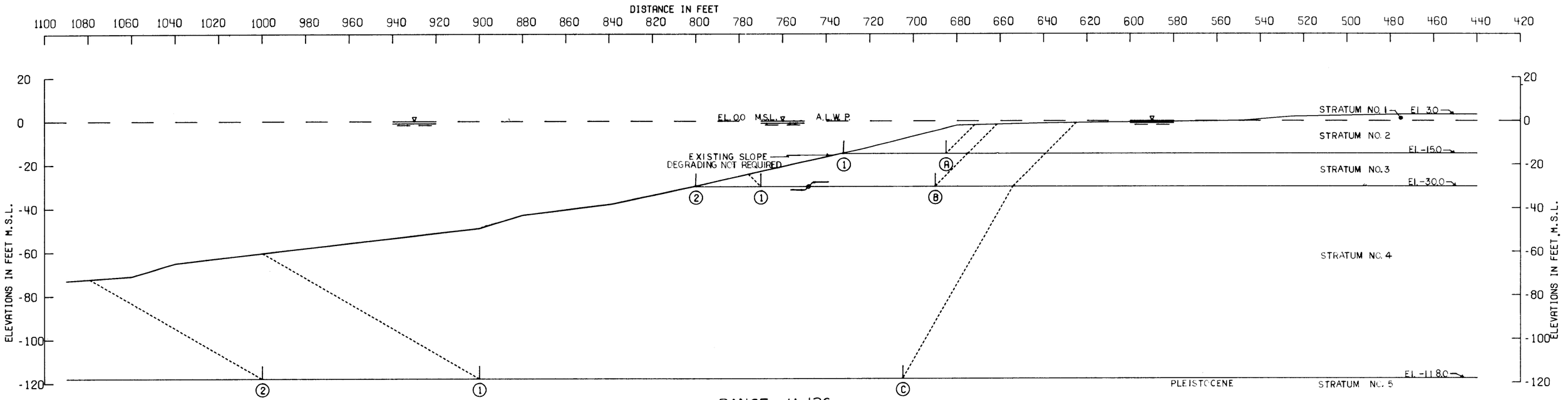
BANK STABILITY ANALYSIS

HARLEM, LOUISIANA
RANGE D-104 TO RANGE D-126
STA. 1978+00 TO STA. 2000+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 26



RANGE U-126

GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 36. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS THE MOST CRITICAL WITHIN THE LIMITS OF THIS REACH.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE DEGREES
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	
1	CH	110.0	110.0	500.0	500.0	500.0	500.0	0.
2	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
3	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.
4	SP	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	60.0	60.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	13205	23500	272	3947	2	36977	3945	9.372
(B) (1)	-30.00	22461	22492	3381	17858	833	48335	17024	2.839
(B) (2)	-30.00	22461	25140	109	17858	.0	47711	17857	2.672
(C) (1)	-118.00	248649	292500	238439	357795	119219	779588	238575	3.268
(C) (2)	-118.00	248649	442500	158695	357795	79347	849844	278447	3.052

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

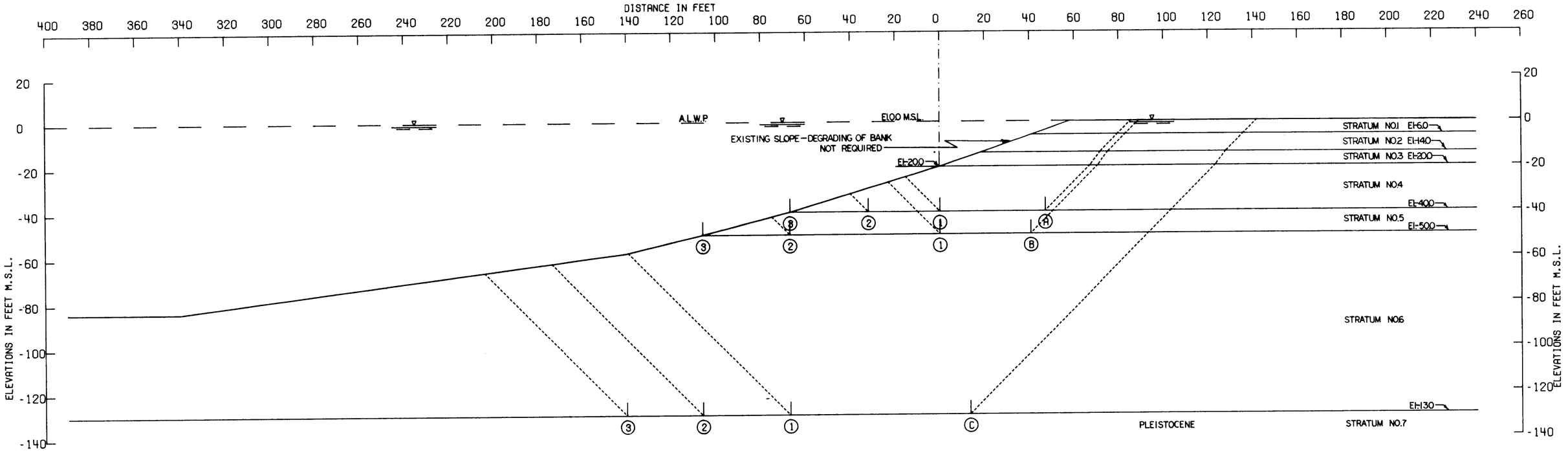
GRAVOLET, LOUISIANA
RANGE U-144 TO RANGE U-123
STA. 2066+94 TO STA. 2087+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 27



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 37 & 38. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	46.0	46.0	400.0	400.0	400.0	400.0	0.
2	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
5	CH	48.0	48.0	450.0	450.0	500.0	500.0	0.
6	CH	48.0	48.0	900.0	900.0	1300.0	1300.0	0.
7	CH	48.0	48.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-40.00	30880	18764	12321	34531	6619	61966	27911	2.220
(A) (2)	-40.00	30880	31564	6436	34531	1805	68881	32725	2.105
(A) (3)	-40.00	30880	45524	18	34531	0	76422	34531	2.213
(B) (1)	-50.00	39880	20195	19482	53114	15146	79558	37968	2.095
(B) (2)	-50.00	39880	53695	7163	53114	1908	100738	51206	1.967
(B) (3)	-50.00	39880	73145	18	53114	0	113043	53114	2.128
(C) (1)	-130.00	183880	104286	135360	374075	155259	423526	218815	1.936
(C) (2)	-130.00	183880	154986	129310	374075	126942	468176	247132	1.894
(C) (3)	-130.00	183880	199186	124110	374075	110090	507176	263985	1.921

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

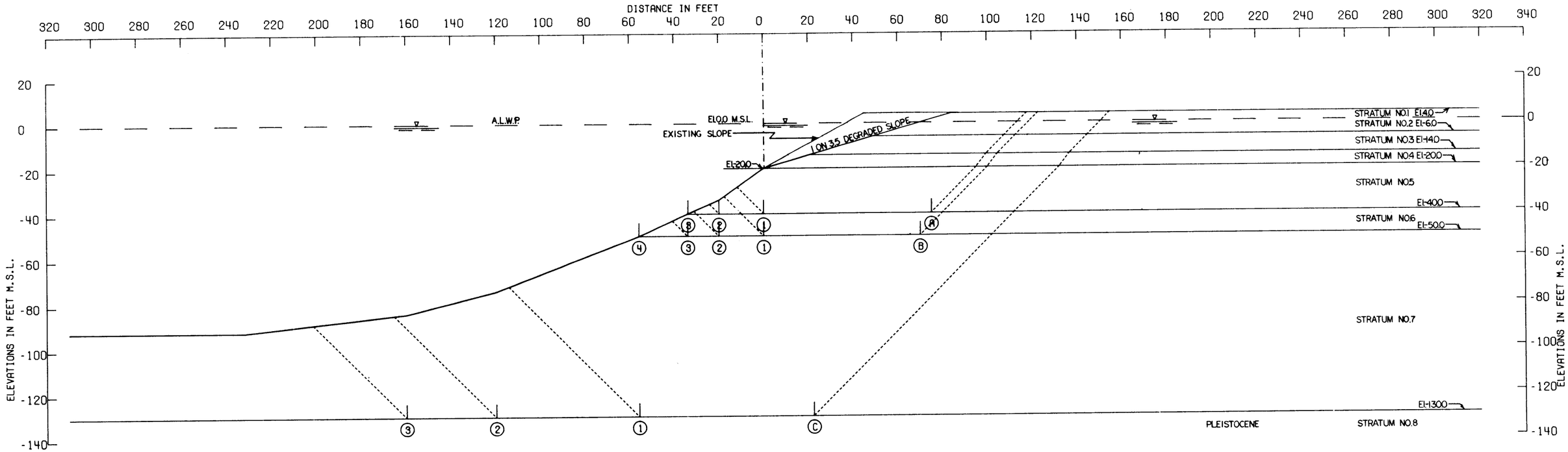
GRAVOLET, LOUISIANA
RANGE U-123 TO RANGE U-87
STA. 2087+00 TO STA. 2124+69

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 28



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 37 & 38. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	108.0	108.0	400.0	400.0	400.0	400.0	0.
2	CH	46.0	46.0	400.0	400.0	400.0	400.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
6	CH	48.0	48.0	450.0	450.0	500.0	500.0	0.
7	CH	48.0	48.0	900.0	900.0	1300.0	1300.0	0.
8	CH	48.0	48.0	>1500.0	>1500.0	>1500.0	>1500.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_R	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
A	1	-40.00	35146	30000	9411	52425	5055	74558	47370	1.574
A	2	-40.00	35146	38000	3360	52425	540	76506	51884	1.475
A	3	-40.00	35146	43560	24	52425	0	78730	52425	1.502
B	1	-50.00	44146	35000	15117	75072	11626	94264	63446	1.486
B	2	-50.00	44146	45000	9960	75072	4099	99106	70973	1.396
B	3	-50.00	44146	52000	6187	75072	1648	102333	73424	1.394
B	4	-50.00	44146	62950	28	75072	0	107124	75072	1.427
C	1	-130.00	188146	101400	104726	408204	111694	394273	296509	1.330
C	2	-130.00	188146	184600	81720	408204	60287	454466	347916	1.306
C	3	-130.00	188146	236600	74520	408204	45697	499266	362506	1.377

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_R - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT – PART III
EAST BANK

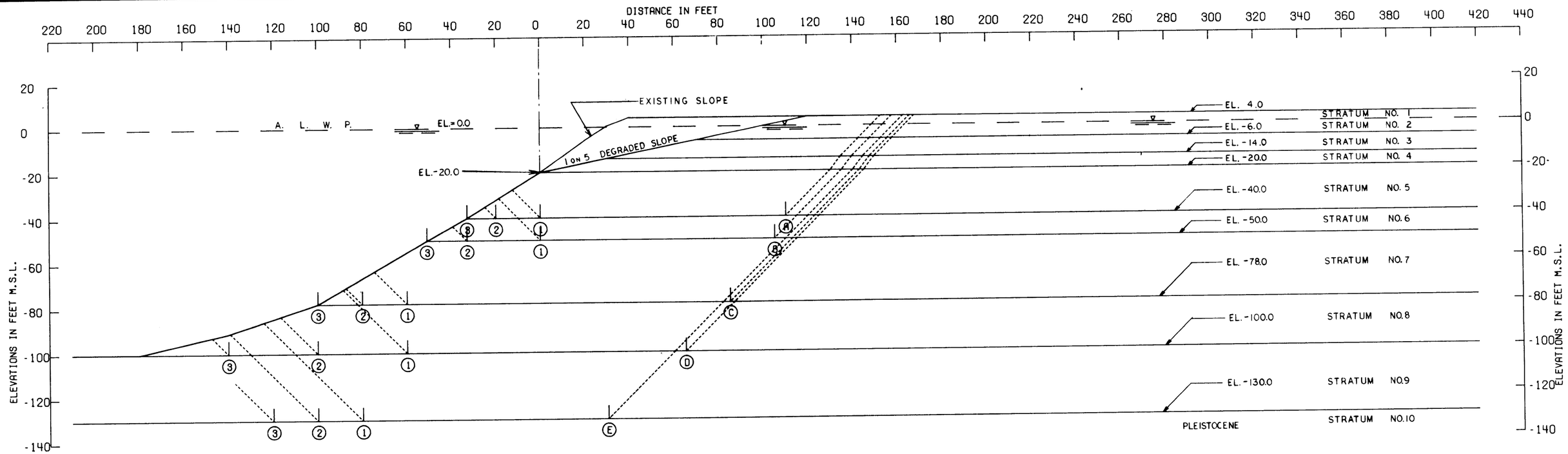
BANK STABILITY ANALYSIS

GRAVOLET, LOUISIANA
RANGE U-87 TO RANGE U-57
STA. 2124+69 TO STA. 2155+29

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 29



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 37 & 38, (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	108.0	108.0	400.0	400.0	400.0	400.0	0.
2	CH	46.0	46.0	400.0	400.0	400.0	400.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
6	CH	48.0	48.0	450.0	450.0	500.0	500.0	0.
7	CH	48.0	48.0	640.0	640.0	780.0	780.0	0.
8	CH	48.0	48.0	890.0	890.0	1000.0	1000.0	0.
9	CH	48.0	48.0	1150.0	1150.0	1300.0	1300.0	0.
10	CH	48.0	48.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-40.00	35146	44000	9962	52595	5351	89108	47244	1.886
Ⓐ	②	-40.00	35146	52000	3924	52595	829	91070	51765	1.759
Ⓐ	③	-40.00	35146	57200	0	52595	0	92346	52595	1.756
Ⓑ	①	-50.00	44146	52500	15943	75667	12292	112589	63374	1.777
Ⓑ	②	-50.00	44146	69000	5785	75667	1540	118932	74126	1.604
Ⓑ	③	-50.00	44146	78000	0	75667	0	122146	75667	1.614
Ⓒ	①	-78.00	79986	113100	18618	160179	7974	211704	152204	1.391
Ⓒ	②	-78.00	79986	128700	9309	160179	1992	217995	158186	1.378
Ⓒ	③	-78.00	79986	144300	0	160179	0	224286	160179	1.400
Ⓓ	①	-100.00	119146	125000	47538	247151	30722	291684	216428	1.348
Ⓓ	②	-100.00	119146	165000	29554	247151	8762	313701	238388	1.316
Ⓓ	③	-100.00	119146	205000	13077	247151	1585	337224	245565	1.373
Ⓔ	①	-130.00	188146	143000	94188	390451	64341	425335	326109	1.304
Ⓔ	②	-130.00	188146	169000	85456	390451	48968	442603	341482	1.296
Ⓔ	③	-130.00	188146	195000	78808	390451	38024	461954	352427	1.311

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

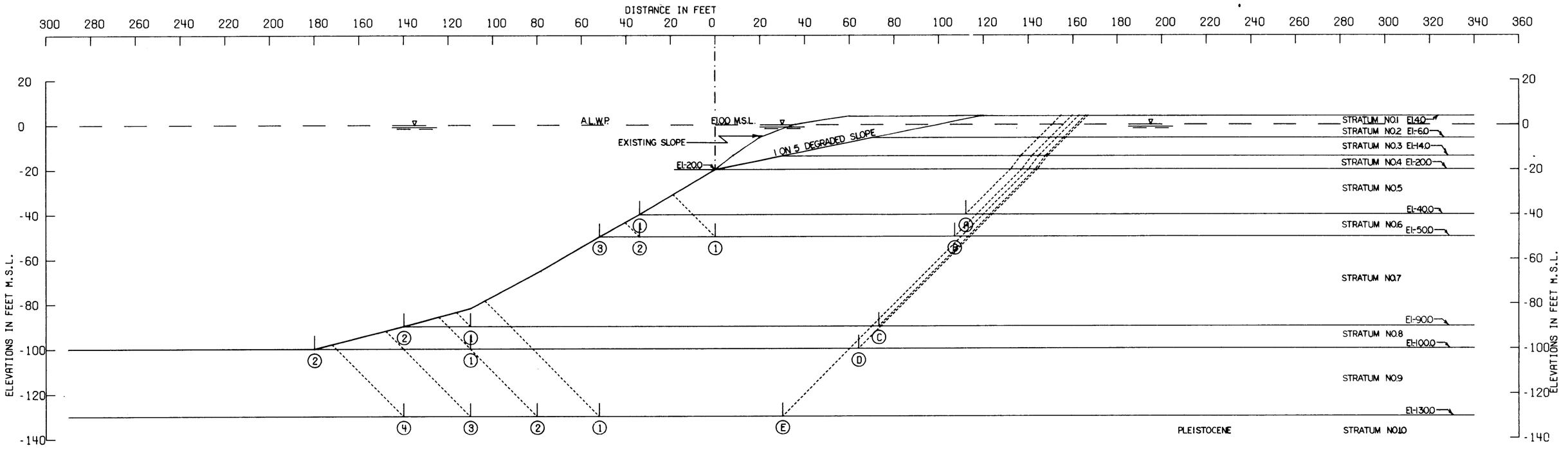
BANK STABILITY ANALYSIS

GRAVOLET, LOUISIANA
RANGE U-57 TO RANGE D-6
STA. 2155+29 TO STA. 2218+74

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 30



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATES 37 & 38. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE DEGREES
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	
1	CH	108.0	108.0	400.0	400.0	400.0	400.0	0.
2	CH	46.0	46.0	400.0	400.0	400.0	400.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
6	CH	48.0	48.0	450.0	450.0	500.0	500.0	0.
7	CH	48.0	48.0	700.0	700.0	900.0	900.0	0.
8	CH	48.0	48.0	950.0	950.0	1000.0	1000.0	0.
9	CH	48.0	48.0	1150.0	1150.0	1300.0	1300.0	0.
10	CH	48.0	48.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-40.00	35146	58360	29	52984	0	93536	52984	1.765
(B) (1)	-50.00	44146	53500	16111	76272	12427	113757	63844	1.782
(B) (2)	-50.00	44146	70500	5785	76272	1540	120432	74731	1.612
(B) (3)	-50.00	44146	79450	32	76272	0	123628	76272	1.621
(C) (1)	-90.00	100146	154700	8842	204446	1211	273688	203235	1.347
(C) (2)	-90.00	100146	191610	29	204446	0	291786	204446	1.427
(D) (1)	-100.00	119146	174000	24694	246401	6135	318041	240265	1.324
(D) (2)	-100.00	119146	243900	38	246401	0	363084	246401	1.474
(E) (1)	-130.00	188146	106600	104069	390451	98222	398816	292229	1.365
(E) (2)	-130.00	188146	143000	93894	390451	65167	425041	325284	1.307
(E) (3)	-130.00	188146	182000	84199	390451	43671	454346	346780	1.310
(E) (4)	-130.00	188146	221000	72799	390451	30712	481946	359738	1.340

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

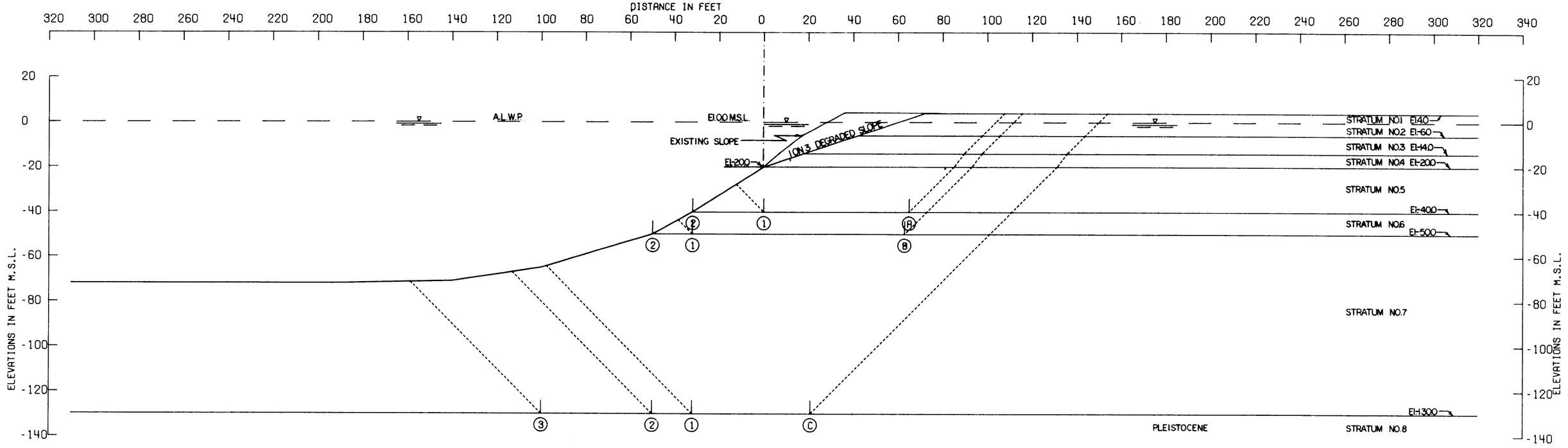
GRAVOLET, LOUISIANA
RANGE D-6 TO RANGE D-33
STA. 2218+74 TO STA. 2245+74

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 31



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 37 & 38. (PART I – VOLUME 1)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	108.0	108.0	400.0	400.0	400.0	400.0	0.
2	CH	46.0	46.0	400.0	400.0	400.0	400.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
6	CH	48.0	48.0	450.0	450.0	500.0	500.0	0.
7	CH	48.0	48.0	900.0	900.0	1300.0	1300.0	0.
8	CH	48.0	48.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	*RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-40.00	35146	26000	9846	52793	5288	70992	47504	1.494
Ⓐ	②	-40.00	35146	38760	30	52793	0	73937	52793	1.401
Ⓑ	①	-50.00	44146	47500	5785	76639	1540	97432	75098	1.297
Ⓑ	②	-50.00	44146	56450	32	76639	0	100628	76639	1.313
Ⓒ	①	-130.00	188146	68900	128040	415758	136613	385086	279144	1.379
Ⓒ	②	-130.00	188146	92300	124110	415758	118681	404556	297077	1.362
Ⓒ	③	-130.00	188146	157300	117160	415758	89122	462606	326635	1.416

