U.S. ARMY CORPS OF ENGINEERS

El. +5.3

BORING NO. 92-152 DATE: BEGIN 7-29-92 PAGE 1 / 2
JOB NO. 146548 COMPLETE 7-29-92 Thin Walled Tube ☒ 3" ☐ 6"
PROJECT DISPOSAL AREA #5
LOCATION BROWNSVILLE SHIP CHANNEL
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG C-1000 Marsh Buggy
GROUNDWATER: DEPTH 4.00 ft., ELEV DRY ft., at end of Drilling
WEATHER PARTLY CLOUDY HOT & HUMID
DRILLER SCOTT GREGUREK LOGGER JOHN A. GENTRY

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
+5 0		1	0.25	BROWN	CLAY	SOFT		
		2	0.00	"	"	VERY SOFT		
0 5		3	0.25	"	"	SOFT		- W/ SILT LAYER 4'-6'
		4	0.25	GRAY	"	"		Y BROWN 8'-10'
		5	0.5	"	"	MEDIUM STIFF		
10	X	6	[illegible]	"	"	SOFT		PUSH TUBE N/R 10-12' PR = 0.25 tsf
		7	0.0	"	"	VERY SOFT		
El -10 15		8	0.75	GRAY	CLAY	MEDIUM STIFF		Y BROWN 14'-18'
		9	0.75	"				- W/ SILT LAYER 16'-22'
		10	1.75	BROWN	CLAY	STIFF		
20		11	1.0	BROWN	CLAY	STIFF		
		12	2.25	BROWN	CLAY	VERY STIFF		
25		13	1.25	"	"	STIFF		- W/ Sa LAY 25½'-26½'
		14	1.5	GRAY	"	"		- W/ Sa PKYS 26'-30'
		15	1.75	GRAY	"	"		
30		16	1.25	GRAY	CLAY	VERY STIFF	SILTY	
		17	1.0	"	"	STIFF		
35		18	4.5+	GRAY	CLAY	HARD		

U.S. ARMY CORPS OF ENGINEERS El. +5.3 MLT

BORING NO. 92-152 DATE: BEGIN 7-29-92 PAGE 2 /2
JOB NO. 14G548 COMPLETE 7-29-92 Thin Walled Tube
PROJECT DISPOSAL AREA #5 ☒ 3" ☐ 6"
LOCATION BROWNSVILLE SHIP CHANNEL
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG C-1000
GROUNDWATER: DEPTH 4.00 ft., ELEV. ____ ft., at end of Drilling
WEATHER PARTLY CLOUDY HOT + VERY WINDY
DRILLER SCOTT GREGUREK LOGGER JOHN A. GENTRY

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35		19	4.5+	GRAY	CLAY	HARD		+ BROWN 36'-40'
		20	4.5+	"	"	"		
		21	4.5+	"	"	"		
40		22	4.5+	"	"	"		
		23	4.5	"	"	"		
		24	4.5+	"	"	"		
45		25	3.5	BROWN	CLAY	VERY STIFF	SILTY	+ GRAY 46'-50'
		26	3.5	"	"	VERY STIFF		
50		27	4.5+	BROWN	CLAY	HARD		+ GRAY 50'-60'
		28	4.5+	"	"	"		
55		29	4.5+	"	"	"		-w/SILT PARTING 54'-56'
		30	4.5+	"	"	"		
		31	4.5+	"	"	"		
60								
65								
70								

-46

GEOTEST ENGINEERING, INC.

Project : Disposal area site adjacent to the Brownsville Ship channel for the Brazos Island Harbor project near Brownsville, Texas
Contract No. DACW64-92-D-0001 Delivery order No. 0025

