



**TIMELY  
ENGINEERING  
SOIL  
TESTS, LLC**

1874 Forge Street Tucker, GA 30084

Phone: 678-612-6534

Fax: 770-923-8973

Web: [www.test-llc.com](http://www.test-llc.com)

Tested By

RI

Date

12/30/05

Checked By

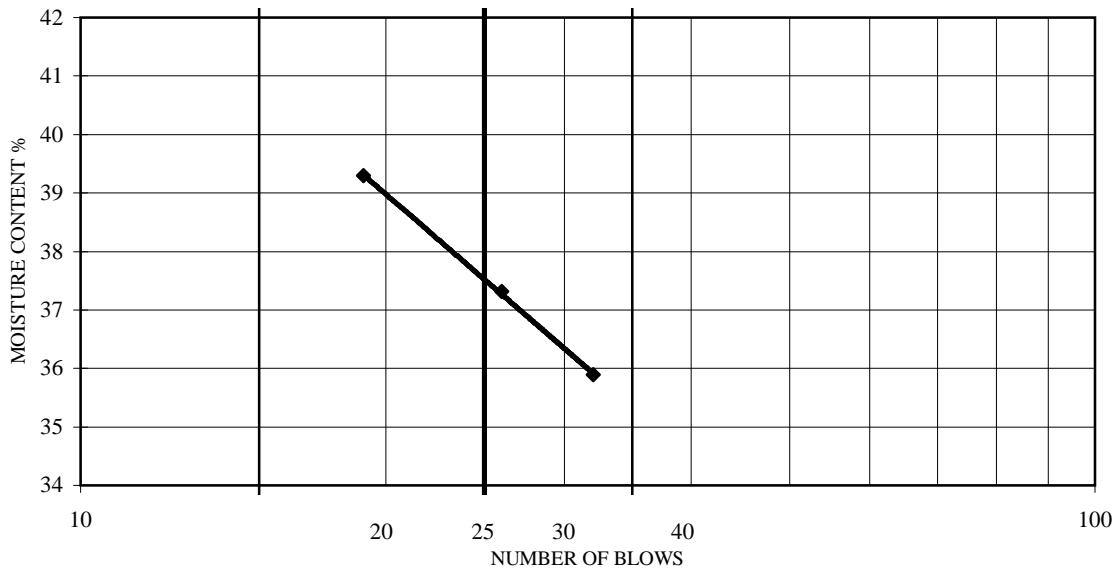
Client Pr. # 1234  
Pr. Name EXAMPLE  
Sample ID 1401/PC-1  
Location -

Lab. PR. # 601-01  
S. Type Bulk  
Depth/Elev. -  
Add. Info -

**ASTM D 4318/AASHTO T 88, T 89  
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)**

	LIQUID LIMIT		
Number of Blows	32	26	19
Mass of Wet Sample & Tare, g	31.67	31.04	33.38
Mass of Dry Sample & Tare, g	28.63	27.82	29.82
Mass of Tare, g	20.16	19.19	20.76
Moisture Content, %	35.89	37.31	39.29

Oven ID # 12/13/14/15  
Balance ID # 2  
Liquid Limit Device ID # 56



	PLASTIC LIMIT	
Mass of Wet Sample & Tare, g	30.26	29.54
Mass of Dry Sample & Tare, g	28.48	27.82
Mass of Tare, g	21.06	20.65
Moisture Content, %	23.99	23.99

PREPARATION PROCEDURE

NOTE: MATERIAL PASSING NO. 40 SIEVE  
WAS USED FOR TEST

	NATURAL MOISTURE
Mass of Wet Sample & Tare, g	517.50
Mass of Dry Sample & Tare, g	471.40
Mass of Tare, g	211.40
Moisture Content, %	17.73

LIQUID LIMIT (LL)   
PLASTIC LIMIT (PL)   
PLASTICITY INDEX (PI)   
LIQUIDITY INDEX (LI)

DESCRIPTION

USCS (ASTM D2487; D2488)

AASHTO (M 145)