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

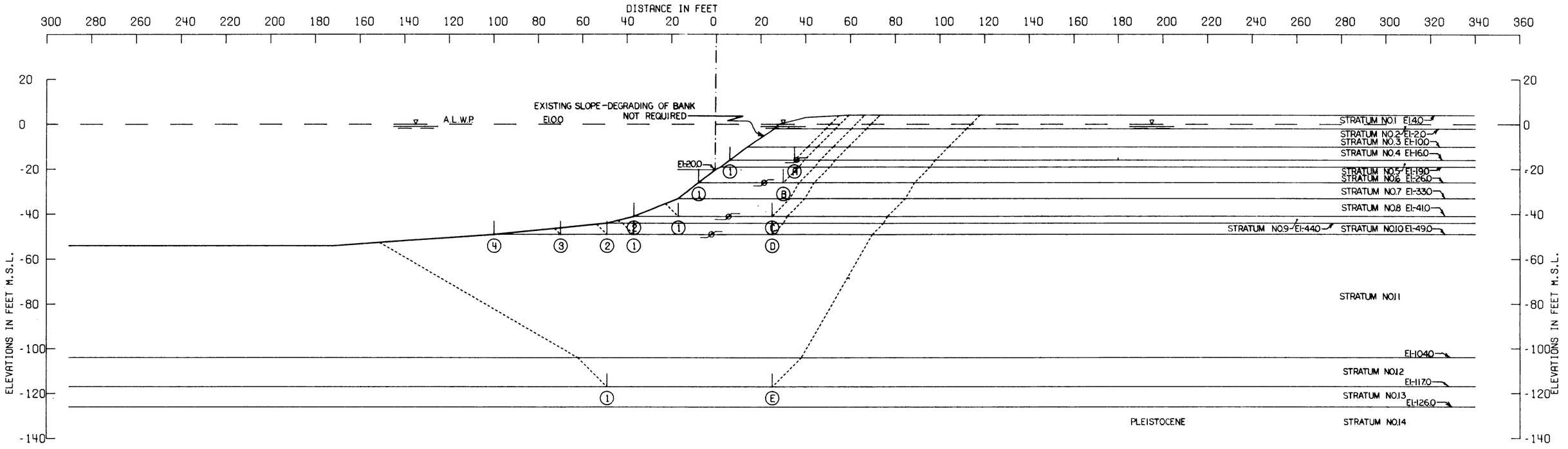
GRAVOLET, LOUISIANA
RANGE D-33 TO RANGE D-60.3
STA. 2245+74 TO STA. 2274+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 32



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 39. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN, IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	600.0	600.0	600.0	600.0	0.
2	CH	48.0	48.0	600.0	600.0	600.0	600.0	0.
3	CL	48.0	48.0	400.0	400.0	400.0	400.0	0.
4	CL	43.0	43.0	430.0	430.0	460.0	460.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CH	43.0	43.0	525.0	525.0	560.0	560.0	0.
7	SM	60.0	60.0	0.	0.	0.	0.	30.0
8	CH	43.0	43.0	670.0	670.0	710.0	710.0	0.
9	SM	60.0	60.0	0.	0.	0.	0.	30.0
10	CH	43.0	43.0	765.0	765.0	790.0	790.0	0.
11	SM	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	43.0	43.0	1405.0	1405.0	1470.0	1470.0	0.
13	SP	60.0	60.0	0.	0.	0.	0.	30.0
14	CH	48.0	48.0	≥1500.0	≥1500.0	≥1500.0	≥1500.0	0.

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-16.00	18444	9437	36	12056	0	27919	12056	2.316
Ⓑ	①	-26.00	28343	12966	45	24530	0	41355	24529	1.686
Ⓒ	①	-41.00	46707	24348	7657	52370	981	78712	51388	1.532
Ⓒ	②	-41.00	46707	26334	38	52370	0	73079	52370	1.395
Ⓓ	①	-49.00	59360	37156	7777	73345	1312	104294	72032	1.448
Ⓓ	②	-49.00	59360	39269	6967	73345	488	105596	72856	1.449
Ⓓ	③	-49.00	59360	41339	4098	73345	168	104798	73176	1.432
Ⓓ	④	-49.00	59360	42434	13	73345	0	101808	73345	1.388
Ⓔ	①	-117.00	258844	108780	214488	401043	137949	582112	263093	2.213

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

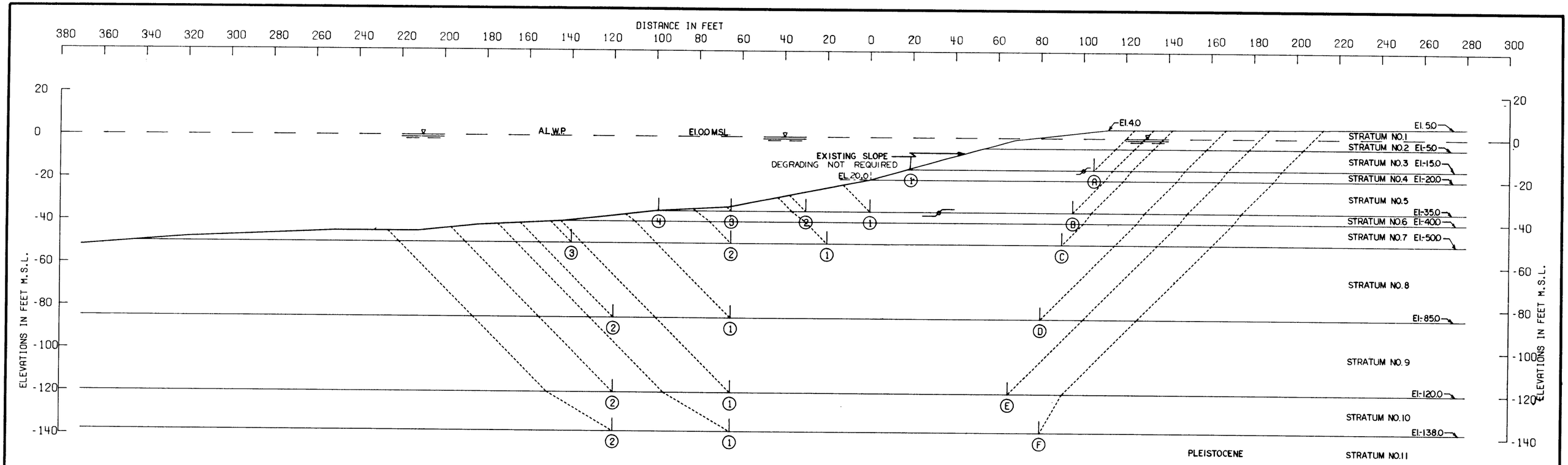
FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

GRAVOLET, LOUISIANA
RANGE D-60.3 TO RANGE D-98.5
STA. 2274+00 TO STA. 2312+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 33



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 41 & 42. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0 .

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	102.0	102.0	400.0	400.0	400.0	400.0	0.
2	CH	40.0	40.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	550.0	550.0	600.0	600.0	0.
8	CH	48.0	48.0	775.0	775.0	950.0	950.0	0.
9	CH	48.0	48.0	1125.0	1125.0	1300.0	1300.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1480.0	≥1480.0	≥1480.0	≥1480.0	0.

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-15.00	15200	25876	266	10555	2	41343	10553	3.917
Ⓑ ①	-35.00	33851	46010	12531	37139	4508	92394	32631	2.831
Ⓑ ②	-35.00	33851	56658	7594	37139	1655	98105	35484	2.765
Ⓑ ③	-35.00	33851	66199	1944	37139	99	101995	37040	2.754
Ⓑ ④	-35.00	33851	73463	55	37139	0	107370	37139	2.891
Ⓒ ①	-50.00	50360	66000	22024	70016	13918	138385	56097	2.467
Ⓒ ②	-50.00	50360	93000	15327	70016	7018	158687	62997	2.519
Ⓒ ③	-50.00	50360	138000	10685	70016	2406	199046	67609	2.944
Ⓓ ①	-85.00	105007	137750	67253	189200	62743	310011	126457	2.451
Ⓓ ②	-85.00	105007	190000	64150	189200	49887	359157	139313	2.578
Ⓔ ①	-120.00	183917	169000	143947	364010	170991	496865	193019	2.574
Ⓔ ②	-120.00	183917	240500	140309	364010	151570	564726	212440	2.658
Ⓕ ①	-138.00	258856	214600	311867	487001	244300	785324	242701	3.236
Ⓕ ②	-138.00	258856	296000	298182	487001	222862	853039	264138	3.230

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

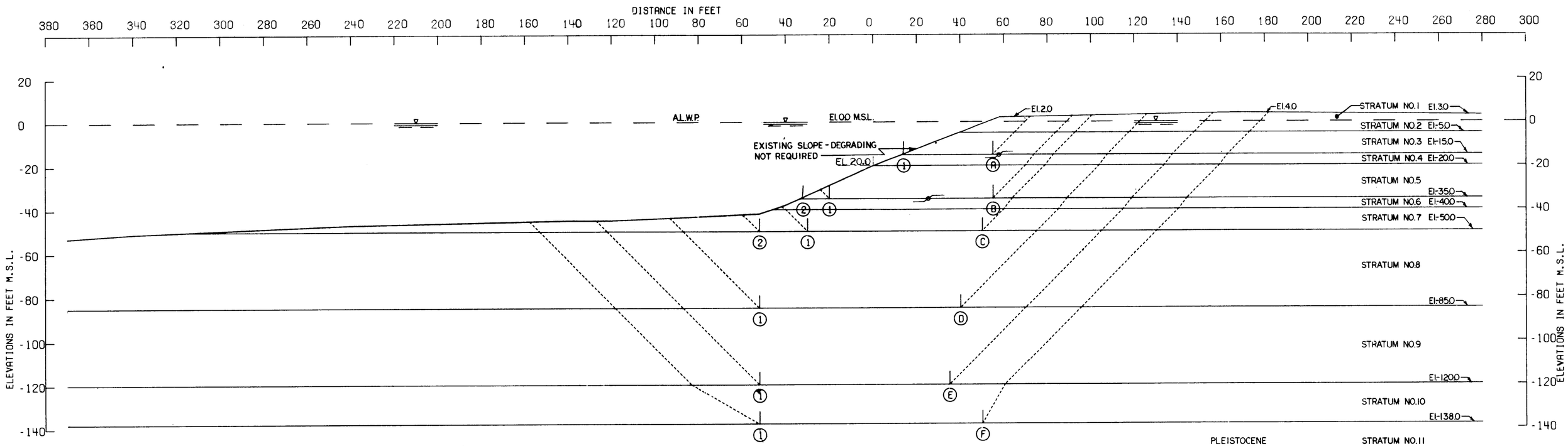
FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

GRAVOLET, LOUISIANA
RANGE D-98.5 TO RANGE D-137.3
STA. 2312+00 TO STA. 2351+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 34



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATES 41 & 42. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	102.0	102.0	400.0	400.0	400.0	400.0	0.
2	CH	40.0	40.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	550.0	550.0	600.0	600.0	0.
8	CH	48.0	48.0	775.0	775.0	950.0	950.0	0.
9	CH	48.0	48.0	1125.0	1125.0	1300.0	1300.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1480.0	≥1480.0	≥1480.0	≥1480.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	13801	10849	180	7172	1	24831	7171	3.462
(B) (1)	-35.00	32349	33079	4137	31909	594	69566	31315	2.221
(B) (2)	-35.00	32349	35988	413	31909	5	68751	31904	2.155
(C) (1)	-50.00	48794	48000	11780	62590	4793	108574	57797	1.879
(C) (2)	-50.00	48794	61200	8428	62590	1469	118422	61121	1.937
(D) (1)	-85.00	103590	87400	61051	176569	42492	252041	134076	1.880
(E) (1)	-120.00	182995	113100	138500	352467	139882	434595	212585	2.044
(F) (1)	-138.00	258000	150960	291139	473032	212782	700099	263250	2.659

NOTES

Φ -- ANGLE OF INTERNAL FRICTION. DEGREES
C -- UNIT COHESION. P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

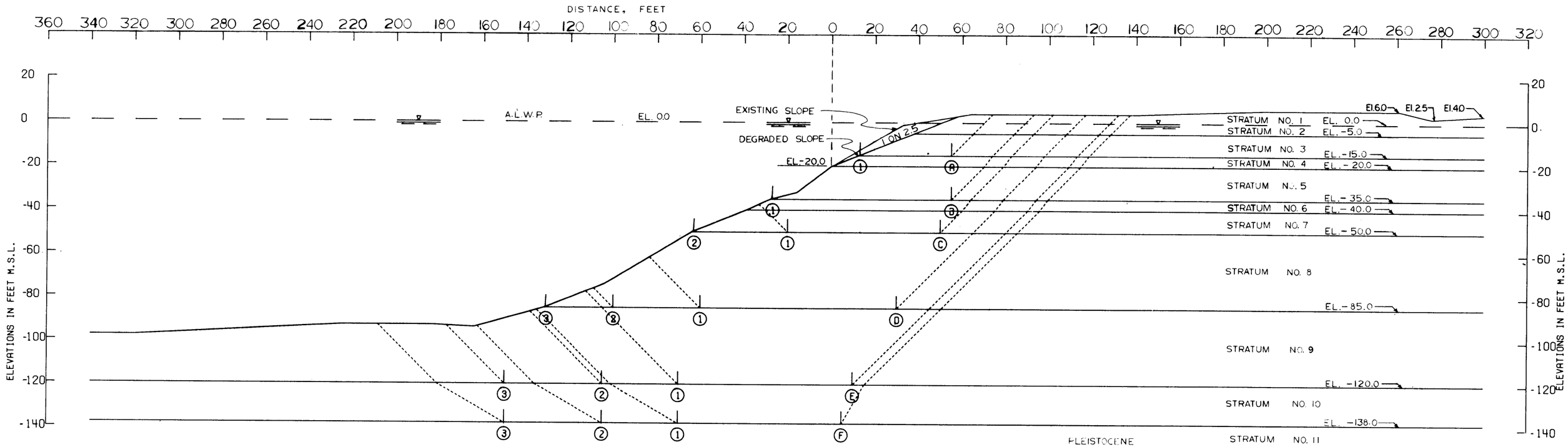
BANK STABILITY ANALYSIS

BOHEMIA, LOUISIANA
RANGE U-90 TO RANGE U-58
STA. 2351+00 TO STA. 2383+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 35



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 41 & 42. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL THE SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	102.0	102.0	400.0	400.0	400.0	400.0	0.
2	CH	40.0	40.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	550.0	550.0	600.0	600.0	0.
8	CH	48.0	48.0	775.0	775.0	950.0	950.0	0.
9	CH	48.0	48.0	1125.0	1125.0	1300.0	1300.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1480.0	≥1480.0	≥1480.0	≥1480.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	15200	11329	88	10045	0	26618	10044	2.650
(B) (1)	-35.00	33843	33909	200	38022	1	67952	38021	1.787
(C) (1)	-50.00	50460	42000	12540	70446	5769	105001	64676	1.623
(C) (2)	-50.00	50460	67800	314	70446	2	118574	70443	1.683
(D) (1)	-85.00	104783	85500	36231	180899	20897	226514	160002	1.416
(D) (2)	-85.00	104783	123500	13989	180899	2800	242273	178099	1.360
(D) (3)	-85.00	104783	152950	437	180899	2	258170	180896	1.427
(E) (1)	-120.00	183533	104000	90553	345280	66443	378087	278837	1.356
(E) (2)	-120.00	183533	149450	74798	345280	35927	407782	309353	1.318
(E) (3)	-120.00	183533	195803	59921	345280	17723	439258	327557	1.341
(F) (1)	-138.00	250659	111000	194695	450789	97300	556354	353489	1.574
(F) (2)	-138.00	250659	162800	147113	450789	65282	560573	385507	1.454
(F) (3)	-138.00	250659	229353	127049	450789	50631	607062	400158	1.517

NOTES

- Φ - ANGLE OF INTERNAL FRICTION, DEGREES
- C - UNIT COHESION, P.S.F.
- ∇ - STATIC WATER SURFACE
- D - HORIZONTAL DRIVING FORCE IN POUNDS
- R - HORIZONTAL RESISTING FORCE IN POUNDS
- A - AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
- B - AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
- P - AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

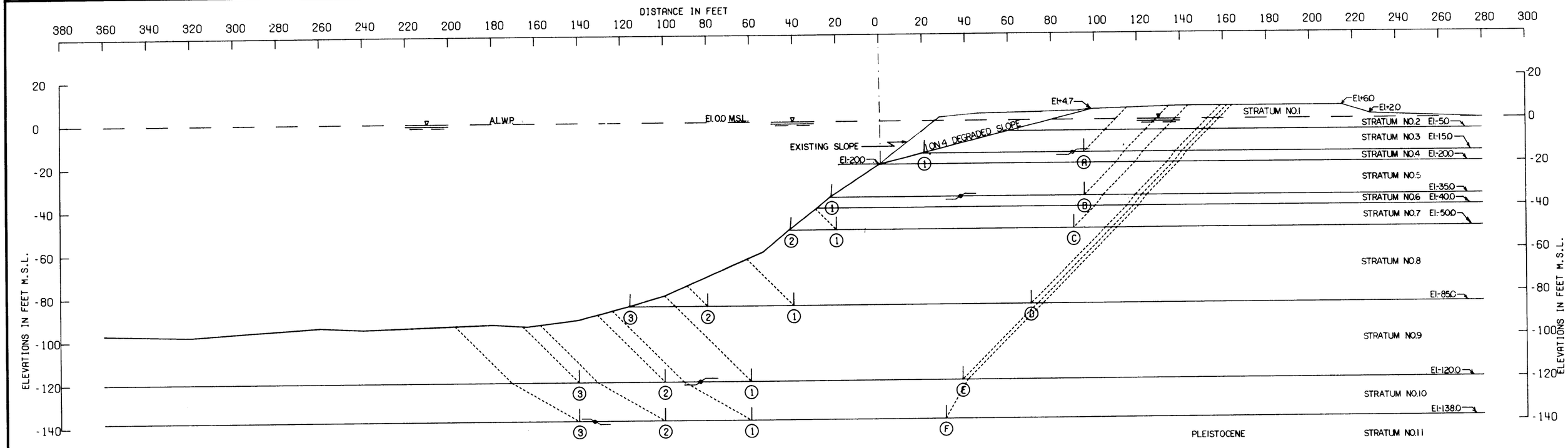
BANK STABILITY ANALYSIS

BOHEMIA, LOUISIANA
RANGE U-58 TO RANGE U-9
STA. 2383+00 TO STA. 2432+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 36



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATES 41 & 42. (PART I – VOLUME 1)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	102.0	102.0	400.0	400.0	400.0	400.0	0.
2	CH	40.0	40.0	400.0	400.0	400.0	400.0	0.
3	CHO	28.0	28.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	48.0	48.0	500.0	500.0	500.0	500.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	550.0	550.0	600.0	600.0	0.
8	CH	48.0	48.0	775.0	775.0	950.0	950.0	0.
9	CH	48.0	48.0	1125.0	1125.0	1300.0	1300.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	≥1480.0	≥1480.0	≥1480.0	≥1480.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	16176	20976	163	12471	0	37315	12470	2.992
(B) (1)	-35.00	35543	52414	394	43513	6	88352	43507	2.031
(C) (1)	-50.00	52593	66000	10521	79051	4176	129115	74874	1.724
(C) (2)	-50.00	52593	78600	478	79051	7	131672	79043	1.666
(D) (1)	-85.00	107042	104500	33583	196603	18026	245125	178577	1.373
(D) (2)	-85.00	107042	142500	14795	196603	3134	264337	193468	1.366
(D) (3)	-85.00	107042	176700	352	196603	1	284094	196602	1.445
(E) (1)	-120.00	185831	127400	86499	357138	55084	399731	302053	1.323
(E) (2)	-120.00	185831	177878	70370	357138	29823	434080	327314	1.326
(E) (3)	-120.00	185831	215942	58800	357138	17953	460573	339185	1.358
(F) (1)	-138.00	254940	133200	181370	463070	87390	569511	375680	1.516
(F) (2)	-138.00	254940	192400	141021	463070	59988	588362	403082	1.460
(F) (3)	-138.00	254940	251407	125878	463070	50342	632226	412728	1.532

