U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-366 DATE: BEGIN 8-23-93 PAGE 1 / 1
JOB NO. 146638 COMPLETE 8-23-93 Thin Walled Tube
PROJECT Core Drilling for enlargement of The retaining levee ■ 3" ☐ 6"
LOCATION for The Sabine Lake North Disposal Area, Port Arthur, Texas
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Ardco K4-4, C-1000
GROUNDWATER: DEPTH 1 1/2 ft., ELEV. ____ ft., at end of Drilling
WEATHER Sunny & Hot
DRILLER Scott Gregurek LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	4.5t	Brown	clay	Hard	Sandy	-w/ sand pkts & Seams
		2	1.00	olive gray	clay	stiff	silty	
5		3	0.50	olive gray	clay	M. stiff	silty	
		4	0.25	olive gray	clay	Soft	silty	
		5	0.25	olive gray	clay	soft	silty	
10		6	0.25	" "	"	"	"	-w/shell Fragments 12-14'
		7	0.00	Dark gray	clay	Very soft	silty	-Sample Bulges on extrudsion 12'-14'
15		8	0.00	Dark gray	clay	Very soft		-w/shell Fragments
		9	1.25	Gray & Brown	clay	stiff		
		10	1.75	Gray & Brown	clay	stiff		
20		11	2.75	olive gray	clay	Very stiff	silty	-w/Fest
		12	2.50	olive gray	clay	Very stiff	silty	-w/Fest
25		13	1.75	Brown	clay	stiff	silty	-w/ silt partings
30								
35								

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-369 DATE: BEGIN 8-23-93 PAGE 1 / 1
JOB NO. 146638 COMPLETE 8-23-93 Thin Walled Tube
PROJECT Core Drilling for enlargement of The retaining levee ■ 3" ☐ 6"
LOCATION For The Sabine Lake North Disposal Area, Port Arthur, Texas
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Ardco K4-4, C-1000
GROUNDWATER: DEPTH 0 ft., ELEV. ____ ft., at end of Drilling
WEATHER Clear & Hot
DRILLER Scott Gregurek LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	0.00	Gray	Clay	Very Soft	Sandy	-w/Sa pkts & Sa sms
		2	0.25	Gray	Clay	Soft	Sandy	-w/Sa pkts & Sa sms Sa @ 4'
5	X	3	2/1/2	Gray	Sand	Very loose	Silty	-w/Shell Fragments
	X	4	2/2/3	Gray	Sand	loose	Silty	-w/Shell Fragment @ 8'
		5	1.50	olive gray	Clay	Stiff	Silty	-w/Sa sms
10		6	1.75	olive gray	Clay	Stiff	Silty	-w/Sa sms
		7		Brown	Silt	Very loose	Sand	-w/Shell Fragments
15	X	8	2/1/2	Brown & gray	Silt	Very loose	Sand	-w/Shell Fragments @ 16
		9	1.50	Brown	Clay	Stiff		-w/silt sms & silt parting
		10	1.75	"	"	"		" " " " "
20		11	1.00	Brown	Clay	Stiff	Silty	
		12	1.75	Brown	Clay	Stiff		-w/silt parting
25		13	1.50	"	"	"		" " "
30								
35								

JOB NO. 14G719 DATE 10/08/93

PROJECT Sabine Lake North Disposal Area
Sabine-Neches Waterway

AREA Near Port Arthur, Texas

BORING NO. 93-366 SAMPLE NO. 3 DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray & yellowish brown,Clay,Soft,Silty,w/ferrous stains

Tare No.	P-21	Height	5.595 in.
Tare plus Wet Specimen	365.32 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	284.22 gm	Initial Area	6.290 sq in.
Water Weight	81.10 gm	Volume	35.194 cu in.
Tare Weight	42.99 gm	Volume of Solids	cu in.
Wet Specimen	1048.05 gm	Void Ratio	
Dry Specimen	784.35 gm	Saturation	%
Water Content	33.62 %	Dry Density	84.9 lb/cu ft
Specific Gravity of Solids			

