Project : Pelican Island Disposal Area
Galveston, Texas
Contract No. DACW64-92-D-0005 Delivery order No. 0023

SUMMARY OF LABORATORY TEST RESULTS

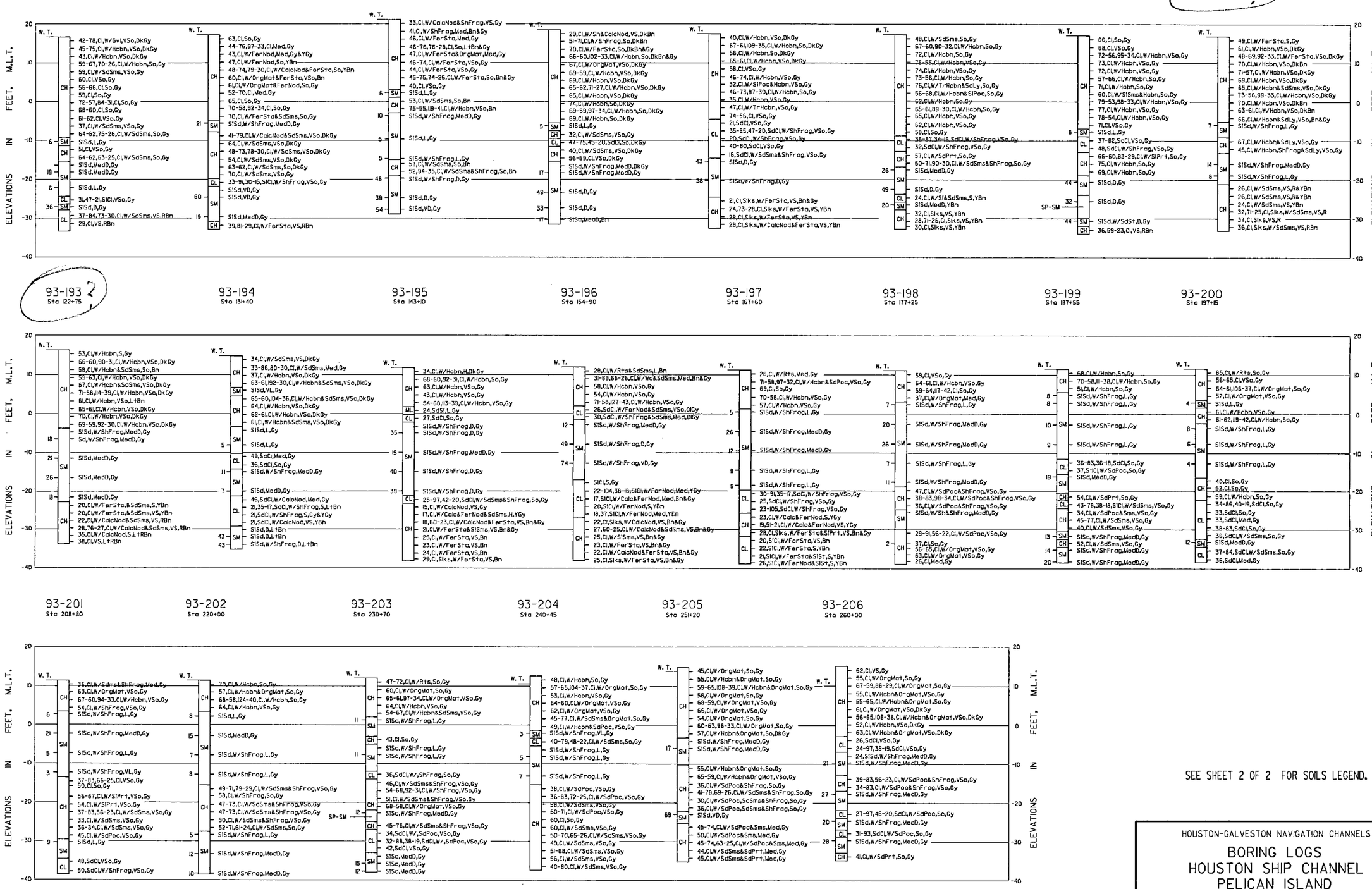
Boring No. 93-185

56+96.57

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	0.00		Dark gray & brown,Clay,Very soft,w/gravel	CH	42.1	78.2	111.3								0.08	
2	2 - 4	0.00		Dark gray,Clay,Very soft,w/hydrocarbon	CH	45.3	75.2	109.2								0.09	0.20
3	4 - 6	0.00		Dark gray,Clay,Very soft,w/hydrocarbon	CH	42.8										0.09	
4	6 - 8	0.25		Gray,Clay,Soft,w/hydrocarbon	CH	58.6	66.8	105.9	70	26	100.0	100.0	99.6	99.1	98.9	0.16	0.34
5	8 - 10	0.00		Gray,Clay,Very soft,w/sand seams	CH	58.6										0.08	
6	10 - 12	0.00		Gray,Clay,Very soft	CH	60.4										0.09	
7	12 - 14	0.25		Gray,Clay,Soft	CH	55.8	65.7	102.4								0.16	0.34
8	14 - 16	0.25		Gray,Clay,Soft	CH	59.4										0.16	-
9	16 - 18	0.25		Gray,Clay,Soft	CH	72.0	57.0	98.1	84	31	100.0	100.0	100.0	99.4	98.8	0.16	0.32
10	18 - 20	0.25		Gray,Clay,Soft	CH	68.3	59.7	100.4								0.08	
11	20 - 22	0.00		Gray,Clay,Very soft	CH	61.4	62.0	100.1								0.10	0.21
12	22 - 24	0.00		Gray,Clay,Very soft,w/sand seams	CH	37.0										0.08	
13	24 - 26	0.00		Gray,Clay,Very soft,w/sand seams	CH	64.2	61.6	101.1	75	26	100.0	100.0	100.0	99.9	99.4	0.08	
14	26 - 28		6	Gray,Sand,Loose,Silty	SM						100.0	100.0	96.6	76.0	20.8		
15	28 - 30	0.00		Gray,Clay,Very soft	CH	50.8										0.08	
16	30 - 32	0.25		Gray,Clay,Soft,w/sand seams	CH	64.2	62.1	102.0	63	25						0.08	
17	32 - 34			Gray,Sand,Medium dense,Silty	SM												

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.



SEE SHEET 2 OF 2 FOR SOILS LEGEND.