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

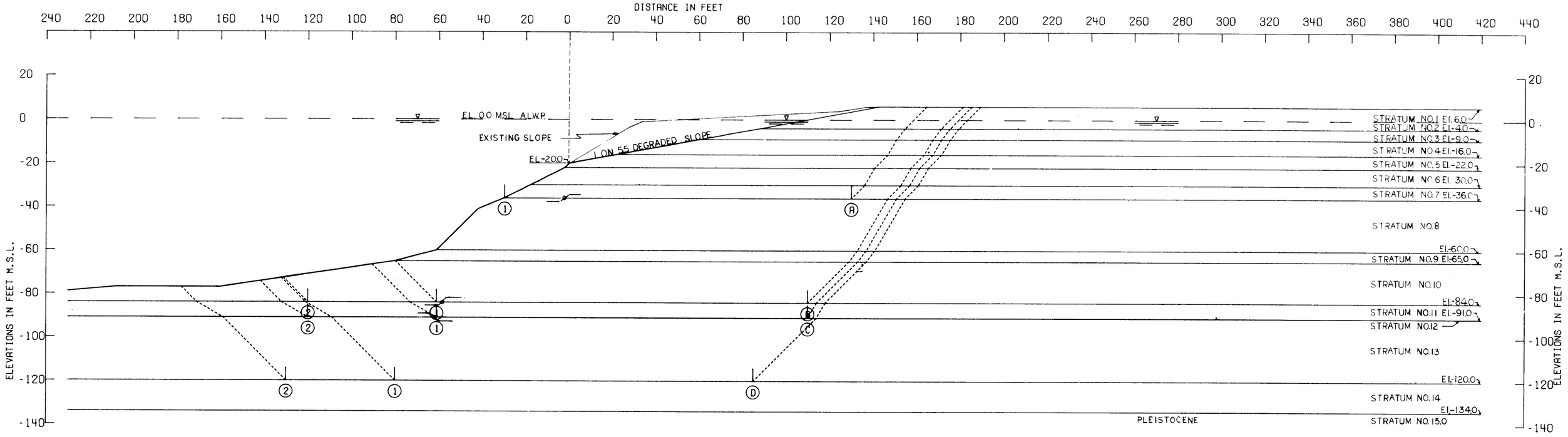
BANK STABILITY ANALYSIS

BOHEMIA, LOUISIANA
RANGE U-9 TO RANGE D-13
STA. 2432+00 TO STA. 2454+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 37



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 43, (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	112.0	112.0	750.0	750.0	750.0	750.0	0.
2	CH	50.0	50.0	750.0	750.0	750.0	750.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	50.0	50.0	400.0	400.0	400.0	400.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	48.0	48.0	400.0	400.0	400.0	400.0	0.
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
10	CH	48.0	48.0	745.0	745.0	840.0	840.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	0.	0.	0.	0.	910.0	910.0	0.
13	CH	50.0	50.0	1055.0	1055.0	1200.0	1200.0	0.
14	SP	60.0	60.0	0.	0.	0.	0.	30.0
15	CH	60.0	60.0	≥1340.0	≥1340.0	≥1340.0	≥1340.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-36.00	45275	58620	26	59725	0	103923	59724	1.740
(B)	(1)	-84.00	136259	143294	28310	242536	11271	307863	231265	1.331
(B)	(2)	-84.00	136259	172543	16843	242536	3524	325645	239012	1.362
(C)	(1)	-91.00	159796	155610	44280	279564	17705	359686	261859	1.374
(C)	(2)	-91.00	159796	199146	25549	279564	8138	384492	271426	1.417
(D)	(1)	-120.00	221922	198000	89986	446309	66138	509908	380171	1.341
(D)	(2)	-120.00	221922	258000	79266	446309	51177	559188	395132	1.415

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

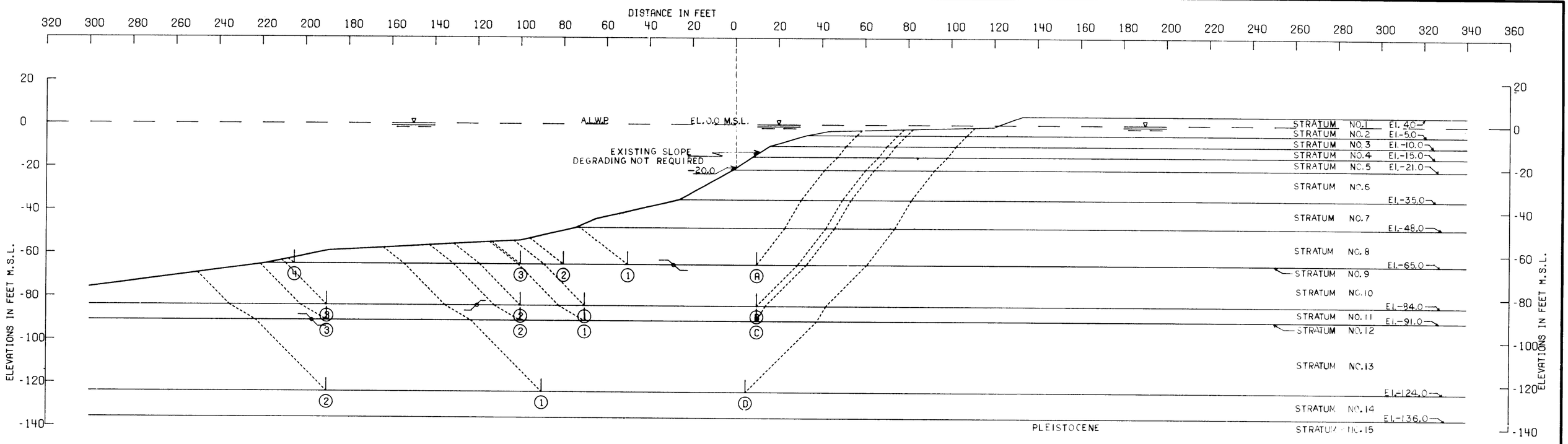
FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

BOHEMIA, LOUISIANA
RANGE D-13 TO RANGE D-59
STA. 2454+00 TO STA. 2500+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 38



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **43.** (PART I -- VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	112.0	112.0	750.0	750.0	750.0	750.0	0.
2	CH	50.0	50.0	750.0	750.0	750.0	750.0	0.
3	CH	50.0	50.0	550.0	550.0	550.0	550.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CL	50.0	50.0	400.0	400.0	400.0	400.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	SM	60.0	60.0	0.	0.	0.	0.	30.0
8	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
9	CH	0.	0.	0.	0.	650.0	650.0	0.
10	CH	48.0	48.0	745.0	745.0	840.0	840.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	0.	0.	0.	0.	910.0	910.0	0.
13	CH	50.0	50.0	1075.0	1075.0	1240.0	1240.0	0.
14	SP	60.0	60.0	0.	0.	0.	0.	30.0
15	CH	60.0	60.0	≥1360.0	≥1360.0	≥1360.0	≥1360.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-65.00	67507	38148	17750	94168	12706	123405	81462	1.515
Ⓐ ②	-65.00	67507	53274	9856	94168	5152	130638	89016	1.468
Ⓐ ③	-65.00	67507	61196	7507	94168	3098	136210	91070	1.496
Ⓐ ④	-65.00	67507	94369	1213	94168	156	163090	94012	1.735
Ⓑ ①	-84.00	100857	67200	36678	170787	29111	204735	141675	1.445
Ⓑ ②	-84.00	100857	92400	34898	170787	22123	228156	148663	1.535
Ⓑ ③	-84.00	100857	163638	29126	170787	12734	293622	158053	1.858
Ⓒ ①	-91.00	120270	72800	64319	201483	39522	257389	161960	1.589
Ⓒ ②	-91.00	120270	100100	58248	201483	33034	278618	168448	1.654
Ⓒ ③	-91.00	120270	182000	46959	201483	19666	349229	181816	1.921
Ⓓ ①	-124.00	195558	117800	127177	385930	121573	440536	264356	1.666
Ⓓ ②	-124.00	195558	241800	107602	385930	88808	544960	297121	1.834

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

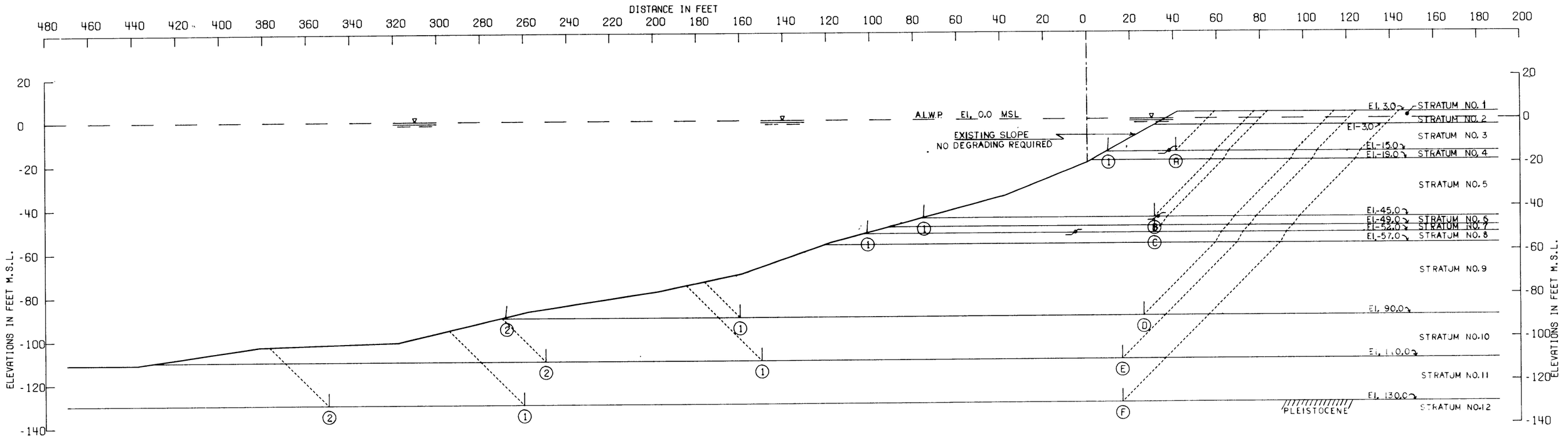
BANK STABILITY ANALYSIS

BOHEMIA, LOUISIANA
RANGES D-59 TO D-103.9 AND STATIONS 2500+00 TO 2544+90
NESTOR, LOUISIANA
RANGES D-103.9 TO R-43.9 AND STATIONS 2544+90=0+00 TO 10+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 39



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE **45.** (PART I. – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION –20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	700.0	700.0	700.0	700.0	0.
2	CH	48.0	48.0	700.0	700.0	700.0	700.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	43.0	43.0	570.0	570.0	700.0	700.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	755.0	755.0	770.0	770.0	0.
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	48.0	48.0	985.0	985.0	1150.0	1150.0	0.
10	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
11	CH	48.0	48.0	1450.0	1450.0	1550.0	1550.0	0.
12	CH	60.0	60.0	1550.0	1550.0	1550.0	1550.0	0.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	18000	6300	246	10098	2	24546	10096	2.431
(B) (1)	-45.00	50441	43305	259	56161	1	94006	56159	1.674
(C) (1)	-52.00	59560	63609	553	73165	4	123723	73161	1.691
(D) (1)	-90.00	134495	213900	32358	208431	7799	380754	200632	1.898
(D) (2)	-90.00	134495	338100	1064	208431	8	473660	208423	2.273
(E) (1)	-110.00	184495	224100	79005	302925	36129	487600	266795	1.828
(E) (2)	-110.00	184495	359100	50319	302925	12899	593915	290025	2.048
(F) (1)	-130.00	242495	427800	94216	424450	37794	764512	386656	1.977
(F) (2)	-130.00	242495	567300	75878	424450	19141	885674	405308	2.185

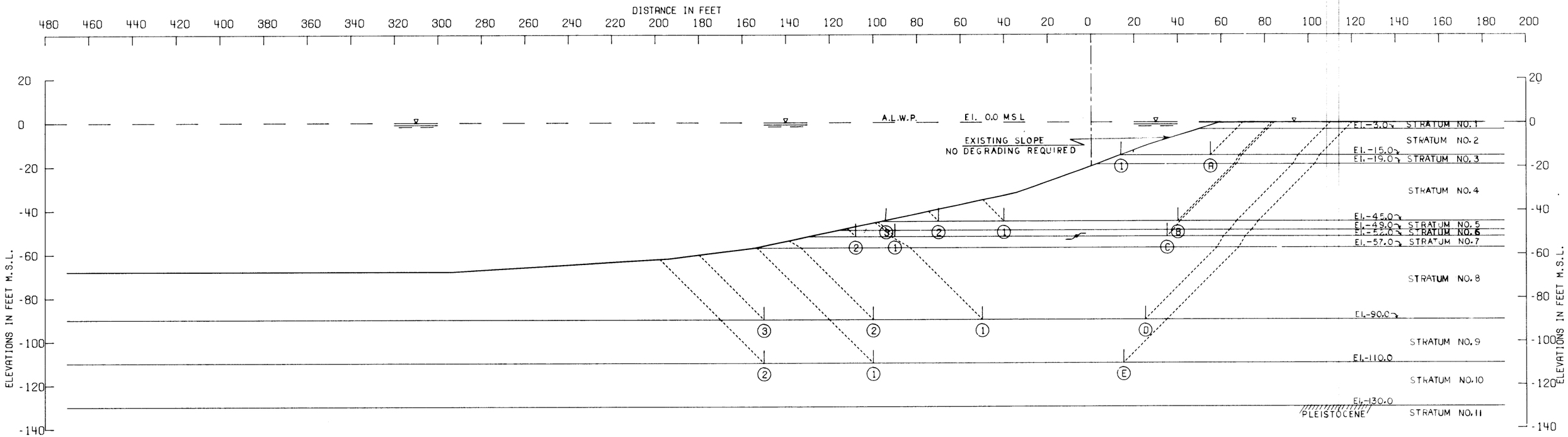
NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK
BANK STABILITY ANALYSIS
NESTOR, LOUISIANA
RANGE R-43.9 TO RANGE R-43.5
STA. 10+00 TO STA. 35+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 40



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 45. (PART I — VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION —20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	48.0	48.0	700.0	700.0	700.0	700.0	0.
2	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
3	SM	60.0	60.0	0.	0.	0.	0.	30.0
4	CH	43.0	43.0	570.0	570.0	700.0	700.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CH	48.0	48.0	755.0	755.0	770.0	770.0	0.
7	SM	60.0	60.0	0.	0.	0.	0.	30.0
8	CH	48.0	48.0	985.0	985.0	1150.0	1150.0	0.
9	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
10	CH	48.0	48.0	1450.0	1450.0	1550.0	1550.0	0.
11	CH	60.0	60.0	1550.0	1550.0	1550.0	1550.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	13800	6438	108	4500	0	20346	4500	4.521
(B) (1)	-45.00	45361	39583	11085	41187	2454	96030	38733	2.479
(B) (2)	-45.00	45361	48564	5189	41187	537	99114	40650	2.438
(B) (3)	-45.00	45361	54194	471	41187	4	100027	41183	2.429
(C) (1)	-52.00	54084	71654	6786	54518	1474	132525	53044	2.498
(C) (2)	-52.00	54084	75097	4936	54518	444	134118	54074	2.480
(D) (1)	-90.00	127739	86250	77564	176016	61225	291553	114790	2.540
(D) (2)	-90.00	127739	143750	65852	176016	41070	337341	134945	2.500
(D) (3)	-90.00	127739	201250	58662	176016	23986	387651	152029	2.550
(E) (1)	-110.00	177772	155250	115012	265676	85675	448035	180000	2.489
(E) (2)	-110.00	177772	222750	104714	265676	62124	505237	203552	2.482

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

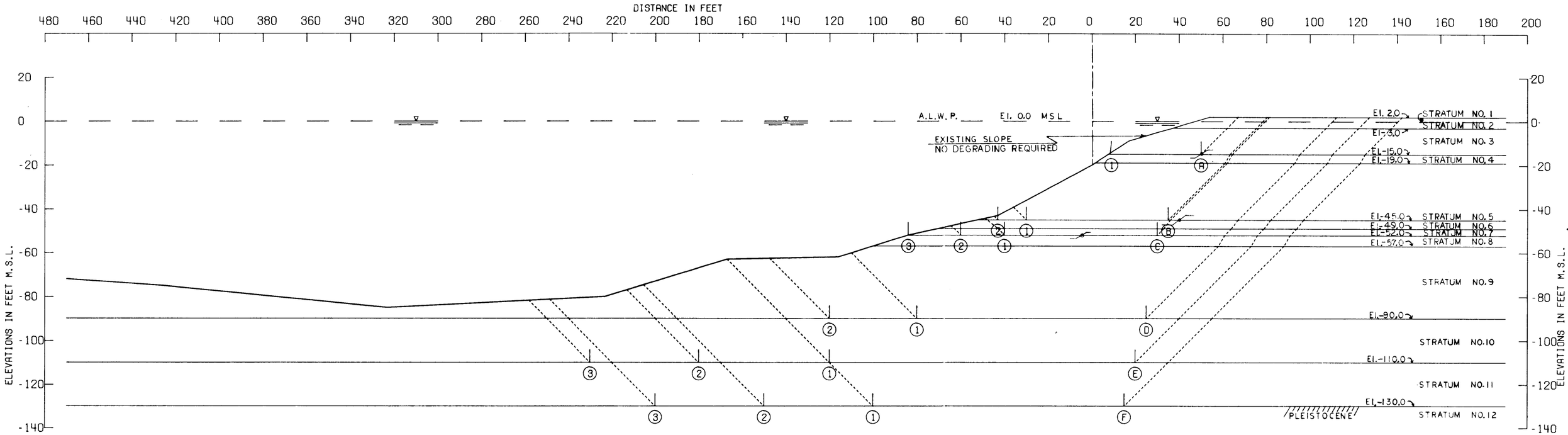
NESTOR, LOUISIANA
RANGE R-43.5 TO RANGE R-42.97
STA. 35+00 TO STA. 67+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 41



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE **45.** (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION –20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	700.0	700.0	700.0	700.0	0.
2	CH	48.0	48.0	700.0	700.0	700.0	700.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	43.0	43.0	570.0	570.0	700.0	700.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	755.0	755.0	770.0	770.0	0.
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	48.0	48.0	985.0	985.0	1150.0	1150.0	0.
10	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
11	CH	48.0	48.0	1450.0	1450.0	1550.0	1550.0	0.
12	CH	60.0	60.0	1550.0	1550.0	1550.0	1550.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-15.00	16600	8674	400	7941	7	25674	7933	3.236
Ⓑ ①	-45.00	48748	33170	6650	49555	1121	88567	48434	1.829
Ⓑ ②	-45.00	48748	36590	1869	49555	70	87207	49485	1.762
Ⓒ ①	-52.00	57621	45569	7893	63667	1934	111084	61733	1.799
Ⓒ ②	-52.00	57621	49990	5221	63667	590	112833	63077	1.789
Ⓒ ③	-52.00	57621	51790	27	63667	0	109439	63667	1.719
Ⓓ ①	-90.00	132254	120750	58912	195059	28846	311917	166212	1.877
Ⓓ ②	-90.00	132254	166750	53947	195059	18345	352952	176713	1.997
Ⓔ ①	-110.00	182254	189000	103189	291534	55046	474444	236487	2.006
Ⓔ ②	-110.00	182254	270000	75663	291534	35118	527918	256416	2.059
Ⓔ ③	-110.00	182254	337500	66229	291534	21088	585984	270445	2.167
Ⓕ ①	-130.00	240254	178250	161189	407899	114635	579694	293264	1.977
Ⓕ ②	-130.00	240254	255750	138251	407899	96887	634256	311012	2.039
Ⓕ ③	-130.00	240254	333250	125167	407899	66010	698672	341889	2.044

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT – PART III
EAST BANK

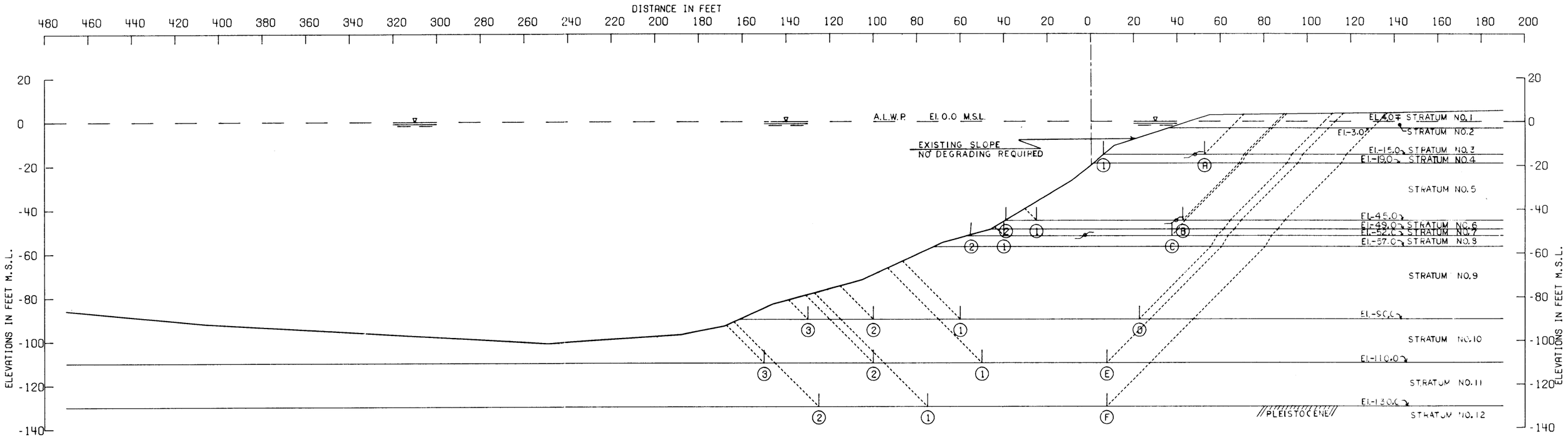
BANK STABILITY ANALYSIS

NESTOR, LOUISIANA
RANGE R-42.97 TO RANGE R-42.6
STA. 67+00 TO STA. 90+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 42