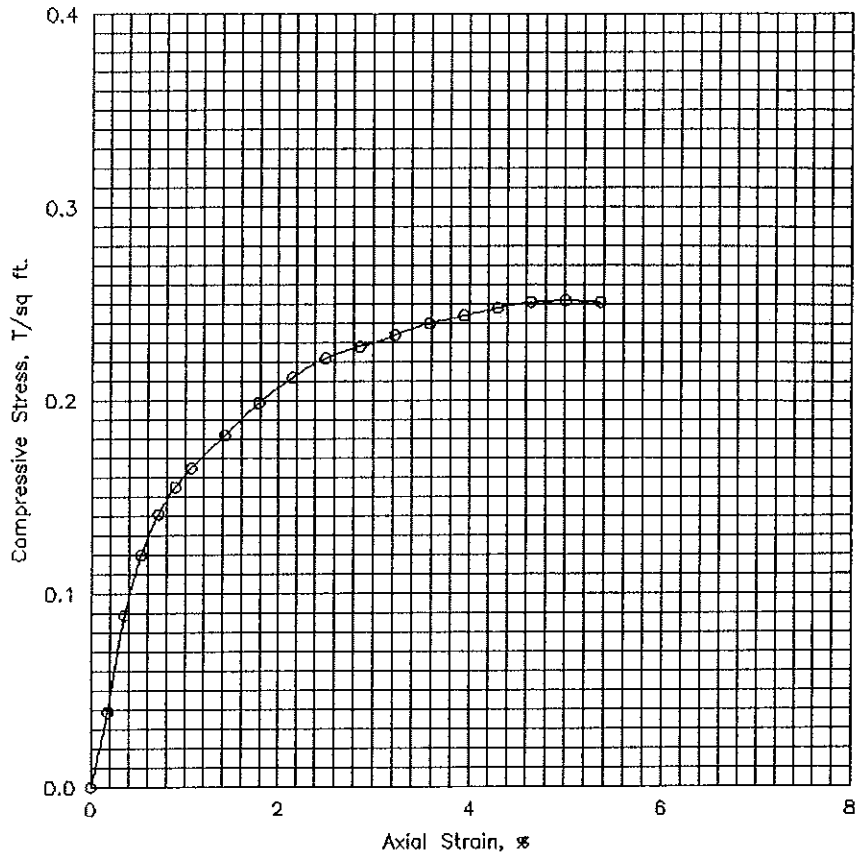
LL = 48 PL = 21 PI = 27

Proving Ring No. 17015
Proving Ring Constant, K = .311 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	11.0	3.4	.002	6.30	.039
.4	20.	.020	25.0	7.8	.004	6.31	.089
.6	30.	.030	34.0	10.6	.005	6.32	.120
.8	40.	.040	40.0	12.4	.007	6.34	.141
.9	50.	.050	44.0	13.7	.009	6.35	.155
1.1	60.	.060	47.0	14.6	.011	6.36	.165
1.4	80.	.080	52.0	16.2	.014	6.38	.182
1.8	100.	.100	57.0	17.7	.018	6.40	.199
2.1	120.	.120	61.0	18.9	.021	6.43	.212
2.4	140.	.140	64.0	19.9	.025	6.45	.222
2.7	160.	.160	66.0	20.5	.029	6.48	.228
3.1	180.	.180	68.0	21.1	.032	6.50	.234
3.4	200.	.200	70.0	21.7	.036	6.52	.240
3.7	220.	.220	71.5	22.2	.039	6.55	.244
4.1	240.	.240	73.0	22.7	.043	6.57	.248
4.3	260.	.260	74.0	23.0	.046	6.60	.251
4.7	280.	.280	74.5	23.1	.050	6.62	.252
5.0	300.	.300	74.5	23.1	.054	6.65	.251

Job No. 14G719

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	33.6 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	84.9			
Time to failure, min		t_f	4.68			
Unconfined compressive strength, T/sq ft		q_u	.25			
Undrained shear strength, T/sq ft		S_u	.13			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Gray & yellowish brown,Clay,Soft,Silty,w/ferrous stains

LL	48	PL	21	PI	27	G_s	

Remarks

Project Sabine Lake North Disposal Area
Sabine-Neches Waterway
Area Near Port Arthur, Texas
Boring No. 93-366 Sample No. 3
Depth El 4-6 ft Date 10/08/93

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

PLATE

JOB NO. 14G719 DATE 10/08/93

PROJECT Sabine Lake North Disposal Area
Sabine-Neches Waterway

AREA Near Port Arthur, Texas

BORING NO. 93-366 SAMPLE NO. 6 DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION
Dark brown,Clay,Very soft,Silty,w/silt seams & ferrous stains

