Tolunay-Wong Engineers, Inc.

ASTM D 5084; Falling Head/Rising Tail Method
Constant Volume Apparatus

Project Number: 03-859-13
Project Name: Brownsville Resacas — Date: 7/20/04 — CELL #13
Sample ID: 04-130 (0-1.5') — Tech: RAL
Description: Pocket Pen, Tsf: 1.50 - Firm gray FAT CLAY with traces of calcareous nodules

Before Test

Specimin Data		
Length(in)	2.74	
Diameter(in)	2.11	
Length(cm)	6.96	
Diameter(cm)	5.37	
Specific Gravity	2.75	Assumed
Wet Weight(gm)	288.42	
Area(cm^2)	22.61	
Volume(cc)	157.45	
Moisture Data		
Wet Wt.+Tare(gm)	132.97	
Dry Wt.+Tare(gm)	103.90	
Tare Weight(gm)	30.5	
Moisture(%)	39.60	
Weight/Volume Data		
Wet Weight(pcf)	114.4	
Dry Weight(pcf)	81.9	
Vol.Voids(cc)	82.2	
Void Ratio	1.091	
Saturation(%)	99.8	
Cell(psi)	65	
Backpressure(psi)	60	

After Test

Specimin Data		
Length(in)	2.74	
Diameter(in)	2.12	
Length(cm)	6.97	
Diameter(cm)	5.38	
Wet Weight(gm)	289.92	
Area(cm)	22.72	
Volume(cc)	158.26	
Moisture Data		
Wet Wt. + Tare	30.55	
Dry Wt. + Tare	21.94	
Tare Weight	0.4	
Moisture(%)	39.97	
Weight/Volume Data		
Wet Weight(pcf)	114.4	
Dry Weight(pcf)	81.7	ASTM
Vol.Voids(cc)	83.1	D 4767
Void Ratio	1.106	B COEFF.
Saturation(%)	99.4	0.99
a-in (cm^2)	0.76712	
a-out (cm^2)	0.03142	

BEFORE	
DIA	LENGTH
2.113	2.742
2.111	2.738
2.112	2.744
2.112	2.741
2.114	2.743
2.112	**2.742**
AFTER	
DIA	LENGTH
2.118	2.744
2.117	2.742
2.116	2.739
2.118	2.743
2.119	2.743
2.118	**2.742**

Test Constants	
M1=	0.03018
M2=	1.040953
S=	0.30654
G=	12.542
C=	7.376E-04

Actual Date (mm/dd/yy)	Actual Time (hh:mm:ss)	Elapsed Time (seconds)	Temperature (Fahren.)	Temperature (Cels)	a - in Outflow (mm)	a - out Inflow (mm)	Gradient	Trial Constant T	Hydraulic Conductivity (20C,cm/sec)
7/22/2004	8:28:30 AM	0	78.8	26.0	162	11.06	29.3		
	8:33:01 AM	271	78.8	26.0	161	11.10	29.1	0.06897	1.6E-08
	8:33:01 AM	0	78.8	26.0	161	11.10	29.1		
	8:37:33 AM	272	78.8	26.0	160	11.14	28.9	0.06944	1.6E-08
	8:37:33 AM	0	78.8	26.0	160	11.14	28.9		
	8:42:06 AM	273	78.8	26.0	159	11.18	28.7	0.06993	1.6E-08
	8:42:06 AM	0	78.8	26.0	159	11.18	28.7		
	8:46:40 AM	274	78.8	26.0	158	11.22	28.5	0.07042	1.6E-08