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **45. (PART I – VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION –20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	700.0	700.0	700.0	700.0	0.
2	CH	48.0	48.0	700.0	700.0	700.0	700.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	43.0	43.0	570.0	570.0	700.0	700.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	48.0	48.0	755.0	755.0	770.0	770.0	0.
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	48.0	48.0	985.0	985.0	1150.0	1150.0	0.
10	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
11	CH	48.0	48.0	1450.0	1450.0	1550.0	1550.0	0.
12	CH	60.0	60.0	1550.0	1550.0	1550.0	1550.0	0.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
(A) (1)	-15.00	18260	10242	0	10187	0	28502	10187	2.798
(B) (1)	-45.00	51057	36451	6067	57469	969	93576	56500	1.656
(B) (2)	-45.00	51057	39949	115	57469	0	91122	57469	1.586
(C) (1)	-52.00	60152	48825	5088	72430	705	114065	71724	1.590
(C) (2)	-52.00	60152	50106	647	72430	5	110905	72424	1.531
(D) (1)	-90.00	135579	94990	52204	203457	24652	282774	178805	1.581
(D) (2)	-90.00	135579	140990	30042	203457	7189	306611	196268	1.562
(D) (3)	-90.00	135579	175490	17540	203457	2411	328609	201046	1.634
(E) (1)	-110.00	185712	77760	96002	294158	66299	359475	227858	1.578
(E) (2)	-110.00	185712	145260	71707	294158	30395	402680	263763	1.527
(E) (3)	-110.00	185712	212760	43281	294158	11400	441753	282757	1.562
(F) (1)	-130.00	244243	128030	131791	417660	89666	504064	327994	1.537
(F) (2)	-130.00	244243	205530	105187	417660	53765	554960	363895	1.525

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

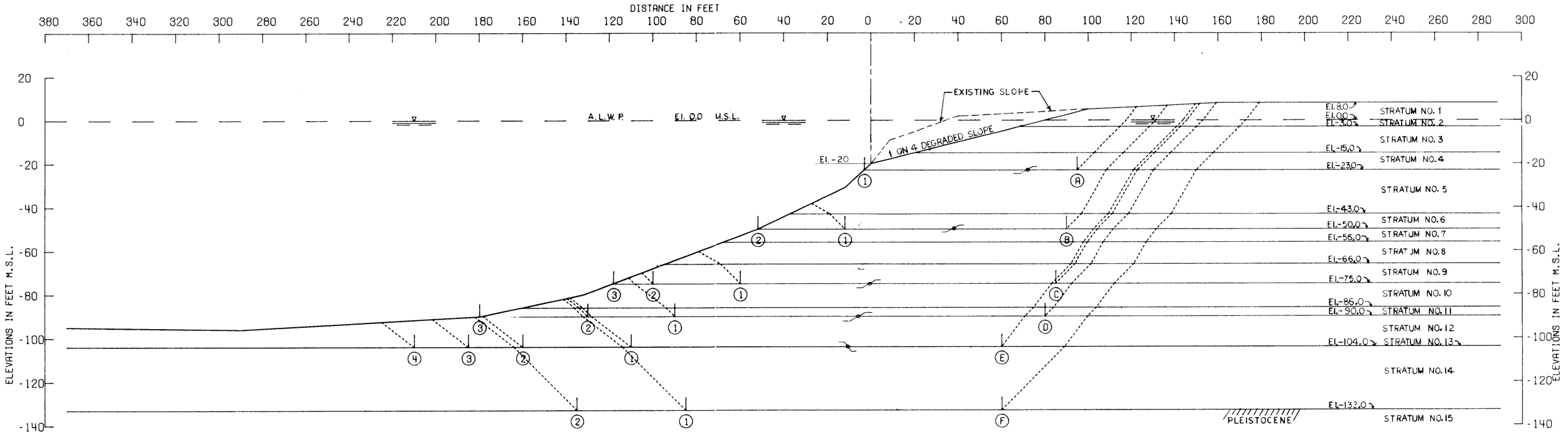
BANK STABILITY ANALYSIS

NESTOR, LOUISIANA
RANGE R-42.6 TO RANGE R-42
STA. 90+00 TO STA. 120+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 43



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **45. (PART I – VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION –20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CL	48.0	48.0	700.0	700.0	700.0	700.0	0.
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	CH	43.0	43.0	440.0	440.0	480.0	480.0	0.
5	SP	60.0	60.0	0.	0.	0.	0.	30.0
6	CH	48.0	48.0	715.0	715.0	750.0	750.0	0.
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	48.0	48.0	955.0	955.0	1000.0	1000.0	0.
10	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
11	CH	48.0	48.0	1130.0	1130.0	1150.0	1150.0	0.
12	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
13	CH	0.	0.	0.	0.	1290.0	1290.0	0.
14	CH	48.0	48.0	1435.0	1435.0	1580.0	1580.0	0.
15	CH	60.0	60.0	1580.0	1580.0	1580.0	1580.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_P	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-23.00	23568	31543	114	26906	0	55227	26906	2.053
(B) (1)	-50.00	62437	72262	12484	91062	6752	147184	84309	1.746
(B) (2)	-50.00	62437	85617	46	91062	0	148101	91062	1.626
(C) (1)	-75.00	115139	128323	20557	187540	9673	264019	177866	1.484
(C) (2)	-75.00	115139	144491	9723	187540	853	269354	186686	1.443
(C) (3)	-75.00	115139	148930	347	187540	1	264417	187539	1.410
(D) (1)	-90.00	149081	167290	24898	259926	11822	341270	248103	1.376
(D) (2)	-90.00	149081	185472	11799	259926	2394	346353	257531	1.345
(D) (3)	-90.00	149081	198992	99	259926	0	348113	259925	1.339
(E) (1)	-104.00	177912	184895	30720	317105	18949	393529	298155	1.320
(E) (2)	-104.00	177912	212312	12807	317105	6912	403033	310192	1.299
(E) (3)	-104.00	177912	222996	10058	317105	4835	410968	312269	1.316
(E) (4)	-104.00	177912	232803	8756	317105	3922	419472	313182	1.339
(F) (1)	-133.00	272363	228784	112700	527404	93236	613848	434167	1.414
(F) (2)	-133.00	272363	307784	94913	527404	58202	675060	469202	1.439

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

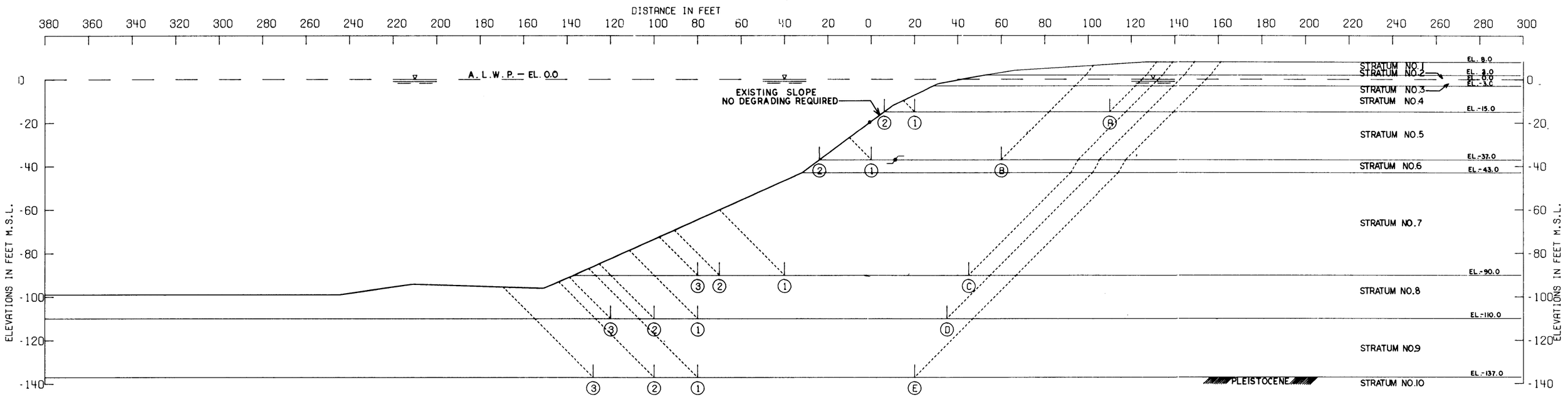
$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

NESTOR, LOUISIANA
RANGE R-42 TO RANGE R-41.4
STA.120+00 TO STA.155+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 44



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **45, (PART I — VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CL	110.0	110.0	700.0	700.0	700.0	700.0	0.
3	CL	48.0	48.0	700.0	700.0	700.0	700.0	0.
4	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
5	CH	43.0	43.0	510.0	510.0	620.0	620.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	48.0	48.0	915.0	915.0	1150.0	1150.0	0.
8	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
9	CH	48.0	48.0	1485.0	1485.0	1620.0	1620.0	0.
10	CH	60.0	60.0	1620.0	1620.0	1620.0	1620.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-15.00	19307	36000	4206	21023	774	59513	20249	2.939
Ⓐ ②	-15.00	19307	41600	21	21023	0	60929	21023	2.898
Ⓑ ①	-37.00	40806	36269	10339	50616	3836	87415	46780	1.869
Ⓑ ②	-37.00	40806	41491	0	50616	0	82297	50616	1.625
Ⓒ ①	-90.00	137318	97750	54887	238946	31246	289956	207700	1.396
Ⓒ ②	-90.00	137318	132250	37912	238946	14905	307480	224040	1.372
Ⓒ ③	-90.00	137318	143750	32253	238946	10787	313322	228158	1.373
Ⓓ ①	-110.00	187620	155250	70936	342078	35335	413807	306743	1.349
Ⓓ ②	-110.00	187620	182250	59619	342078	23155	429490	318923	1.347
Ⓓ ③	-110.00	187620	209250	47749	342078	13627	444620	328450	1.354
Ⓔ ①	-137.00	268173	162000	135848	509302	90863	566021	418438	1.353
Ⓔ ②	-137.00	268173	194400	122689	509302	70616	585262	438686	1.334
Ⓔ ③	-137.00	268173	239760	116742	509302	48968	624675	460333	1.357

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

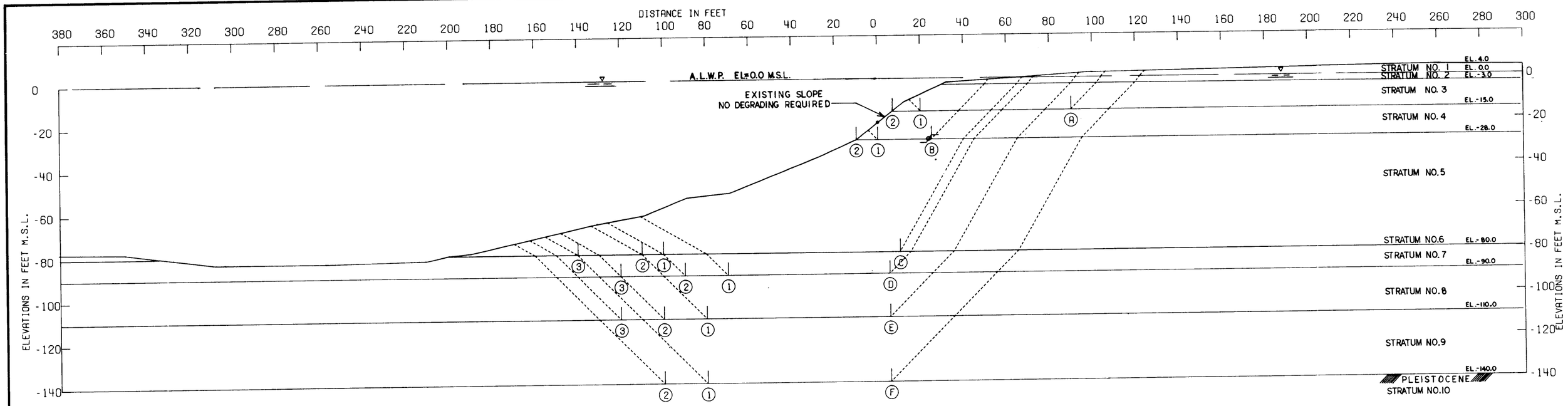
FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

NESTOR, LOUISIANA
RANGE R-41.4 TO RANGE R-40.25
STA. 155+00 TO STA. 217+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 45



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 45. **(PART I – VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTION SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	110.0	110.0	700.0	700.0	700.0	700.0	0.
2	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
3	CH	38.0	38.0	400.0	400.0	400.0	400.0	0.
4	CH	43.0	43.0	465.0	465.0	530.0	530.0	0.
5	SP	60.0	60.0	0.	0.	0.	0.	30.0
6	CH	0.	0.	0.	0.	1050.0	1050.0	0.
7	CH	48.0	48.0	1100.0	1100.0	1150.0	1150.0	0.
8	CH	53.0	53.0	1250.0	1250.0	1350.0	1350.0	0.
9	CH	48.0	48.0	1500.0	1500.0	1650.0	1650.0	0.
10	CH	60.0	60.0	1650.0	1650.0	1650.0	1650.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-15.00	13811	28000	4193	8194	755	46004	7438	6.184
(A) (2)	-15.00	13811	33200	61	8194	0	47072	8194	5.745
(B) (1)	-28.00	22402	9820	4053	13804	722	36276	13081	2.773
(B) (2)	-28.00	22402	10779	0	13804	0	33181	13803	2.404
(C) (1)	-80.00	108922	110488	18279	144727	9139	237689	135588	1.753
(C) (2)	-80.00	108922	117281	14642	144727	7321	240846	137406	1.753
(C) (3)	-80.00	108922	133040	6436	144727	3218	248399	141509	1.755
(D) (1)	-90.00	133647	86250	52221	188696	33948	272119	154747	1.758
(D) (2)	-90.00	133647	109250	40279	188696	25696	283176	162999	1.737
(D) (3)	-90.00	133647	143750	31011	188696	16033	308409	172662	1.786
(E) (1)	-110.00	190427	114750	86642	300323	71671	391819	228652	1.714
(E) (2)	-110.00	190427	141750	81011	300323	58169	413188	242154	1.706
(E) (3)	-110.00	190427	168750	76289	300323	48510	435466	251813	1.729
(F) (1)	-140.00	286399	140250	168436	507222	162657	595086	344565	1.727
(F) (2)	-140.00	286399	173250	164576	507222	142694	624225	364527	1.712

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

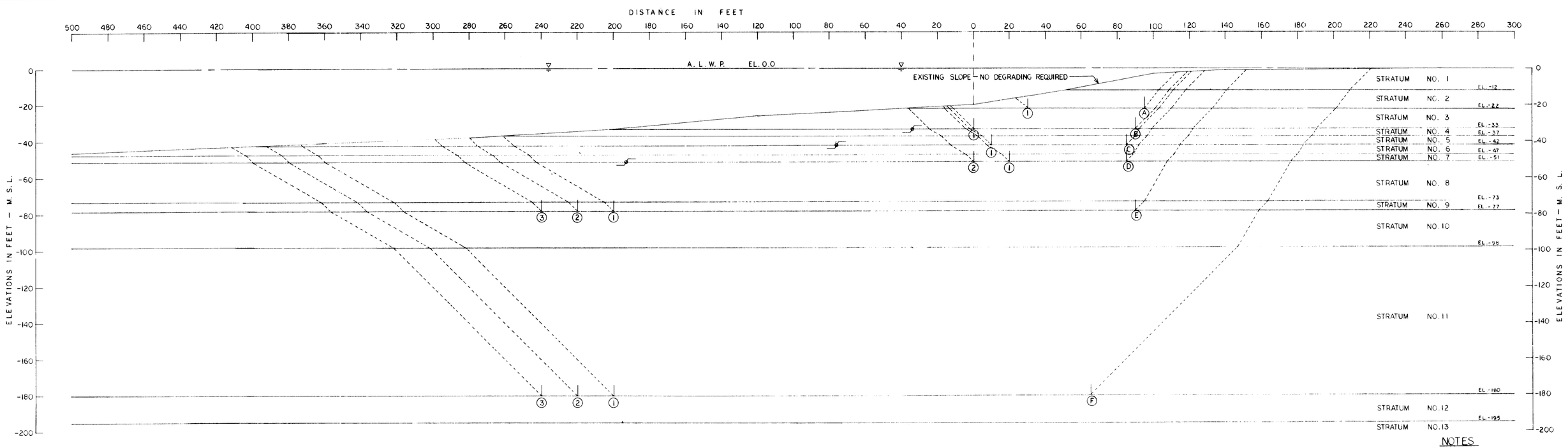
BANK STABILITY ANALYSIS

NESTOR, LOUISIANA
RANGE R-40.25 TO RANGE R-39.5
STA. 217+00 TO STA. 255+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 46



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS SEE BORING DATA PLATE 55, (PART I — VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT EL. -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	38.0	38.0	250.0	250.0	250.0	250.0	0.
2	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
3	CH	38.0	38.0	250.0	250.0	250.0	250.0	0.
4	SP	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	45.0	45.0	445.0	445.0	470.0	470.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	45.0	45.0	450.0	450.0	560.0	560.0	0.
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	45.0	45.0	805.0	805.0	830.0	830.0	0
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	45.0	45.0	1440.0	1440.0	1850.0	1850.0	0.
12	SP	60.0	60.0	0.	0.	0.	0.	30.0
13	CH	60.0	60.0	2000.0	2000.0	2000.0	2000.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-22.0	9624	26000	3200	8134	835	38824	7299	5.319
(B) (1)	-33.0	16110	22500	6247	19803	3394	44858	16409	2.734
(C) (1)	-42.0	24285	35250	15944	33384	10697	75480	22686	3.327
(D) (1)	-51.0	34443	36400	31765	51964	22782	102608	29182	3.516
(D) (2)	-51.0	34443	47600	29576	51964	20259	111619	31709	3.521
(E) (1)	-78.0	86174	240700	87320	136970	50968	414195	86001	4.816
(E) (2)	-78.0	86174	257300	83161	136970	48203	426636	88766	4.806
(E) (3)	-78.0	86174	273900	79340	136970	45962	439415	91007	4.828
(F) (1)	-180.0	383959	490250	417584	789971	538698	1291793	251273	5.141
(F) (2)	-180.0	383959	527250	413842	789971	531932	1325052	258039	5.135
(F) (3)	-180.0	383959	564250	410349	789971	525929	1358559	264042	5.145

NOTES

Ø -- ANGLE OF INTERNAL FRCTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

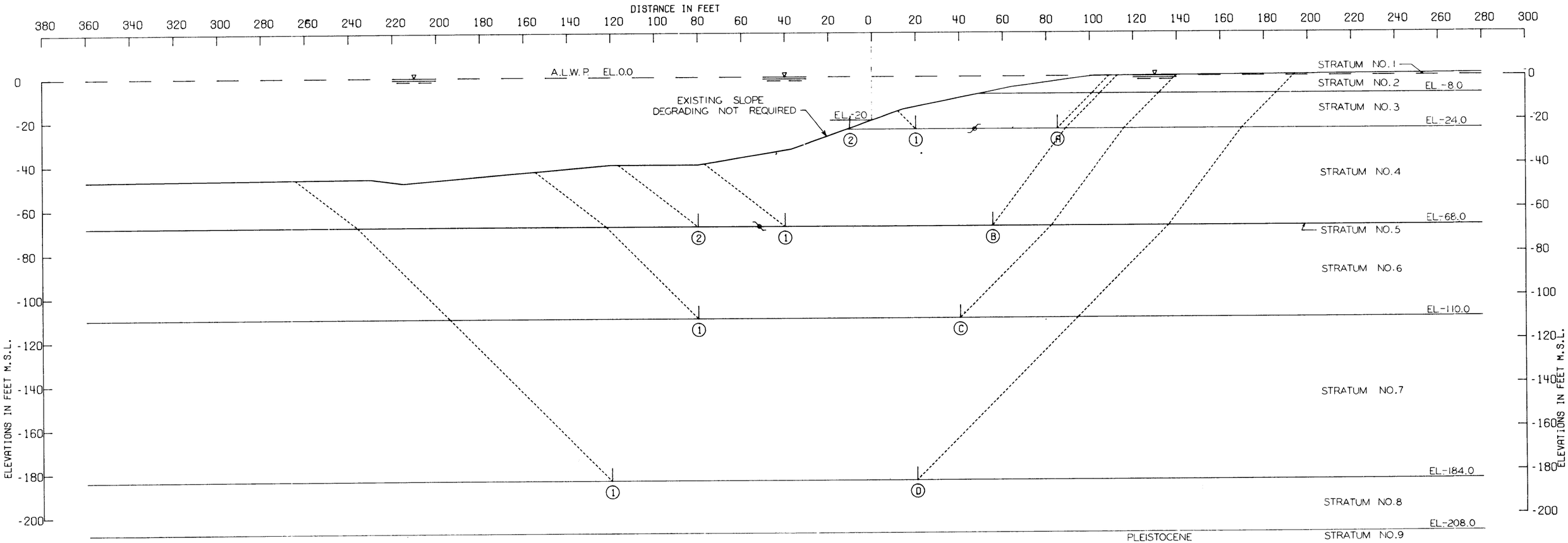
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-26.2 TO RANGE R-26.1
STA. 502+00 TO STA. 515+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 47



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **56. (PART I — VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
3	CL	48.0	48.0	400.0	400.0	400.0	400.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	0.	0.	0.	0.	680.0	680.0	0.
6	CH	43.0	43.0	890.0	890.0	1100.0	1100.0	0.
7	CH	48.0	48.0	1470.0	1470.0	1840.0	1840.0	0.
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	60.0	60.0	2080.0	2080.0	2080.0	2080.0	0.

