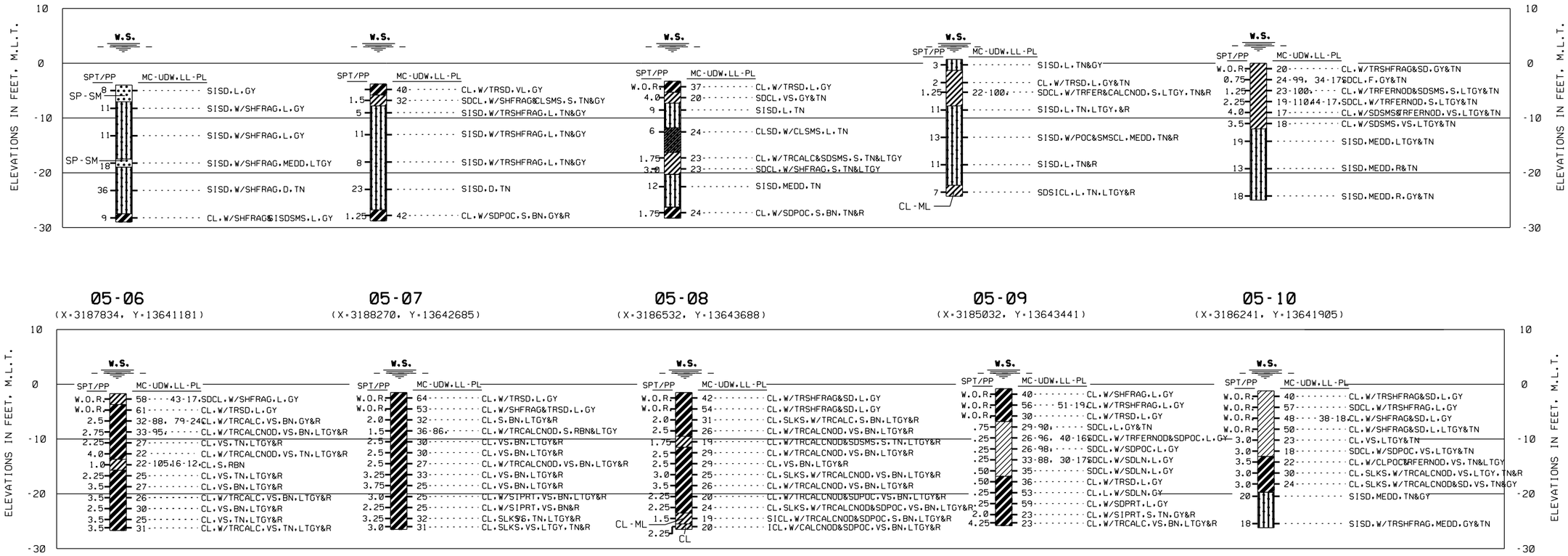


NOTES:

1. SOILS HAVE BEEN CLASSIFIED IN ACCORDANCE WITH ASTM 2487-93 "CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOILS CLASSIFICATION SYSTEM)". CONSISTENCY OF SOILS SUCH AS SOFT, MEDIUM, FIRM, STIFF, LOOSE, DENSE, ETC., ARERELATIVE TERMS BASED ON ESTIMATED UNDISTURBED SHEAR STRENGTH OF THE MATERIAL AS DETERMINED BY VISUAL CLASSIFICATIONS, POCKET PENETROMETER TESTS AND PENETRATION RESISTANCE DURING SAMPLING.

2. NUMBERS TO THE RIGHT OF BORING LOGS ARE WATER CONTENTS IN PERCENT OF THE DRY UNIT WEIGHT, LIQUID LIMIT AND PLASTIC LIMIT (MC-UDW AND LL-PL). FIGURES TO THE LEFT OF BORING LOGS EXPRESSED IN WHOLE NUMBERS REPRESENT THE STANDARD PENETRATION TESTING (SPT) IN BLOWS PER FOOT. FIGURES TO THE LEFT OF BORING LOGS EXPRESSED IN NUMBERS CONTAINING A DECIMAL POINT REPRESENT POCKET PENTROMETER (PP) READINGS TAKEN IN UNITS OF TONS PER SQUARE FOOT.

3. BORINGS WERE DRILLED USING WET ROTARY DRILLING TECHNIQUES AND UNDISTURBED SAMPLES WERE 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, SEASON, AND OTHER ENVIRONMENTAL FACTORS. THEREFORE, SOME VARIATION SHOULD BE ANTICIPATED BETWEEN WATER TABLES INDICATED AND WATER TABLES ENCOUNTERED IN THE FIELD.

5. SOIL BORING ELEVATIONS ARE AS SHOWN ABOVE. SOIL BORING COORDINATES ARE REFERENCED TO THE TEXAS STATE PLANE, SOUTH CENTRAL ZONE, NAD 83, IN FEET.

