

Project No. 03.14.859.41

Client: United States Army Corps of Engineers

Project: Port O' Connor Mooring Buoy Basin; DACW64-03-D-0008; Delivery Order 0041

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
05-36														
	3	8.5-10	Gray and light gray POORLY GRADED SAND	SP	23.2					3.4				
	6	23.5-25	Gray and light gray WELL GRADED SAND with SILT	SW-SM	22.5					10.3				
	8	33.5-35	Reddish-brown and gray LEAN CLAY with SAND; fat clay seams	CL	23.6					82.5				
	9	38-40	Reddish-brown and gray LEAN CLAY with SAND; crushed shells, gravel and silt seams	CL	27.2	98.4	32	20	12	83.2	0.35	35	5.2	Multiple Shear
	13	48-50	Gray and tan FAT CLAY; vertical sand seams and traces of calcareous nodules	CH	24.3		67	25	42	85.7				
05-37														
	2	3.5-5	Light gray and tan POORLY GRADED SAND with SILT	SP-SM	20.8					5.2				
	4	13.5-15	Gray and light gray POORLY GRADED SAND; crushed shells	SP	24.9					4.9				
05-38														
	3	8.5-10	Gray and tan POORLY GRADED SAND	SP	23.9					2.5				
05-39														
	2	3.5-5	Light gray and tan POORLY GRADED SAND	SP	6.2					3.7				
	5	18.5-20	Gray and light gray SILTY SAND; crushed shells	SM	28.2					14.1				
	10	40-42	Reddish-brown and gray LEAN CLAY; sand pockets, traces of ferrous nodules and shells	CL	34.4	91.1	44	23	21	99.2	1.03	35	15.0	Bulge
05-40														
	2	3.5-5	Gray and light gray POORLY GRADED SAND with SILT	SP-SM	24.9					7.6				
05-41														
	3	8.5-10	Gray and light gray POORLY GRADED SAND with SILT	SP-SM	21.5					8.2				
05-42														
	2	3.5-5	Gray and light gray POORLY GRADED SAND	SP	23.4		NV	NP	NP	4.8				
	4	13.5-15	Gray and light gray POORLY GRADED SAND with SILT; crushed shells	SP-SM	23.9					6.4				
05-43														
	2	3.5-5	Light gray and tan POORLY GRADED SAND	SP	27.3					4.3				
	5	18.5-20	Gray and light gray POORLY GRADED SAND with SILT; crushed shells	SP-SM	25.9					10.2				
	7	28.5-30	Gray and brown SANDY LEAN CLAY; crushed shells	CL	34.5		32	19	13	64.3				
	11	42-44	Gray and tan FAT CLAY with SAND; traces of ferrous nodules and few calcareous nodules	CH	23.5	96.7	63	23	40	77.3	1.42	38	5.1	Bulge/Slickenside
05-44														
	2	3.5-5	Light gray and tan POORLY GRADED SAND with SILT	SP-SM	21.7					5.0				
05-45														
	2	3.5-5	Gray and tan POORLY GRADED SAND with SILT; clay seams	SP-SM	24.3					11.9				
	4	13.5-15	Gray and dark gray POORLY GRADED SAND with SILT; crushed shells and clay seams	SP-SM	27.3					11.1				
05-46														

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TOLUNAY-WONG ENGINEERS, INC.