ASSUMED FAILURE SURFACE			RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.		ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
A	1	-24.00	19212	25079	6573	12227	2058	50865	10168	5.002
A	2	-24.00	19212	33291	313	12227	4	52816	12222	4.321
B	1	-68.00	71594	64600	33709	107099	27015	169903	80083	2.122
B	2	-68.00	71594	90854	29650	107099	21555	192099	85544	2.246
C	1	-110.00	148976	132000	101235	289872	121780	382212	168091	2.274
D	1	-184.00	367814	257600	312813	808774	466074	938227	342700	2.738

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT — PART III
EAST BANK

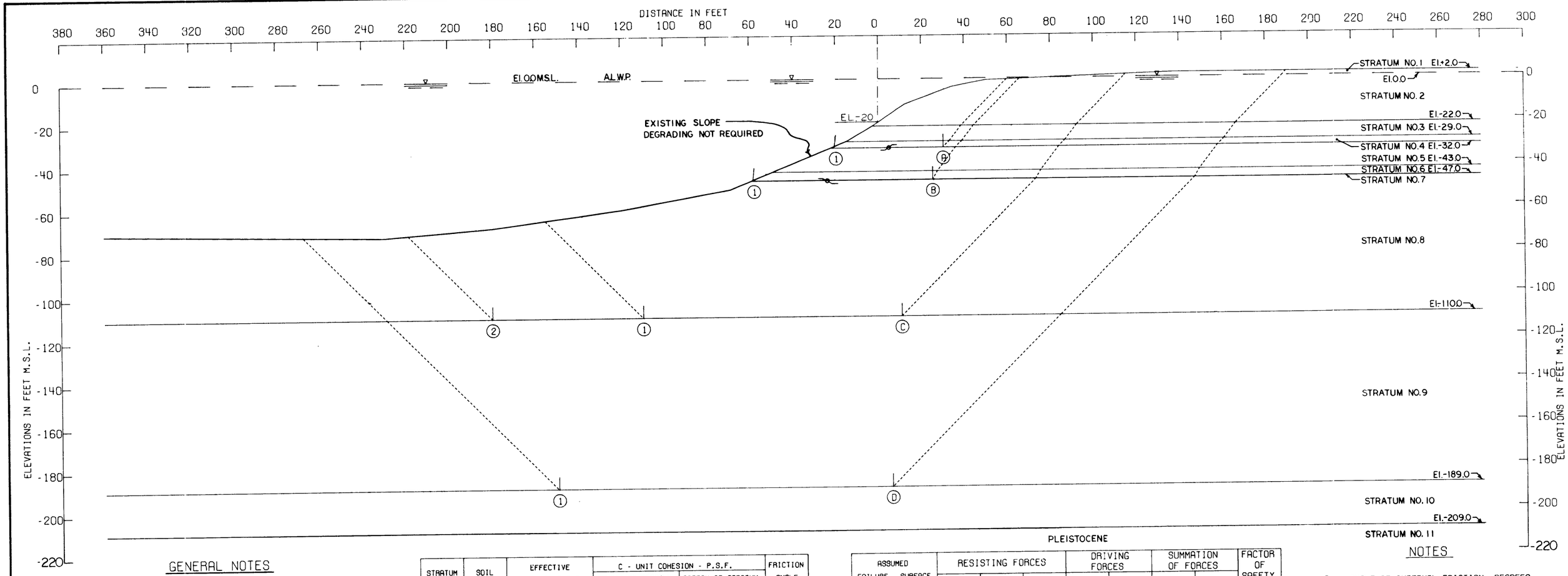
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-26.1 TO RANGE R-25.35
STA. 515+00 TO STA. 555+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 48



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE **56**. **(PART I--VOLUME I)**

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	43.0	43.0	400.0	400.0	400.0	400.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CL	48.0	48.0	400.0	400.0	400.0	400.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	SM	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	0.	0.	0.	0.	470.0	470.0	0.
8	CH	43.0	43.0	790.0	790.0	1100.0	1100.0	0.
9	CH	48.0	48.0	1495.0	1495.0	1890.0	1890.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CH	60.0	60.0	2090.0	2090.0	2090.0	2090.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-32.00	24430	17588	547	19439	15	42565	19424	2.191
(B)	(1)	-47.00	40266	31375	8	45323	4	71650	45319	1.581
(C)	(1)	-110.00	142751	132000	71564	273914	50073	346316	223841	1.547
(C)	(2)	-110.00	142751	209000	61444	273914	35109	413196	238805	1.730
(D)	(1)	-189.00	381529	292950	297164	835350	322398	971643	512952	1.894

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

- Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
- C -- UNIT COHESION, P.S.F.
- ∇ -- STATIC WATER SURFACE
- D -- HORIZONTAL DRIVING FORCE IN POUNDS
- R -- HORIZONTAL RESISTING FORCE IN POUNDS
- A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
- B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
- P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

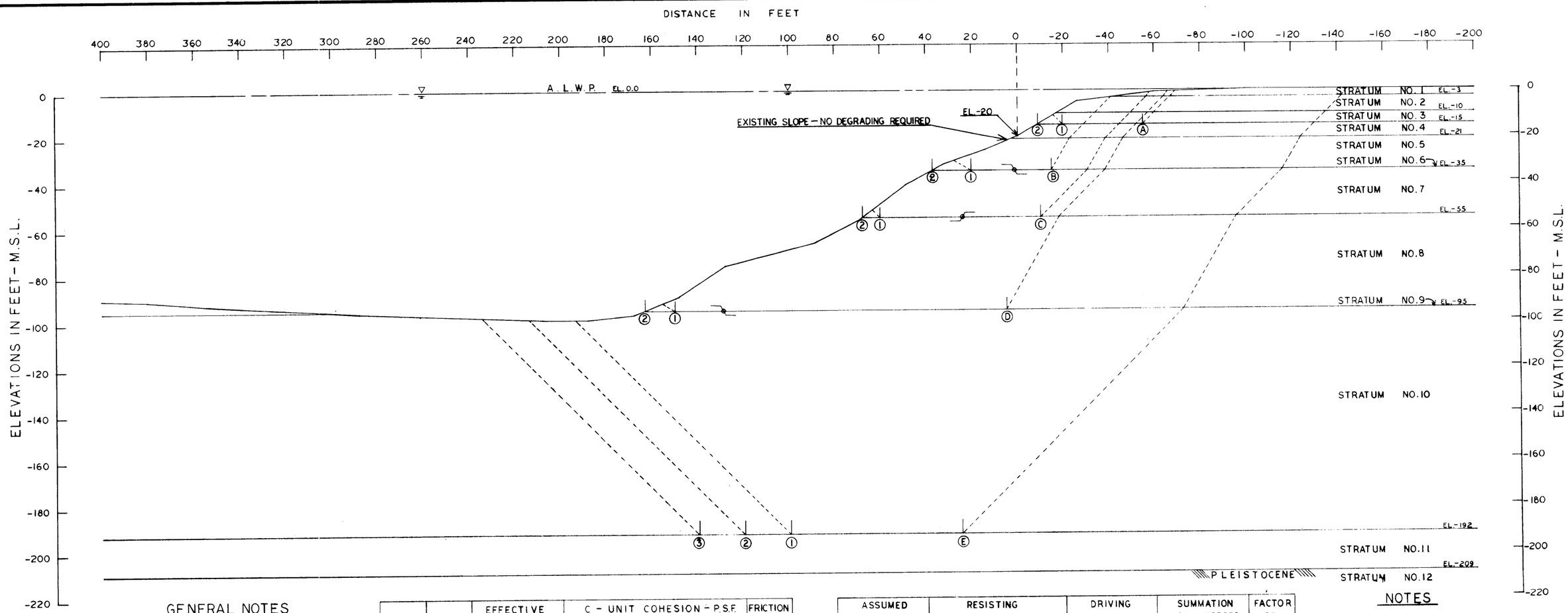
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-25.35 TO RANGE R-24.45
STA. 555+00 TO STA. 559+82 = 0+00
STA. 0+00 TO STA. 19+06 = 0+00
STA. 0+00 TO STA. 30+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 49



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 59. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT EL. -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	55	55	300	300	300	300	15
2	CHO	33	33	300	300	300	300	0
3	CH	38	38	300	300	300	300	0
4	CH	38	38	330	330	360	360	0
5	SP	60	60	0	0	0	0	30
6	CH	0	0	0	0	500	500	0
7	CH	43	43	600	600	700	700	0
8	SP	60	60	0	0	0	0	30
9	CH	0	0	0	0	1100	1100	0
10	CH	48	48	1585	1585	2070	2070	0
11	SP	60	60	0	0	0	0	30
12	CH	60	60	2240	2240	2240	2240	0

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-15	8276	10500	2488	3846	504	21264	3342	6.362
Ⓐ	②	-15	8276	13800	73	3846	0	22149	3846	5.759
Ⓑ	①	-35	19126	14965	1862	17003	931	35953	16072	2.237
Ⓑ	②	-35	19126	17355	0	17003	0	36481	17003	2.146
Ⓒ	①	-55	45626	39601	3943	55294	405	89170	54889	1.625
Ⓒ	②	-55	45626	40144	343	55294	3	86113	55291	1.557
Ⓓ	①	-95	128390	133609	957	182187	478	262956	181708	1.447
Ⓓ	②	-95	128390	134780	6	182187	3	263176	182184	1.445
Ⓔ	①	-192	454104	155250	294810	872745	276981	904164	595764	1.518
Ⓔ	②	-192	454104	196650	295428	872745	244827	946182	627918	1.507
Ⓔ	③	-192	454104	238050	297898	872745	221067	990052	651678	1.519

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

NOTES

Ø--ANGLE OF INTERNAL FRICTION, DEGREES
C--UNIT COHESION, P.S.F.
▽--STATIC WATER SURFACE
D--HORIZONTAL DRIVING FORCE IN POUNDS
R--HORIZONTAL RESISTING FORCE IN POUNDS
A--AS A SUBSCRIPT, REFER TO ACTIVE WEDGE
B--AS A SUBSCRIPT, REFER TO CENTRAL BLOCK
P--AS A SUBSCRIPT, REFER TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

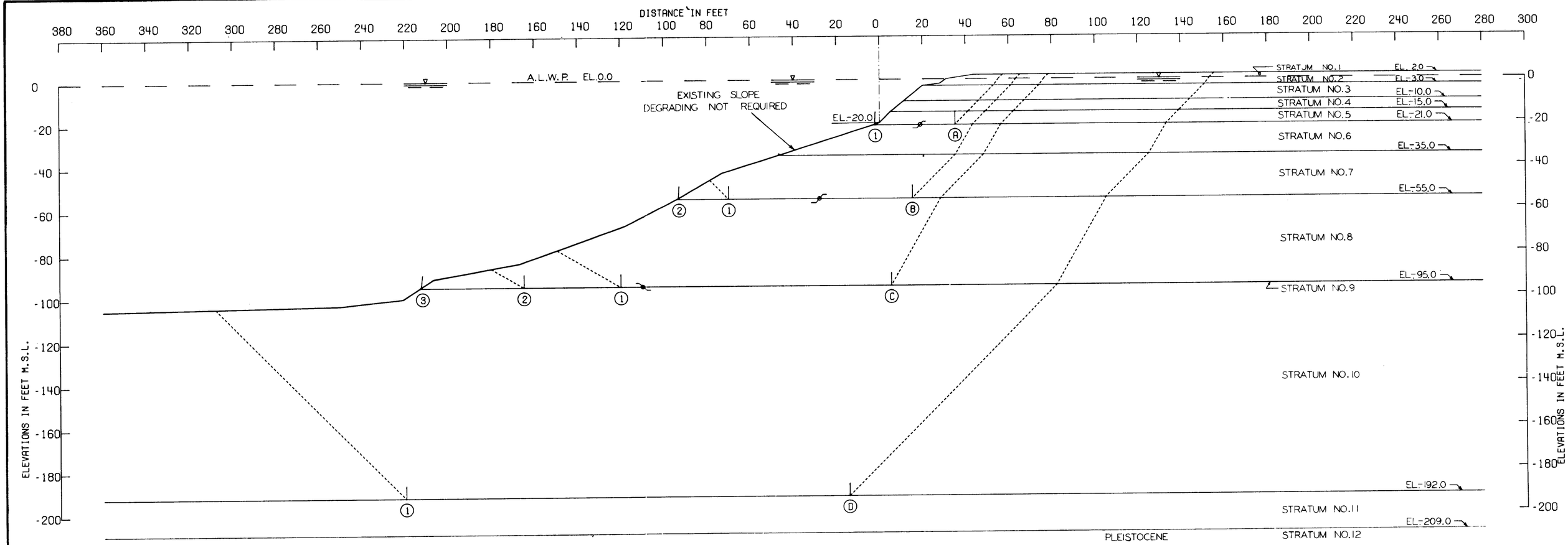
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-24.45 TO RANGE R-24.1
STA. 30+00 TO STA. 48+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 50



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 59. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	115.0	115.0	300.0	300.0	300.0	300.0	0.
2	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
3	CH	33.0	33.0	300.0	300.0	300.0	300.0	0.
4	CH	38.0	38.0	300.0	300.0	300.0	300.0	0.
5	CH	38.0	38.0	330.0	330.0	360.0	360.0	0.
6	SM	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	43.0	43.0	600.0	600.0	700.0	700.0	0.
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	0.	0.	0.	0.	1100.0	1100.0	0.
10	CH	48.0	48.0	1585.0	1585.0	2070.0	2070.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	60.0	60.0	2240.0	2240.0	2240.0	2240.0	0.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
(A) (1)	-21.00	13666	9666	165	13213	1	23498	13212	1.779
(B) (1)	-55.00	50515	50921	10472	72600	2519	111909	70080	1.597
(B) (2)	-55.00	50515	54970	436	72600	4	105922	72596	1.459
(C) (1)	-95.00	142726	136727	27937	215484	13968	307391	201516	1.525
(C) (2)	-95.00	142726	167125	5952	215484	2976	315803	212508	1.486
(C) (3)	-95.00	142726	178718	17	215484	8	321461	215476	1.492
(D) (1)	-192.00	464012	424350	278790	927501	190845	1167153	736656	1.584

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

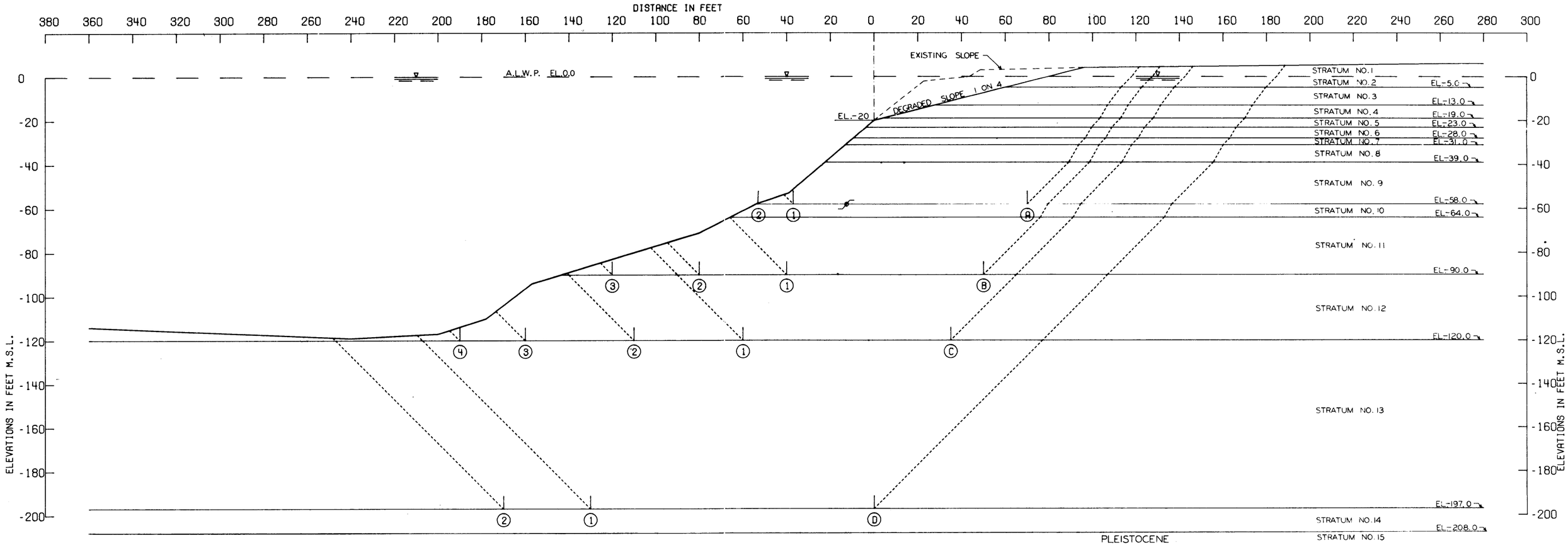
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-24.1 TO RANGE R-23.8
STA. 48+00 TO STA. 65+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 51



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 59. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CHO	33.0	33.0	300.0	300.0	300.0	300.0	0.
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	38.0	38.0	360.0	360.0	380.0	380.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	43.0	43.0	445.0	445.0	460.0	460.0	0.
8	SM	60.0	60.0	0.	0.	0.	0.	30.0
9	CL	43.0	43.0	635.0	635.0	730.0	730.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	CL	48.0	48.0	920.0	920.0	1050.0	1050.0	0.
12	CL	48.0	48.0	1200.0	1200.0	1350.0	1350.0	0.
13	CL	48.0	48.0	1735.0	1735.0	2120.0	2120.0	0.
14	SP	60.0	60.0	0.	0.	0.	0.	30.0

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-58.00	61897	70992	5397	102990	560	138287	102429	1.350
(A) (2)	-58.00	61897	72209	317	102990	1	134424	102988	1.305
(B) (1)	-90.00	122702	94500	47839	222383	24821	265042	197562	1.342
(B) (2)	-90.00	122702	136500	26919	222383	6667	286121	215715	1.326
(B) (3)	-90.00	122702	178500	1991	222383	917	311193	221465	1.405
(C) (1)	-120.00	196656	128250	94687	380465	57878	419593	322586	1.301
(C) (2)	-120.00	196656	195750	73527	380465	29618	465933	350847	1.328
(C) (3)	-120.00	196656	263250	32302	380465	7655	492208	372809	1.320
(C) (4)	-120.00	196656	303750	11255	380465	694	511661	379770	1.347
(D) (1)	-197.00	465525	275600	273247	974125	207317	1014372	766808	1.323
(D) (2)	-197.00	465525	360400	270425	974125	158422	1096350	815703	1.344

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

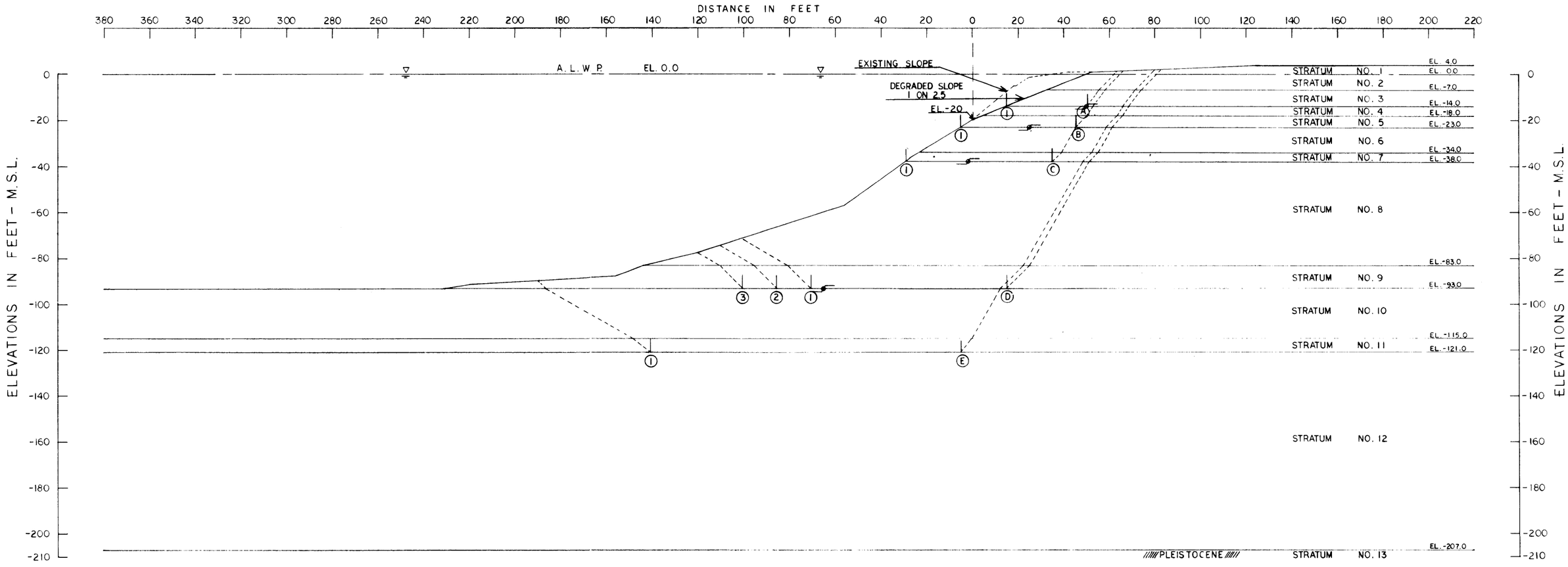
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-23.8 TO RANGE R-23.1
STA. 65+00 TO STA. 100+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 52



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 60. (PART I -VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT EL. -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C. UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	38.0	38.0	250.0	250.0	250.0	250.0	0
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	SM	60.0	60.0	0.	0.	0.	0.	30.0
5	CH	38.0	38.0	355.0	355.0	380.0	380.0	0.
6	SP	60.0	60.0	0.	0.	0.	0.	30.0
7	CH	48.0	48.0	510.0	510.0	530.0	530.0	0.
8	SP	60.0	60.0	0.	0.	0.	0.	30.0
9	CH	48.0	48.0	1030.0	1030.0	1080.0	1080.0	0.
10	SP	60.0	60.0	0.	0.	0.	0.	30.0
11	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
12	SP	60.0	60.0	0.	0.	0.	0.	30.0
13	CH	48.0	48.0	2220.0	2220.0	2220.0	2220.0	0.