VISUAL CLASSIFICATIONS:

BL BLACK	NOD NODULES
BN BROWN(ISH)	OL OLIVE
CALC CALCAREOUS	POC POCKET(S)
CL CLAY(EY)	PRT PARTING(S)
D-ODR DISTINCT ODOR	R RED(DISH)
D DENSE	RTS ROOT(S)
DB DEBRIS	S STIFF
DK DARK	SD SAND(Y)
FER FERROUS	SH SHELL(Y)
FL FILL	SI SILT(Y)
FRAG FRAGMENT(S)	SLKS SLICKEN SIDES
F FIRM	SMS SEAMS
GY GRAY(ISH)	SO SOFT
H HARD	TN TAN(NISH)
L LOOSE	TR TRACE(S)
LN LENSE(S)	V VERY
LY LAYER(S)	W WITH
LT LIGHT	W.O.H. WEIGHT OF HAMMER
MAT MATERIAL	W.O.P. WEIGHT OF PIPE
MED MEDIUM	W.O.R. WEIGHT OF ROD
N.REC NO RECOVERY	W.S. WATER SURFACE
	W.T. WATER TABLE

LABORATORY CLASSIFICATIONS:

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.

SC CLAYEY SANDS, SAND-CLAY MIXTURES.

SM SILTY SANDS, SAND-SILT MIXTURES.

SP POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.

INVITATION NO. W912HY-05-B-00

US Army Corps of Engineers
Galveston District

Rev.	Description	Date	By

BY:$USER$ DATE:$DATE$ TIME:$TIME$

Drawn by: D.L.V. Date: AUGUST 2005 Rev. —
Designed by: C.D.T. Scale: AS SHOWN
Checked by: C.D.T.
Submitted by: MOHAMED M. MOUSSA, P.E. Coast. Geotech/Studies Section
Approval Recommended: DAVID B. CAMPBELL, P.E. Chief, Engineering Branch
Approved by: JERRY F. BAUTISTA, P.E. Chief, Engineering and Construction Division