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 92-152

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	M c (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	P L (%)	Mechanical Analysis % Passing #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
1	0-2	0.25		Gray,Clay,Soft,w/sand seams	CH	31.9											
2	2-4	0.00		Yellowish brown,Clay,Very soft	CH	40.6	79.0	111.1	54	23	100.0	100.0	100.0	100.0	100.0	0.09	0.20
3	4-6	0.00		Yellowish brown,Clay,Very soft,w/silt pockets	CH	30.0										0.10	
4	6-8	0.00		Gray,Clay,Very soft	CH	40.8	79.0	111.3	64	25	100.0	100.0	100.0	99.6	99.5	0.08	0.18
5	8-10	0.50		Olive gray,Clay,Medium stiff	CH	49.9										0.30	
6	10.5 - 12	0.25	2	Gray,Clay,Soft	CH	42.5											
7	12 - 14	0.00		Gray,Clay,very soft	CH	36.0										0.08	
8	14 - 16	1.25		Brown,Clay,Stiff,Silty,w/ferrous stains	CL	27.8	94.1	120.3	35	18	100.0	100.0	100.0	99.5	99.3		1.07
9	16 - 18	0.75		Brown&gray,Clay,Medium stiff	CH	35.9											
10	18 - 20	1.25		Brown&gray,Clay,Stiff,w/mica	CH	34.1											
11	20 - 22	1.00		Brown,Clay,Stiff	CH												
12	22 - 24	1.50		Brown&gray,Clay,Stiff,w/mica	CH	32.4											
13	24 - 26	1.25		Brown,Clay,Stiff,w/mica	CH	26.9	99.7	126.5	61	24	100.0	100.0	99.4	99.0	98.9		0.99
14	26 - 28	2.25		Gray&yellowish gray,Clay,Very stiff,Sandy,w/ ferrous stains	CL	20.7											
15	28 - 30	3.00		Gray&yellowish gray,Clay,Very stiff,Sandy,w/ ferrous stains	CL	19.3											
16	30 - 32	1.25		Gray,Clay,Stiff,Silty	CL												
17	32 - 34	2.00		Gray&yellowish gray,Clay,Very stiff,Sandy,w/ calcareous nodules	CL	19.5											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of pipe

Geotest Engineering, Inc.

Project : Disposal area site adjacent to the Brownsville Ship channel for the Brazos Island Harbor project near Brownsville, Texas
Contract No. DACW64-92-D-0001 Delivery order No. 0025

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 92-152

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	M c (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
18	34-35	1.75		Gray,Clay,Stiff,Sandy,w/calcareous nodules	CL	14.1	121.2	138.3	30	15	99.4	96.6	92.5	75.0	54.1		1.86
19	35 - 36	4.5+		Olive gray,Clay,Hard,Sandy,w/calcareous nodules	CL	15.7											
20	36 - 38	4.5+		Gray&brown,Clay,Hard	CH												
21	38 - 40	4.5+		Gray&brown,Clay,Hard,w/calcareous nodules	CH	19.1											
22	40 - 42	4.5+		Gray,Clay,Hard	CH												
23	4 2 -44	4.5+		Yellowish brown&gray,Clay,Hard,Silty,w/ calcareous nodules	CL	17.5											
24	44 - 46	4.5+		Yellowish brown&gray,Clay,Hard,Silty,w/ calcareous nodules	CL	16.8											
25	46 - 48	4.00		Yellowish brown,Clay,Very stiff,Silty,w/ calcareous nodules	CL	19.2											
26	48 - 50	4.00		Yellowish brown,Clay,Very stiff,Silty,w/ calcareous nodules	CL	21.0	109.8	132.9	45	18	100.0	99.7	99.5	99.3	99.0		3.21
27	50-52	4.5+		Brown&gray,Clay,Hard,Silty	CL	22.3											
28	52-54	4.5+		Yellowish brown,Clay,Hard,Silty	CL	22.2											
29	54 - 56	4.5+		Yellowish brown,Clay,Hard,w/silt parting	CH	23.7											
30	56 - 58	4.5+		Brown&gray,Clay,Hard,w/ferrous stains	CH	20.7	107.8	130.1	64	26	100.0	100.0	99.9	99.4	99.3		6.06
31	58 - 60	4.5+		Brown&gray,Clay,Hard,w/ferrous stains	CH	19.6											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of pipe

Geotest Engineering, Inc.

TABLE 1

RESULTS OF TESTS OF DISTURBED AND UNDISTURBED SOIL SAMPLES

NOTE: * ALL SOIL SAMPLES THAT DO NOT HAVE COMPLETE LABORATORY TEST DATA

WERE VISUALLY CLASSIFIED ONLY.