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-14.00	7590	7272	0	5639	0	14862	5639	2.635
(B) (1)	-23.00	13442	13129	0	13921	0	26572	13921	1.909
(C) (1)	-38.00	27070	26902	0	34856	0	53973	34856	1.548
(D) (1)	-93.00	143026	91641	33311	223653	20647	267978	203005	1.320
(D) (2)	-93.00	143026	105677	27412	223653	14773	276116	208879	1.322
(D) (3)	-93.00	143026	117180	23375	223658	9829	283582	213823	1.326
(E) (1)	-121.00	229155	156562	57818	361821	31747	443535	330074	1.344

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

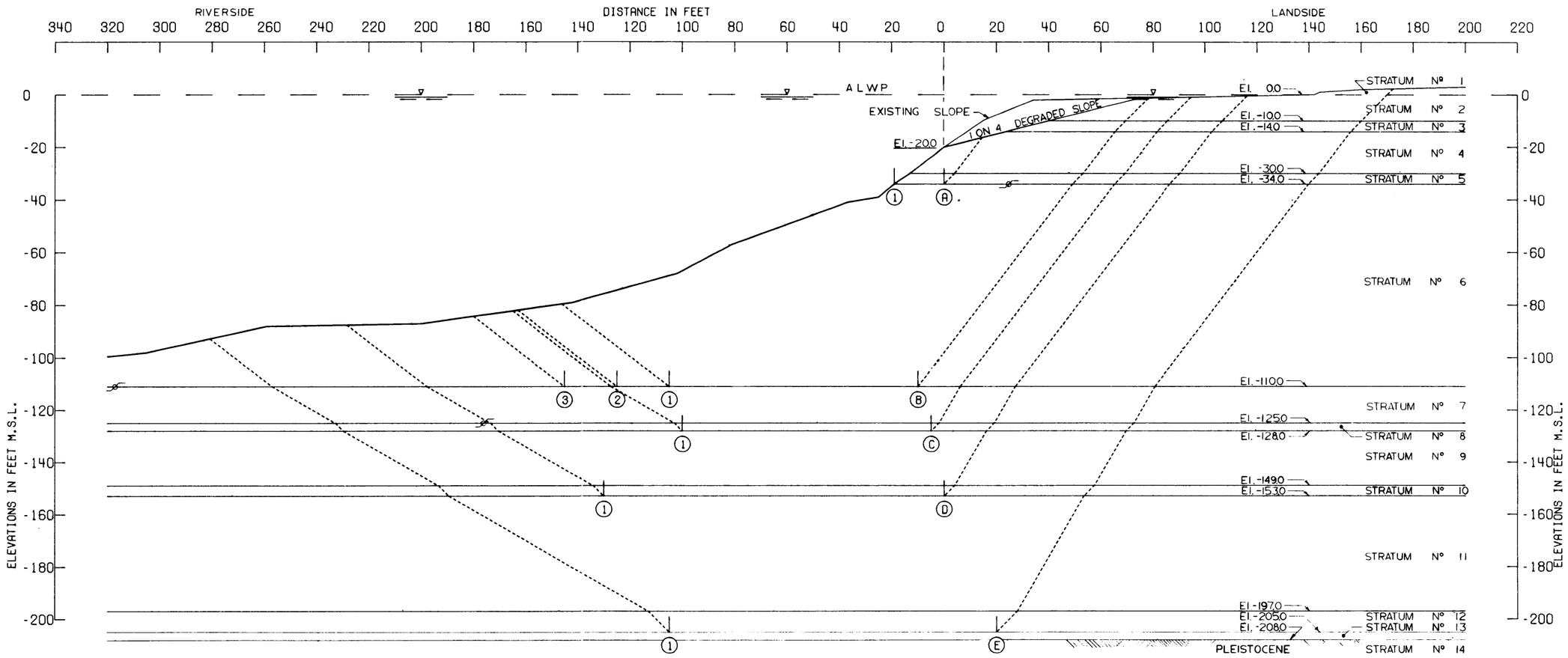
NEPTUNE, LOUISIANA
RANGE R-23.1 TO RANGE R-22.5
STA. 100+00 TO STA. 130+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 53



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 60. (PART I — VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT El. -20.0.

$$FS = \frac{R_A + R_B + R_P}{D_A - D_P}$$

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	100.0	100.0	250.0	250.0	250.0	250.0	0.
2	CH	38.0	38.0	250.0	250.0	250.0	250.0	0.
3	CH	38.0	38.0	270.0	270.0	290.0	290.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CL	48.0	48.0	470.0	470.0	490.0	490.0	0.
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	SP	60.0	60.0	0.	0.	0.	0.	30.0
8	CH	48.0	48.0	1415.0	1415.0	1430.0	1430.0	0.
9	SP	60.0	60.0	0.	0.	0.	0.	30.0
10	CH	48.0	48.0	1660.0	1660.0	1680.0	1680.0	0.
11	SP	60.0	60.0	0.	0.	0.	0.	30.0
12	CH	48.0	48.0	2160.0	2160.0	2200.0	2200.0	0.
13	SP	60.0	60.0	0.	0.	0.	0.	30.0
14	CH	60.0	60.0	2230.0	2230.0	2230.0	2230.0	0.

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-34.00	9632	5581	0	6815	0	15213	6815	2.232
Ⓑ	①	-111.00	141431	105812	41566	257242	36042	288810	221200	1.306
Ⓑ	②	-111.00	141431	121432	34958	257242	28325	297821	228917	1.301
Ⓑ	③	-111.00	141431	135440	30195	257242	23250	307067	233992	1.312
Ⓒ	①	-128.00	208106	135850	115238	369502	73713	459194	295789	1.552
Ⓓ	①	-153.00	325134	218400	235429	561954	135165	778963	426788	1.825
Ⓔ	①	-205.00	651807	275000	727573	1097423	420252	1654381	677170	2.443

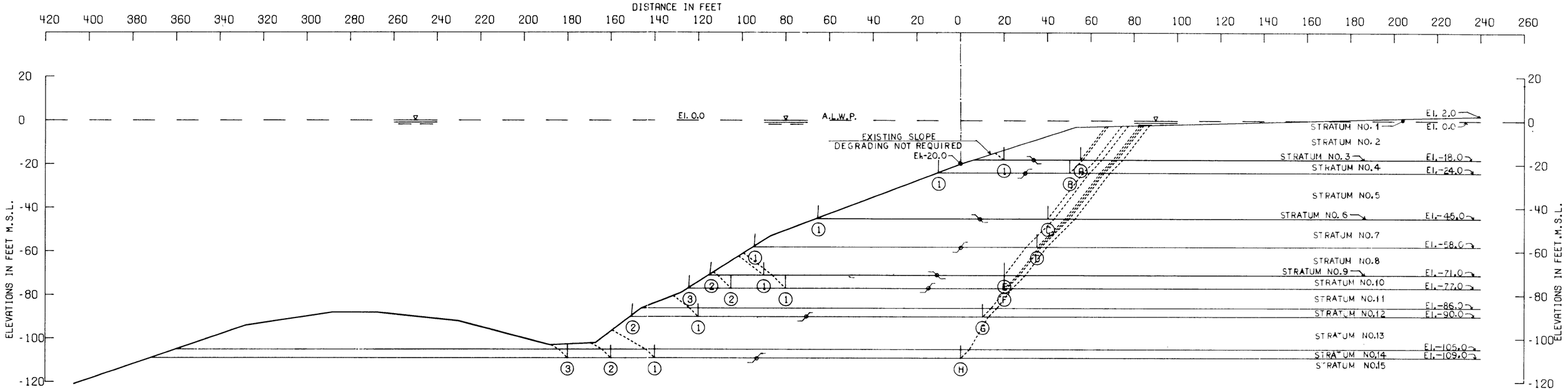
NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-22.5 TO RANGE R-21.9
STA. 130+00 TO STA. 155+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 60. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT El.-20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
3	CL	0.	0.	0.	0.	330.0	330.0	0.
4	CL	48.0	48.0	360.0	360.0	390.0	390.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CH	0.	0.	0.	0.	600.0	600.0	0.
7	CH	48.0	48.0	665.0	665.0	730.0	730.0	0.
8	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
9	CH	0.	0.	0.	0.	860.0	860.0	0.
10	CH	48.0	48.0	890.0	890.0	920.0	920.0	0.
11	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
12	CH	48.0	48.0	1030.0	1030.0	1050.0	1050.0	0.
13	SM	60.0	60.0	0.	0.	0.	0.	30.0
14	CH	48.0	48.0	1220.0	1220.0	1240.0	1240.0	0.
15	SP	60.0	60.0	0.	0.	0.	0.	30.0

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-18.00	7338	11170	1886	6371	377	20395	5994	3.402
Ⓑ ①	-24.00	11676	19718	108	12147	0	31502	12147	2.593
Ⓒ ①	-45.00	32060	49037	121	46037	2	81220	46035	1.764
Ⓓ ①	-58.00	50205	70309	456	78974	4	120971	78970	1.532
Ⓔ ①	-71.00	68473	77969	7289	112599	3858	153731	108741	1.414
Ⓔ ②	-71.00	68473	85757	258	112599	11	154489	112588	1.372
Ⓕ ①	-77.00	80257	80480	19550	135945	12115	180288	123829	1.456
Ⓕ ②	-77.00	80257	92544	11554	135945	2523	184356	133421	1.382
Ⓕ ③	-77.00	80257	98011	584	135945	4	178853	135941	1.316
Ⓖ ①	-90.00	104423	128363	12188	183316	4125	244976	179191	1.367
Ⓖ ②	-90.00	104423	135913	1113	183316	12	241450	183304	1.317
Ⓗ ①	-109.00	157211	167588	20337	268175	10381	345137	257794	1.339
Ⓗ ②	-109.00	157211	180366	10528	268175	2401	348106	265774	1.310
Ⓗ ③	-109.00	157211	185168	10025	268175	1064	352405	267111	1.319

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

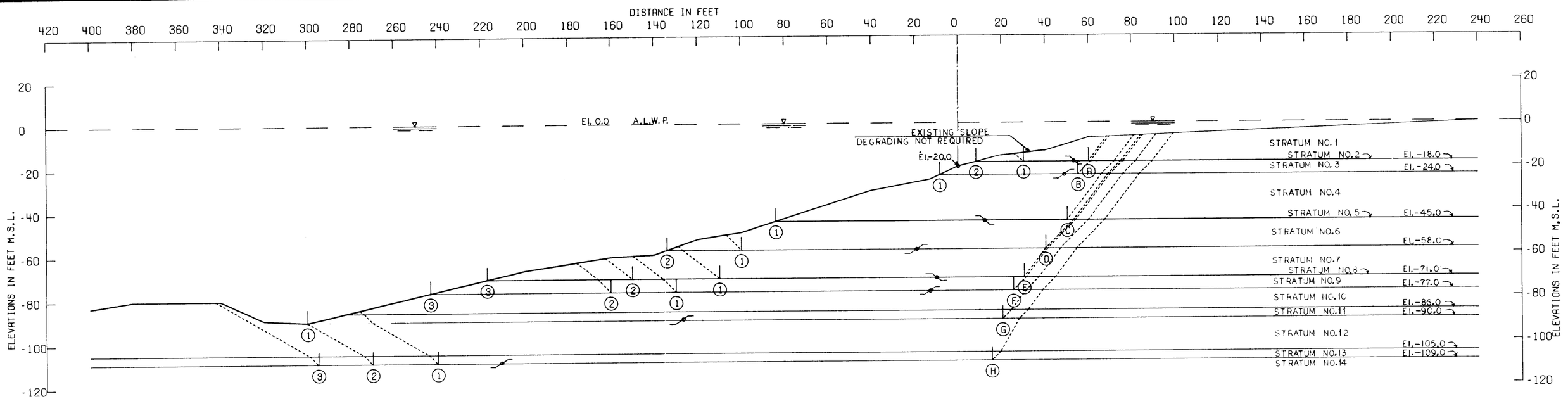
NEPTUNE, LOUISIANA
RANGE R-21.9 TO RANGE R-21.5
STA. 155+00 TO STA. 169+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 55



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 60. (PART I -- VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		BOTTOM OF STRATUM		FRICTION ANGLE DEGREES
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	
1	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
2	CL	0.	0.	0.	0.	330.0	330.0	0.
3	CL	48.0	48.0	360.0	360.0	390.0	390.0	0.
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CH	0.	0.	0.	0.	600.0	600.0	0.
6	CH	48.0	48.0	665.0	665.0	730.0	730.0	0.
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	CH	0.	0.	0.	0.	860.0	860.0	0.
9	CH	48.0	48.0	890.0	890.0	920.0	920.0	0.
10	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
11	CH	48.0	48.0	1030.0	1030.0	1050.0	1050.0	0.
12	SM	60.0	60.0	0.	0.	0.	0.	30.0
13	CH	48.0	48.0	1220.0	1220.0	1240.0	1240.0	0.
14	SP	60.0	60.0	0.	0.	0.	0.	30.0

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-18.00	4891	8904	2116	3433	388	15912	3044	5.226
(A) (2)	-18.00	4891	14065	9	3433	0	18967	3433	5.524
(B) (1)	-24.00	9234	20047	15	7747	0	29297	7747	3.782
(C) (1)	-45.00	28210	61874	24	38209	0	90109	38209	2.358
(D) (1)	-58.00	45820	80720	9252	66722	1334	135792	65388	2.077
(D) (2)	-58.00	45820	89691	29	66722	0	135541	66722	2.031
(E) (1)	-71.00	64092	101028	14707	101450	7847	179828	93603	1.921
(E) (2)	-71.00	64092	117474	6990	101450	2829	188557	98621	1.912
(E) (3)	-71.00	64092	137084	8	101450	0	201185	101450	1.983
(F) (1)	-77.00	74896	117057	18492	120760	8616	210446	112144	1.877
(F) (2)	-77.00	74896	130310	15977	120760	5917	221214	114842	1.926
(F) (3)	-77.00	74896	157095	26	120760	0	232017	120760	1.921
(G) (1)	-90.00	99634	250747	0	170873	0	350382	170873	2.051
(H) (1)	-109.00	154420	313368	47830	260605	22288	515619	238317	2.164
(H) (2)	-109.00	154420	341651	27639	260605	14224	523711	246381	2.126
(H) (3)	-109.00	154420	360275	27170	260605	12821	541866	247784	2.187

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

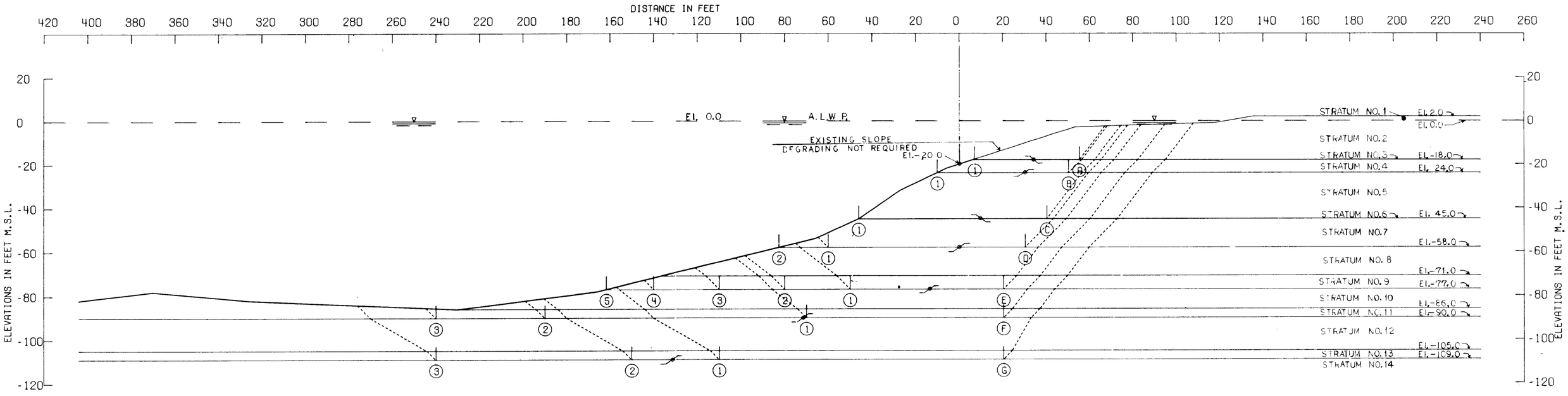
BANK STABILITY ANALYSIS

NEPTUNE, LOUISIANA
RANGE R-21.5 TO RANGE R-21.0
STA. 169+00 TO STA. 188+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 56



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 60. (PART I — VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT EL.-20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
3	CL	0.	0.	0.	0.	330.0	330.0	0.
4	CL	48.0	48.0	360.0	360.0	390.0	390.0	0.
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CH	0.	0.	0.	0.	600.0	600.0	0.
7	CH	48.0	48.0	665.0	665.0	730.0	730.0	0.
8	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
9	CH	48.0	48.0	890.0	890.0	920.0	920.0	0.
10	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
11	CH	48.0	48.0	1030.0	1030.0	1050.0	1050.0	0.
12	SM	60.0	60.0	0.	0.	0.	0.	30.0
13	CH	48.0	48.0	1220.0	1220.0	1240.0	1240.0	0.
14	SP	60.0	60.0	0.	0.	0.	0.	30.0

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-18.00	7370	14229	103	6401	1	21702	6400	3.391
Ⓑ ①	-24.00	11710	19792	23	12188	0	31525	12188	2.587
Ⓒ ①	-45.00	32124	42669	0	46134	0	74793	46134	1.621
Ⓓ ①	-58.00	49807	53054	6145	76876	741	109007	76134	1.432
Ⓓ ②	-58.00	49807	58416	17	76876	0	108241	76876	1.408
Ⓔ ①	-77.00	80356	59307	25376	136144	15850	165040	120294	1.372
Ⓔ ②	-77.00	80356	75351	17700	136144	8236	173409	127908	1.356
Ⓔ ③	-77.00	80356	88104	13030	136144	3273	181491	132871	1.366
Ⓔ ④	-77.00	80356	97677	7521	136144	530	185555	135614	1.368
Ⓔ ⑤	-77.00	80356	102752	46	136144	0	183155	136144	1.345
Ⓕ ①	-90.00	106517	94815	37680	191885	25528	239013	166356	1.437
Ⓕ ②	-90.00	106517	170566	10591	191885	1906	287675	189979	1.514
Ⓕ ③	-90.00	106517	179342	9494	191885	487	295354	191397	1.543
Ⓖ ①	-109.00	164576	161572	73875	289211	39308	400023	249903	1.601
Ⓖ ②	-109.00	164576	209839	53841	289211	26027	428256	263183	1.627
Ⓖ ③	-109.00	164576	289716	42814	289211	16088	497107	273123	1.820

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

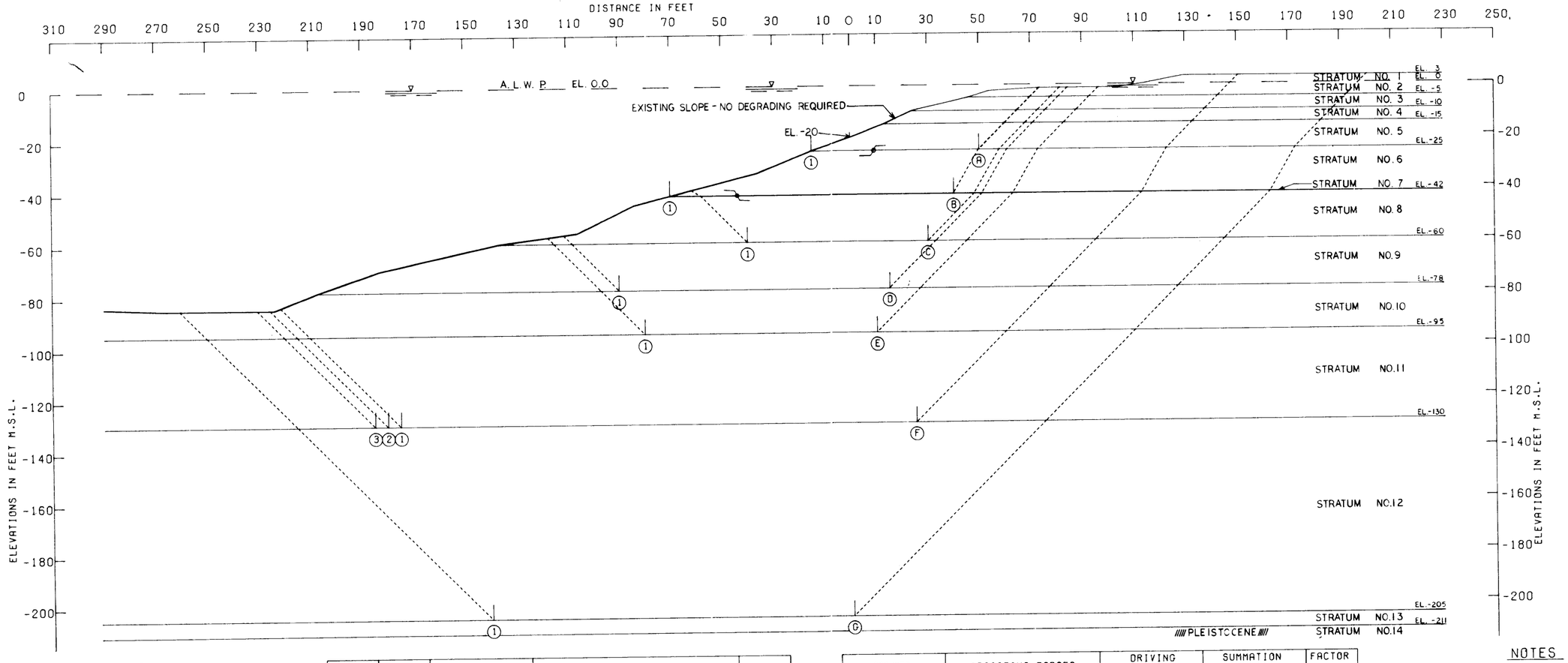
BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE R-21 TO RANGE R-20.35
STA. 188+00 TO STA. 235+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 57