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Date	12/26/05
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Client Pr. #	1234	Lab. PR. #	601-01
Pr. Name	EXAMPLE	S. Type	Bulk
Sample ID	1401/PC-1	Depth/Elev.	-
Location	-	Add. Info	-

**ASTM D 422/AASHTO T 88**

**Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)**

<i>As-Received Moisture Content</i>		<i>Moisture Content of Material Used for Hydrometer Analysis</i>	
Mass of Wet Sample & Tare, g	517.50	Mass of Wet Sample & Tare, g	50.89
Mass of Dry Sample & Tare, g	471.40	Mass of Dry Sample & Tare, g	50.36
Mass of Tare, g	211.40	Mass of Tare, g	19.67
Moisture Content, %	17.7	Moisture Content, %	1.7
Mass of Total Sample before separation on #4 sieve & Tare, g	17626.50	Mass of Sample used for hydrometer analysis, g	78.50
Mass of Tare, g	0.00	Dry Mass, g	77.17
Total Mass of Dry Sample, g	17327.27	% of Total Sample passing #4 sieve	85.4

**SIEVE ANALYSIS**

<i>PORTION OF SAMPLE RETAINED ON #4 SIEVE</i>				<i>PORTION OF SAMPLE PASSING #4 SIEVE (Hydrometer Backsieve)</i>				
Mass of Tare, g	0.00							
Sieve Size	Sample & Tare, g	% RETAINED	%PASSING	Sieve Size	Cumulative Mass retained, g	% PASSING		
12"	COBBLES	0.0	100.0	#10	MEDIUM SAND	3.80	81.2	
3"	COARSE GRAVEL	0.0	100.0	#20	SAND	7.40	77.3	
2.5"		0.0	100.0	#40	FINE SAND	10.80	73.5	
2"		0.0	100.0	#60		15.00	68.8	
1.5"		0.00	0.0	100.0		#100	24.90	57.9
1"		243.80	1.4	98.6	#200	FINES	38.50	42.8
.75"		380.40	2.2	97.8	Remarks			
.5"	FINE GRAVEL	683.10	3.9	96.1				
.375"		1100.50	6.4	93.6				
#4	COARSE SAND	2521.90	14.6	85.4				

**HYDROMETER ANALYSIS**

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.700
Specific Gravity (tested)	
Starting time	12:50

**PARTICLE-SIZE ANALYSIS**

% COBBLES	0.0	% MEDIUM SAND	7.8
% COARSE GRAVEL	2.2	% FINE SAND	30.7
% FINE GRAVEL	12.4	% FINES	42.8
% COARSE SAND	4.2	% TOTAL SAMPLE	100.0
% CLAY(<0.005mm)	26.9	% CLAY(<0.002mm)	23.2

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
12/29/2005	12:52	2	39.0	18.5	0.01361	5.0	34.0	10.9	0.99	0.0318	37.3
12/29/2005	12:55	5	36.5	18.5	0.01361	5.0	31.5	11.3	0.99	0.0205	34.5
12/29/2005	13:05	15	34.0	18.5	0.01361	5.0	29.0	11.7	0.99	0.0120	31.8
12/29/2005	13:20	30	32.0	18.5	0.01361	5.0	27.0	12.1	0.99	0.0086	29.6
12/29/2005	13:50	60	30.5	18.5	0.01361	5.0	25.5	12.3	0.99	0.0062	28.0
12/29/2005	17:00	250	28.0	18.5	0.01361	5.0	23.0	12.7	0.99	0.0031	25.2
12/30/2005	12:50	1440	25.0	18.5	0.01361	5.0	20.0	13.2	0.99	0.0013	21.9