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

PREPARED UNDER THE DIRECTION OF
STEVEN P. HAUSTEN, COL, C.E.,
DISTRICT ENGINEER

GULF INTRACOASTAL WATERWAY, TEXAS
CHOCOLATE BAY
CONSTRUCTION OF BENEFICIAL USE SITES

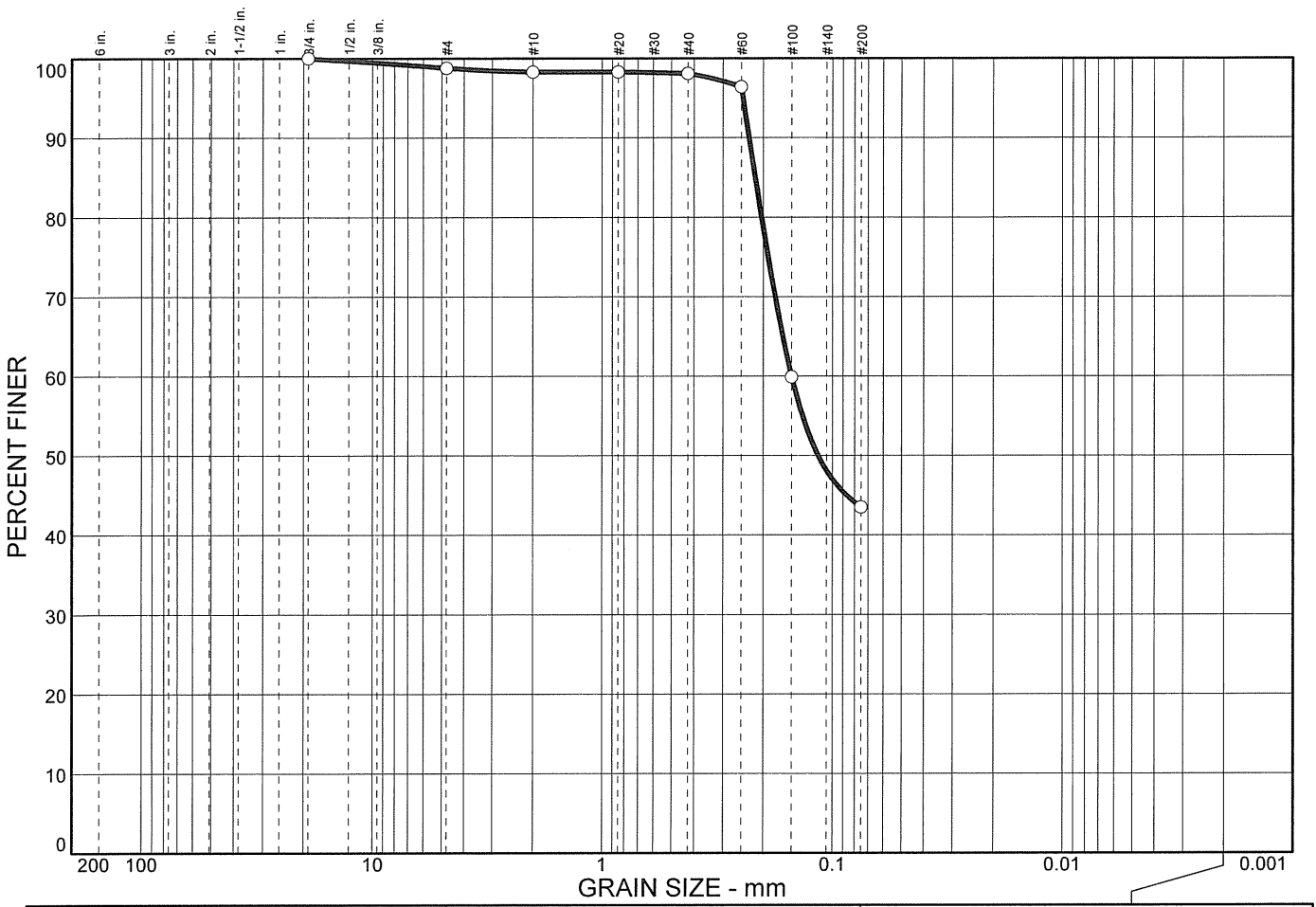
LOGS OF BORINGS

Drawing No.:
F-6
Sheet 7 of 7

File: $FILE$

File No. IWW 1125-127

Particle size Analysis (ASTM D 422)



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	1.2	0.5	0.2	54.6	43.5	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	DESCRIPTION	USCS
○	05-02	4	8.5-10	Tan and gray SILTY SAND; traces of shells	SM

Particle size Analysis (ASTM D 422)

Tolunay-Wong Engineers, Inc.

Client: United States Army Corps of Engineers

Project: Chocolate Bayou, Texas
Contract No: DACW64-03-D-0008; Delivery Order No: 0031

Project No.: 03-859-031

Figure B-3

Project No. 03-859-031 Client: United States Army Corps of Engineers

Project: Chocolate Bayou, Texas; Contract No: DACW64-03-D-0008; Delivery Order No: 0031

Boring No.	Sample No.	Depth (feet)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Uc/UU. Compr. (tsf)	Cell Press. (psi)	Failure Strain (%)	Failure Type
05-01														
	1	0-2	Gray POORLY GRADED SAND with SILT	SP-SM						11.6				
	2	3.5-5	Gray SILTY SAND; traces of shell	SM										
	3	8.5-10	Gray SILTY SAND	SM										
	4	13.5-15	Light gray POORLY GRADED SAND with SILT	SP-SM						9.0				
	5	18.5-20	Tan SILTY SAND	SM										
	6	23.5-25	Gray FAT CLAY; traces of shell and silty sand seams	CH										
05-02														
	1	0-2	Gray FAT CLAY	CH	39.7									
	2	2-4	Gray LEAN CLAY; few shells and fat clay seams	CL	32.4									
	3	4.5-6	Gray and tan SILTY SAND; traces of shells	SM										
	4	8.5-10	Tan and gray SILTY SAND; traces of shells	SM						43.5				
	5	13.5-15	Tan SILTY SAND; traces of shells	SM										
	6	18.5-20	Tan SILTY SAND	SM										
	7	23-25	Brown and gray FAT CLAY; sand pockets	CH	41.8									
05-03														
	1	0-1.5	Gray FAT CLAY with SAND	CH	37.0									
	2	2-4	Gray and tan SANDY LEAN CLAY; fat clay pockets	CL	20.4									
	3	4.5-6	Tan SILTY SAND	SM						20.3				
	4	8.5-10	Tan CLAYEY SAND; fat clay seams	SC	23.5									
	5	13-15	Tan and light gray LEAN CLAY; traces of calcareous and sand seams	CL	23.1									
	6	15-17	Tan and light gray LEAN CLAY; some shells and fat clay pockets	CL	22.7									
	7	18.5-20	Tan SILTY SAND	SM										
	8	23-25	Brown and tan FAT CLAY	CH	23.6									
05-04														
	1	0-1.5	Gray and tan SILTY SAND	SM										
	2	3.5-5	Gray and tan LEAN CLAY	CL						85.3				
	3	5-7	Light gray and tan LEAN CLAY; traces of ferrous and calcareous nodules	CL	22.2	100.3					0.53		6.6	Bulge
	4	8.5-10	Tan and light gray SILTY SAND	SM										
	5	13.5-15	Tan SILTY SAND	SM										
	6	18.5-20	Tan SILTY SAND	SM										
	7	23.5-25	Tan and light gray SANDY SILTY CLAY; fat clay pockets	CL-ML										
05-05														
	1	0-1.5	Gray and tan LEAN CLAY; traces of shells	CL	20.1									
	2	2-4	Gray and tan SANDY LEAN CLAY; bioturbation	CL	23.7	98.8	34	17	17	67.3	0.32	3	6.9	Bulge
	3	4-6	Light gray and tan LEAN CLAY; traces of ferrous nodules and sand seams	CL	22.9	100.2					0.92		15.7	Bulge
	4	6-8	Light gray and tan SANDY LEAN CLAY; traces of ferrous nodules	CL	19.2	109.5	44	17	27	65.3	1.89	5	12.1	Bulge
	5	8-10	Light gray and tan LEAN CLAY with SAND; traces of ferrous	CL	16.7									

Our letters and reports are for the exclusive use of the CLIENT. This document shall not be reproduced, except in full, without our prior written approval.