SWDED-GL REPORT NO. 15653 BRAZOS ISLAND-HOUSTON-GALVESTON NAVIGATION STUDY PROJECT

BORING NO.	SWD NO.	FLD NO.	DEPTH, FT	GR	SA	FI	LL	PL	PI	LS	WC, %	PCF	MAJOR TESTS	DESCRIPTION OF MATERIAL
													SHEAR	WHITE CHALK LIKE MATERIAL, IRON OXIDE STAINS, SAND POCKETS THROUGHOUT, STIFF TO HARD, PENE = 1.5-4.5.
92 143	92/3583	ST-19	36.0 - 38.0	0	39	61	33	15	18		19.8	108	DIRECT SHEAR	CL - SANDY LEAN CLAY, LIGHT GRAYISH BROWN WITH BROWN,MOIST,CALCAREOUS WITH CALCAREOUS NODULES, WHITE CHALK LIKE MATERIAL, IRON OXIDE STAINS, SAND POCKETS AND SEAMS THROUGHOUT, VERY STIFF TO HARD, PENE = VERY STIFF TO HARD, PENE = 3.0-4.5.
92 143	92/3584	ST-22	42.0 - 44.0	0	1	99	47	18	29		23.5	109	DIRECT SHEAR	CL - LEAN CLAY, LIGHT GRAY WITH BROWN, MOIST, CALCAREOUS, FEW SAND POCKETS, IRON OXIDE STAINS, WHITE CHALK LIKE MATERIAL, HARD, PENE > 4.0, SHALY.
92 143	92/3585	ST-25	48.0 - 50.0	0	4	96	58	19	39		19.9	108	DIRECT SHEAR	CH - FAT CLAY, BROWN WITH LIGHT GRAY, MOIST, CALCAREOUS WITH CALCAREOUS NODULES, FEW SAND POCKETS, VERTICAL FRACTURES IN TOP 0.3', GYPSUM, IRON OXIDE STAINS, HARD, PENE > 4.0.
92 152	92/3586	ST-11	20.0 - 22.0	0	7	93	30	19	11		25.6	99	DIRECT SHEAR	CL - LEAN CLAY, GRAYISH BROWN, MOIST, CALCAREOUS, SAND POCKETS AND SEAMS THROUGHOUT,HORIZONTAL FRACTURES,SOFT TO STIFF, PENE = 0.25-1.75.
92 152	92/3587	ST-16	30.0 - 32.0	2	67	31	24	15	9		18.4	111	DIRECT SHEAR	SC - CLAYEY SAND, GRAYISH BROWN, MOIST, CALCAREOUS WITH CALCAREOUS NODULES, HORIZONTAL FRACTURES, STIFF, PENE = 1.5-1.75.