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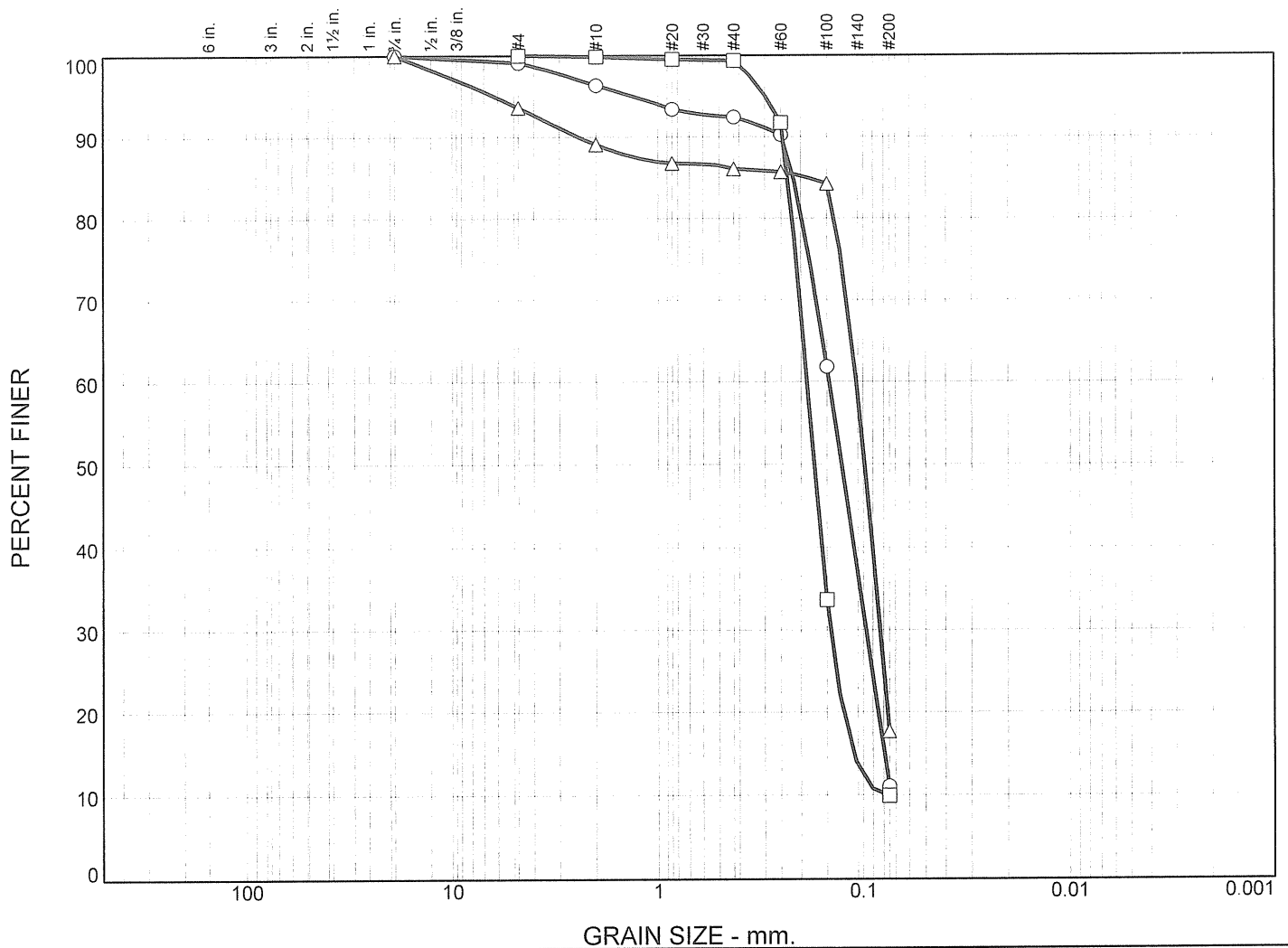
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TOLUNAY-WONG

ENGINEERS, INC.

Particle Size Distribution Report (ASTM D 422)



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.9	2.7	4.0	81.3	11.1	
□	0.0	0.0	0.0	0.2	0.4	89.5	9.9	
△	0.0	0.0	6.4	4.5	3.0	68.4	17.7	

