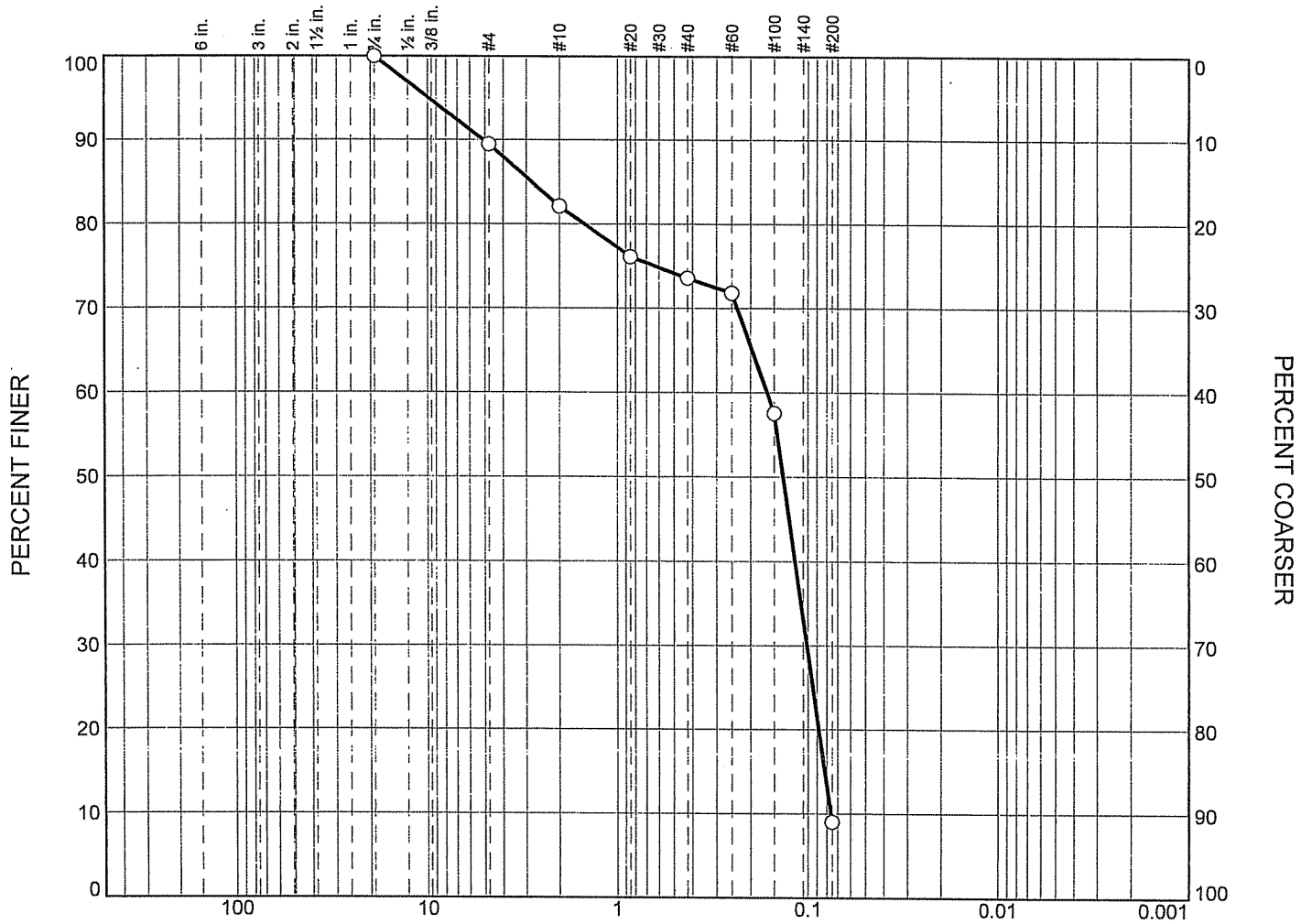


Particle Size Analysis - ASTM D 422



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	10.5	7.4	8.5	64.6	9.0	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-175		1-2	Tan and gray SAND with silt and shells	SP-SM

**Tolunay-Wong
Engineers, Inc.
Houston, Texas**

Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
 Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918

GRAIN SIZE DISTRIBUTION TEST DATA

7/16/2008

Client: United States Army Corps of Engineers
 Project: Galveston Channel and Pelican Island PA
 Contract No. DACW64-03-D-0008, Task Order No. 0077
 Project Number: 08.18.918
 Location: 07-175
 Depth: 1-2
 Material Description: Tan and gray SAND with silt and shells
 USCS: SP-SM
 Material specification: (no specification envelope)