TABLE 1

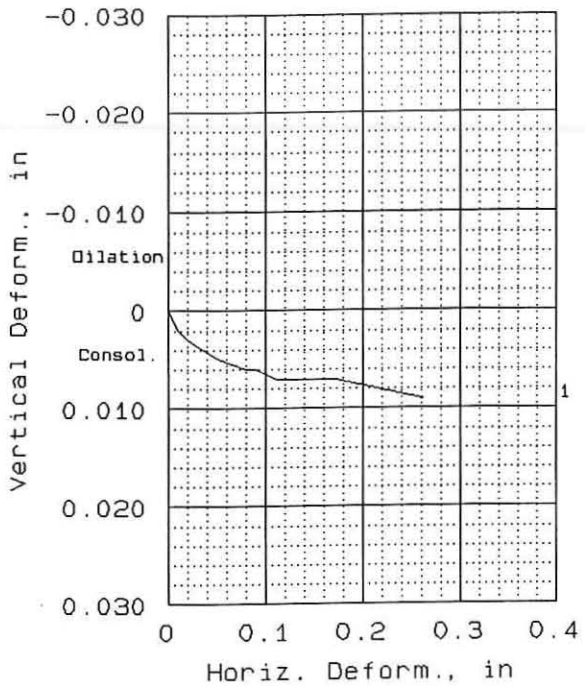
RESULTS OF TESTS OF DISTURBED AND UNDISTURBED SOIL SAMPLES

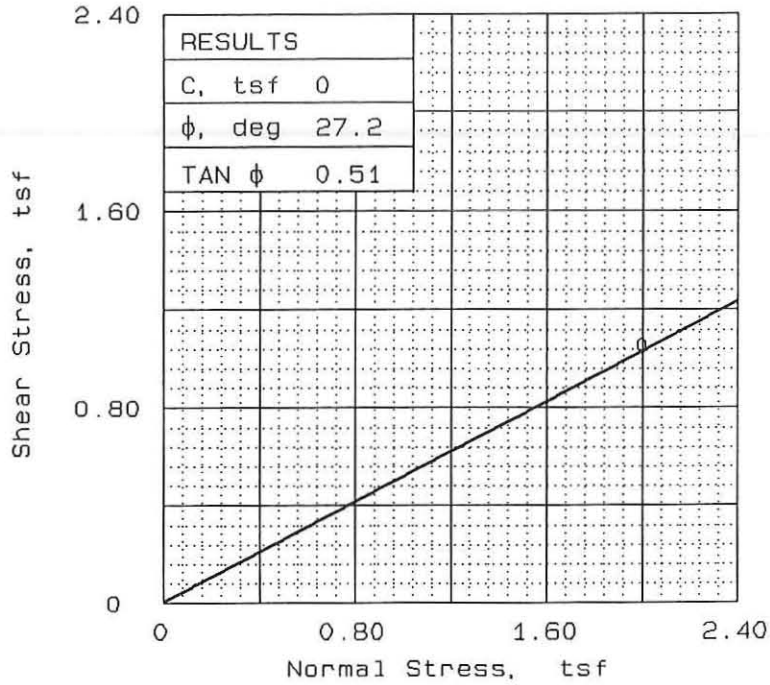
NOTE: * ALL SOIL SAMPLES THAT DO NOT HAVE COMPLETE LABORATORY TEST DATA

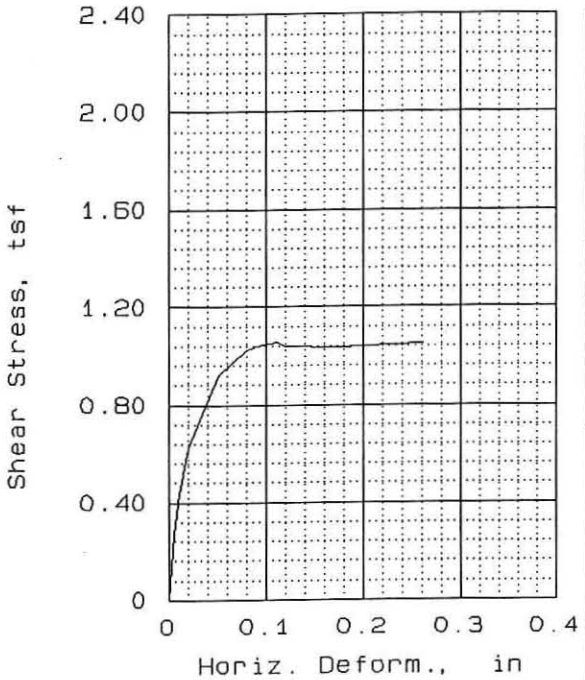
WERE VISUALLY CLASSIFIED ONLY.

SWDED-GL REPORT NO. 15653 BRAZOS ISLAND-HOUSTON-GALVESTON NAVIGATION STUDY PROJECT

BORING NO.	SWD NO.	FLD NO.	DEPTH, FT	GR	SA	FI	LL	PL	PI	LS	WC, %	PCF	MAJOR TESTS	DESCRIPTION OF MATERIAL
92 152	92/3588	ST-20	36.0 - 38.0	0	14	86	61	21	40		21.2	108	DIRECT SHEAR	CH - FAT CLAY, BROWN WITH GRAYISH BROWN, MOIST, CALCAREOUS WITH CALCAREOUS NODULES, WHITE CHALK LIKE MATERIAL, SAND POCKETS THROUGHOUT, HARD, PENE > 4.0.
92 152	92/3589	ST-22	40.0 - 42.0	0	28	72	39	14	25		16.7	114	DIRECT SHEAR	CL - LEAN CLAY WITH SAND, GRAYISH BROWN WITH BROWN, MOIST, CALCAREOUS WITH WHITE CHALK LIKE MATERIAL,SAND POCKETS & SEAMS THROUGHOUT, IRON OXIDE STAINS, VERY STIFF TO HARD, PENE = 3.5-4.5.







SAMPLE NO.		1
INITIAL	WATER CONTENT, %	25.3
	DRY DENSITY, pcf	100.7
	SATURATION, %	102.5
	VOID RATIO	0.662
	DIAMETER, in	2.51
	HEIGHT, in	1.00
AT TEST	WATER CONTENT, %	21.5
	DRY DENSITY, pcf	107.3
	SATURATION, %	102.9
	VOID RATIO	0.559
	DIAMETER, in	2.51
	HEIGHT, in	0.94
NORMAL STRESS, tsf		2.00
MAX. SHEAR, tsf		1.06
STRAIN RATE, %/min.		0.002
ULT. SHEAR, tsf		

SAMPLE DATA

SAMPLE TYPE: UNDISTURBED

DESCRIPTION: LEAN CLAY (CL)

LL= 30 PL= 19 PI= 11.0

SPECIFIC GRAVITY= 2.68

REMARKS: SPECIFIC GRAVITY ESTIMATED

CLIENT: US ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT

PROJECT: BRAZOS ISLAND HARBOR
BROWNSVILLE, TX.