Coefficient of permeability, $k_{20°}$ (cm/sec) 1.6E-08

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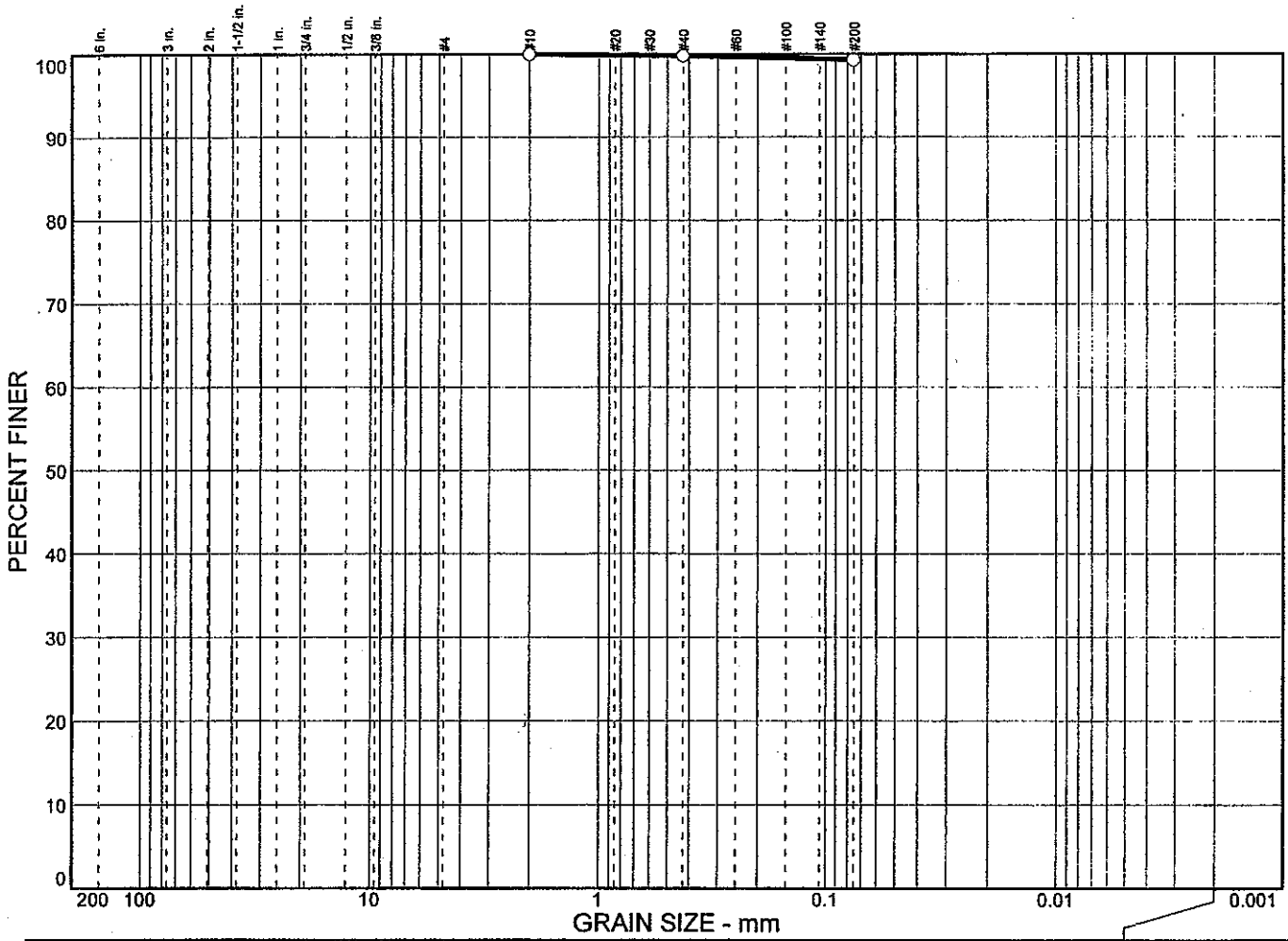
Percent Passing the # 200 Sieve (ASTM D 1140)



	% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	0.0	0.7	99.3	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	DESCRIPTION	USCS
○	04-130		0-1.5	Firm gray FAT CLAY; traces of calcareous nodules	CH

Percent Passing the # 200 Sieve (ASTM D 1140)

Tolunay-Wong Engineers, Inc.

Client: United States Army Corps of Engineers

Project: Brownsville Resacas
Contract: DACW64-03-D-0008: Delivery Order 0013

Project No.: 03-859-0013 **Figure**

Project No. 03-859-0013 Client: United States Army Corps of Engineers

Project: Brownsville Resacas; Contract: DACW64-03-D-0008: Delivery Order 0013

Boring No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)
04-127	0-1	Firm gray FAT CLAY	CH	36.7		79	29	50	98.7
04-128	0-2	Very soft gray FAT CLAY; lean clay seams	CH	76.3		90	33	57	99.1
04-129	0-1.1	Firm gray FAT CLAY with sand	CH	37.5		60	24	36	81.9
04-130	0-1.5	Firm gray FAT CLAY; traces of calcareous nodules	CH	40.6		81	30	51	99.3
04-131	0-1.5	Firm gray FAT CLAY	CH	38.3	81.3	59	30	29	99.5
04-132	0-2.2	Soft gray FAT CLAY	CH	61.6		87	33	54	99.0
04-133	0-1	Firm gray FAT CLAY	CH	36.8		67	28	39	97.8
04-134	0-1	Firm gray FAT CLAY	CH	38.9	83.5	73	28	45	98.5
04-135	0-1.4	Gray and tan SILTY SAND	SM	22.3					18.1
04-136	0.0-0.5	Soft gray LEAN CLAY	CL	78.7		45	24	21	89.7
	0.5-1.5	Tan and gray SILTY SAND	SM	26.4		NV	NP	NP	16.6
	2.5-3.5	Gray SANDY SILT	ML	24.4					67.5
04-137	0-1.1	Firm gray FAT CLAY	CH	44.3	78.6	68	26	42	99.1
04-138	0-1	Gray SILTY SAND	SM	27.1					42.4

Form: COESUM-5

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