Tare No.	W-7	Height	5.595 in.
Tare plus Wet Specimen	399.87 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	309.04 gm	Initial Area	6.290 sq in.
Water Weight	90.83 gm	Volume	35.194 cu in.
Tare Weight	42.50 gm	Volume of Solids	cu in.
Wet Specimen	1067.48 gm	Void Ratio	
Dry Specimen	796.17 gm	Saturation	%
Water Content	34.08 %	Dry Density	86.2 lb/cu ft
Specific Gravity of Solids			

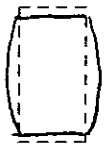
LL = 37 PL = 19 PI = 18

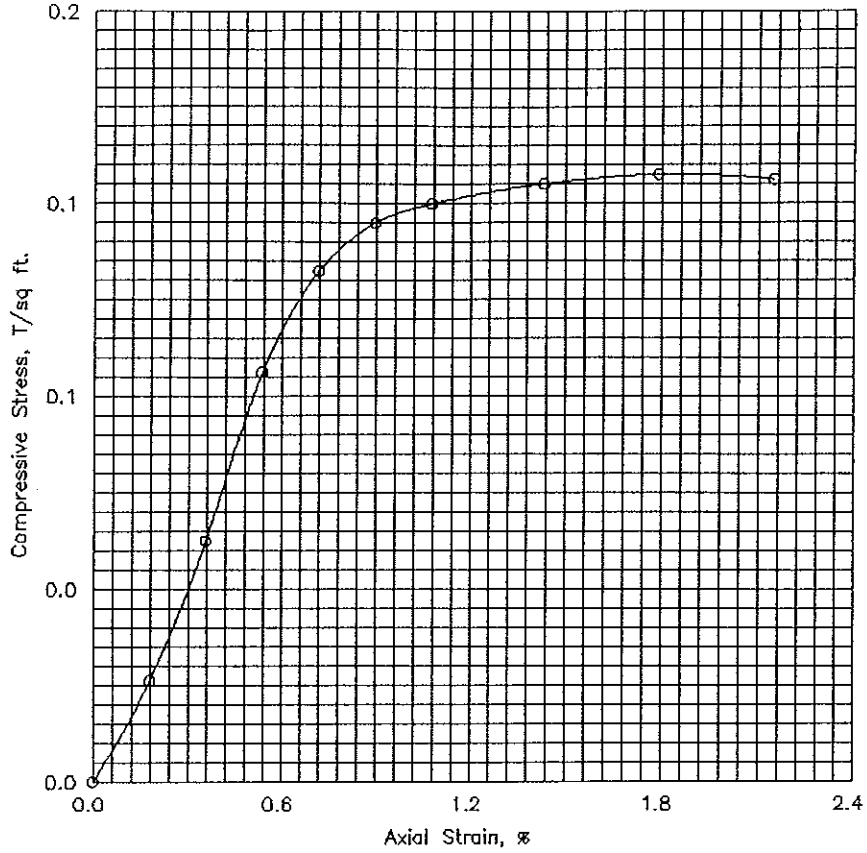
Proving Ring No. 17015
Proving Ring Constant, K = .311 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	6.0	1.9	.002	6.30	.021
.5	20.	.020	14.0	4.3	.004	6.31	.050
.6	30.	.030	24.0	7.5	.005	6.32	.085
.8	40.	.040	30.0	9.3	.007	6.34	.106
.9	50.	.050	33.0	10.2	.009	6.35	.116
1.1	60.	.060	34.0	10.6	.011	6.36	.120
1.4	80.	.080	35.5	11.0	.014	6.38	.124
1.6	100.	.100	36.0	11.2	.018	6.40	.126
2.9	120.	.120	36.0	11.2	.021	6.43	.125

Job No. 14G719

Failure Sketches





☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	34.1 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	86.2			
Time to failure, min		t_f	1.60			
Unconfined compressive strength, T/sq ft		q_u	.13			
Undrained shear strength, T/sq ft		S_u	.06			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Dark brown,Clay,Very soft,Silty,w/silt seams & ferrous stains

LL	37	PL	19	PI	18	G_s	

Remarks

Project Sabine Lake North Disposal Area
Sabine-Neches Waterway
Area Near Port Arthur, Texas
Boring No. 93-366 Sample No. 6
Depth El 10-12 ft Date 10/08/93