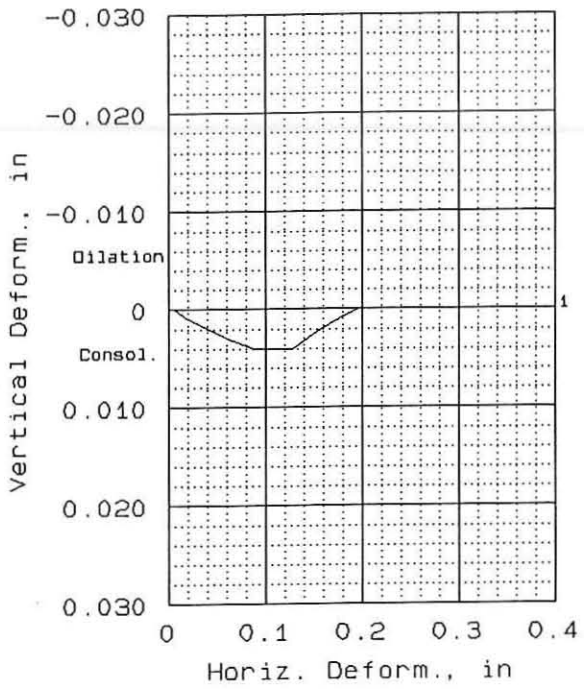
SAMPLE LOCATION: BORING: 92-152, ST-11
20.0'-22.0', SWD LAB NO. 92/3586

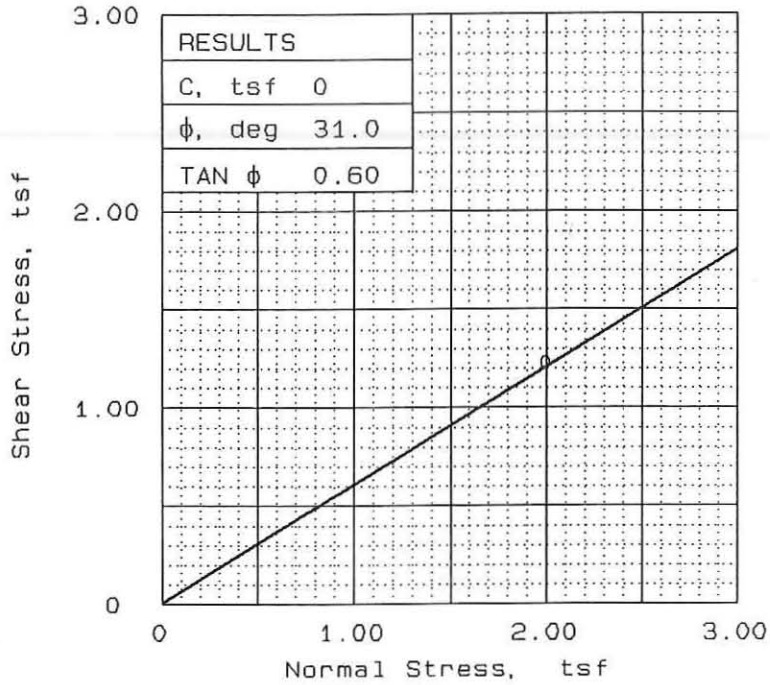
PROJ. NO.: 15653 DATE: AUGUST 1992

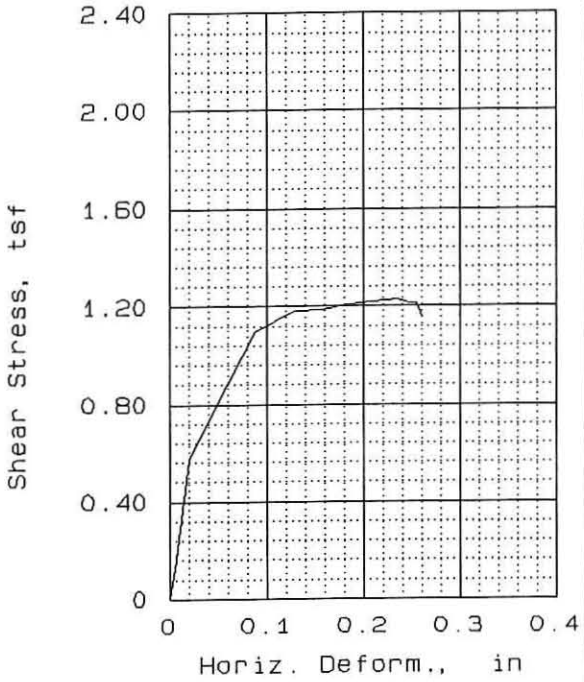
DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.