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
290.18	173.87	173.87	3"					
			0.75"	173.87	100.0			
			#4	186.13	89.5			
			#10	194.70	82.1			
			#20	201.66	76.1			
			#40	204.62	73.6			
			#60	206.65	71.8			
			#100	223.27	57.5			
			#200	279.68	9.0			

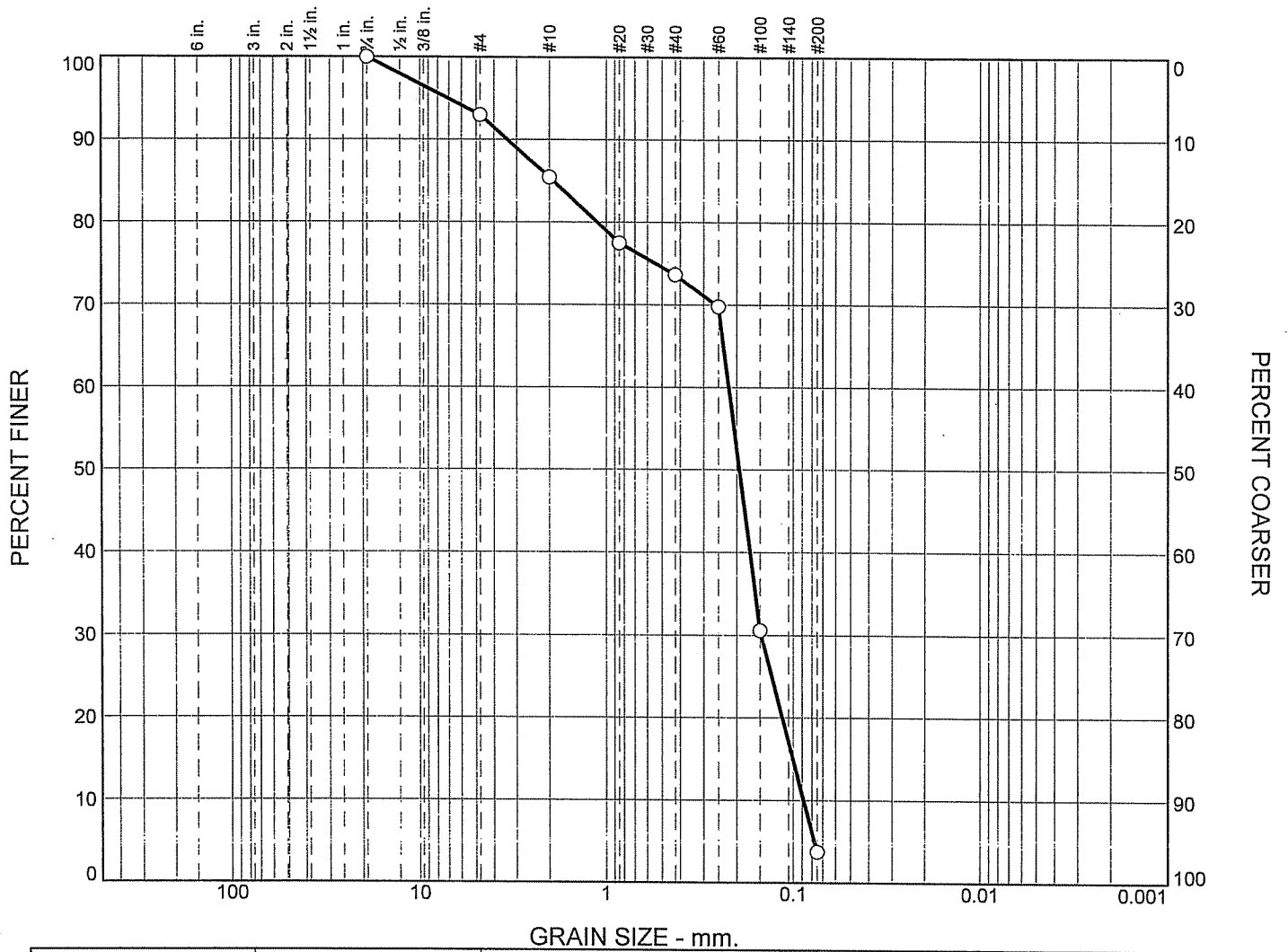
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	10.5	10.5	7.4	8.5	64.6	80.5			9.0