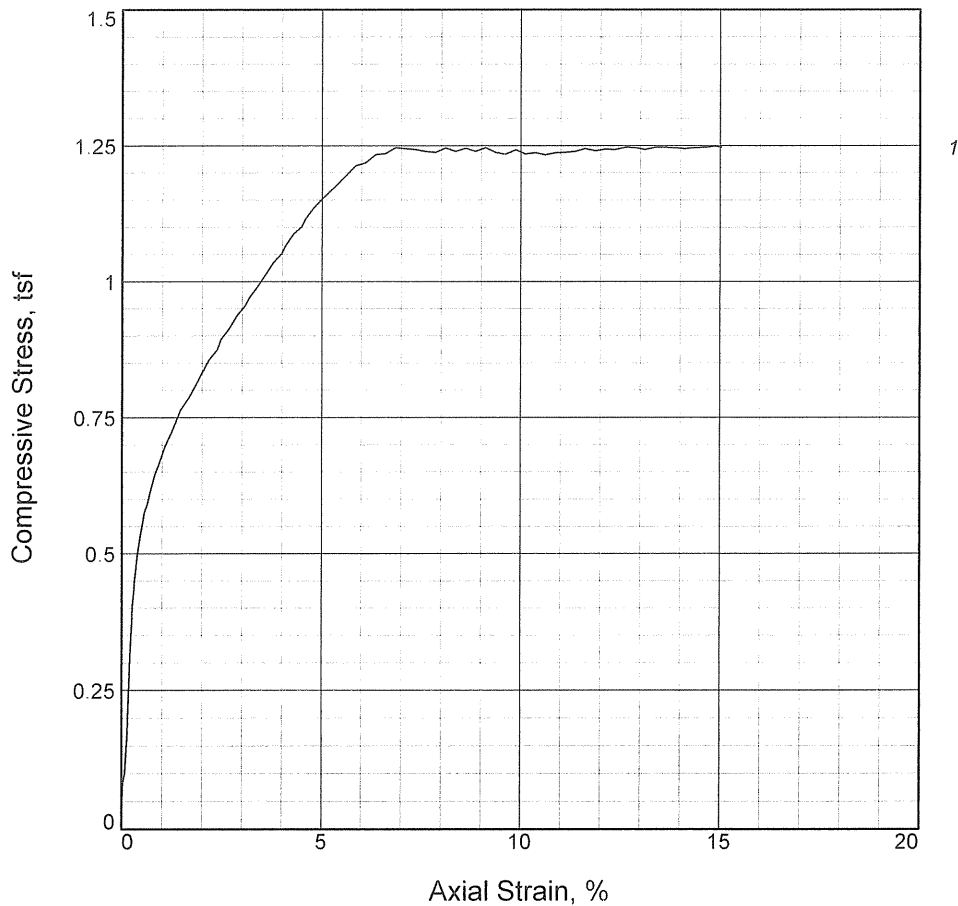
SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	05-45	4	13.5-15	Gray and dark gray POORLY GRADED SAND with SILT; crushed shells and clay seams	SP-SM
□	05-46	2	3.5-5	Gray and light gray POORLY GRADED SAND with SILT ; traces of shell	SP-SM
△	05-46	6	23.5-25	Gray and dark gray SILTY SAND; crushed shell	SM

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

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Figure B-5

UNCONSOLIDATED UNDRAINED TEST



Sample No.	1			
Fail. Stress, tsf	1.247			
Ult. Stress, tsf	1.247			
Cell pressure, psi	38.00			
Strain rate, %/min.	1.00			
Water content, %	26.4			
Wet density, pcf	120.6			
Dry density, pcf	95.4			
Saturation, %	90.8			
Void ratio	0.7992			
Specimen diameter, in.	2.88			
Specimen height, in.	5.69			
Height/diameter ratio	1.98			

Description: Brown FAT CLAY with SAND; few ferrous and calcareous nodules

LL = 50 **PL = 24** **PI = 26** **Assumed GS= 2.75** **Type: Undisturbed**

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Date: 12/16/05

Remarks:

Failure Type: Bulge

Test Method: ASTM D 2850

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Source of Sample: 05-46 **Depth:** 42-44

Sample Number: 11

UNCONSOLIDATED UNDRAINED TEST

Tolunay-Wong Engineers, Inc.