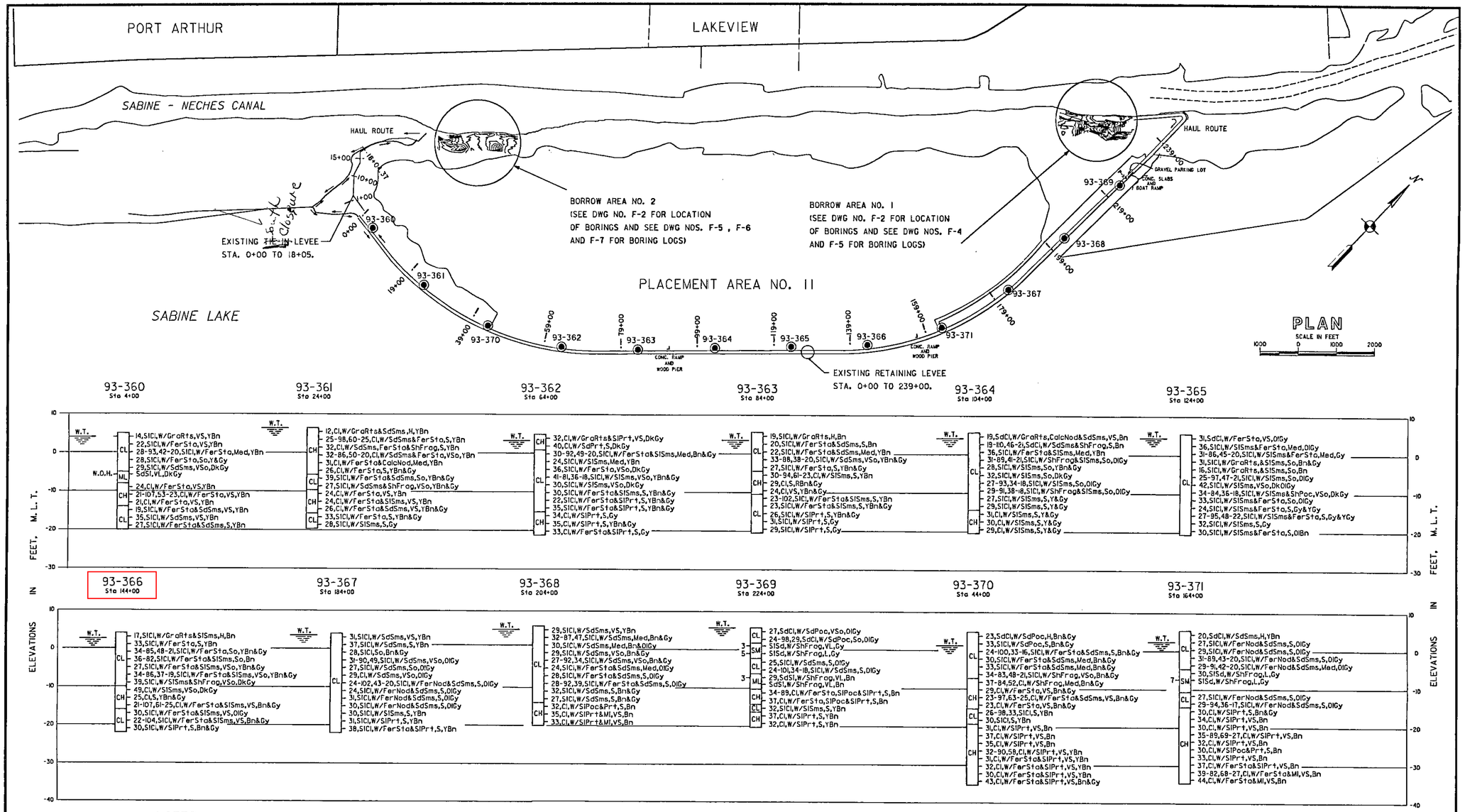
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

PLATE



NOTES;