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0760	0.0817	0.0877	0.1012	0.1347	0.1639	1.4831	2.8141	5.1008	9.8575

Fineness Modulus	C _u	C _c
1.49	2.15	0.82

Particle Size Analysis - ASTM D 422



%	+3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	7.0	7.6	11.8	69.8	3.8	

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-175		5-6	Gray SAND with shells	SP

**Tolunay-Wong
Engineers, Inc.
Houston, Texas**

Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
 Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918

GRAIN SIZE DISTRIBUTION TEST DATA

7/16/2008

Client: United States Army Corps of Engineers
 Project: Galveston Channel and Pelican Island PA
 Contract No. DACW64-03-D-0008, Task Order No. 0077
 Project Number: 08.18.918
 Location: 07-175
 Depth: 5-6
 Material Description: Gray SAND with shells
 USCS: SP
 Material specification: (no specification envelope)

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
310.09	193.84	193.84	3"					
			0.75"	193.84	100.0			
			#4	202.00	93.0			
			#10	210.77	85.4			
			#20	220.02	77.5			
			#40	224.50	73.6			
			#60	228.98	69.8			
			#100	274.53	30.6			
			#200	305.71	3.8			

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	7.0	7.0	7.6	11.8	69.8	89.2			3.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0881	0.1003	0.1141	0.1477	0.1932	0.2201	1.1146	1.9083	3.3750	7.0831

Fineness Modulus	C _u	C _c
1.66	2.50	1.13

SUMMARY OF LABORATORY TESTS

Project No. 08.18.918

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Boring No.	Sample No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Lab Vane (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	4	3-4	Gray and brown FAT CLAY	CH	52.7										
	5	4-5	Gray and brown FAT CLAY	CH											
	6	5-6	Gray and brown FAT CLAY	CH	59.7		100	30	70	94.8					
07-171															
	1	0-1	Gray and brown FAT CLAY; organics	CH											
	2	1-2	Gray and brown FAT CLAY with SAND	CH	65.6		100	29	71	70.9					
	3	2-3	Gray and brown FAT CLAY	CH											
	4	3-4	Gray and brown FAT CLAY	CH	53.0		72	25	47	94.2					
	5	4-5	Gray and brown FAT CLAY; silt seams	CH											
	6	5-6	Gray and brown FAT CLAY; silt seams	CH	48.4										
07-174															
	1	0-1	Gray FAT CLAY	CH											
	2	1-2	Gray FAT CLAY; organics	CH	76.9		103	30	73	96.3					
	3	2-3	Gray and brown FAT CLAY	CH											
	4	3-4	Gray and brown FAT CLAY	CH	60.3										
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	51.6		102	31	71	96.1					
07-175															
	1	0-1	Tan POORLY GRADED SAND with SILT; shells fragments	SP-SM											
	2	1-2	Tan and gray POORLY GRADED SAND with SILT; shell fragments	SP-SM						9.0					
	3	2-3	Tan and gray POORLY GRADED SAND with SILT; shell fragments	SP-SM											
	4	3-4	Gray POORLY GRADED SAND with SILT; shell fragments	SP-SM						9.6					
	5	4-5	Gray POORLY GRADED SAND with SILT; shell fragments	SP-SM											
	6	5-6	Gray POORLY GRADED SAND; shell fragments	SP						3.8					
07-176															
	1	0-2	Gray FAT CLAY; sand seams	CH											
	2	2-4	Gray FAT CLAY	CH	50.3		69	22	47	96.3					
	3	4-6	Gray FAT CLAY	CH	55.4	65.4									
	4	6-8	Gray FAT CLAY	CH	69.5		115	28	87	99.7					
	4	8-10	Tan and gray FAT CLAY; calcareous nodules	CH	42.8	85.3									
	5	10-12	Tan and gray FAT CLAY	CH	42.4	69.8									
	6	12-14	Gray FAT CLAY; sand seams	CH	80.8	49.8	120	32	88	87.8		0.18	5.7		Slickensided
	7	14-15.5	Tan SILTY SAND	SM						31.8					
	8	19-20.5	Gray SILTY SAND; shell fragments	SM						15.7					
	9	24-25.5	Gray SILTY SAND; shell fragments	SM						18.3					
	10	29-30.5	Gray SILTY SAND	SM						35.7					

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