Hydrometer 152H ID # 735527  
Sieve Shaker ID # 54

Oven ID # 12/13/14/15  
Balance ID# 1/6/7



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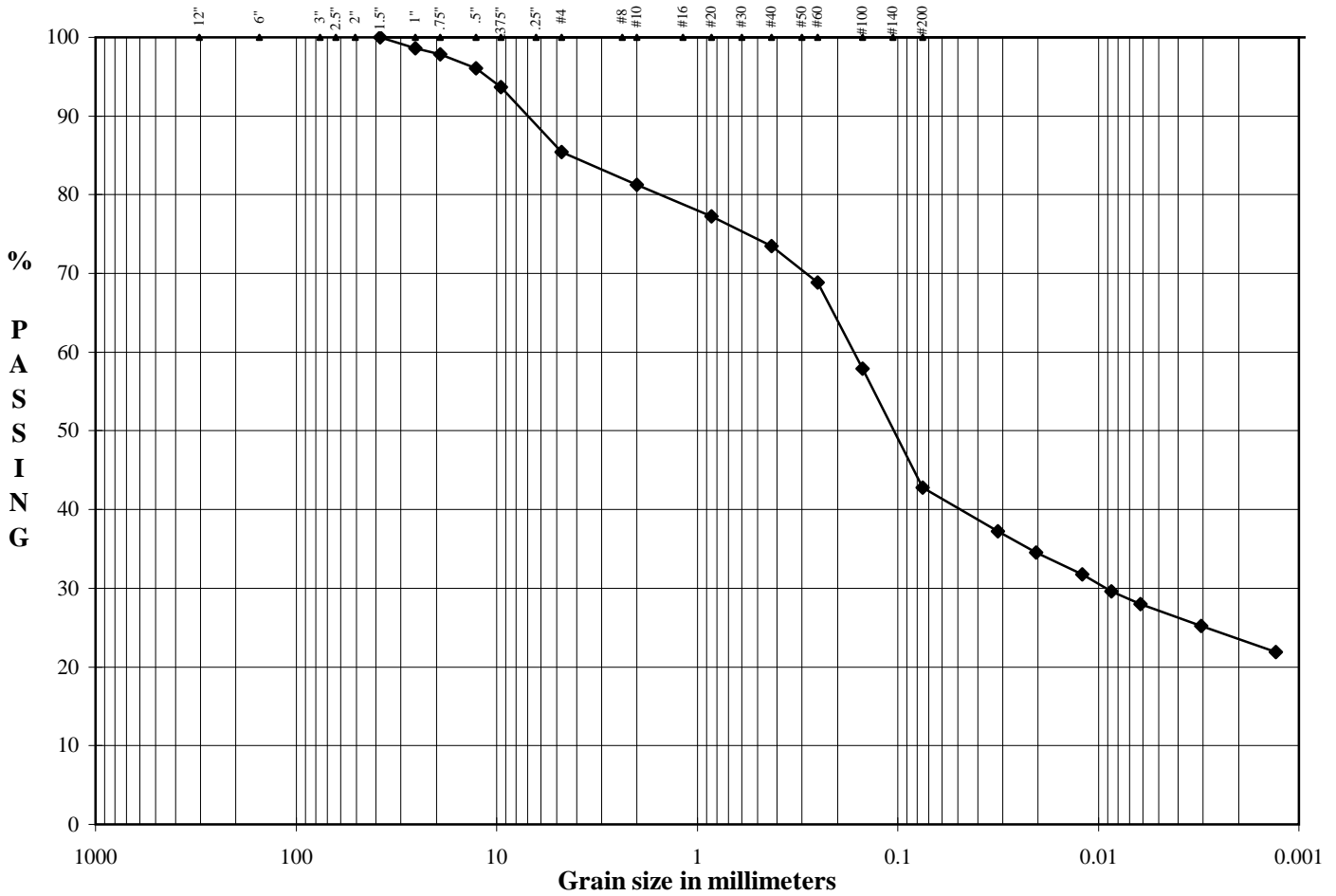
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Pr. Name	EXAMPLE
Sample ID	1401/PC-1
Location	-

Lab. PR. #	601-01
S. Type	Bulk
Depth/Elev.	-
Add. Info	-

**ASTM D 422/AASHTO T 88  
Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)**

### Particle-Size Analysis



Boulders	Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
		Gravel		Sand			

DESCRIPTION NA

D <sub>10</sub>	NA	mm
D <sub>30</sub>	NA	mm
D <sub>60</sub>	NA	mm
Cu	NA	
Cc	NA	

USCS (ASTM D2487; D2488) NA



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Client Pr. #	1234
Pr. Name	EXAMPLE
Sample ID	1401/PC-1
Location	-