SAMPLE NO.		1
INITIAL	WATER CONTENT, %	18.2
	DRY DENSITY, pcf	112.7
	SATURATION, %	100.9
	VOID RATIO	0.484
	DIAMETER, in	2.51
	HEIGHT, in	1.00
AT TEST	WATER CONTENT, %	17.2
	DRY DENSITY, pcf	115.6
	SATURATION, %	103.1
	VOID RATIO	0.447
	DIAMETER, in	2.51
	HEIGHT, in	0.98
NORMAL STRESS, tsf		2.00
MAX. SHEAR, tsf		1.23
STRAIN RATE, %/min.		0.002
ULT. SHEAR, tsf		

SAMPLE DATA

SAMPLE TYPE: UNDISTURBED

DESCRIPTION: CLAYEY SAND (SC)

LL= 24 PL= 15 PI= 9.0

SPECIFIC GRAVITY= 2.68

REMARKS: SPECIFIC GRAVITY ESTIMATED

CLIENT: US ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT

PROJECT: BRAZOS ISLAND HARBOR
BROWNSVILLE, TX.

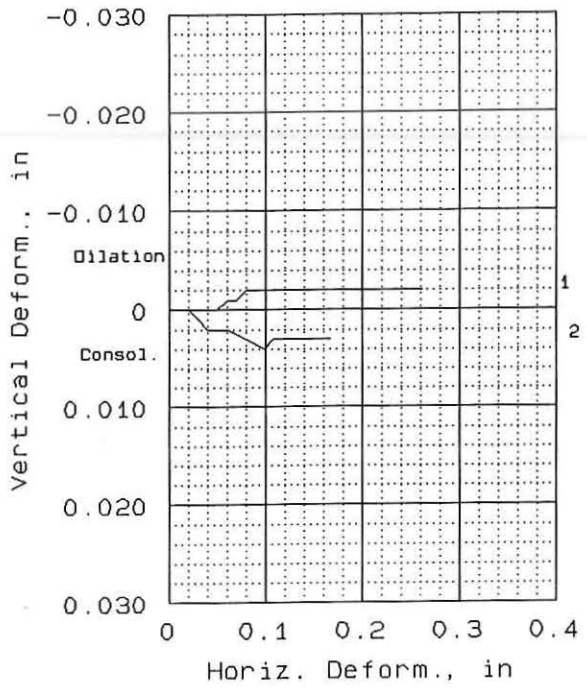
SAMPLE LOCATION: BORING: 92-152, ST-16
30.0'-32.0', SWD LAB NO. 92/3587