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 61. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT -20.0 M.S.L.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	105.0	105.0	200.0	200.0	200.0	200.0	0.0
2	CH	43.0	43.0	200.0	200.0	200.0	200.0	0.0
3	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.0
4	CHO	28.0	28.0	300.0	300.0	300.0	300.0	0.0
5	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.0
6	SM	60.0	60.0	0.0	0.0	0.0	0.0	30.0
7	CH	0.0	0.0	0.0	0.0	420.0	420.0	0.0
8	CH	43.0	43.0	510.0	510.0	600.0	600.0	0.0
9	CH	43.0	43.0	690.0	690.0	780.0	780.0	0.0
10	CH	43.0	43.0	865.0	865.0	950.0	950.0	0.0
11	CH	43.0	43.0	1125.0	1125.0	1300.0	1300.0	0.0
12	CH	48.0	48.0	1675.0	1675.0	2050.0	2050.0	0.0
13	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0
14	CH	60.0	60.0	2110.0	2110.0	2110.0	2110.0	0.0

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-25.00	13390	14263	0	10230	0	27653	10230	2.703
(B) (1)	-42.00	27977	36364	0	32099	0	64340	32099	2.004
(C) (1)	-60.00	47399	42000	18736	72351	12820	108135	59531	1.816
(D) (1)	-78.00	72488	81900	28221	122787	12939	182609	109848	1.662
(E) (1)	-95.00	102249	85500	56815	186208	39136	244564	147072	1.663
(F) (1)	-130.00	184558	260000	98590	379678	62926	543147	316752	1.715
(F) (2)	-130.00	184558	266500	96915	379678	59625	547973	320053	1.712
(F) (3)	-130.00	184558	273000	96915	379678	56494	554473	323184	1.716
(G) (1)	-205.00	438500	287000	348166	952706	374891	1073665	577815	1.858

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

- Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
- C -- UNIT COHESION, P.S.F.
- ∇ -- STATIC WATER SURFACE
- D -- HORIZONTAL DRIVING FORCE IN POUNDS
- R -- HORIZONTAL RESISTING FORCE IN POUNDS
- A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
- B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
- P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

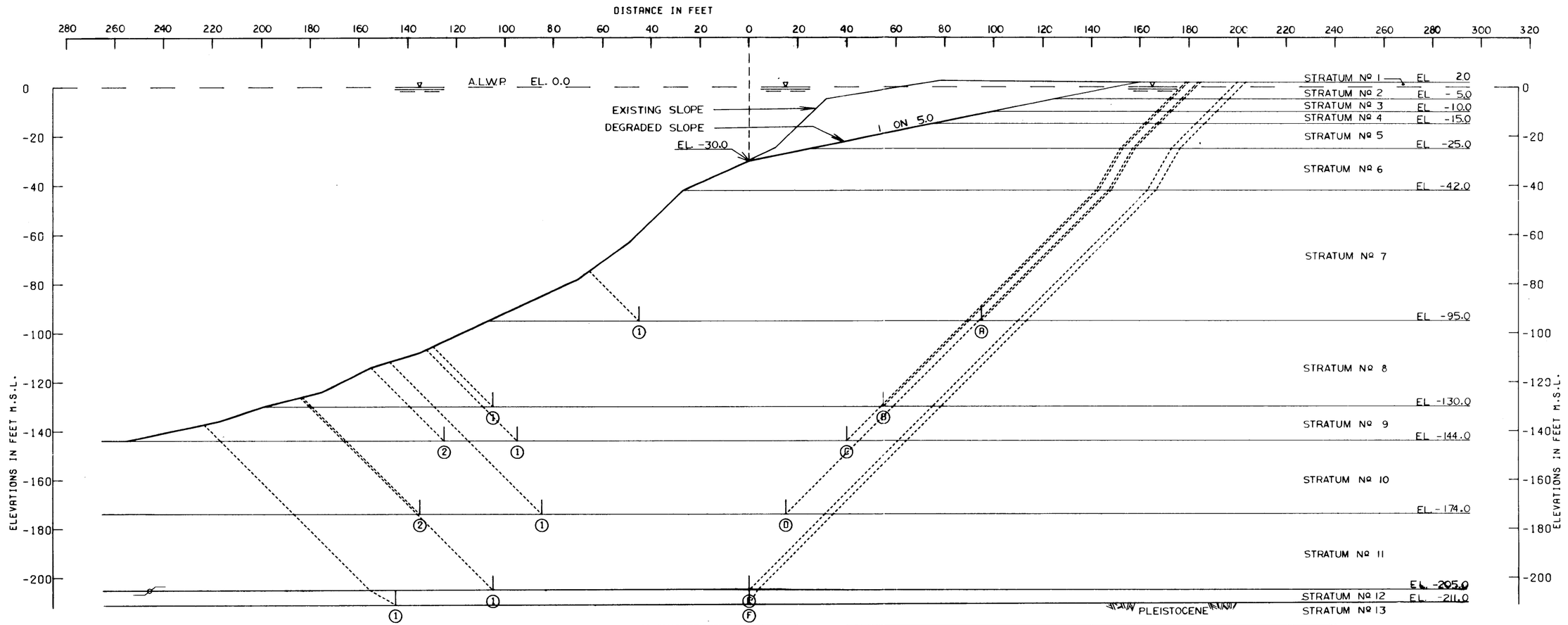
BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE 20.35 TO RANGE 20.10
STA. 235+00 TO STA. 250+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 58



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 61. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT EL. –30.0 M.S.L.

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CH	105.0	105.0	200.0	200.0	200.0	200.0	0.0
2	CH	43.0	43.0	200.0	200.0	200.0	200.0	0.0
3	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.0
4	CHO	28.0	28.0	300.0	300.0	300.0	300.0	0.0
5	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.0
6	SM	60.0	60.0	0.0	0.0	0.0	0.0	30.0
7	CH	43.0	43.0	685.0	685.0	950.0	950.0	0.0
8	CH	43.0	43.0	1125.0	1125.0	1300.0	1300.0	0.0
9	CH	48.0	48.0	1350.0	1350.0	1400.0	1400.0	0.0
10	CH	48.0	48.0	1570.0	1570.0	1740.0	1740.0	0.0
11	CH	48.0	48.0	1895.0	1895.0	2050.0	2050.0	0.0
12	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0
13	CH	60.0	60.0	2110.0	2110.0	2110.0	2110.0	0.0

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	D_P	RESISTING	DRIVING	
Ⓐ ①	-95.00	105249	133000	27857	199182	15315	266105	183867	1.447
Ⓑ ①	-130.00	183131	208000	55207	350990	18947	446338	332043	1.344
Ⓒ ①	-144.00	220801	189000	90153	424562	44192	499954	380370	1.314
Ⓒ ②	-144.00	220801	231000	73800	424562	25991	525600	398571	1.319
Ⓓ ①	-174.00	315797	174000	173192	617369	122114	662989	495255	1.339
Ⓓ ②	-174.00	315797	261000	141000	617369	73629	717797	543740	1.320
Ⓔ ①	-205.00	435150	215250	258040	872226	199690	908439	672537	1.351
Ⓕ ①	-211.00	468371	305950	284176	927217	168639	1058496	758578	1.395

NOTES

- Φ ANGLE OF INTERNAL FRICTION, DEGREES
- C -- UNIT COHESION, P.S.F.
- ▽ STATIC WATER SURFACE
- D -- HORIZONTAL DRIVING FORCE IN POUNDS
- R -- HORIZONTAL RESISTING FORCE IN POUNDS
- A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
- B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
- P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

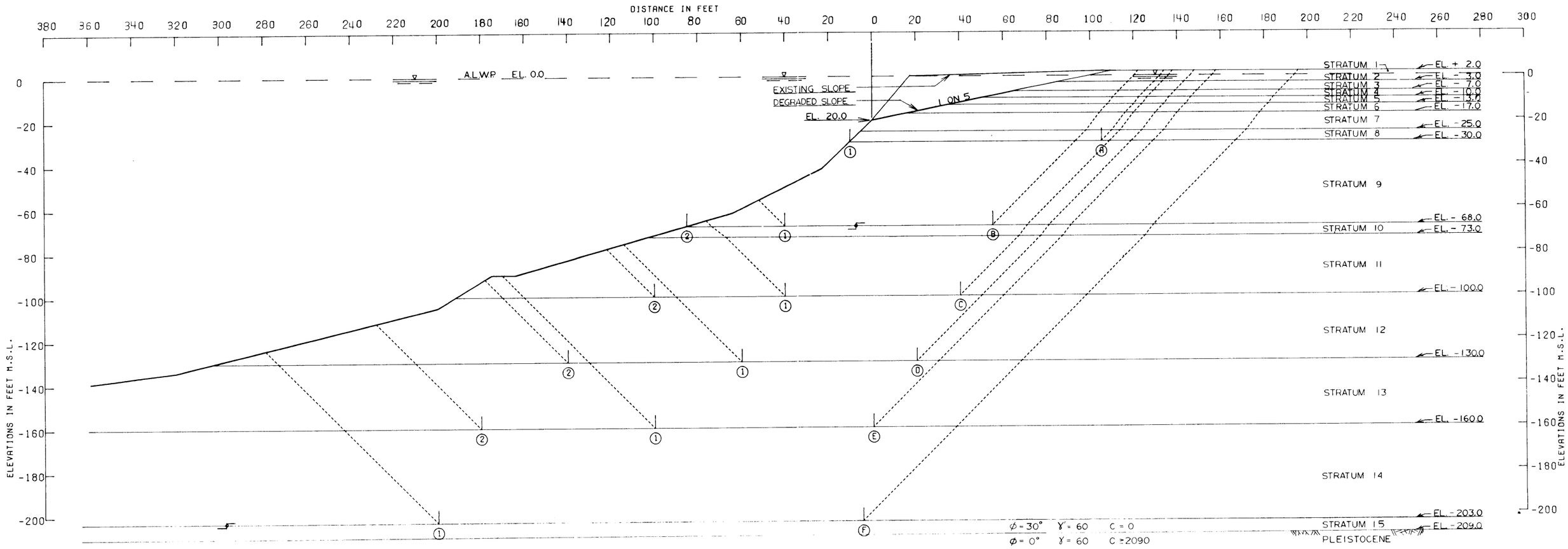
BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE 20.1 TO RANGE 19.16
STA. 250+00 TO STA. 315+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 59



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 61. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT -20.0 M.S.L.

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F. VERT. 1	EFFECTIVE UNIT WT. P.C.F. VERT. 2	C - UNIT COHESION - P.S.F. CENTER OF STRATUM VERT. 1	CENTER OF STRATUM VERT. 2	BOTTOM OF STRATUM VERT. 1	BOTTOM OF STRATUM VERT. 2	FRICTION ANGLE DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	43.0	43.0	200.0	200.0	200.0	200.0	0.0
3	CHO	28.0	28.0	200.0	200.0	200.0	200.0	0.0
4	CL	43.0	43.0	300.0	300.0	300.0	300.0	0.0
5	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
6	CHO	43.0	43.0	300.0	300.0	300.0	300.0	0.0
7	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
8	CH	43.0	43.0	300.0	300.0	300.0	300.0	0.0
9	CH	43.0	43.0	490.0	490.0	680.0	680.0	0.0
10	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
11	CH	43.0	43.0	865.0	865.0	1000.0	1000.0	0.0
12	CH	43.0	43.0	1150.0	1150.0	1300.0	1300.0	0.0
13	CH	48.0	48.0	1450.0	1450.0	1600.0	1600.0	0.0
14	CH	48.0	48.0	1815.0	1815.0	2030.0	2030.0	0.0

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	-30.00	18755	34500	133	26349	2	53388	26347	2.026
Ⓑ	①	-68.00	55301	59244	11664	98741	4528	126208	94213	1.340
Ⓑ	②	-68.00	55301	72262	92	98741	0	127654	98741	1.293
Ⓒ	①	-100.00	110232	80000	52987	216256	37831	243220	178426	1.363
Ⓒ	②	-100.00	110232	140000	37736	216256	13107	287968	203149	1.418
Ⓓ	①	-130.00	179348	104000	110520	359447	82370	393867	277077	1.422
Ⓓ	②	-130.00	179348	208000	83056	359447	37658	470403	321788	1.462
Ⓔ	①	-160.00	266487	160000	173300	539861	132262	599787	407599	1.472
Ⓔ	②	-160.00	266487	288000	128832	539861	67310	683319	472551	1.446
Ⓕ	①	-203.00	423254	395850	256720	896468	179605	1075824	716864	1.501

NOTES

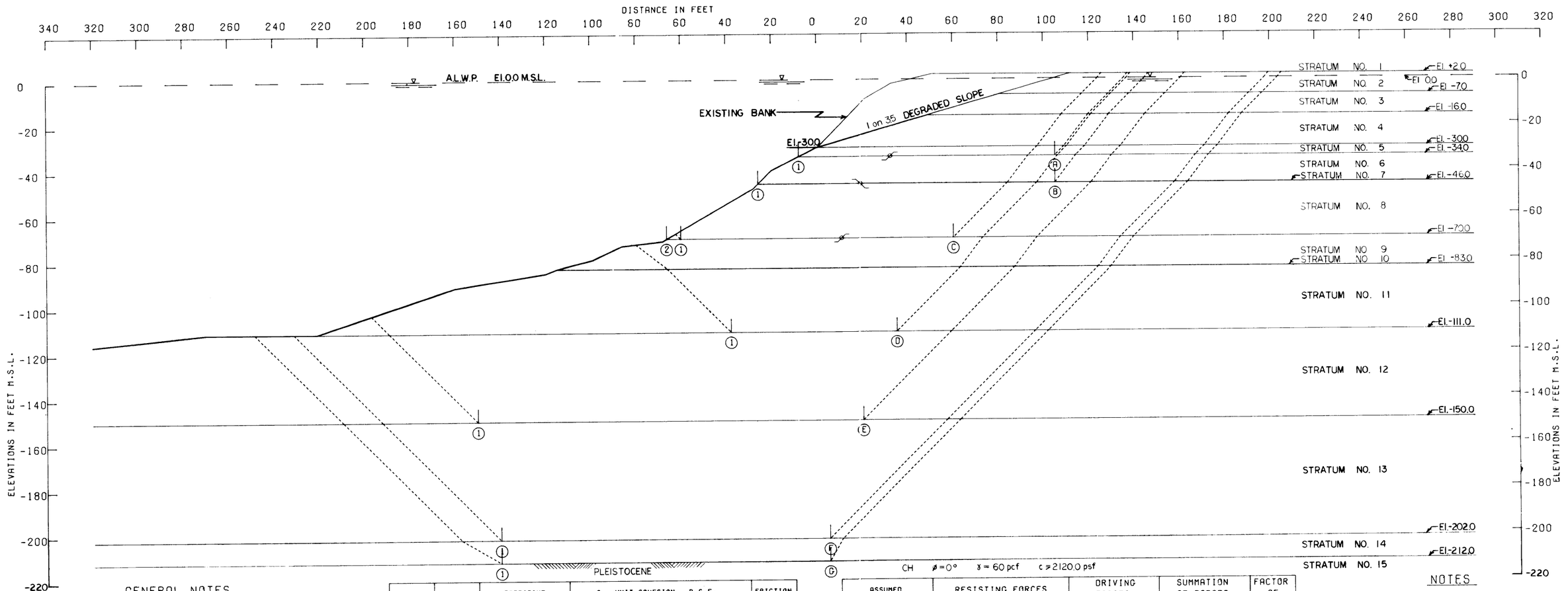
Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE 19.16 TO RANGE 18.56
STA. 315+00 TO STA. 350+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 60



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA, PLATE 63. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH OVERLAID AT ELEVATION -30.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.5	117.5	200.0	200.0	200.0	200.0	15.0
2	CH	23.0	23.0	100.0	100.0	100.0	100.0	0.0
3	CHO	23.0	23.0	200.0	200.0	200.0	200.0	0.0
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CL	43.0	43.0	320.0	320.0	340.0	340.0	0.0
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	0.0	0.0	0.0	0.0	460.0	460.0	0.0
8	CH	43.0	43.0	580.0	580.0	700.0	700.0	0.0
9	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
10	CH	0.0	0.0	0.0	0.0	830.0	830.0	0.0
11	CH	48.0	48.0	970.0	970.0	1110.0	1110.0	0.0
12	CH	48.0	48.0	1305.0	1305.0	1500.0	1500.0	0.0
13	CH	48.0	48.0	1760.0	1760.0	2020.0	2020.0	0.0
14	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0

ASSUMED FAILURE SURFACE NO.	ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-34.00	18177	36437	0	25746	0	54614	25746	2.121
Ⓑ ①	-46.00	30754	56793	0	48046	0	87546	48046	1.822
Ⓒ ①	-70.00	55962	69895	2652	94636	176	128508	94459	1.360
Ⓒ ②	-70.00	55962	71285	0	94636	0	127230	94636	1.344
Ⓓ ①	-111.00	132715	81030	62417	254190	52326	276162	201864	1.368
Ⓔ ①	-150.00	236639	255000	117118	484340	69665	608757	414674	1.468
Ⓕ ①	-202.00	421393	292900	284831	905303	248646	999123	656657	1.522
Ⓖ ①	-212.00	479495	307400	399021	999669	287700	1185916	711969	1.666

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

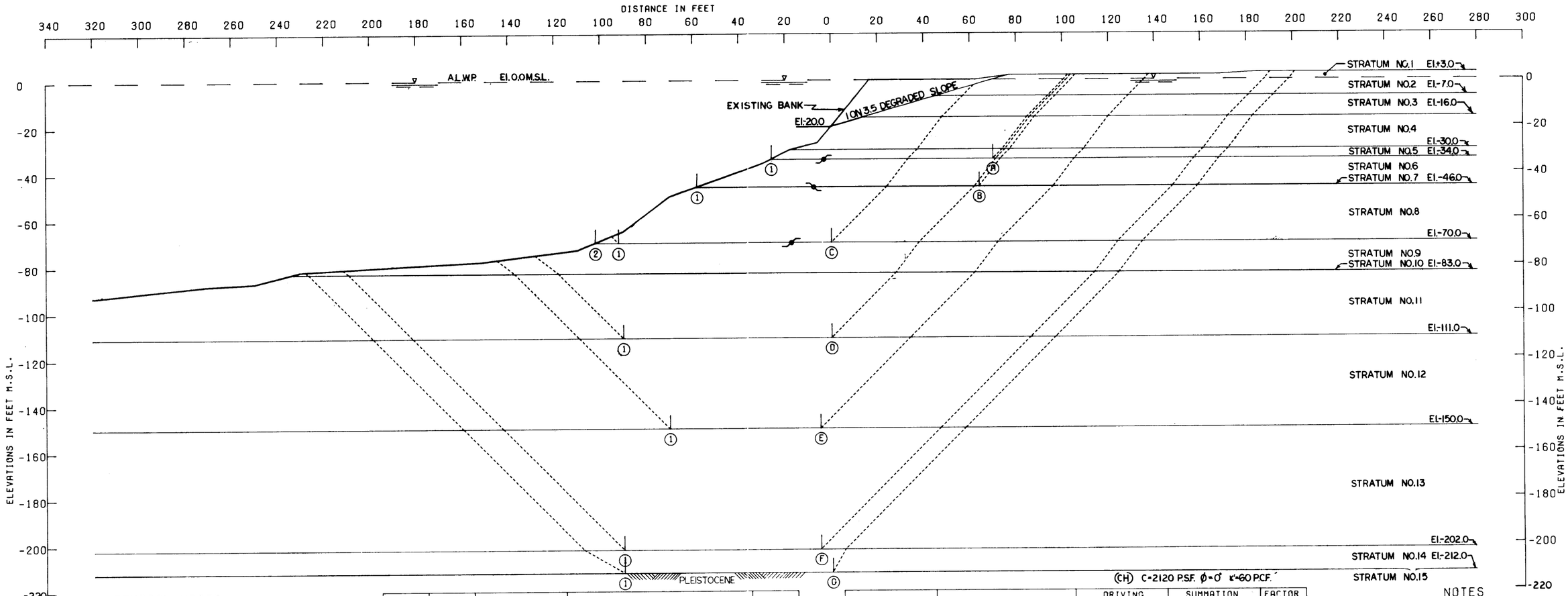
OLGA, LOUISIANA
RANGE R-18.56 TO RANGE R-17.85
STA. 350+00 TO STA. 388+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 61