Lab. PR. #	601-01
S. Type	Bulk
Depth/Elev.	-
Add. Info	-

**ASTM D 698  
Standard Test Method for Laboratory Compaction Characteristics of Soil Using  
Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600kN-m/m<sup>3</sup>))**

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	20400.0	17327.7
Mass of Mat. Retained on No. 4 sieve, g	252.0	252.0
Mass of Mat. Retained on 3/8" sieve, g	0.0	0.0
Mass of Mat. Retained on 3/4" sieve, g	0.0	0.0
Material Retained on No. 4 Sieve, %	1.5	
Material Retained on 3/8" Sieve, %	0.0	
Material Retained on 3/4" Sieve, %	0.0	
Total, % (oversized)	1.5	

MOISTURE CONTENT

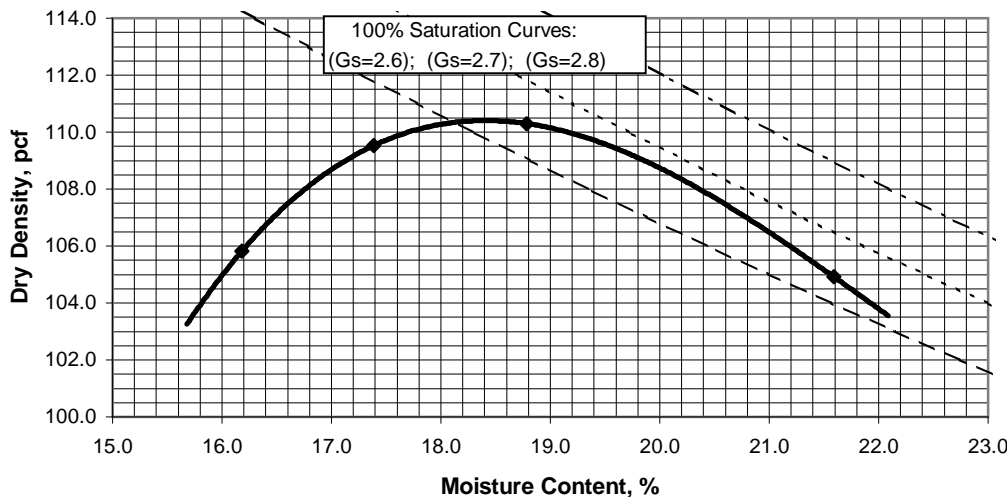
	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	517.5	252.0
Mass of Dry Sample & Tare, g	471.4	252.0
Mass of Tare, g	211.4	0.0
Moisture Content, %	17.7	0.0

Procedure A

TEST DATA

Points	1	2	3	4	5	Mold ID Number	18
Mass of Mold and Soil, g	5806.0	5891.0	5928.0	5876.0		Mass of Mold, g	3949.0
Mass of Wet Sample & Tare, g	968.0	1033.9	1165.4	746.6		Volume of Mold, ft <sup>3</sup>	0.0333
Mass of Dry Sample & Tare, g	853.6	903.9	1005.5	641.5		Hammer ID Number	20
Mass of Tare, g	146.6	156.1	154.2	154.7		Number of Blows per layer	25
Moisture Content, %	16.2	17.4	18.8	21.6		Number of Layers	3
Wet Density, pcf	122.9	128.6	131.0	127.6			
Dry Density, pcf	105.8	109.5	110.3	104.9			

**Moisture vs. Dry Density**



Method A: Material retained on No. 4  $\leq$  20%  
 Method B: Material retained on No. 4 > 20% and material retained on 3/8"  $\leq$  20%  
 Method C: Material retained on 3/8" > 20% and material retained on 3/4" < 30%

REMARKS

DESCRIPTION

NA

USCS (ASTM D2487; D2488)

NA

Maximum Dry Density, pcf	110.4
Optimum Moisture Content, %	18.4