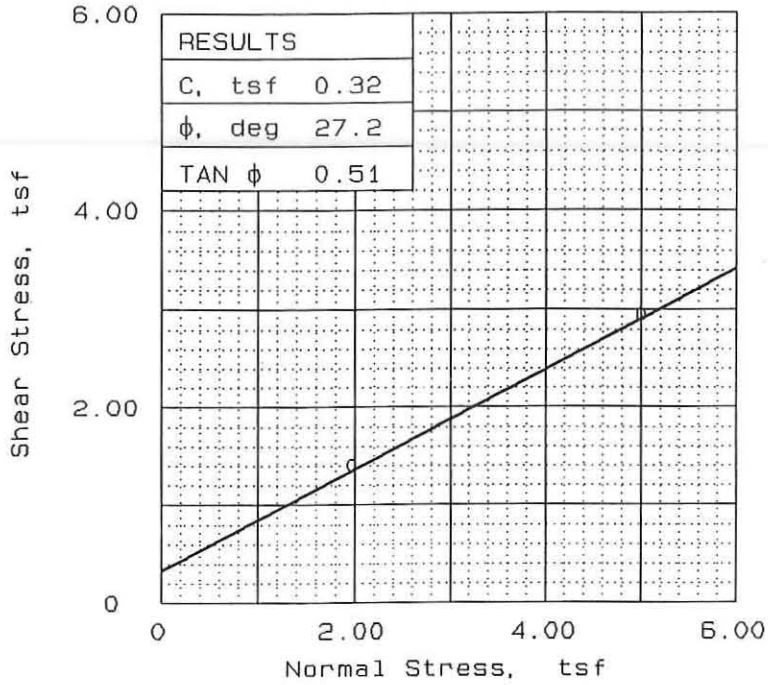
PROJ. NO.: 15653 DATE: AUGUST 1992

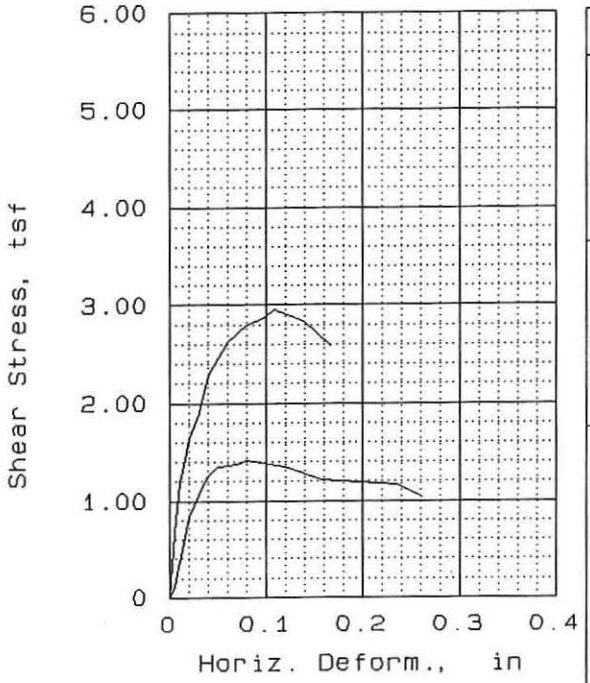
DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.







	SAMPLE NO.	1	2
INITIAL	WATER CONTENT, %	21.2	19.9
	DRY DENSITY, pcf	107.3	108.8
	SATURATION, %	100.9	98.8
	VOID RATIO	0.565	0.543
	DIAMETER, in	2.51	2.51
	HEIGHT, in	1.00	1.00
AT TEST	WATER CONTENT, %	20.5	18.3
	DRY DENSITY, pcf	109.1	113.3
	SATURATION, %	102.4	101.8
	VOID RATIO	0.539	0.483
	DIAMETER, in	2.51	2.51
	HEIGHT, in	0.98	0.96
NORMAL STRESS, tsf		1.99	5.01
MAX. SHEAR, tsf		1.41	2.96
STRAIN RATE, %/min.		0.002	0.002
ULT. SHEAR, tsf			

SAMPLE DATA

SAMPLE TYPE: UNDISTURBED

DESCRIPTION: FAT CLAY (CH)

LL= 61 PL= 21 PI= 40.0

SPECIFIC GRAVITY= 2.69

REMARKS: SPECIFIC GRAVITY ESTIMATED

CLIENT: US ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT

PROJECT: BRAZOS ISLAND HARBOR
BROWNSVILLE, TX.

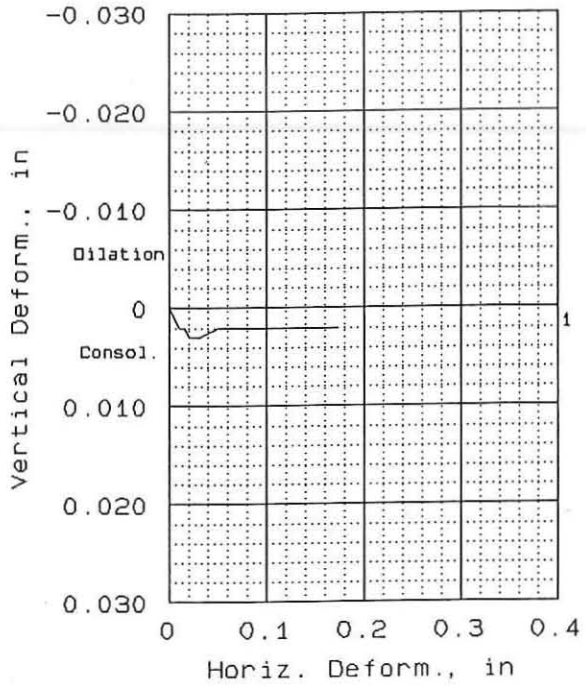
SAMPLE LOCATION: BORING: 92-152, ST-20
36.0'-38.0', SWD LAB NO. 92/3588