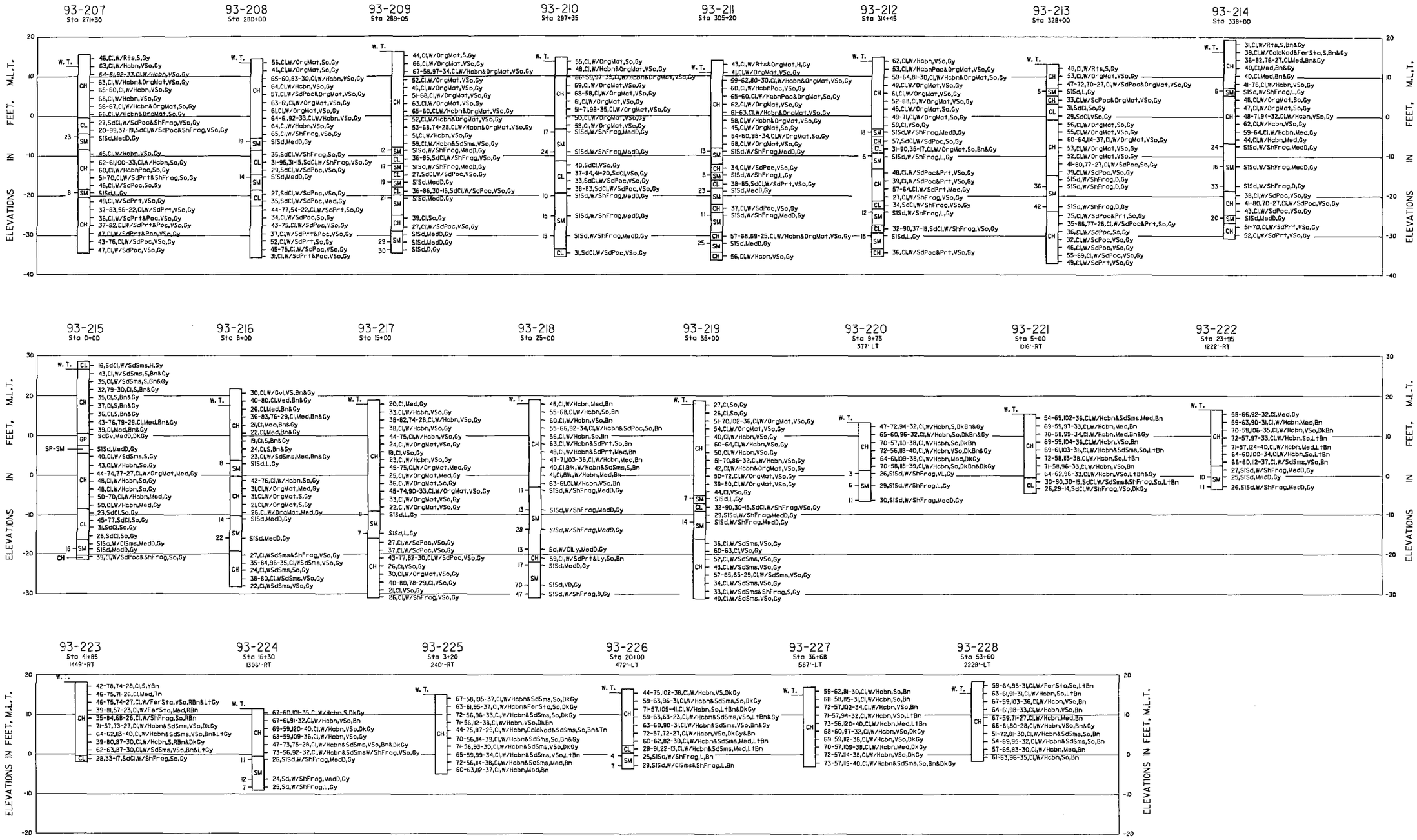
HOUSTON-GALVESTON NAVIGATION CHANNELS

BORING LOGS
HOUSTON SHIP CHANNEL
PELICAN ISLAND

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

SHEET 1 OF 2

EXHIBIT F-



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-UDW),(LL-PL),(B.L.S.)= 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 COHESIVE MATERIALS WERE ENCOUNTERED, DISTURBED SAMPLES WERE TAKEN WITH A SPLIT SPOON *SAMPLER DURING PERFORMANCE OF STANDARD PENETRATION TESTING.*

VISUAL CLASSIFICATIONS

Blk Black(y)	H Hard	Rts Root(s)	Tr Traces
Bn Brown(ish)	Hbn Hydrocarbon	S Stiff	V Very
Calc Calcareous	L Loose	Sd Sandy)	Wd Wood
Cl Clay(ey)	Ly Layer(s)	Sh Shell(y)	W/ With
D Dense	Mat Material	Sl Silty	W.O.P. Weight Of Pipe
Dk Dark	Med Medium	Slks Slicken Sides	Y Yellow(ish)
Fer Ferrous	Nod Nodules	Sms Seams	W.T. Water Table
Frag Fragment(s)	Org Organic	So Soft	
Gv Gravel(y)	Poc Pocket(s)	St Stone(s)	
Gy Gray(ish)	Prt Parting	Tn Tan(ish)	

LABORATORY CLASSIFICATION

CH INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, LEAN CLAYS.
GP POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
SM SILTY SANDS, SAND-SILT MIXTURES.
SP-SM OR SM-SP SLIGHTLY SILTY SANDS, SANDS WITH SOME SILTS

HOUSTON-GALVESTON NAVIGATION CHANNELS

BORING LOGS
HOUSTON SHIP CHANNEL
PELICAN ISLAND

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

SHEET 2 OF 2

EXHIBIT F-

Project : Pelican Island Disposal Area
Galveston, Texas
Contract No. DACW64-92-D-0005 Delivery order No. 0023

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 93-185

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)
18	34 - 35.5		19	Gray,Sand,Medium dense,Silty	SM						100.0	100.0	95.8	75.8	26.5		
19	39 - 40.5		6	Gray,Sand,Loose,Silty	SM												