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 63. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.5	117.5	200.0	200.0	200.0	200.0	15.0
2	CH	23.0	23.0	100.0	100.0	100.0	100.0	0.0
3	CHO	23.0	23.0	200.0	200.0	200.0	200.0	0.0
4	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
5	CL	43.0	43.0	320.0	320.0	340.0	340.0	0.0
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	0.0	0.0	0.0	0.0	460.0	460.0	0.0
8	CH	43.0	43.0	580.0	580.0	700.0	700.0	0.0
9	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
10	CH	0.0	0.0	0.0	0.0	830.0	830.0	0.0
11	CH	48.0	48.0	970.0	970.0	1110.0	1110.0	0.0
12	CH	48.0	48.0	1305.0	1305.0	1500.0	1500.0	0.0
13	CH	48.0	48.0	1760.0	1760.0	2020.0	2020.0	0.0
14	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	1	-34.00	18177	30751	0	25746	0	48949	25746	1.901
(B)	1	-46.00	30064	49886	0	46127	0	80022	46127	1.735
(C)	1	-70.00	52947	48855	3480	79564	270	105282	79294	1.328
(C)	2	-70.00	52947	51109	0	79564	0	104222	79564	1.310
(D)	1	-111.00	132715	99900	59763	254190	39972	292378	214218	1.365
(E)	1	-150.00	237018	97500	159937	493750	161353	494455	332396	1.488
(F)	1	-202.00	421847	171700	340243	933741	383398	933790	550343	1.697
(G)	1	-212.00	483416	190800	475550	1036467	439304	1149766	597163	1.925

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT – PART III
EAST BANK

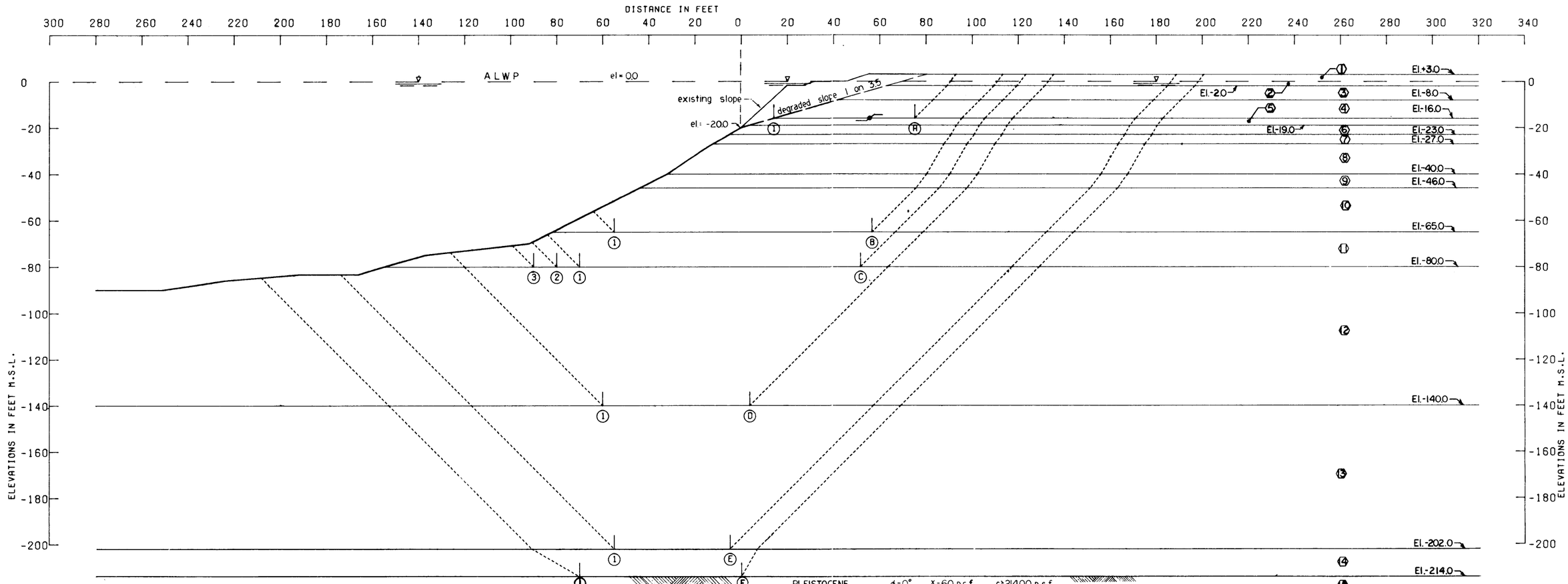
BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE R-17.85 TO RANGE R-17.2
STA. 388+00 TO STA. 420+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 62



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 64. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE DEGREES
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	
①	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
②	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
③	CH	38.0	38.0	300.0	300.0	300.0	300.0	0.0
④	CHO	28.0	28.0	300.0	300.0	300.0	300.0	0.0
⑤	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
⑥	SM	60.0	60.0	0.0	0.0	0.0	0.0	30.0
⑦	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
⑧	SM	60.0	60.0	0.0	0.0	0.0	0.0	30.0
⑨	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
⑩	CH	43.0	43.0	705.0	705.0	800.0	800.0	0.0
⑪	CH	43.0	43.0	800.0	800.0	800.0	800.0	0.0
⑫	CH	48.0	48.0	1100.0	1100.0	1400.0	1400.0	0.0
⑬	CH	48.0	48.0	1710.0	1710.0	2020.0	2020.0	0.0
⑭	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-16.00	10486	16066	0	10695	0	26552	10695	2.483
Ⓑ ①	-65.00	70661	89256	12690	114744	2610	172607	112134	1.539
Ⓒ ①	-80.00	94881	97256	22400	168893	6317	214537	162576	1.320
Ⓒ ②	-80.00	94881	105256	17067	168893	3667	217203	165227	1.315
Ⓒ ③	-80.00	94881	113256	14720	168893	2054	222857	166840	1.336
Ⓓ ①	-140.00	226881	89068	141920	463056	122239	457869	340817	1.343
Ⓔ ①	-202.00	438921	101141	336781	978666	401933	876843	576733	1.520
Ⓕ ①	-214.00	512894	149800	499277	1103140	448354	1161971	654786	1.775

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

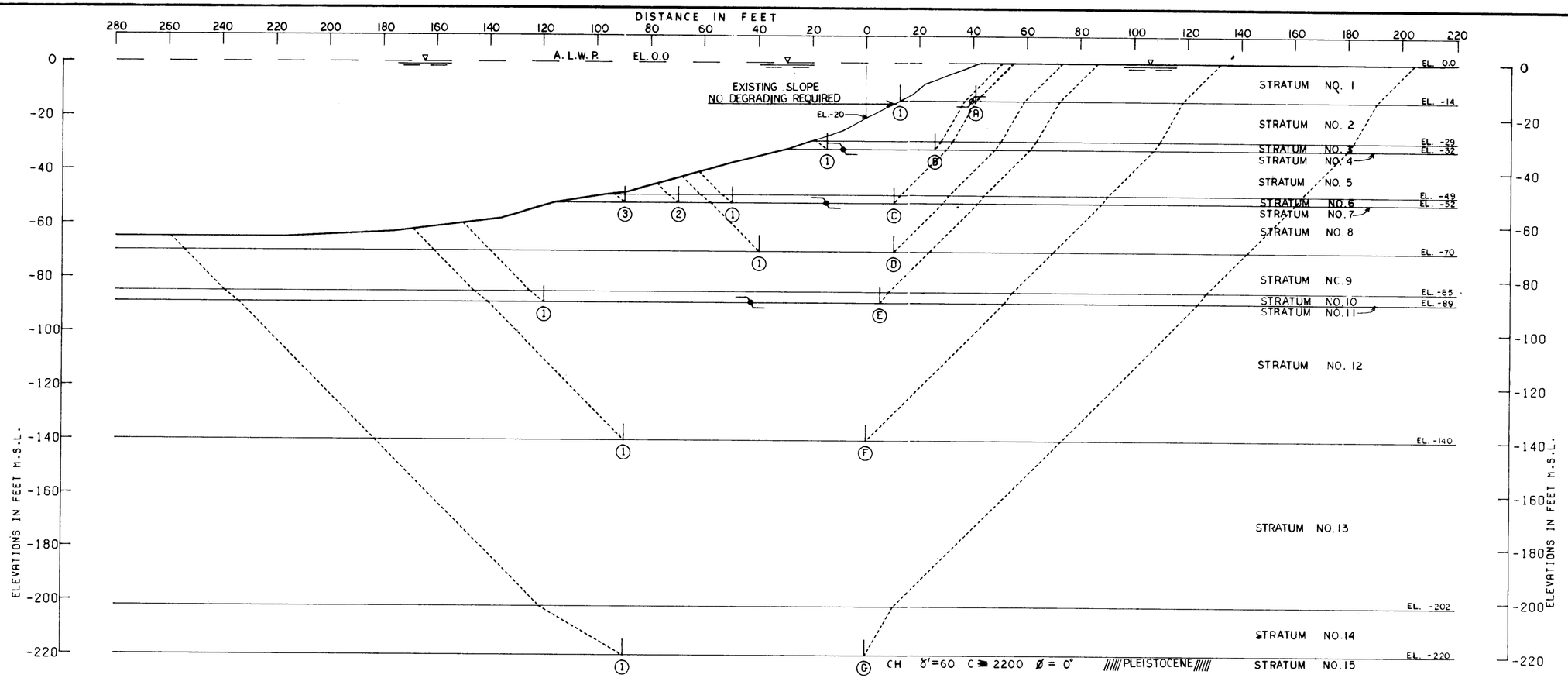
OLGA, LOUISIANA
RANGE R-17.2 TO RANGE R-15.37
STA. 420+00 TO STA. 525+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 63



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS, SEE BORING DATA PLATE 65. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THE REACH, OVERLAID AT ELEVATION - 20.0.

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	CHO	23.0	23.0	150.0	150.0	150.0	150.0	0.0
2	SM	60.0	60.0	0.0	0.0	0.0	0.0	30.0
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	CH	0.0	0.0	0.0	0.0	320.0	320.0	0.0
5	CH	43.0	43.0	405.0	405.0	490.0	490.0	0.0
6	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
7	CH	0.0	0.0	0.0	0.0	520.0	520.0	0.0
8	CH	48.0	48.0	610.0	610.0	700.0	700.0	0.0
9	CH	48.0	48.0	775.0	775.0	850.0	850.0	0.0
10	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
11	CH	0.0	0.0	0.0	0.0	890.0	890.0	0.0
12	CH	48.0	48.0	1149.0	1149.0	1400.0	1400.0	0.0
13	CH	48.0	48.0	1770.0	1770.0	2020.0	2020.0	0.0
14	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ	①	-14.00	4200	2349	0	2146	0	6549	2146	3.052
Ⓑ	①	-32.00	13080	12627	1924	15146	499	27631	14647	1.886
Ⓒ	①	-52.00	30480	28386	9653	47577	3713	68519	43864	1.562
Ⓒ	②	-52.00	30480	35386	5580	47577	1458	71446	46118	1.549
Ⓒ	③	-52.00	30480	41086	2071	47577	331	73637	47246	1.559
Ⓓ	①	-70.00	53650	35000	29984	97190	22862	118633	74327	1.596
Ⓔ	①	-89.00	84011	102119	42243	163049	24022	228374	139027	1.643
Ⓕ	①	-140.00	202039	126000	155929	431355	172429	483968	258926	1.869
Ⓖ	①	-220.00	535823	198000	653820	1105719	612136	1387642	493583	2.811

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

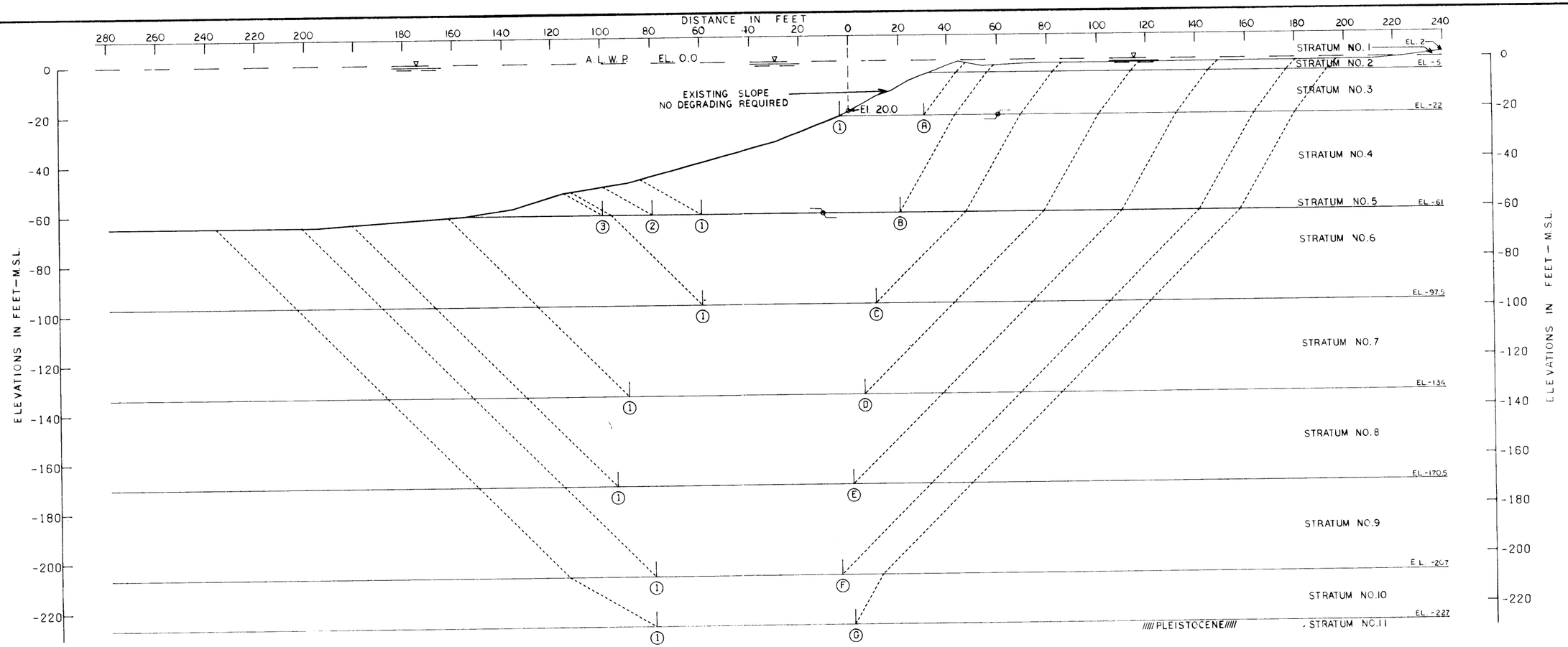
BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE R-15.37 TO RANGE R-13.74
STA. 525+00 TO STA. 615+00

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

AUGUST 1971 FILE NO. H-2-25275

PLATE 64



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 66. (PART I – VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH OVERLAID AT -20 M.S.L.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F. CENTER OF STRATUM		C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM		FRICTION ANGLE DEGREES
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	38.0	38.0	200.0	200.0	200.0	200.0	0.0
3	ML	55.0	55.0	200.0	200.0	200.0	200.0	15.0
4	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0
5	CH	0.0	0.0	0.0	0.0	812.0	812.0	0.0
6	CH	48.0	48.0	1031.0	1031.0	1250.0	1250.0	0.0
7	CH	48.0	48.0	1469.0	1469.0	1688.0	1688.0	0.0
8	CH	48.0	48.0	1907.0	1907.0	2126.0	2126.0	0.0
9	CH	48.0	48.0	2345.0	2345.0	2564.0	2564.0	0.0
10	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0
11	CH	60.0	60.0	2804.0	2804.0	2804.0	2804.0	0.0

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

ASSUMED FAILURE SURFACE NO.		ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
A	1	-22.00	10495	8718	0	9370	0	19213	9370	2.050
B	1	-61.00	64331	64573	18094	91080	9047	146998	82033	1.792
B	2	-61.00	64331	77275	10400	91080	5200	152005	85880	1.770
B	3	-61.00	64331	86477	6220	91080	3110	157028	87970	1.785
C	1	-97.50	143795	87500	82082	244199	70850	313376	173350	1.808
D	1	-134.00	251668	160360	181598	461346	153967	593626	307379	1.931
E	1	-170.50	391068	201970	315461	741545	306593	908499	434952	2.089
F	1	-207.00	562442	192300	484649	1085112	539023	1239391	546089	2.270
G	1	-227.00	698961	224320	817852	1304248	673958	1741133	630289	2.762

NOTES

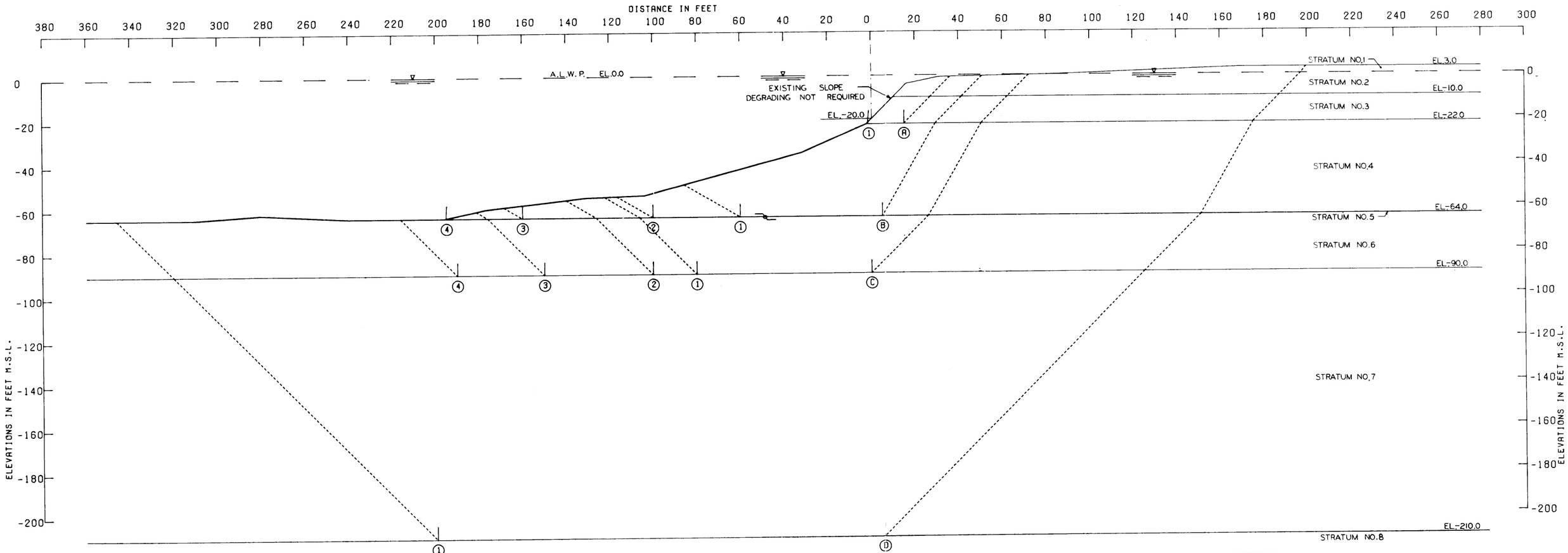
Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE R-13.74 TO RANGE R-13.1
STA. 615+00 TO STA. 650+00
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
AUGUST 1971
FILE NO. H-2-25275

PLATE 65



GENERAL NOTES

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTHS, AND UNIT WEIGHTS OF THE SOIL WERE BASED ON THE RESULTS OF THE UNDISTURBED BORINGS. SEE BORING DATA PLATE 66. (PART I - VOLUME I)

SHEAR STRENGTHS BETWEEN VERTICALS 1 AND 2 WERE ASSUMED TO VARY LINEARLY BETWEEN THE VALUES INDICATED FOR THESE LOCATIONS.

THE EXISTING SECTION SHOWN IS A COMPOSITE OF ALL SECTIONS WITHIN THE LIMITS OF THIS REACH, OVERLAID AT ELEVATION -20.0.

STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F.		C - UNIT COHESION - P.S.F.				FRICTION ANGLE
				CENTER OF STRATUM		BOTTOM OF STRATUM		
		VERT. 1	VERT. 2	VERT. 1	VERT. 2	VERT. 1	VERT. 2	DEGREES
1	ML	117.0	117.0	200.0	200.0	200.0	200.0	15.0
2	CH	33.0	33.0	200.0	200.0	200.0	200.0	0.0
3	CH	33.0	33.0	272.0	272.0	344.0	344.0	0.0
4	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0
5	CH	0.0	0.0	0.0	0.0	848.0	848.0	0.0
6	CH	48.0	48.0	1004.0	1004.0	1160.0	1160.0	0.0
7	CH	48.0	48.0	1880.0	1880.0	2600.0	2600.0	0.0
8	SP	60.0	60.0	0.0	0.0	0.0	0.0	30.0

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-22.00	10166	2744	272	6429	8	13181	6421	2.053
(B)	(1)	-64.00	60560	54580	19226	82815	9613	134366	73202	1.836
(B)	(2)	-64.00	60560	77212	5929	82815	2965	143701	79850	1.800
(B)	(3)	-64.00	60560	95014	1725	82815	863	157299	81952	1.919
(B)	(4)	-64.00	60560	99227	2	82815	1	159788	82814	1.929
(C)	(1)	-90.00	117373	92800	57760	183067	39149	267933	143918	1.862
(C)	(2)	-90.00	117373	116000	56742	183067	33675	290115	149392	1.942
(C)	(3)	-90.00	117373	174000	52983	183067	25220	344356	157847	2.182
(C)	(4)	-90.00	117373	220400	52208	183067	16446	389981	166621	2.341
(D)	(1)	-210.00	579664	533000	503409	1102069	514973	1616072	587096	2.753

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

MISSISSIPPI RIVER LEVEES AND BANKS
MILE 66 TO MILE 10
SOIL REPORT - PART III
EAST BANK

BANK STABILITY ANALYSIS

OLGA, LOUISIANA
RANGE R-13.1 TO RANGE R-11.5
STA. 650+00 TO STA. 735+00

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

AUGUST 1971

FILE NO. H-2-25275

PLATE 66