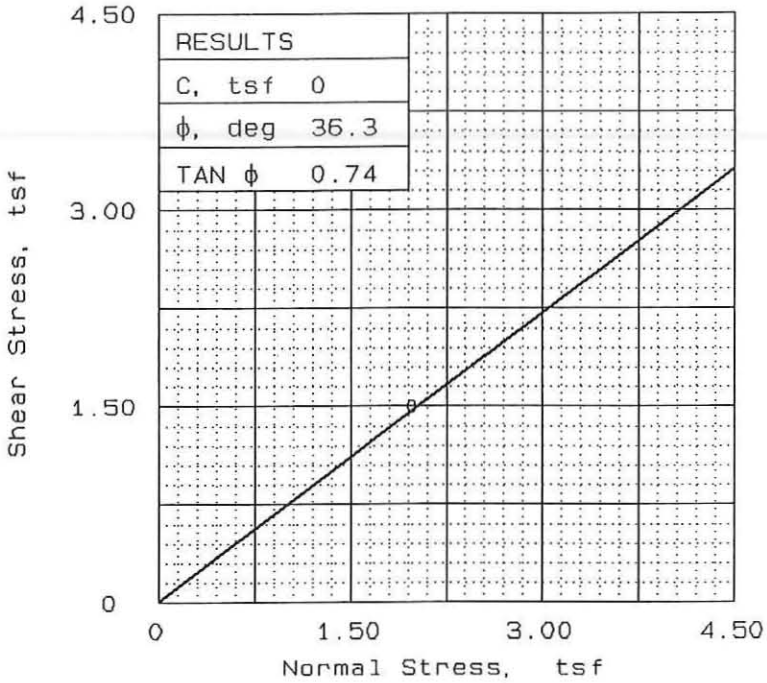
PROJ. NO.: 15653 DATE: AUGUST 1992

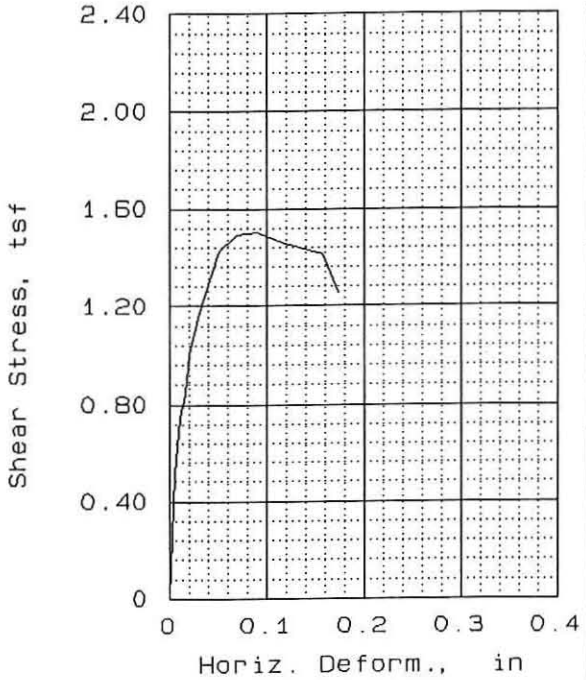
DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.







SAMPLE NO.		1
INITIAL	WATER CONTENT, %	18.7
	DRY DENSITY, pcf	110.8
	SATURATION, %	98.4
	VOID RATIO	0.510
	DIAMETER, in	2.50
	HEIGHT, in	1.00
AT TEST	WATER CONTENT, %	18.7
	DRY DENSITY, pcf	112.9
	SATURATION, %	104.0
	VOID RATIO	0.481
	DIAMETER, in	2.50
	HEIGHT, in	0.98
NORMAL STRESS, tsf		1.99
MAX. SHEAR, tsf		1.50
STRAIN RATE, %/min.		0.002
ULT. SHEAR, tsf		

SAMPLE DATA

SAMPLE TYPE: UNDISTURBED

DESCRIPTION: LEAN CLAY WITH SAND (CL)

LL= 39 PL= 14 PI= 25.0

SPECIFIC GRAVITY= 2.68

REMARKS: SPECIFIC GRAVITY ESTIMATED

CLIENT: US ARMY CORPS OF ENGINEERS
GALVESTON DISTRICT

PROJECT: BRAZOS ISLAND HARBOR
BROWNSVILLE, TX.

SAMPLE LOCATION: BORING: 92-152, ST-22
40.0'-42.0', SWD LAB NO. 92/3589

PROJ. NO.: 15653 DATE: AUGUST 1992

DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.