1. SOILS HAVE BEEN CLASSIFIED IN ACCORDANCE WITH MILITARY STANDARD 619B "UNIFIED SOIL CLASSIFICATION SYSTEM FOR ROADS, AIRFIELDS, EMBANKMENTS, AND FOUNDATIONS." CONSISTENCY OF SOILS SUCH AS SOFT, MEDIUM, HARD, LOOSE, DENSE, ETC., ARE RELATIVE TERMS BASED ON ESTIMATED UNDISTURBED SHEAR STRENGTH OF THE MATERIAL AS DETERMINED BY VISUAL CLASSIFICATION POCKET PENETROMETER TESTS AND PENETRATION RESISTANCE DURING SAMPLING.
2. FIGURES TO THE RIGHT OF BORING LOGS ARE WATER CONTENTS IN PERCENT OF THE DRY WEIGHT, DRY DENSITY, LIQUID LIMIT, PLASTIC LIMIT, AND BAR LINEAR SHRINKAGE. (MC-LDW,LL-PL,I,BL.L.SJ) FIGURES TO THE LEFT OF BORING LOGS ARE BLOWS PER FOOT OF PENETRATION FROM STANDARD PENETRATION TESTING.
3. BORINGS WERE DRILLED USING WET ROTARY DRILLING TECHNIQUES AND UNDISTURBED SAMPLES WHERE RECOVERED WITH A 3-INCH DIAMETER THIN WALL SAMPLER WHERE COHESIVE MATERIALS WERE ENCOUNTERED. WHERE COHESIONLESS MATERIALS WERE ENCOUNTERED, DISTURBED SAMPLES WERE TAKEN WITH A SPLIT SPOON SAMPLER DURING PERFORMANCE OF STANDARD PENETRATION TESTING.
4. WATER TABLE LEVELS SHOWN ON BORING LOGS WERE DETERMINED AFTER DRILLING BORINGS BY MEASURING THE TOP OF FLUID LEVELS IN THE BORINGS. INASMUCH AS WET ROTARY DRILLING TECHNIQUES AND DRILLING MUD WERE USED TO DRILL THE HOLES, THE LEVEL OF DRILLING FLUIDS IN THE BORE HOLES MAY NOT HAVE STABILIZED TO THE LEVEL OF THE ACTUAL WATER TABLE. ADDITIONALLY, WATER TABLES IN THE FIELD ARE LIKELY TO FLUCTUATE DEPENDING ON WEATHER CONDITIONS. THEREFORE, SOME VARIATION SHOULD BE ANTICIPATED BETWEEN WATER TABLES INDICATED AND WATER TABLES ENCOUNTERED IN THE FIELD.

VISUAL CLASSIFICATIONS

Bn Brown(ish)	Nod Nodules	Sl Silt(y)
Calc Calcerous	Ol Olive	Sms Seams
Cl Clay	Poc Pocket(s)	So Soft
Dk Dark	Prt Parting	Sta Stain(s)
Fer Ferrous	R Red	V Very
Frag Fragment(s)	Rts Root(s)	W/ With
Gra Grass	S Stiff	W.T. Water Table
Gy Gray(ish)	Sd Sand(y)	W.O.H. Weight Of Hammer
H Hard	Sh Shell(y)	Y Yellow(ish)
L Loose		
Med Medium		
Mi Mica		

LABORATORY CLASSIFICATION

CH INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, LEAN CLAYS.
ML INORGANIC SILTS AND VERY FINE SANDS, WITH SLIGHT PLASTICITY.
SM SILTY SANDS, SAND-SILT MIXTURES.

REVISION	DATE	DESCRIPTION	BY

OFFICE OF THE DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, GALVESTON
CORPS OF ENGINEERS
GALVESTON, TEXAS

DRAWN BY: * J.G.
DESIGNED BY: * G.M.
CHECKED BY: * G.M./L.A.A.
SUBMITTED BY: *
CHIEF, GEOTECH & SURVEYS SECTION
APPROVED: *
CHIEF, DESIGN BRANCH
APPROVED: *
CHIEF, ENGINEERING DIVISION
DATE: JULY 1995
* AS REQUIRED BY ENGINEER CIRCULAR NO. 1110-1-1032)
SCALE: AS SHOWN
SPEC. DATE:

SABINE - NECHES WATERWAY, TEXAS
SABINE - NECHES CANAL
REHABILITATION OF PLACEMENT AREA NO. 11

PLAN AND BORING LOGS

Prepared under the direction of
Robert B. Gatlin, Col., C.E.,
District Engineer

DRAWING NUMBER F-1
SHEET 23 OF 32 FILE NO. SN 103-336