20	41 - 43	0.00		Gray,Clay,Very soft,Silty	CL	30.5			47	21	100.0	100.0	100.0	99.4	99.2	0.08	
21	43 - 44.5		36	Gray,Sand,Dense,Silty	SM												
22	46 - 48	2.00		Reddish brown,Clay,Very stiff,w/sand seams	CH	37.1	84.2	115.4	73	30							
23	48 - 50	2.50		Reddish brown,Clay,Very stiff	CH	29.3											

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q u : Unconfined Compressive Strength, W O H : Weight of hammer, W O P : Weight of pipe

Geotest Engineering, Inc.

PELICAN ISLAND D.A

Galv, TX

Del ord 23

.20 tsf = 200 psf.

qu(tsf) result is given only on the Depth I show

For Design Shear Strength

Boring No	Depth	V/So to So		Med	Stiff to V/Stiff
		V/So (Psf)	So (Psf)	(Psf)	(Psf)
98-185	(TOP 21 16.7)				
EL. 13.7	2'-4'	200			
9.7	6'-8'		340		
3.7	12'-14'		340		
-.3	16'-18'		320		
-4.3	20-22'	210			
98-186	EL. 17.2 (17.2)				
EL. 8.2	8'-10'		400		
2.7	14'-16'			610	
-8.8	25-27'	210			
-12.8	29-31'	150			
-16.8	33-35			450	
18.8	35-37	240			
98-187	(21.1)				
+14'	6'-8'		270		
10'	10'-12'	190			
6'	14'-16'		280		
-1'	22'-24'	250			
98-188	(EL. 18.5)				
15.5'	2'-4'		340		
11.5	6'-8'		270		
7.5'	10-12	100			
3.5'	14-16	210			
-2.5	20-22		260		
-10.5	28-30		320		
-14.5	32-34	170			

PELICAN ISLAND D.A

Galv, TX

Del ord 23

.20 tsf = 200 psf.

qu(tsf) result is given only on the Depth I show

For Design Shear Strength

Boring No	Depth	V/So to So		Med	Stiff to V/Stiff
		V/So (Psf)	So (Psf)	(Psf)	(Psf)
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98-186	EL. 17.2 (17.2)				
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2.7	14'-16'			610	
-8.8	25-27'	210			
-12.8	29-31'	150			
-16.8	33-35			450	
18.8	35-37	240			
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3.5'	14-16	210			
-2.5	20-22		260		
-10.5	28-30		320		
-14.5	32-34	170			